



**Improving  
Health Policy  
through Research**  
A Selection of Articles  
by Revital Gross

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We are grateful to Dr. Rachel Adatto, Prof. Gabi Bin Nun, Prof. Larissa Remennick, Prof. Gary Freed, Prof. Hava Tabenkin, Prof. Gary Rosenberg, Ms. Cathy Schoen, and Ms. Sophia Schlette for agreeing to the editors' request to write introductions and afterwords for the various chapters. In so doing, they illuminated the importance of Revital's scientific work and her uniqueness as an original researcher in the field of healthcare, as well as other of her qualities that inspired her many colleagues to work with her in fruitful cooperation.

We are grateful to the publishers of the journals in which the articles first appeared, and to all the authors of the articles, for their kind permission to reprint the articles in this memorial volume. We would like to express our appreciation to the Myers-JDC-Brookdale Institute, where Revital was part of the senior research staff for more than two decades and to Bar Ilan University, her academic home, for their financial assistance in the publishing of the book.

Special thanks are due to Ms. Jenny Rosenfeld, director of the Publications Unit at the Myers-JDC-Brookdale Institute, a close friend of Revital's, for the extensive work she invested in editing and preparing the book for publication, which she carried out with great professionalism and devotion out of her great love for Revital. Finally, we would like to thank Shlomi Amsalem of Studio Aleph for the book's professional production.



## **Preface**

This book is dedicated to the memory of Prof. Revital Gross, who passed away in June 2011 at the age of 58. Revital was one of the leading researchers in Israel in the area of health services and health policy and her untimely death was a shock to all and a great loss to the national and international research community in these areas. This publication includes a carefully selected set of articles out of a great wealth of articles, books and research reports that she wrote in her various areas of expertise.

Revital believed that it is important to tighten the links between quality research and policy development processes, and in this way contribute to improving health and social systems. An outstanding feature of her work was the combination of academic studies, contributing to the theoretical-professional sphere, and applied research, affecting policymaking in Israel. The applied aspect was reflected in her work of many years as a senior researcher at the Myers-JDC-Brookdale Institute. Her research addressed central health policy issues in Israel, was broadly distributed in the system and had a significant impact on policymakers. Many were pioneering studies that provided for the first time a comprehensive data base at the national level.

Her academic side was reflected, inter alia, in her work as a faculty member at the School of Social Work and the Department of Management at Bar Ilan University. In her supervision of students for MA theses and doctoral dissertations and in her courses on research methods and evaluation of health and welfare programs, she combined theoretical concepts with practical implications. The association between social research and social policy and the reciprocal relations between researchers and decision makers, which Revital emphasized, were relevant to students involved in programs at all levels – national, local or a single agency. She was a brilliant and riveting lecturer, and had the ability to present complex material to any audience, in a simple manner.

Due to the outstanding academic level, creativity and originality of her scientific research, her studies were published in leading international and Israeli journals. This collection of articles is therefore not merely a book of remembrance for the many people who loved Revital – family, friends, colleagues and students – but also a valuable contribution to all those interested in this area of research – both in Israel and in the international community.

Revital's unique contribution to her professional area of expertise is evident in a number of spheres, including:

- Applying concepts and theories from the area of the sociology of organizations and public administration to health services research. This unique perspective provided Revital with a creative and innovative approach to research questions addressing health services.
- Using a broad range of methodologies, including surveys, analysis of medical and administrative databases, document analysis and qualitative in-depth interviews. Combining qualitative and quantitative methodologies allowed for an investigation of a broad range of research questions with a comprehensive approach.
- Conducting studies that had both theoretical and practical value, such that the study findings supported not only the expansion of academic knowledge but also contributed to the improvement of health services and policy-setting processes.
- Conducting studies that examined health policy issues from multiple perspectives: policymakers, medical, and public health professionals and patients.

Revital's expertise was recognized both in Israel and abroad, and she enjoyed an international standing as one of the leading researchers in healthcare policy. She was invited as a guest lecturer to many international conferences and workshops alongside distinguished lecturers from the world's most prestigious universities.

As we began working on this book, we had the monumental task of sifting through the scores of articles that Revital, along with numerous distinguished co-authors, had published in some of the best scientific journals. We chose to concentrate on four main categories in which she had been a pioneering researcher: reforms of the health system and evaluation studies in this area; primary care; the health of women; and psychosocial factors, health and well-being. Each section is prefaced by a short introduction by a leading Israeli scholar, highlighting how the articles contributed to Israeli health care and health policy development. The sections are concluded with an afterword by eminent scholars from abroad, addressing the international and academic contributions of the articles in each section. The book also includes a comprehensive list of Revital's published articles.

We would like to take this opportunity to thank all those who contributed to the book and assisted us in its production. We sincerely thank the journals and their publishers for their kind permission to reprint the articles. We thank the articles' co-authors for their permission to reprint and for their warm words and support. Finally, we thank our esteemed colleagues in Israel and abroad who generously contributed of their time and took on the task of studying the articles and writing the introductions and the afterwords to the four sections.

It is our belief that collecting these papers under one cover will serve as a valuable resource for researchers, academics, students, professionals and policymakers. For ourselves and others who knew Revital and miss her daily, we hope that this book will contribute in some small way to our ability to continue to feel her presence and to benefit from her wisdom.

### *The editors*

*Jenny Rosenfeld   Shifra Shwarts   Varda Soskolne   Bruce Rosen*



## **Revital (Tali) Gross – Portrait**

Tali, known as Revital to colleagues and students, was born in Tel Aviv in 1953, the first child of Hava and Yaakov Nitzan.

When she was five, her father was sent to the U.S. by the Ministry of Foreign Affairs where the family lived for three years. During this time her sister, Tami, was born. After returning to Israel, Tali retained the English she had learned there by continuing to read English books, which later proved to be very useful in her professional life. The family moved to Jerusalem where she attended the Henrietta Szold Elementary School and the Hebrew University High School, and was very active as both a member and counselor in the Modi'in Troop of the Israel Scouts.

In the early 1970s after high school, she was mobilized into the Israel Defense Forces, serving in the 7th Armored Brigade, Regiment 77 as a Non-Commissioned Officer for soldiers' welfare and chief clerk at the Regiment Adjutancy. She found her army service enjoyable and challenging, always looking back on it as a marvelous period, in her words.

Towards the end of 1971, while visiting regiment soldiers on the banks of the Suez Canal, she met Ephraim, a platoon tank commander. They were married in 1974 and produced three sons: Asaf, in 1977; Yoav, in 1980 and Oded, in 1985.

Tali did her BA in Sociology and Statistics at the Hebrew University, Jerusalem, graduating cum laude in 1976.

From 1978 to 1988 she worked part-time as a research-budget coordinator at the R&D Authority of the Hebrew University, so that she could be home in the afternoon with her children.

As part of her work, she took a course for radio editors in 1983, editing a number of impressive programs. The Broadcasting Corporation however was strapped for funds and unable to employ her. She thus returned to academic studies and, ultimately, pursued an academic career.

She did her MA in Public Administration at the Hebrew University from 1986, graduating magna cum laude in 1988. Shortly thereafter, she joined the Brookdale Institute in the field of health policy research, working there until the end of 2010 – some 22 years in which she embarked on her research path and matured professionally. Simultaneously with her work at Brookdale, she completed her doctorate on “Organizational Adaptation to a Changing Environment: Responses of Israeli Sick Funds to the National Health Insurance Law.” After receiving her doctorate, in 2000 she joined the Louis and Gabi Weisfeld School of Social Work at Bar Ilan University as a senior lecturer. In 2003 she became an associate professor, and in 2010, she joined the Department of Management as well, working at the university fulltime. The procedural steps towards granting her a full professorship were completed a few days before she passed away. This process too was cut off by her death.

Apart from her professional life, Tali led a rich family life. She was a wonderful spouse, loving and beloved, and a true life partner. A loving, devoted and protective mother, a sister that was also a best friend, a devoted daughter and, towards the end of her life, also a loving grandmother to Neta. She worked to ensure closeness of the nuclear and extended families – for years we would celebrate Sabbath eve, holidays and family vacations in extended form. In all these, Tali was the living spirit, totally dedicated to family. Tali was very inquisitive, she organized cultural and recreational activities; she loved film, theater, music performances and especially, visits to museums of modern art; she relished outings with Ephraim, as well as the boys, and travels to numerous sites in Israel and abroad.

Tali was diagnosed with cancer at the end of 2009 and spent time in the U.S. for surgery and supplementary treatment. In this period, she combined her medical treatment with a good deal of travel in the U.S., performances of dance, song and jazz, and a lot of walking on the streets of Manhattan.

Shortly after her return from the U.S., her first grandchild was born, Neta, daughter to Asaf and Shuli. Words cannot describe her great joy at

becoming a grandmother. She missed no opportunity to spend time with Neta, care for her, and shower her with love. When her illness resurfaced, she asked to postpone chemotherapy until after the academic school year so as not to harm her students. In fact, she continued to lecture regularly until the very last week of classes when she was hospitalized, and passed away 10 days later. It was very important to her that her teaching not suffer and she did everything in her power to this end. It was also important to her that she be treated as a healthy woman, until the last possible moment.

She was not in the habit of speaking of her professional work and academic achievements with family or close friends. Nor were her many lectures at conferences and before policymakers a topic of conversation with those close to her. This book sheds light on her important, wide-ranging work in promoting and developing health policy in Israel and will allow family, friends, colleagues and students to learn of and from her scholarly work. We hope that the book will also keep alive her memory as a lecturer and tutor of graduate students. She loved her work with the students and they, in turn, appreciated the efforts she invested in them.

Tali passed away at the age of 58, young, prematurely, and in her prime. She was like the sun that lit up our world for 58 years; everyone basked in her light, warmth and love according to how close they were to her and the amount of time they spent with her. This sun has set, and only memories remain. Tali was the heart of the family, noble, energetic and modest. It was our great privilege to live with her, love her and be loved by her.

May she rest in peace,

*The Family*



**Part I:**

**The Reform of  
the Health System  
and its Evaluation**



## Introduction

*Gabi Bin Nun*

I remember my first meeting with Revital as if it were yesterday. As part of her learning process in her early days at the JDC-Brookdale Institute (1989), she visited the Ministry of Health to familiarize herself with the health care system. Groping her way through the maze, she tried to make initial connections between her prior knowledge from the field of sociology and the concepts and values of the health system, which then were like a foreign language to her.

Chance had it that Revital joined the health system in an exciting period: the Netanyahu Committee had recently started its work on examining and streamlining the health system and the air buzzed with ideas of reform. There was a hunger for change supported by academic analysis from research on health services and health policy – a highly underdeveloped field in Israel at the time.

The process of changing and reforming the health system climaxed in the legislation of the National Health Insurance Law (NHIL). The publication surrounding it, which began in 1995 with Revital's study of *Public opinion on the level of service and performance of the healthcare system*, continues to this day. This biennial study well illustrates Revital's scholarly areas of activity and the quality of her work. It presents trends over time from the aspect of satisfaction with health-plan services, and in other key dimensions of the public's experience such as: availability, waiting time, state of health, mental distress, burden of health payments and so forth. To this day, it furnishes ongoing data helpful to health-plan managers, government policymakers, and academic scholars in monitoring numerous measures of performance of healthcare services.

The set of publications appearing in this chapter is only part of a long series of Revital's publications monitoring the implementation of the NHIL. To scan the list is to learn of Revital's unique approach, applying concepts and theories from her academic specialty (the Sociology of Organizations and

Public Administration) to the research field of health services and the analysis of reform of the healthcare system.

The first two articles in this section – *Implementing health care reform in Israel: Organizational response to perceived incentives* and *Implementing managed competition in Israel* concern the extent to which the financial incentives structured into the NHIL (the main one being the capitation formula for distributing funds among the health plans) did in fact lead to change in the behavior of the health plans. In both articles, there is an attempt to learn from the implementation of the reform in Israel lessons that could be applied to the practice of implementing “managed competition” in healthcare systems around the world. These topics and additional aspects of the implementation of the reform, three years after its introduction, are also presented in the fifth article in this section of the book.

In the third article in this section, *The reform of the Israeli health care system: A comparison between elderly and young consumers one year and three years after its implementation* Revital specifically examined the impact of changing the formula of allocations and sources included in the NHI law on services to the young versus the elderly.

In the fourth article, *Responses of Israeli HMOs to environmental change following the National Health Insurance law: Opening the black box* the study examines the implementation and impact of the managed competition at the basis of the NHI reform. The article contributes theoretical insights into the response of the health plans to the changes created by the law in the competitive institutional environment. It sheds light on the way that the interaction of the organization’s history, choice of managers, and environmental constraints generate variation in organizational reactions to changes in the environment.

The sixth article, *Evaluating the effect of regulatory prohibitions against risk selection by health status on supplemental insurance ownership in Israel*, deals with the topic of supplementary insurance in Israel. Revital wrote considerably on this topic, both alone and with colleagues. As the coverage of these insurances expanded, the research fields she dealt with deepened.

Finally, the last article, *A Consumer Based Tool for Evaluating the Quality of Health Services in the Israeli Health Care System Following Reform*, discusses an issue preoccupying many countries today: how can achievements of healthcare systems be improved given that health budgets are limited? The article presents the Israeli experience and the measures used by the healthcare system to examine its achievements.

As is evident from the list of articles in this chapter, Revital quickly settled into the research field on health services and health policy, finding it a fertile area for investigation. She clearly succeeded in integrating concepts and theories from her field of knowledge of sociology and public administration into the research on health services. The main questions she chose to deal with included topics related to private health insurance, equality and gaps, comparative international reforms of healthcare systems, primary-care services and the work of primary physicians, and the experience of service consumers with the focus on more vulnerable populations as may be seen from the other chapters.

It is noteworthy that beyond her scholarly achievements in publishing widely, her research also contributed significantly to the formulation of a long list of policy decisions in Israel's healthcare system. Thus, for instance: her studies on the burden of co-payment for health services, on the desirable degree of state involvement in the branch of private insurance sector, and on the right blend of competition and regulation in Israel's healthcare system, all had a substantial impact on national health policy.

Over the years, Revital carved out a central place in the research field of healthcare services and healthcare policy research. There was hardly a conference, workshop or seminar in Israel without her participation, whether in organizing the conference, or in presenting an enlightening study and an erudite talk. It was only a matter of time before her scholarly work was to earn her international recognition too, and as the Israeli partner, she joined several cross-national efforts to monitor the implementation of reform in the health systems such as Holland, Germany, Britain and the U.S. from a comparative perspective.

Her unique contribution to the field of health services research and health policy found expression on a number of major planes: she was a pioneer in the use of surveys and in-depth interviews, the analysis of medical and administrative databases, and the integration of quantitative and qualitative approaches. Many of her studies had applied added value so that her findings contributed both to academic knowledge and to improving the quality of decisions of healthcare policymakers. Lastly, many of the research areas she chose to deal with discussed issues of health policy from the perspective of service consumers.

I remember also my last meeting with Revital as if it were yesterday. We spoke mainly of the experience of patients in the healthcare system and the attitude of service providers to them. We spoke of the paternalistic behavior typical of healthcare service providers and of unflattering situations detrimental to a patient's rights and dignity. Revital had just returned from a series of treatments in the U.S., brimming with optimism and vitality, and she brought to the meeting (which transpired to be our last) her experience as a patient both in Israel and abroad. As usual, she infected us with the enthusiasm to advance research on the seam line between caregiver and patient in the Israeli system – where, in her view, there was a great deal of room for improvement.

And if there is any one topic that can be seen as Revital's legacy regarding further work in the research field of health services and health policy – it is that.

# **Implementing Health Care Reform in Israel: Organizational Response to Perceived Incentives**

Revital Gross

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# Implementing Health Care Reform in Israel: Organizational Response to Perceived Incentives

**Revital Gross**

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**Abstract** Devising new incentives was a main element of health care reform in Israel, which created a regulated market that embodies many principles of managed competition. This study examined sick fund directors' perceptions of the new incentives and their strategic responses to these incentives, enabling the testing of how managed competition works in practice. The methodology used was a multiple case study of Israel's four sick funds. Data were gathered through in-depth interviews with 160 senior officials, analysis of national health insurance legislation, and analysis of published and unpublished archival documents, newspaper articles, public statements of senior managers, and other published data on the sick funds' behavior. The study revealed discrepancies between planned and perceived incentives and highlighted the effect of the latter on strategy formulation. Analysis of sick fund strategies showed that their responses to managed competition incentives deviated from theoretical expectations, compromising some of the objectives of the reform. The study also shows that contextual features account for the specific model of managed competition that was implemented and for the specific strategies employed by the sick funds. The study concludes by highlighting the need to build a process that will enable policy makers to consider local contextual factors when planning and implementing reform, involving health care providers in designing incentives, continuously monitoring processes and outcomes in the reformed system, and allowing for flexibility in policy making.

This article is based on data gathered in the framework of the author's Ph.D. dissertation (Gross 1999). The work was carried out under the supervision of Michael Harrison of the Department of Sociology and Anthropology, Bar-Ilan University. I am grateful to Professor Harrison for his professional guidance and devoted supervision of my dissertation, to the many senior managers who agreed to be interviewed and made my study possible, to the anonymous reviewers for their valuable comments, and to Marsha Weinstein for her deft and knowledgeable editing of this article.

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### **Health Care Reform: The Significance of Perceived Incentives**

Changing incentives is a main element of health care reform in many countries (Houseman and LeGrand 1999; Brown and Amelung 1999; Tuohy 1999). The underlying assumption is that people and organizations that provide health care (e.g., hospitals, sick funds, physicians) will respond to the new incentives in a way that is compatible with the intentions of those who planned the reform. Theoretically, this assumption is related to the perception of organizations as open systems that are influenced by their environment and whose success depends on their ability to adapt to environmental change (Harrison 1994; Morgan 1986: 44–55; Pfeffer and Salancik 1978). Therefore, when faced with changes in their environment, organizations will change their internal operations as well as their strategies (Thompson 1967; Child 1972) in order to survive and more effectively achieve their goals. The conclusion arising from this perspective of organizations is best articulated by Jeffrey Pfeffer and Gerald Salancik (1978: 278): “Organizational behavior is determined through the design of organizational environments. The focus for attempts to change organizations, it would appear, should be the context of the organizations. By changing the context, the behavior of the organizations can be changed.”

However, theories of organizational behavior have also noted that the environment is not an objective entity but rather is “enacted” (Weick 1979), in the sense that it is perceived subjectively by organizations. Although the objective environment determines the effectiveness of organizational strategies, the enacted environment appears to be a better predictor of strategy choice (Starbuck 1982; Miles 1980: 285). Therefore, it is reasonable to assume that the effects of incentives (i.e., the organizational actions they produce) will also be dependent on how the incentives are perceived by organization directors. It follows that incentives may prove to be ineffective or countereffective if organizations respond to them differently than anticipated or intended by policy makers.

Analysis of health care reform has concentrated to date on the elements of reform and their anticipated effect on the system (Saltman and Figueras 1997; Van de Ven 1996), decision making and the political processes leading to reform (Geva-May and Maslove 2000; Chernichovsky and Chinitz 1995; Chinitz 1995), analysis of the outcomes of reform (i.e., the effect of reform on system finances, on the quality of care, etc.; Batista et al. 1994; Henke, Murray, and Ade 1994; Porath and Lev 1995), and providers’

responses to reform (Harrison 1995; Hellinger 1996; Kwon 1996; Cook et al. 1983; Shortell, Morrison, and Friedman 1992; Gay-Greer et al. 1989). An important but rather neglected issue is that of health care providers' perception of the new incentives embodied in health care reform and the effect their perception of these incentives has on their choice of strategy.

Health care reform in Israel, implemented in January 1995 with the enactment of the National Health Insurance Law, created a regulated market that embodies many of the principles of managed competition, as outlined by Alain Enthoven (1993). These principles aim to overcome some major market failures in health care, such as cream skimming by insurers and a lack of information, which hinders informed consumer choice. However, the Israeli reform went beyond establishing a foundation for fair competition among insurers: the National Health Insurance Law also established regulations that increase centralized control of health care expenditures and limit sick fund autonomy (Gross and Harrison 2001).

Implementation of the national health insurance reform provided a unique opportunity to examine the sick funds' perceptions of the new incentives, as well as their strategic responses to these incentives. This enabled us to test how managed competition works in practice.

The objectives of this article are to analyze the incentives planned as part of the reform of the Israeli health system; analyze the sick funds' perception of these incentives, following enactment of the reform; examine the sick funds' strategic responses to the reform, in light of their perception of the new incentives; and discuss the policy implications for implementing managed competition and designing health care reform.

The strategies chosen by the sick funds in response to the incentives embodied in the National Health Insurance Law will have a decisive effect on the future of the health care system: They may ensure the law's success in achieving its desired objectives; they may perpetuate undesirable practices, such as cream skimming and accumulation of debt; or they may lead to new, equally unwanted outcomes, such as a decline in services or an increase in the financial burden on the public. Analysis of the sick funds' perception of and response to the new incentives is thus imperative to an evaluation of the new policy and to the improvement of policy formulation in the future. This analysis also contributes to better understanding of the managed competition model by examining not only outcomes of implementing that model, but also perceptions of the incentives inherent in the model and the ensuing strategies leading to these outcomes.

## Methods

The methodology of this study was a multiple case study design, examining the four Israeli sick funds following introduction of the National Health Insurance Law. This is an accepted methodology in studies of organizational perceptions and behavior (Pettigrew, Ferlie, and McKee 1992; Yin 1984; Van Maanen 1979; Mintzberg 1979). The case study methodology is appropriate when addressing questions of how and why about a contemporary set of events, when relevant behaviors cannot be manipulated. The advantage of the case study approach under these circumstances is that it “allows an investigation to retain the holistic and meaningful characteristics of real-life events” (Yin 1984: 14), thus facilitating our understanding of complex social phenomena. Multiple-case designs are stronger than single-case designs, since they allow for replication and investigation of processes under different conditions, thereby reinforcing conclusions (Yin 1984).

The study data were collected during 1995–1996 using qualitative methods and employing multiple study tools. This facilitated the aggregation of comprehensive information and the validation of that information from various sources (*ibid.*). Sources of data included semi-structured, in-depth interviews with 160 senior officials employed by the sick funds and related organizations, which were conducted at the end of 1996; analysis of national health insurance legislation; analysis of published and unpublished archival documents and newspaper reports; analysis of statements by senior managers at conferences and government committee hearings; and the use of relevant findings from other studies of Israeli sick funds. In order to ensure the quality of the data, triangulation of the information received from these sources was conducted (Jick 1979). The data were analyzed by classifying and categorizing repeat patterns, trends, and conceptual categories (Miles and Huberman 1994; Patton 1987; Lincoln and Guba 1985; Yin 1984).

## Background

### The Structure and Historical Development of the Health Care System Prior to Reform

The roots of the institutional structure of the State of Israel and its health system can be traced to the period preceding independence, achieved in 1948. During the British Mandate, the Jewish community was semi-autonomous and provided its members with basic education, welfare,

employment, land development, and health care services. The provision of health care services was viewed by the Jewish political parties as an essential channel for gaining influence over the community. It was then that a tradition of politically linked sick funds began (Shuval 1991; Gross and Anson 2002).<sup>1</sup>

Israel's Ministry of Health also has roots in the prestate period. Having taken over the role of the British Mandatory Department of Health, it continued that department's pattern of combining administration and coordination with responsibility for delivering health care services and running hospitals. This dual function was strengthened during the state's initial years (1948–1953), when mass immigration compelled it to meet the urgent health care needs of a quickly growing population (Shuval 1991; Gross and Anson 2002).

Today, the Israeli health care system is dominated by four private, non-profit sick funds and by the Ministry of Health and the Ministry of Finance. The sick funds resemble health maintenance organizations in the United States. Services are delivered at the sick funds' own facilities or through contracted providers. Clalit Health Services, the largest of the four sick funds, dominated the sick fund market until the mid-1980s (it held 86.2 percent of the market in 1984). Since then, Clalit's market share has consistently declined, while the shares of the three smaller sick funds have increased. Nevertheless, on the eve of reform, Clalit still held 64 percent of the market, while Maccabi Healthcare Services insured about 18 percent of the population (with a growing market share) and Meuhedet Health Services and Leumit Health Services each insured 9 percent of the population.

The Ministry of Health is a major provider of inpatient services (and owns about one-third of all hospital beds), public health services, and ambulatory psychiatric care. Traditionally, the Ministry of Health shared decision-making power with the dominant and influential Clalit Health Services, on one hand, and with Israel's powerful and prestigious Ministry of

1. Israel's largest sick fund, Clalit Health Services, was founded in 1920 by the General Federation of Labor, which was linked to the Labor Party—Israel's most powerful political party from the state's inception until 1977. The federation's socialist and nation-building ideology influenced how Clalit provided services—that is, through a nationwide network of comprehensive and egalitarian clinics and hospitals. Similarly, the smaller Revisionist Party founded its own trade union and sick fund, Leumit Health Services, in 1933. The roots of Meuhedet Health Services lie in the union of the Mercazit Fund, founded by the Liberal Party in 1936, and the Amamit Sick Fund, established by the Hadassah Medical Organization in 1931. Maccabi Healthcare Services was established in the 1940s by physician organizations seeking to ease unemployment among physicians who had emigrated from Germany following the Nazi takeover (Halevi 1979; Gross and Anson 2002).

Finance, on the other (State of Israel 1990). The Ministry of Finance allocates government funds to all ministries and must approve all Ministry of Health decisions that have budgetary implications, such as the rate of payment to hospitals and the working conditions of salaried employees.

The Ministry of Health's extensive involvement in direct care provision, as well as its limited decision-making power, limited its ability to regulate the health care system and assume a leading role in defining national health policy. This resulted in a lack of overall policy and manpower planning, poor technological regulation, inconsistent sick fund regulation, and inadequate resources for the provision of preventive care and health education (State of Israel 1990; Rosen 1991).

Another noteworthy feature of Israel's health system is the powerful Israel Medical Association (IMA), which operates both as a professional association and as a trade union of which nearly all Israeli physicians are members. IMA leaders have considerable influence over national policy on issues such as professional training, licensing, and standards of care and have successfully resisted any attempts to introduce lay monitoring and control of professional performance (Gross and Harrison 2001).

### The Israeli Health Care Reform

In 1994, on the eve of enactment of the National Health Insurance Law, health care was offered by the country's four sick funds, with membership based on voluntary enrollment. The sick funds competed over premium fees and the benefits package, which were determined by internal regulations in each sick fund defining a member's rights and obligations. Sick fund revenues were linked to family income and were collected by the sick funds themselves; this gave them an incentive to attract small, wealthy families. Moreover, since resources were based on income, there was inequality in the provision of services to low-income versus high-income populations and to geographically peripheral areas of the country, where the sick funds had no incentive to develop services. Prior to enactment of the law, insurance coverage was incomplete: 4 percent of the total population and as much as 12 percent of the Arab population did not belong to a sick fund. Risk selection (cream skinning) was legal and widely practiced by the smaller sick funds, which also used flexible premiums and benefits to select more healthy and less costly members and reject elderly and ill applicants. This was reflected in the sick funds' membership composition. Clalit's members were (and are) significantly older, poorer, and less healthy than those of the other sick funds, particularly Meuhedet and

Maccabi. To illustrate, in 1994, 13.1 percent of Clalit's members were over age 65, compared to 9.5 percent in the total population, while only 4.8 percent and 4.2 percent of the members of Maccabi and Meuhedet, respectively, were over age 65. Similarly, 15.7 percent of Clalit's members were chronically ill, compared to 8.5 percent of those enrolled in Maccabi and 6.3 percent of those enrolled in Meuhedet (Rosen and Steiner 1996).

Thus, although the members of Clalit Health Services had (and have) more health needs, its per capita income was traditionally lower. This was attributed in part to the lower income of its members. (In 1994, 43.1 percent of Clalit's members earned the minimum wage, compared to 31.6 percent of Maccabi's members and 34.9 percent of Meuhedet's members; Bendelac 1998.) In addition, Clalit's owner, the General Federation of Labor, collected membership dues but transferred only 75 percent of them to the sick fund (and used the balance for its other activities). The federation also restricted discounts on dues, thereby impairing the sick fund's efforts to compete. Inefficient management, combined with these factors, led to financial instability: By 1995, Clalit Health Services had accumulated a deficit of about \$1.5 billion. Prior to enactment of the law, sick fund deficits were regularly covered by the government. This induced some of the sick funds to accumulate debt and then petition the government to cover it. This was particularly true of Clalit, which the government was inclined to assist, given its central position as provider of care for the majority of the population.

In light of the deepening crisis in health care financing, the inequality in service provision, and the ensuing labor unrest and consumer dissatisfaction with sick fund services (particularly those of Clalit), a State Commission of Inquiry was established in 1988 (Chernichovsky and Chinitz 1995; Gross, Rosen, and Shirom 2001). National health insurance legislation, which was among the recommendations made in the commission's majority report,<sup>2</sup> was enacted in January 1995. It mandated compulsory universal health coverage for all residents of Israel by a sick fund of their choice.

The National Health Insurance Law was designed to stabilize the health system financially, achieve universal health insurance coverage, clarify citizens' rights to health insurance coverage, increase freedom of choice and transfer among sick funds, ensure distribution of resources among

2. Dissension within the Commission of Inquiry over the essence of the proposed reforms, particularly the National Health Insurance Law, resulted in a majority and a minority report (see State of Israel 1990, 1:78–83 and 2:38–64).

sick funds proportionate to health needs, improve the quality of services, and increase equality in the provision of services to different populations and geographic areas.

The national health insurance reform envisioned achieving these goals by regulating the previously unregulated competition in the sick fund market<sup>3</sup> and adopting many elements of Enthoven's (1993) managed competition model, including universal coverage, freedom of choice and transfer among insurers, a standard benefits package, and payment to insurers based on risk-adjusted capitation. However, two important principles of managed competition were not incorporated in the National Health Insurance Law: price competition among sick funds and dissemination of information on quality to consumers by a central body (e.g., employers, government).

Based on the theoretical premises underlying the managed competition model, the Israeli reform was expected to discourage cream skimming and ensure freedom of choice and transfer among sick funds by prohibiting selection and providing adequate compensation in the capitation formula. These elements were also expected to lead to greater equity in care provided to all citizens. The uniform benefits package was expected to simplify comparison among sick funds and provide a minimum level of reasonable care. The Israeli reform does not rely on market forces alone to generate efficiencies and uses additional devices that are not included in the managed competition model. The main additional devices are a rigid fixed budget for the health system as a whole and an updating mechanism for the budget, controlled by the Ministry of Finance and the Ministry of Health. Under the reform, the Ministries of Finance and Health are also to closely monitor the sick funds' financial operation. Another deviation from the ideal model of managed competition was allowing the sick funds to market supplemental insurance, which covers benefits that are not included in the universal basic benefits package. The modified model of managed competition implemented in Israel is an outgrowth of local political and organizational forces, as well as of historical policy precedents (for a detailed analysis of the forces that shaped the Israeli reform, see Gross and Harrison 2001 and Gross and Anson 2002). The significance of these deviations will be discussed in the final section of this article.

The following analysis of the incentives introduced by the reform

3. It should be noted that the National Health Insurance Law dealt exclusively with community-based primary and secondary medical services. Although the Commission of Inquiry also recommended reforming the hospital sector and the structure of the Ministry of Health, these recommendations have yet to be adopted and therefore are not discussed in this article.

addresses both those generated by elements of the managed competition model and those generated by other elements of the reform.

### **Analysis of the Incentives Introduced by the Reform**

Since enactment of the National Health Insurance Law, health care has indeed become a universal entitlement provided through a publicly regulated system. The reform engendered far-reaching change in the operating principles and incentives of the health system. By establishing a rigid budgetary framework for the system, the law aimed to limit the total sum of all resources and subject the system to government control, thereby motivating the sick funds to reduce their expenditures and operate more efficiently so as to stay within this budget.

The cost of providing the standard benefits package was set in the law, and a mechanism for updating this cost was devised based on several indices, including the Health Price Index published by the Central Bureau of Statistics and demographic parameters linked to population growth and aging. Furthermore, to ensure that the sick funds would remain financially viable, the National Health Insurance Law charged the minister of finance and the minister of health with monitoring their financial performance; the sick funds are obligated to cooperate and provide any information necessary to facilitate this. By legally defining the total sum of resources, as well as the mechanism of allocation, planners intended to remove the government's discretion in allocating additional monies to the sick funds and thereby to eliminate the sick funds' incentive to negotiate with or lobby the government for additional resources. These mechanisms, along with tight monitoring of the sick funds' financial operation, were also meant to prevent the sick funds from accumulating deficits so as to beg more resources from the government.

The law ensures eligibility for services regardless of one's financial ability and establishes progressive uniform health tax premiums (4.8 percent of income, with reductions granted to the elderly and poor), which are collected by the National Insurance Institute (the social security administration). These funds are combined with direct government contributions and distributed by the National Insurance Institute to the sick funds according to a risk-adjusted capitation formula that is based on the number of members of a sick fund and their age distribution—a proxy for health needs.<sup>4</sup>

4. The structure of the capitation formula was defined by a professional committee headed by a senior official of the Ministry of Health. Data on health-related factors are not collected regu-

National health insurance planners assumed that the sick funds would compete over the elderly population, given the relatively heavy weight assigned this population in the capitation formula (a person between the ages of 65 and 74 is given a weight of 2.9, while a person aged 75 or older is given a weight of 3.64). Planners also assumed that since the reform provides an incentive to attract members regardless of their financial situation, the sick funds would prefer large families (which are more prevalent among vulnerable populations, such as Arabs, ultra-orthodox Jews, and the poor).

To ensure freedom of choice and transfer among sick funds, the law prohibits sick funds from rejecting candidates for membership. In other words, cream skimming is now legally prohibited. Planners assumed that this prohibition would stop risk selection practices and give sick funds an incentive to develop needed services for ill members, whom they could no longer reject.

The law also defined a standard benefits package, thereby eliminating competition over the scope of services. By making premiums and the benefits package uniform, planners intended sick funds to compete only over the quality of services. Consequently, quality of care was expected to improve.

However, the law allows sick funds (for an additional fee) to offer supplemental insurance for services not included in the standard benefits package; this has created a niche in which competition over premiums and the scope of services can and does take place and in which the incentive to attract high-income members still exists. Planners assumed that competition over supplemental insurance, although it does compromise the value of equality somewhat, would boost the desired competition over the quality of the services provided in the basic benefits package.

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larly by a national body and therefore cannot be easily included in the capitation formula. The decision to adjust for number of members and age alone was made based on the desire of the Ministry of Health that the allocation criteria be available and accessible, easy to measure but difficult to manipulate, and able to be implemented immediately. Furthermore, this method of allocation had been used by the National Insurance Institute since 1991 to distribute employer contributions for health premiums among the sick funds. The new capitation formula used the same weights for age groups as its predecessor, thereby facilitating immediate implementation. Both the Ministry of Health and the powerful Clalit Health Services (which stood to gain from the new allocation system because of its relatively large percentage of elderly members) wanted the National Health Insurance Law to be implemented immediately and therefore supported this method of allocation, even though they recognized its imperfection. Maccabi Health Services and Meuhedet Health Services (which stood to lose under the new formula because of the young age composition of their membership bases) opposed the proposed capitation formula, arguing that age does not adequately reflect health needs. However, they were overruled by the committee and subsequently by the Knesset.

### **Sick Fund Perceptions of the Incentives Introduced by the Reform**

In-depth interviews with senior managers of all of the sick funds revealed that their perceptions of the new incentives were not entirely compatible with the incentives as planned and expected by proponents of the managed competition model (for a comparative summary of perceived versus planned incentives, see Appendix A).

Although the reform was designed to introduce a series of changes into the health system, sick fund managers perceived the restriction of the system's budget to be the greatest change introduced by national health insurance. They felt the new, rigid financial framework was inadequate, given what they perceived to be the system's needs. They also perceived the formula for annually updating the overall health budget as being inadequate, because it does not correctly reflect the aging of the population or take into account technological advances (which are not compensated for by the formula). "The system is under-funded, and even existing capital is not distributed fairly among the sick funds," said a senior manager of Clalit Health Services. "A car cannot run without fuel" was the colorful expression used by a senior manager of a smaller sick fund.

On the other hand, despite its rigidity, managers perceived the budgetary framework as being negotiable and believed there was a good chance they would succeed in obtaining additional financial resources. A senior manager of Clalit Health Services articulated this position: "The deficit is an eternal problem; therefore, part of our activity is to continuously confront the government and convince it of our position. Confrontation is an important process in a democratic system; it is legitimate because no one distributes funds for no good reason." A senior manager of a smaller sick fund expressed a similar view: "There is no other way but to convince every parliament member, because they are the legislators and they have to understand the problems with the National Health Insurance Law."

The National Health Insurance Law was further perceived by all of the sick funds as restricting the administrative discretion that is necessary to their ability to balance their budgets. "We have become government employees," said one manager. Sick fund managers felt that they could no longer generate new income by raising premiums or copayments, nor could they use their discretion to adapt services to the level of funding or participate in making decisions that affect the level of expenses (e.g., regarding salary agreements with health sector personnel and hospitalization rates, both of

which are negotiated with the Ministries of Finance and Health). An expression that recurred in the sick fund managers' descriptions of this process was "nationalization of the sick funds."

Despite their objection to the new budgetary framework, sick fund managers did understand the need to stay within it by reducing expenses. However, they did not see why this should preclude them from trying to increase revenues (i.e., to increase their sick fund's budget). As one senior sick fund manager explained, "We need to adapt resources to services, as well as to adapt services to available resources." Several strategies were perceived as being a means of increasing revenue: lobbying the government for additional funds, attracting more members, and selling supplemental insurance and services not included in the mandatory benefits package (e.g., alternative medicine, dental services) to sick fund members for an additional fee.

Regarding the capitation formula for allocating financial resources among the sick funds, two of the smaller sick funds, Maccabi and Meuhedet, have lost income relative to the period preceding national health insurance (as they insure younger and wealthier people; Gross, Rosen, and Shirom 2001). Clalit and Leumit Health Services have in practice benefited from the law, as the income per standardized person based on the capitation formula is greater than the income they collected through premiums prior to national health insurance (see Appendix B). Indeed, the interviews revealed that managers of Clalit and Leumit Health Services were in favor of this allocation method and perceived it as a positive change, even though they insisted that it did not reflect the true health care needs of their members. However, while their income from the capitation formula grew, their total income per standardized member did not change significantly because of the reduction in government subsidies (see Appendix B). This led the managers of these sick funds to believe that they would also not be able to balance their budgets and would have to reduce expenditures and increase income to avoid deficits. Nevertheless, Clalit managers felt the reform had enabled them to improve services because their regular per capita income had increased and because they were no longer dependent on government subsidies, which were granted only when the sick fund had accumulated dangerous deficits: "The National Health Insurance Law restored this sick fund to life from a state of total collapse. The law put the sick fund back on its feet financially," said a senior Clalit manager.

Not surprisingly, managers of Maccabi and Meuhedet perceived the capitation-based allocation mechanism as being unfair; they felt their members paid high taxes and therefore subsidized the services provided by the other sick funds. "We don't get what we deserve . . . [based on] what our members pay," explained a senior Meuhedet manager. Although these

sick funds received subsidies to compensate for their immediate loss of income, and therefore their total income per capita was still higher than that of Clalit or Leumit Health Services (see Appendix B), managers of Maccabi and Meuhedet felt that national health insurance had restricted their budgets and hindered them from providing care at the high level of quality to which they were accustomed. “The law has placed us on spindly legs; we have less money now, so the customer suffers,” said a manager of Maccabi. However, both Maccabi Healthcare Services and Meuhedet Health Services emphasized their efforts to maintain quality: “Our top priority is to make every effort to prevent a decline in services . . . to maintain the same level of service to the customer, despite the lack of money,” one manager said. Managers of both of these sick funds perceived the gap between income and expenses as being huge, impossible to eliminate solely through efficient operation and reasonable cutbacks: “How much can we actually save by becoming more efficient? Not even 10%.” Another manager said: “All the efficiency in the world can’t get rid of a deficit of NIS [new Israeli Shekel] 130 million.”

In the eyes of sick fund managers, the main incentive provided by the capitation formula was that of competition over members regardless of their financial status, as sick fund income is now based on the number of members. Sick fund managers perceived this new kind of competition as being “market-oriented” and “gimmick-based”; they described the ensuing competition as being “wild,” “a jungle,” “a market atmosphere,” and “dog eat dog,” as all of the sick funds “are battling each other for the same population.”

Interviews with managers of all of the sick funds revealed that they felt that the capitation formula encouraged competition over *visible* elements of service (e.g., facilities, waiting times) rather than over quality of care, which actually affects health status, since “competition is a war of survival and the key to survival is the number of members.” Consequently, the sick funds will do anything to attract members, and immediately. Improving the quality of medical care is much less visible and has a long-term rather than an immediate outcome; it is therefore perceived as being a less efficient way to attract new members.

Furthermore, senior managers explained that in light of the new prohibition on risk selection, they did not want to invest in improving medical services for the severely or chronically ill in order to avoid the “mass immigration” of ill members, which could jeopardize their financial equilibrium. Moreover, when improvements are made, they are intentionally not publicized. “I try to hide the fact that I’m good, so that ill people won’t come to me,” said a senior manager of one fund.

The Arab sector was perceived as having become especially profitable: income per family is high, but expenses per family are low, as Arab families tend not to demand services and because fewer services are available in the Arab sector. The young and healthy (who were also profitable before national health insurance), residents of geographically peripheral areas (where the supply of services is scarce and the use of services is therefore less extensive), and large families (usually ultra-orthodox Jews or Arabs with low income) also were perceived as profitable populations.<sup>5</sup>

Although the capitation formula compensates for the expected increase in expenditures for an elderly member, the sick funds nevertheless did not perceive this population as worthwhile. Sick fund managers reportedly believed that sick fund expenses for elderly members, who are likely to become terminally ill, would ultimately be extremely high. Thus, although the sick funds receive more money for an elderly person in the short run, the cost of treatment far exceeds income in the long run. “If I could, I would give every elderly person a car and send him off to my competitors,” one senior manager said candidly.

In the eyes of sick fund managers, the National Health Insurance Law affected competition by changing the “rules of the game,” as one senior manager called them. Sick fund managers came to believe that, in addition to the competition to attract members, the “real competition” was now over supplemental insurance, rather than over the basic benefits package. “We want to give our members more services, but this is prohibited by law. Competition over quality is therefore manifested in supplemental insurance,” explained a senior manager. Furthermore, supplemental insurance is perceived as a profitable market (by bringing in additional income through premiums and copayments) and as a risk selection device (through designing the benefits package). For example, by offering child development services or vaccinations for young travelers to exotic countries, sick funds can attract the young and healthy.

### **Analysis of the Sick Funds’ Strategies in Light of Their Perceptions of Incentives**

The sick funds’ perceptions of the incentives introduced by the national health insurance reform account to a large extent for their financial and competitive strategies, some of which were unanticipated by policy mak-

5. Prior to the law’s enactment, premiums were paid per family, such that large families (especially poor families) were less profitable for sick funds than were small ones.

ers, differed from what they had hoped for, and were perceived as being antithetical to the intentions of the reform.

### Financial Strategies

In response to the financial incentives introduced by the law, all of the sick funds employed similar short- and long-term strategies to increase income and reduce expenditures, and thereby balance their budgets. However, they differed in the types of strategy they chose and the balance between short- and long-term strategies. For example, while Maccabi Healthcare Services and Meuhedet Health Services emphasized short-term strategies because of the reduction in their income from national health insurance resources, Clalit and Leumit Health Services, whose income from such resources increased, favored long-term strategies.

*Short-term strategies to reduce expenditures* included internal reorganization: for example, increasing internal supervision of physicians, directing patients to receive care at sick fund facilities rather than at hospitals, and closing facilities that proved not to be profitable. Other strategies were directed at providers: increasing external supervision of hospitals and other providers and negotiating with providers over better terms for the purchase of medications and other services. A third strategy involved cooperation among sick funds, the terms of which were explicitly stated in a joint document, which was subsequently disqualified by the Israeli antitrust authority. According to this document, the sick funds tried to save money by opening joint clinics, selling services to each other in small towns, negotiating as a group with providers, and setting identical, restrictive medical policies (e.g., limiting the number of ultrasound examinations for pregnant women, closing community clinics on Fridays).

The sick funds' strategies were reflected in their financial status. Analysis of the expenses and income of all of the sick funds revealed that standardized income per capita remained stable following national health insurance and standardized expenditure per capita declined by almost 3 percent (although the drop was much steeper for the smaller sick funds than for Clalit; Gross, Rosen, and Shirom 2001). In 1995, all of the sick funds managed to strike a balance between current income and current expenditures, without incurring a significant deficit (Bin Nun 1999). Between 1996 and 1997, there was an average decline of 6 percent in total standardized per capita income (4 percent in Clalit and 10 percent in the smaller sick funds) and an average increase of 2 percent in total standardized per capita expenditures (3 percent in Clalit and a decline of 4–13

percent in the smaller sick funds; Gross, Rosen, and Shirom 2001). Between 1997 and 1998 there was an additional decline of 3.3 percent in total standardized per capita expenditure (3.1 percent in Clalit and between 2 and 6.9 percent in the smaller sick funds; Arbel 1999).

*Long-term strategies to reduce expenditures* included developing infrastructure (e.g., computerization) that would enable the sick funds to operate more efficiently and developing in-house services that would preclude the sick funds from having to purchase services from external providers. They also included improving the professional level of staff so as to provide more adequate, and hence less expensive, care; establishing control units; and operating units as profit centers, which would eventually become more cost effective. It should be noted that some of these strategies actually incur expenditures in the short term.

*Short-term strategies to increase income* included using savings and reserve money (a strategy favored by Maccabi Healthcare Services and Meuhedet Health Services, which had such reserves) and taking loans from banks. Other actions focused on attracting new profitable members (e.g., healthy young people, large families, Arabs) so as to receive a larger portion of national health insurance allocations. In order to attract members, the sick funds opened new clinics, renovated older ones, and developed services not included in the mandatory benefits package that could be sold for extra income (e.g., supplemental insurance, dental care, alternative medicine). All of the sick funds also applied to the government to ask for additional support, loans, and credit. These strategies were reflected in their financial reports. Income per standardized person rose by 2.6 percent between 1997 and 1998 (Arbel 1999).

*Long-term strategies to increase income* included improving the level of services (so as to attract more members) by upgrading employees' professional and interpersonal skills and developing attractive community services, such as centers for women's health and specialist and diagnostic services. Other long-term strategies included lobbying the government to change the capitation formula (each sick fund promoted parameters that would be to its advantage) and the formula used to update the health care budget. In this way, the sick funds hoped to attract more money to the system as a whole. Sick funds with wealthy members lobbied to collect part of the health tax themselves as a means of increasing their income.

### Competitive Strategies

Based on their perception of the incentives to competition introduced by the National Health Insurance Law, the sick funds employed several com-

petitive strategies. An *emphasis on marketing and advertisement* included advertising in newspapers and the electronic media and on street signs; telemarketing; deploying sales agents; contracting with local leaders of peripheral settlements, Arab and ultra-orthodox Jewish communities; using sick fund employees to recruit new members; and holding “health days” at clinics and public places (malls, central bus stations, etc.). The budget for marketing rose from NIS 51.4 million in 1994 to NIS 62.6 million in 1995 and to NIS 91.2 million in 1996. It should be noted that some of the activities were illegal, such as forgery of membership forms, or perceived as immoral, such as tempting people to sign a membership form by offering gifts.<sup>6</sup>

The sick funds also *targeted financially desirable populations*—that is, they split the market so as to focus on the target populations perceived as being the most profitable (see above). Sick funds used focus groups and other marketing techniques to learn the needs and preferences of these populations and to cater to them in both advertising campaigns and service development. For example, they responded to the preference of ultra-orthodox Jewish women to be treated by a woman physician, they responded to the needs of young families by emphasizing the development of services for children, and they attempted to make services more accessible in the Arab sector by hiring more Arabic-speaking physicians and using mobile diagnostic and specialty services in Arab villages. Survey findings offer evidence supporting the existence of such strategies. In 1997, Arabs and residents of peripheral towns perceived more of an improvement in services than did others: 71 percent of Arabs compared to 33 percent of Jews and 44.4 percent of residents of the periphery compared to 35 percent of residents of the center of Israel reported sensing an improvement in sick fund services since the introduction of national health insurance (Gross et al. 1998).

At the same time, some managers revealed that they also actively discouraged ill or old applicants from joining their sick fund. Clerks were instructed to tell these applicants that “the sick fund does not have appropriate services for your condition.” They were also instructed not to encourage enrollment or to be too forthcoming or helpful to these applicants.

6. The prevalent belief arising from interviews with sick fund and government officials was that gifts could be used to persuade people to switch sick funds based on irrelevant considerations and to neglect considering the more important aspects and consequences of changing funds. Gifts were therefore seen as a means of tempting people to hastily make a major decision without considering that changing health care providers is different from choosing a bank or other service—especially since the decision is irreversible for an entire year. Consequently, the law was modified to forbid the use of gifts or sales agents and to determine that the transition to a sick fund be registered at the post office, not at the sick fund’s offices.

All of the sick funds *improved the level of visible services* in order to attract members; this included improving access and availability (e.g., hiring more staff, implementing appointment systems), improving the attitudes of physicians and nurses (e.g., special courses in customer service), and upgrading the maintenance of facilities (e.g., renovation of clinics, purchase of new furniture, landscaping). Here, too, survey findings support the existence of such strategies. According to population surveys conducted in 1995 and 1997, 40 percent of those surveyed in 1997 reported sensing an improvement in their sick fund's services during the previous year, compared to 18 percent who so reported in 1995. Satisfaction (those who reported being satisfied or very satisfied) with sick fund services rose from 83 percent in 1995 to 91 percent in 1997. Improvement was also found in other indices of quality, such as waiting times at clinics (68 percent reported waiting up to 15 minutes at a primary care clinic in 1997, compared to 59 percent in 1995; 66 percent reported waiting up to one week for an appointment to see a specialist in 1997, compared to 56 percent in 1995; Gross, Rosen, and Shirom 2001). As can be seen in Appendix C, improvement was especially notable in Clalit and Leumit Health Services, which had offered lower-quality service prior to the reform and which experienced the greatest increase in reform-related income.

All of the sick funds *added supplemental insurance programs and developed services not included in the mandatory basic benefits package*, such as dental clinics, alternative (e.g., homeopathic) medicine, old age homes, and spas. The sick funds featured these services—which generated extra revenue—in marketing campaigns. In 1995, 37 percent of all sick fund members had supplemental insurance, although there was wide variance among the sick funds: 80 percent of Maccabi's members, 65 percent of Meuhedet's members, 50 percent of Leumit's members, and 15 percent of Clalit's members had purchased supplemental insurance.<sup>7</sup> The market continued to grow, so that 44 percent of the population owned supplemental insurance in 1997 and 51 percent of the population owned such insurance in 1999.

7. The lower purchase rates in Clalit are attributed to its having to develop and market a new supplemental insurance plan, unlike the three smaller sick funds, which continued to offer the same plans they had offered prior to national health insurance. The reason for this was that the benefits package deemed mandatory by the National Health Insurance Law was based on the basket of regular and supplemental services offered by Clalit Health Services prior to the law. Therefore, in order to compete, Clalit had to add supplemental services, while the other sick funds merely had to adjust the balance between their mandatory and supplemental packages.

### **Analysis of Sick Fund Strategies in Light of Managed Competition Theory and the Goals of the Reform**

How does managed competition theory work in practice? Did the incentives introduced by the Israeli reform have the effect expected by managed competition proponents and envisioned by policy makers and planners? Did sick fund strategies match the objectives of national health insurance?

As anticipated by managed competition theory, allocation of funds based on a capitation formula (which severs the link between sick fund revenue and a member's income) does provide an incentive to improve services to underserved populations and therefore leads to greater equality in the provision of services to different population groups. The Israeli case shows that sick funds have improved services to Arab citizens (Farfel et al. 1997; Farfel and Yuval 1999), to those with low incomes (Berg, Rosen, and Morginstin 1998), and to those in geographically peripheral areas (Nirel et al. 2000). However, services for the elderly and the chronically and severely ill have not been improved. Moreover, sick funds perceive these groups as being unprofitable and therefore have avoided taking any action that might attract them as members.

Our analysis revealed that these strategies grew out of the perception that the risk adjustment offered by a capitation formula based only on age is inadequate. This suggests that the principle of prospective payments is not in itself enough to provide the incentives foreseen by managed competition theory. It is imperative that payments be based on correct risk adjustment parameters. However, correct pricing is very hard to achieve (Newhouse 1998), as it necessitates the time-consuming and expensive collection of information—if it is even obtainable. Furthermore, in order to induce the desired behavior, the risk adjustment formula must be *perceived* by the competing sick funds as being correct—that is, as leading to fair compensation for expenses incurred by elderly and ill members. This would necessitate also having information on managers' perceptions, which is even more expensive and time consuming to collect. Therefore, as the Israeli case emphasizes, risk adjustment—a popular panacea among policy makers—is not only difficult to calculate, but may also have undesirable consequences when implemented partially.

The managed competition elements of the Israeli reform were expected to *eliminate risk selection* and *ensure freedom of choice* of a sick fund by prohibiting sick funds from rejecting applicants. This study found that

while sick funds no longer formally reject applicants, their marketing strategies are still geared toward attracting the more profitable segments of the population. Groups that are perceived as being unprofitable are indirectly rejected. In other words, contrary to the expectations from a managed competition model, sick funds still find it worthwhile to practice risk selection, although less extensively and in more subtle and discreet ways. These practices were not anticipated and are not desired by policy makers.

Regarding freedom of choice of sick fund, data from the National Insurance Institute (Bendelac 1998) reveal that the annual rate of transfer among sick funds following implementation of the law (1995–1997) was 4 percent—identical to that prior to implementation of the law. The elderly are less apt to change sick funds: 1 percent of members ages 65–74 transfer among sick funds, compared to 8 percent of members in the 15–25 age group.<sup>8</sup> However, the growth rates in the number of elderly members of Maccabi Healthcare Services and Meuhedet Health Services were higher in the period 1994–1997 than were the growth rates of members who were not elderly during the same period (while in the period 1991–1994 there was an opposite trend); this might indicate that there is greater freedom to transfer among sick funds since implementation of the law, but it might also be attributable to the aging of sick fund members.

An important objective of national health insurance was to *improve quality of care* to the public, and the incentives were expected to encourage this. Policy makers believed that restricting competition over premiums and the benefits package would induce sick funds to compete over quality of care to attract members and increase income. In fact, sick funds preferred to improve visible services rather than the quality of medical care, both because they feared attracting ill members (who incur expenses) and because improved quality would not have had an immediate impact on their membership base, although it might have attracted new members in the long run. These strategies are in line with the literature, indicating that when risk adjustment is perceived as being insufficient, and when measures of quality do not actually reflect health outcomes, health care organizations do not make an effort to maximize quality, regardless of payment scheme (Dudley et al. 1998; Kindig 1998).

Lack of competition over quality improvement may be related to the element of managed competition that is missing in the Israeli system: the failure to assign a central body to collect and distribute information on the quality of care provided by the sick funds. Such information is

8. There are no comparable data on the period prior to national health insurance.

expected to induce competition over quality since it sensitizes patients and enables them to take quality parameters into account when choosing a provider. However, the value of improving visible aspects of care (e.g., waiting times, facilities) should not be underrated. Managed competition apparently does succeed in inducing sick funds to better respond to patients' preferences and demands (although these do not refer to quality of medical care, as policy makers would prefer). This was reflected in the impressive rise in levels of patient satisfaction with sick fund services.

This study also found that sick funds preferred competing over supplemental insurance services and premiums, which they perceived as being profitable both financially (i.e., generating more income) and commercially (i.e., the sick fund can market itself as being unique). Although policy makers expected competitive activity in this field, they were surprised and displeased by its scope for several reasons. Although the demand for supplemental insurance may reflect consumer preferences, policy makers perceived it as supply induced (a known market failure in health care). Therefore, the services offered through supplemental insurance were perceived by Ministry of Health and Ministry of Finance officials as being largely superfluous or redundant and incurring unnecessary expense to citizens. Ministry of Health policy makers also opposed supplemental services because they create a two-tiered system, thus undermining the goal of equality. However, despite the growing dissatisfaction of government officials, the sick funds lobbied to continue to market supplemental insurance, which was a good source of income, and vehemently opposed policy attempts to transfer the marketing of supplemental policies to private insurance companies (Brammli-Greenberg and Gross 1999).

The incentives introduced by the national health insurance reform gave rise to several other competitive strategies that were not foreseen by managed competition theory and that were viewed as being problematic by policy makers in Israel. For example, alongside market competition, the sick funds found it profitable to cooperate among themselves to strengthen their position vis-à-vis providers, members, and the government (which is rather easy to accomplish in Israel, given the small number of sick funds). Although reducing duplication and negotiating better prices with providers are in line with national health insurance goals, they are reminiscent of a cartel's activities; consequently, they were disqualified by the Israeli antitrust authority. Similarly, although the restriction of services to save money can be a rational response to financial constraints, it was perceived as an undesirable cost-containment strategy because it was detrimental to consumers.

Another strategy employed by the sick funds to increase their income and balance their budgets was lobbying to change “the rules of the game” (i.e., the capitation formula, price rates, and so on). This, too—perhaps naively—was not foreseen by managed competition theory and not envisioned by reform planners, and was undesirable in their eyes. “They’d rather sit in my office for hours than operate their sick funds more efficiently,” complained a senior Ministry of Finance official. Since the reform aimed to instate a professional system with objective rules that would remove political influences from the health system, planners believed that it would depoliticize the health system, enabling management according to professional, technocratic principles (e.g., formulas for allocating funds, for updating the health budget). They believed that severing the financial and organizational bonds among sick funds, labor unions, and political parties would abolish the funds’ ability to influence political and administrative decisions regarding the health system and induce them to concentrate on the rational management of their organizations. However, since the sick funds perceived some of the new rules embodied in the National Health Insurance Law as being unfair, unclear, and unreasonable, and since they perceived government officials and elected personnel as prey to pressure, they employed a strategy of trying to change the rules of the game to their advantage. Such behavior has been described in the literature as a common response to changes in laws and regulations that affect an organization (Oliver 1991). Nevertheless, it surprised Ministry of Finance officials, who were trained in rational economics and were unfamiliar with theories of political science or organizational behavior.

The findings of this study further indicate that sick fund strategies did correspond to the planners’ aim of increasing the sick funds’ *financial responsibility* and inducing them to balance their budgets. The means for achieving this were regulations regarding the level of the overall health budget and tight control of the sick funds’ activities, rather than price competition, as suggested by the managed competition model. Similar results were reported in an analysis of the National Health Service reform in the United Kingdom, which also used budget limits in combination with elements of the managed competition model (Light 1997). However, as the sick funds used both short- and long-term strategies, there was a risk that their budgets might not be balanced in the short term. This was especially true of Clalit Health Services. Since its income rose following the national health insurance reform, it felt less pressure to cut expenses immediately and could invest in long-term strategies aimed at increasing efficiency.

Other sick funds, whose budgets were compromised by the new law, put more energy into short-term strategies.

Policy makers who were concerned about the overall deficit of the health system (which had reached NIS 1.5 billion by 1997) had the impression that the sick funds were operating inefficiently and wasting resources. However, they were unaware of internal processes in the sick funds, which increased efficiency within a few years. The overall deficit of the health system decreased to NIS 400 million in 1998 and was nearly balanced by 1999 (NIS 200 million). This change was due in part to an increase in the health budget (largely the fruit of lobbying) and in part to the sick funds' long-term financial strategies, which indeed led to greater efficiency and decreased per capita expenditures.

However, some of these strategies were not perceived by policy makers as being desirable, especially since the sick funds tried to increase revenue and not only to reduce expenditure, as state officials had hoped. For example, in order to attract members and increase income, the sick funds increased their marketing budget very significantly, thereby diverting funds from service provision. The sick funds also tried to develop facilities for specialty care in the community in order to reduce waiting times and avoid purchasing services from hospitals at a much higher cost. However, in addition to requiring an investment in infrastructure, this strategy led to system-wide inefficiency and the duplication of hospital services in the community. Although policy makers are aware of this problem, they have not yet adjusted the rates of outpatient hospital services or introduced incentives that might change sick fund policy.

## **Discussion**

The Israeli reform implemented many principles of Enthoven's (1993) managed competition model. Analysis of providers' perception of and response to these incentives can increase our understanding of how managed competition works in practice and contribute to avoiding similar pitfalls when designing reform.

Analysis of the Israeli case indicates that, during implementation of the reform, there were deviations from the ideal model envisioned by Enthoven and that sick funds did not respond to the new incentives as they would have been expected to by managed competition theory. In this section I will discuss these conclusions in light of the specific features of the Israeli system. I will then claim that the Israeli case is indicative of a main weakness of the managed competition model: that is, that it does not take

into account the political, historical, and organizational context in which reform is implemented.

### Deviations from the Ideal Model

In Israel, the notable deviation from the ideal model involved instituting cost containment measures and close regulation of the sick funds by the Ministry of Finance, prohibiting price competition over basic premiums, allowing sick funds to offer supplemental insurance, and failing to provide information about quality to consumers. These deviations can be explained by the specific historical, institutional, and political features of the Israeli system (Gross and Harrison 2001). For example, the traditional power of the Ministry of Finance accounts for the rigid financial constraints on health system expenditure and the sick funds' financial activity. These in fact restrict the scope of competition much more than was envisioned by Enthoven's ideal model.

The ban on price competition is related to the historical importance ascribed to equality in Israeli society. The socialist ideology on which the country was founded is still highly valued; it directs public policy, in general, and health policy, in particular (State of Israel 1990). The opening clause of the National Health Insurance Law (1994) illustrates this by stating that "national health insurance under this law will be based on the principles of justice, equality, and solidarity." The elimination of price competition is also related to the opposition of the powerful Clalit Health Services, which stood to lose income if price competition were allowed, since its members had relatively lower incomes and could pay less. When the law was passed, the Labor party—the patron of the General Federation of Labor, Clalit's former owner—was in office.

The decision to allow supplemental insurance under the National Health Insurance Law was also related to political and organizational influences. It was a response to pressures from Maccabi Healthcare Services and Meuhedet Health Service, which were supported by several economically liberal members of the Knesset (the Israeli parliament). In effect, the decision to allow supplemental insurance was their attempt—supported by the Ministry of Finance—to compensate these sick funds for their anticipated loss of income following introduction of the capitation scheme. In addition, Ministry of Finance economists who believed in competition saw the supplemental insurance market as an opportunity to induce competition among the sick funds to improve services.

The failure to disseminate information on quality to consumers can also

be explained in the Israeli case by the country's power structure and history. None of the stakeholders in the system (physicians, sick funds, the Ministry of Health) stood to gain from the dissemination of information to the public. Information on poor quality could threaten a physician's professional prestige and the competitive edge of the sick funds or the Ministry of Health's hospitals. In addition, the IMA has traditionally opposed quality assurance measures initiated by administrative bodies such as the sick funds and the Ministry of Health. Therefore, collection of data on quality could be expected to lead to conflict with the IMA and then to strikes and other sanctions that might harm service to the public. Furthermore, to date, Israeli health organizations have not had the technical capacity to collect reliable and comprehensive data on quality; substantial financial investment would be needed to establish it. Yet such an investment is also not in the interest of the Ministry of Finance, which probably fears that data on quality of care could lead to demands for additional funds to improve the quality of services (Gross and Harrison 2001).

### Sick Funds' Responses to the New Incentives

Analysis reveals that the sick funds' responses to managed competition incentives also deviated from theoretical expectations. Our findings indicate that, from the perspective of competing sick funds, improving quality is less viable—and may even be undesirable (serving to attract high-cost members)—than is improving visible elements of service and employing marketing tactics. Furthermore, risk-adjustment parameters are perceived as being highly imperfect, generating inadequate payments for the elderly and ill and generous per capita payments for others, and providing an incentive to the sick funds to avoid attracting elderly and ill members. Finally, risk selection is still viewed as a desirable strategy and is practiced informally when possible.

These responses were tightly linked to sick fund managers' perceptions of the incentives in the reformed system. However, the specific strategies employed by the sick funds can be explained by the local context in which they thrived. For example, the Ministry of Health's traditionally weak position in the system curtails its ability to effectively regulate that system. This is exacerbated by a lack of infrastructure for collecting data on sick fund performance and a lack of enforcement mechanisms. Sick funds are thus free to engage in aggressive marketing and other strategies that reform planners deem undesirable. The historical organizational structure and small size of the Israeli health system make it especially vulnerable

to the formation of a cartel. (Following pressure from the sick funds, the National Health Insurance Law prohibits the entry of new sick funds into the market.) The tradition of politically linked sick funds accounts for the use of lobbying and other political measures to influence the rules of the game and to broker power. Continuation of indirect risk-selection practices can be attributed to weak supervision by the Ministry of Health, as well as to the tradition of risk selection practiced before the reform (especially by the smaller sick funds). Therefore, organizationally, continuing this tradition was feasible and acceptable to employees who identified with the rationale behind it and who saw the benefit to the sick funds.

There are indications in the literature that the Israeli experience is not unique. Reports from other countries attempting to implement managed competition reveal that, indeed, it is seldom implemented as it has been envisioned by its proponents. Significant adjustments are made in the process of designing and implementing reform in order to adapt the model to the needs and constraints of each health system (Light 2001; Lieverdink 2001; Cabiedes and Guillen 2001; Fougere 2001). Strategies that were not foreseen by policy makers or that were deemed undesirable also have been observed in other countries that have attempted to implement managed competition reform. As in the Israeli case, the responses of providers appear to be related to the specific political and historical circumstances of the country implementing the reform (Light 2001).

### **Policy Implications**

The Israeli case raises the question of whether the managed competition model can indeed induce the competitive behavior it aspires to induce. On one hand, the failure to achieve the desired result in the Israeli system may be attributed to imperfect implementation of the managed competition model and to the specific circumstances described above. On the other hand, it may be that the managed competition model contains unrealistic assumptions about the response of providers to incentives and about government's ability to regulate the system (e.g., to design correct risk adjustment and to collect and disseminate information on quality; Light 1999).

It is difficult to distinguish which of these two factors better explains the failure of managed competition to produce the desired results. Probably, both the theoretical weaknesses of the managed competition model (Light 2001) and the specific political, historical, and organizational context of the Israeli system play a part. In any case, the managed competition model does not account for those factors that have a crucial effect on both the

implementation of the model and providers' responses to new incentives. These factors constrain the generalizability of the model: If they are taken into account, we can expect the model to be implemented differently in different countries and to elicit different strategies from providers in each country. Therefore, the broader implication of our analysis is the need to design a process that will better enable policy makers to consider local contextual factors when planning and implementing reform.

The findings of this research study suggest an approach for building such a process, based on this analysis of the Israeli case. The first element of this approach is to *involve health care providers in planning* reform and designing incentives. As has been shown, there is a strong link between managers' perceptions of incentives and the strategies employed. Also evident is the fact that these perceptions are often unanticipated and differ from the incentives intended by planners of the reform. Involving providers in structuring reform will help planners understand how incentives are in fact perceived, before they are enacted. This will give them an opportunity to redesign incentives so that they have a better chance of actually being effective. For example, in Israel, although perfect risk adjustment is unattainable, the method of payment to the sick funds could be modified to provide a stronger incentive to improve care for the seriously ill and to develop services for the elderly (e.g., home care, comprehensive geriatric care). This might be achieved by combining capitation with direct compensation for services or activities that policy makers wish to encourage.

The second element of this approach is to *continuously monitor the reformed system*. Although it is convenient to believe that incentives can be designed so as to ensure the achievement of objectives and preclude the need for constant surveillance, the Israeli experience indicates that this is not the case. The intricacy of organizational behavior, on one hand, and the difficulty of foreseeing the interplay of factors affecting organizational response, on the other, makes continuous surveillance and monitoring of providers' behavior necessary for identifying the strategies employed and assessing the degree to which national objectives are being met. It is important to monitor not only the outcomes of reform, but also the processes within health organizations, so as to detect activities that may have a positive or negative effect in the long term. This would enable policy makers to encourage desired activities and discourage undesirable ones, before either long- or short-term strategies have had a deleterious effect.

The third element of this approach is *flexibility* in policy making and the

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willingness to introduce changes in incentives and other elements of reform over time, in response to outcomes and in accordance with the results of continued surveillance. This would contribute to improving the outcomes of reform and help it to achieve its aims.

Although the cost of adopting this approach cannot be underestimated, and the results cannot be guaranteed, the Israeli case suggests that the cost of *not* following it might be even higher—especially if it involves compromising key objectives of health system reform.

**Appendix A** Planned and Perceived Incentives in National Health Insurance Legislation

Main Components of Legislation	Incentives As Planned	Incentives As Perceived by Sick Funds
Legally mandated, fixed budget for the health system	Economize, reduce expenditures, increase efficiency	Balance the budget (increase revenue and reduce expenditures)
Legally mandated, fixed formula for annual updating of budget and government monitoring of the sick funds' financial operation	Avoid deficits, end negotiation with the government for subsidies	Impossible to balance the budget (formula is incorrect), necessitating constant negotiation with the government to increase overall budget and receive special subsidies
Allocation of funds according to a capitation formula based on the number and age of members	Attract members regardless of economic status and age, by improving level of services	Attract members regardless of economic status, with priority to large families and those living in peripheral regions (where the supply of services is lower and therefore members incur fewer costs); elderly still viewed as bad risk Impetus to compete over visible components of service; loss of revenue leads to reduction in the level of services in less visible areas so as not to lose market share
Prohibition of risk selection (cream skimming)	Stop risk selection; provide high-quality care for ill members	Indirect rejection of ill and elderly applicants; avoidance of development of special services for the severe and chronically ill
Uniform premium and benefits package	Impetus to compete over quality of services	Impetus to compete over supplemental insurance for services not included in the basic benefits package

**Appendix A** (continued)

Main Components of Legislation	Incentives as Planned	Incentives as Perceived by Sick Funds
Allow sick funds to market supplemental insurance	Augment competition over quality of mandatory benefits package, at the risk of continuing to provide an incentive to attract wealthy members	Attract young and wealthy members and develop supplemental insurance packages attractive to them

**Appendix B** Sick Fund Revenues Following the National Health Insurance Law (in NIS Prices for December 1995)

	Clalit	Meuhedet	Maccabi	Leumit
Standardized per capita income from national health insurance resources <sup>a</sup>				
1994	1,857	2,251	2,383	1,979
1995	2,057	2,093	2,038	2,118
Standardized per capita income from national health insurance resources, government subsidies, and copayments				
1994	2,360	2,445	2,623	2,420
1995	2,307	2,406	2,477	2,403

Source: Rosen, Ivancovsky, and Nevo 1998.

<sup>a</sup>National health insurance resources include all revenue allocated through the capitation formula.

### Appendix C Selected Indices of Quality of Sick Fund Services, Prior to and Following National Health Insurance

	Clalit	Meuhedet	Maccabi	Leumit
Perceived improvement in services, compared to last year				
1995	23	8	7	11
1997	46*	34*	23*	38*
Overall satisfaction with sick fund services				
1995	80	91	91	85
1997	90*	95	94	91
Wait up to 15 minutes to see a primary care physician				
1995	56	75	70	52
1997	66*	80	69	69
Wait up to a week for an appointment with specialist				
1995	49	51	76	68
1997	58*	74	80	69
Laboratory hours "very convenient"				
1995	9	10	21	12
1997	16*	14	26	28

Note: Values are percentages. Source: Gross, Rosen, and Shirom 2001.

\**p* value for difference between 1995 and 1997 < 0.05 (chi-square test)

## References

- Arbel, E. 1999. *Analysis of Reasons for the Decrease in Sick Fund Deficits in 1998*. Jerusalem: Budget Department, Ministry of Finance (in Hebrew).
- Batista, R. N., D. H. Banta, E. Jonson, M. Hodge, and H. Gelband. 1994. Lessons from the Eight Countries. *Health Policy* 30:397–421.
- Bendelac, Z. 1998. *Sick Fund Membership*. Periodical Surveys No. 150. Jerusalem: National Insurance Institute (in Hebrew).
- Berg, A., B. Rosen, and B. Morginstin. 1998. *The Poor and Israel's Health Care System under National Health Insurance: Annual Research Report 1996–1997*. Tel Hashomer, Israel: National Institute for Health Policy and Health Services Research (in Hebrew).
- Bin Nun, G. 1999. The Primary Developments in the Cost of the Benefits Package, and Sources for Its Funding, in the Four Years since Implementation of the National Health Insurance Law. *Social Security* 54:35–52 (in Hebrew).
- Brammli-Greenberg, S., and R. Gross. 1999. *Supplemental and Commercial Health Insurance, 1998: Changes in Policy, Financing, and Consumer Behavior*. Research Report 349-99. Jerusalem: JDC-Brookdale Institute.

**690** Journal of Health Politics, Policy and Law

- Brown, L. D., and V. E. Amelung. 1999. Manacle Competitor: Market Reforms in German Health Care. *Health Affairs* 18(3):92–94.
- Cabiedes, L., and A. Guillen. 2001. Adopting and Adapting Managed Competition Health Care Reform in Southern Europe. *Social Science and Medicine* 52:1205–1218.
- Chernichovsky, D., and D. Chinitz. 1995. The Political Economy of Health System Reform in Israel. *Health Economics* 4:127–141.
- Child, J. 1972. Organizational Structure, Environment and Performance: The Role of Strategic Choice. *Sociology* 6:1–22.
- Chinitz, D. 1995. Israel's Health Policy Breakthrough: The Politics of Reform and the Reform of Politics. *Journal of Health Politics, Policy and Law* 20:909–932.
- Cook, K., S. M. Shortell, D. A. Conrad, and M. A. Morrisey. 1983. A Theory of Organizational Response to Regulation: The Case of Hospitals. *Academy of Management Review* 8(2):193–205.
- Dudley, R. A., R. H. Miller, T. H. Korenbrot, and H. S. Luft. 1998. The Impact of Financial Incentives on Quality of Health Care. *Milbank Quarterly* 76(4):649–686.
- Enthoven, A. 1993. The History and Principles of Managed Competition. *Health Affairs* 12(1):24–48.
- Farfel, M., B. Rosen, A. Berg, and R. Gross. 1997. *Arabs' and Jews' Perceptions and Use of the Health System Following Implementation of the National Health Insurance Law: Findings from a Survey of the General Population*. Research Report 274-97. Jerusalem: JDC-Brookdale Institute.
- Farfel, M., and D. Yuval. 1999. *Arabs' and Jews' Perceptions and Use of the Health System Two and a Half Years after Implementation of the National Health Insurance Law: Findings from a Survey of the General Population*. Research Report 351-99. Jerusalem: JDC-Brookdale Institute.
- Fougere, G. 2001. Transforming Health Sectors: New Logics of Organizing in the New Zealand Health System. *Social Science and Medicine* 52:1233–1243.
- Gay-Greer, E., J. J. Kronenfeld, S. L. Baker, and R. L. Amidon. 1989. An Appraisal of Organizational Response to Fiscally Constraining Regulation: The Case of Hospitals and DRGs. *Journal of Health and Social Behavior* 30:41–55.
- Geva-May, I., and A. Maslove. 2000. What Prompts Health Care Policy Change? On Political Power Contests and Reform of Health Care Systems (The Case of Canada and Israel). *Journal of Health Politics, Policy and Law* 25:717–741.
- Gross, R. 1999. *Organizational Adaptation to a Changing Environment: Israeli Sick Funds' Strategies in Response to Implementation of the National Health Insurance Law*. Ph.D. diss., Bar-Ilan University (in Hebrew).
- Gross, R., and O. Anson. 2002. Health Care Reform in Israel. In *Health Care Reform Efforts around the World*, ed. A. Twaddle. Westport, CT: Greenwood.
- Gross, R., M. Greenstein, A. Dubani, A. Berg, D. Yuval, and B. Rosen. 1998. *The Level of Service in Israel's Sick Funds Following the National Health Insurance Law: Principal Findings from a 1997 Members Survey and a Comparison to the 1995 Survey*. ES-17-98. Jerusalem: JDC-Brookdale Institute (in Hebrew).
- Gross, R., and M. Harrison. 2001. Implementing Managed Competition in Israel. *Social Science and Medicine* 52(8):1219–1231.

- Gross, R., B. Rosen, and A. Shirom. 2001. Reforming the Israeli Health System: Findings of a Three-year Evaluation. *Health Policy* 56(1):1–20.
- Halevi, H. S. 1979. The Pluralistic Organization of Health Services in Israel. *Social Security* 17:5-50.
- Harrison, M. 1994. *Diagnosing Organizations' Methods, Models and Processes*. London: Sage.
- . 1995. *Implementation of Reform in the Hospital Sector: Physicians and Health System Reforms in Four Countries*. Tel-Hashomer, Israel: National Institute for Health Policy and Health Services Research (in Hebrew).
- Hellinger, F. J. 1996. The Impact of Financial Incentives on Physician Behavior in Managed Care Plans: A Review of the Evidence. *Medical Care Research and Review* 53(3):294–314.
- Henke, K. D., M. A. Murray, and C. Ade. 1994. Global Budgeting in Germany: Lessons for the United States. *Health Affairs* 13(4):7–21.
- Houseman, D., and J. LeGrand. 1999. Incentives and Health Policy: Primary and Secondary Care in the British National Health Service. *Social Science and Medicine* 49(10):1299–1307.
- Jick, T. D. 1979. Mixing Qualitative and Quantitative Methods: Triangulation in Action. *Administrative Science Quarterly* 24:602–611.
- Kindig, D. A. 1998. Purchasing Population Health: Aligning Financial Incentives to Improve Health Outcomes. *Health Services Research* 33(2):223–242.
- Kwon, S. 1996. Structure of Financial Incentive Systems for Providers in Managed Care Plans. *Medical Care Research and Review* 53(2):149–161.
- Lieverdink, H. 2001. The Marginal Success of Regulated Competition Policy in the Netherlands. *Social Science and Medicine* 52:1183–1194.
- Light, D. 1997. From Managed Competition to Managed Cooperation: Theory and Lessons from the British Experience. *Milbank Quarterly* 75(3):297–343.
- . 1999. The Sociological Character of Health Care Markets. In *Handbook of Social Studies in Health and Medicine*, ed. G. Albrecht, R. Fitzpatrick, and S. Scrimshaw. London: Sage.
- . 2001. Comparative Institutional Response to Economic Policy Managed Competition and Governmentality. *Social Science and Medicine* 52:1151–1166.
- Lincoln, Y. S., and E. G. Guba. 1985. *Naturalistic Inquiry*. London: Sage.
- Miles, M. B., and M. A. Huberman. 1994. *Analyzing Qualitative Data: A Source Book of New Methods*. 2d ed. London: Sage.
- Miles, R. H. 1980. *Macro-organizational Behavior*. Santa Monica, CA: Goodyear.
- Mintzberg, H. 1979. An Emerging Strategy of “Direct” Research. In *Qualitative Methodology*, ed. J. Van Maanen. London: Sage.
- Morgan, G. 1986. *Images of Organization*. London: Sage.
- Newhouse, J. P. 1998. Risk Adjustment: Where Are We Now? *Inquiry* 35(2):122–131.
- Nirel, N., D. Pilpel, B. Rosen, I. Zmora, M. Greenstein, and S. Zalcberg. 2000. *The Accessibility and Availability of Health Services in the South of Israel: Has the Gap between the South and Other Regions in Israel Been Reduced in the Wake of the National Health Insurance Law?* Research Report 354-00. Jerusalem: JDC-Brookdale Institute (in Hebrew).

**692** Journal of Health Politics, Policy and Law

- Oliver, C. 1991. Strategic Responses to Institutional Processes. *Academy of Management Review* 16(1):145–179.
- Patton, M. Q. 1987. *How to Use Qualitative Methods in Evaluation*. London: Sage.
- Pettigrew, A. M., E. Ferlie, and L. McKee. 1992. *Shaping Strategic Change*. London: Sage.
- Pfeffer, J., and G. Salancik. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper and Row.
- Porath, A., and B. Lev. 1995. The New Israeli National Health Insurance Law and Quality of Care. *International Journal for Quality in Health Care* 7(3):281–284.
- Rosen, B. 1991. *The Netanyahu Commission Report: Background, Contents and Initial Reactions*. Research Report 24-91. Jerusalem: JDC-Brookdale Institute.
- Rosen, B., M. Ivancovsky, and Y. Nevo. 1998. *Changes in the Sick Fund Economy: Sick Fund Revenues and Expenditures Before and After the Introduction of National Health Insurance*. Research Report 317-98. Jerusalem: JDC-Brookdale Institute.
- Rosen, B., and R. Steiner. 1996. *Recent Trends in Sick Fund Market Shares*. Research Report 275-96. Jerusalem: JDC-Brookdale Institute.
- Saltman, R. B., and J. Figueras. 1997. *European Health Care Reform, Analysis of Current Strategies*. Copenhagen: World Health Organization.
- Shortell, S. M., E. M. Morrison, and B. Friedman. 1992. *Strategic Choices for America's Hospitals: Managing Change in Turbulent Times*. San Francisco: Jossey-Bass.
- Shuval, J. T. 1991. Political Processes in Health Care: A Case Study of Israel. *Research in the Sociology of Health Care* 9:279–304.
- Starbuck, W. H. 1982. Congealing Oil: Inventing Ideologies to Justify Acting Ideologies Out. *Journal of Management Studies* 19(1):3–27.
- State of Israel. 1990. *Commission of Inquiry into the Functioning and Efficiency of the Health System in Israel*, vols. 1, 2. Jerusalem: Government Printing Office (in Hebrew).
- Thompson, J. D. 1967. *Organizations in Action*. New York: McGraw-Hill.
- Tuohy, C. H. 1999. Dynamics of Changing Health Sphere: The United States, Britain and Canada. *Health Affairs* 18(3):114–134.
- Van de Ven, W. P. M. M. 1996. Market-Oriented Health Care Reforms: Trends and Future Options. *Social Science and Medicine* 43(5):655–666.
- Van Maanen, J. 1979. Reclaiming Qualitative Methods for Organizational Research. In *Qualitative Methodology*, ed. J. Van Maanen. London: Sage.
- Weick, K. 1979. *The Social Psychology of Organizing*. 2d ed. Reading, MA: Addison-Wesley.
- Yin, R. 1984. *Case Study Research*. London: Sage.

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## Implementing managed competition in Israel <sup>☆</sup>

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### Abstract

As of January 1, 1995, Israel's National Health Insurance (NHI) Law laid the foundations for regulating competition among the country's four private, not-for-profit sick funds. Prior to NHI the sick funds (SFs) had competed without governmental control. Extensive research on NHI implementation and the behavior of the sick funds (SFs) after passage of NHI reveals a paradoxical development: The NHI bill drew on the rhetoric of managed competition and did indeed establish a legal and structural framework for regulating competition among the SFs. Nevertheless, in practice, SF autonomy was constrained and competition over provision of statutory care was limited. Rather than fostering competition, the main thrust of the NHI reforms was to enhance central government's control over SF expenses in order to constrain government expenditures. The NHI reforms did encourage the SFs to cut costs and make visible service improvements. However, the reforms did not lead the SFs to reorganize, expand the scope of their services, or improve clinical quality, as the reformers had hoped. Nor did the reforms help eliminate the SF's operating deficits or insure financial stability for the whole health system. Furthermore, the reforms had unanticipated and undesired outcomes, including aggressive and illegal marketing by SFs and collaboration among SFs to restrict the extent of care provided under compulsory insurance. The Israeli case suggests that the theory of managed competition contains unrealistic assumptions about the types of competitive behavior that result from exposure to managed competition and the capacity of government and health providers to monitor quality. In addition to stemming from universal limitations to the managed competition model, the implementation pattern in Israel reflects local, historical forces and the interplay of Israel's powerful health system actors. © 2001 Elsevier Science Ltd. All rights reserved.

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### Introduction

Israel's health care reform began to take shape during deliberations in the late 1980s by a State Commission of Inquiry into the Functioning of the Health System (State of Israel, 1990). The commission was formed in response to a deepening crisis in health care finance, labor

relations, and service delivery (Chernikovsky & Chinitz, 1995). Influenced by British and Dutch views on managed competition and quasi-markets (Shirom, 1998), the members of the State Commission proposed creating regulated competition among the country's four not-for-profit sick funds, which operate as health maintenance organizations (HMOs); transforming hospitals into competing autonomous legal entities like Britain's trusts; and reorganizing the Ministry of Health so as to strengthen its policy making, planning, and monitoring functions and reduce its involvement in service delivery (Shirom, 1995). As in several other countries (Light, 1999, Saltman & Figueras, 1997), many advocates of these reforms justified them in terms of the theory of managed competition (e.g., Enthoven, 1993), which assumes that properly regulated competition

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among health insurers and providers will lead to more efficient use of resources and cost containment, as well as to improved quality of care.

In this paper we examine the implementation of regulated competition among Israel's sick funds (SFs). This reform was incorporated into the National Health Insurance (NHI) law, that was passed in 1994 after an intense political struggle (Chinitz, 1995) and took effect on January 1st, 1995. Although the NHI bill and subsequent legislation created a legal and structural framework for regulating competition among the SFs (Shalev & Chinitz, 1997) and rested on the rhetoric of managed competition, the main thrust of the NHI reform was to constrain government expenditures and enhance control by the central government over health care expenses.

As in other countries (Harrison & Calltorp, 1997; Hsiao, 1994; Light, 1997, 1999), implementation of competitive reforms encouraged Israel's SFs to make cost saving moves and improve visible services. But the introduction of managed competition did not lead the SFs to engage in radical reorganizations, extend the range of services provided under statutory care, or improve clinical quality. Nor did the reform halt deficit spending by the SFs and restore financial stability to the health system, as hoped. Instead, national health expenditures continued to rise,<sup>1</sup> the SFs continued to run up deficits, and continued to lobby the government for additional funds and more favorable treatment.

The reforms also led to other outcomes that were not anticipated by advocates of managed competition and were viewed as undesirable by many actors within the health system. In particular, the SFs engaged in self-aggrandizing forms of competition while also cooperating with one another. Rather than striving to improve clinical quality or publicize information on their services and quality of care, the SFs concentrated on making service improvements that would readily impress patients and used aggressive and even illegal marketing methods to attract members. Moreover, the SFs cooperated with one another to restrict the range of care provided under compulsory insurance, rather than adding clinical services as the reformers had hoped. Pursuit of narrow self-interest and collaboration among competitors are often observed by students of market behavior (Light, 1999). Nonetheless, the SFs actions clashed with the expectations and agendas of the ministries of health and finance and led to legislative and regulatory reprisals.

<sup>1</sup>National health expenditures rose in real terms from 1995 through 1997, but the proportion of the GDP spent on health declined. The NHI reforms were, of course, one of many forces that might have affected total health expenditures. Rapid population growth was another.

Our analysis is informed by two complimentary theoretical perspectives. The first, historical institutionalism (Immergut, 1998), shows how policy development and implementation reflect power distributions, structures, and interactions within national government (Skocpol, 1992), along with historic precedents (Hecl, 1974) and policy legacies (Weir & Skocpol, 1985). The perspective of historical institutionalism is particularly well suited to the analysis of health policy implementation in Israel, because the central government dominates the nation's political economy and the formation of public policy and the Ministry of Finance has traditionally been very influential in policy implementation (Arian, 1985, Kleinman, 1996). The second perspective, policy network analysis (Dohler, 1991; Marin & Mayntz, 1991), explains policy changes in terms of shifting agendas, power relations, and interactions within and among collective actors at the national, regional, and local levels (Kenis & Schneider, 1991; Knoke, Rappi, Broadbent & Tsujinaka, 1996; Light, 1991).

The data for this paper came in part from an extensive, longitudinal evaluation of NHI implementation and its system-wide effects conducted by the JDC-Brookdale Institute since 1995. The evaluation strategy was based on integration of information from different sources — interviews with key actors, population surveys, physician surveys, financial and managerial data. That study also analyzed relations between the law's provisions, processes within organizations charged with its implementation, and outcome measures (Gross Rosen & Chinitz, 1998b). In addition to the Brookdale study we draw on a separate qualitative study of the SF's strategic behavior following the introduction of NHI (Gross, 1999). That study was based on 160 in-depth retrospective interviews with SF managers and governmental officials at the end of 1996. The study also analyzed published and unpublished documents, newspaper reports, and statements by senior managers at conferences and governmental committee hearings.

The rest of the paper is organized in the following fashion: After providing some background on the Israeli health system, we analyze the implementation of the managed care reform. In particular, we compare the emergent pattern of implementation to the ideal typical model proposed by Alain Enthoven (1993), the most articulate theoretician of managed competition. Then we examine how in fact the SFs responded to the limited competitive incentives contained within the NHI law. Drawing on the two theoretical perspectives mentioned above we account for the most important features of the emerging pattern of NHI implementation in terms of historical institutional forces within Israel's political economy and interactions among the health system's main policy actors. In the conclusion we return to the

discussion of the theories underlying our analysis and consider the implications of our findings for research and theorizing on managed competition. We point out that in Israel the rhetoric of competition was used to promote other agendas, in particular the drive by the Ministry of Finance to increase central government's control over the SFs and constrain government spending. We observe that several assumptions within the theory of managed competition about the behavior of organizations subject to competition appear unjustified in light of our findings and those of other studies.

### The Israeli health care system: structure and actors

Health care in Israel is a universal entitlement for residents<sup>2</sup> provided through a publicly regulated system that is dominated by the Ministry of Health (MOH) and the country's four SFs. The SFs provide nearly all of the nation's health insurance and deliver most of its primary care. Until the early 1980s Kupat Holim Clalit (KHC), which was owned by the General Federation of Labor (Histadrut) and retained close ties to the Labor Party, enjoyed near monopoly status in health insurance and primary care. Gradually the smaller SFs increased their share of the health insurance market. KHC still insures almost 60 percent of the population, but its market share is constantly declining. Over time, KHC's membership became significantly older, poorer, and less healthy than that of the other funds. These trends, combined with loose mechanisms of financial accountability, generous pay agreements, and a commitment to absorb immigrant physicians, led to huge deficits and serious financial instability for KHC.

The MOH is responsible for the planning, regulation, and coordination of the health system; general assessment and control of SF operation; and implementation of legislation concerning health care and its provision. The MOH is also the major provider of in-patient services (including most long-term care and psychiatric hospital services), public health services, and community-based psychiatric care. Traditionally the MOH shared decision-making power with the powerful Min-

istry of Finance and KHC. This arrangement and the health ministry's engagement in the routine operation of services hindered the ministry's ability to monitor the SFs and hospitals, regulate the system, and define policy. The result was deficient planning of human resources, limited regulation of the diffusion of medical technologies, inconsistent regulation of the SFs, and lack of adequate resources for provision of preventive care and health education (State of Israel, 1990; Rosen, 1991).

The Ministry of Finance (MOF) plays a major role in Israel's health system and in the government as a whole (State of Israel, 1990). The MOF allocates the budget to all ministries. Finance ministry approval is required for all MOH decisions having budgetary consequences — such as payment rates to hospitals and salary agreements. In keeping with this tradition, the NHI Law grants the Minister of Finance a senior role in health system decisions. For example, together with the Minister of Health, the Minister of Finance has a mandate to define the funding level for National Health Insurance and the size of yearly updates in NHI funding.

The Israeli medical profession continues to be a powerful player in the health policy field. Its members retain dominance over medical decisions and other medical occupations in the hospitals and to a lesser degree in the community (Harrison, 1993). Elite members of the profession also exercise considerable influence over national policies bearing on professional training, licensing, and care standards. Nearly all Israeli physicians are members of the Israeli Medical Association (IMA), which operates as both a professional association and as the coordinating body in collective bargaining for its member unions (Yishai, 1990).

### Implementation of managed competition among insurers

In this section we analyze the implementation of the 1995 reform of the Israeli health care system and compare the emergent pattern of HMO competition with that envisioned by Enthoven and other theorists. Then we explore the degree to which Israeli SFs responded to the competitive incentives within the NHI reform in ways that might have been predicted from managed competition theory.

### NHI reforms

The 1995 NHI law established ground rules for structuring the previously unregulated competition among the nation's four SFs. The main stated goals of the NHI law were to make health insurance universal, clarify the rights of citizens to health insurance coverage, increase freedom of choice among SFs, stabilize the health system financially, improve quality of care, increase

<sup>2</sup>The status of "resident" is granted according to the specifications of the National Insurance Institute law. It includes all citizens residing in Israel. It is granted by the National Insurance Institute to non-citizens and to citizens living abroad for over 5 years based on several criteria such as living permanently in areas of Israeli sovereignty, learning or working permanently in Israel, and not being a citizen of another state. Thus, tourists, foreign workers and non-Jewish residents of the West Bank and Gaza are not defined as residents. Jewish settlers in the West Bank and Gaza and residents of East Jerusalem (which is under Israeli sovereignty) have resident status.

equity, and free the MOH from operational responsibilities for providing health services so that it could monitor and guide the system (Gross, Rosen & Chinitz 1998b).

The 1995 NHI law mandates compulsory universal coverage for all Israeli residents in a sick fund of their choice. Prior to the law's passage 4% of the total population and 12% of the Arab citizens of Israel were uninsured. To ensure freedom of choice and movement between SFs, the law forbids direct risk selection by prohibiting SFs from rejecting candidates for membership. Complaints about SF actions can be made directly to the MOH or to a public ombudsman appointed by law. Prior to the law's passage, risk selection was legal and widely practiced.<sup>3</sup>

The NHI law stipulates a standard package of care that SFs are obligated to provide members and permits SFs to add services to the basic package. SFs are also permitted to offer supplemental coverage of services not included in the package for an additional fee. The law states that during a transition period — initially 3 years, but later extended through 1998 — the SFs can continue to deliver the same services that they provided prior to the law's passage. The MOH interpreted this portion of the law as requiring all SFs to provide the entire set of services specified in the NHI law, but the SFs interpreted the law as allowing them to exclude services from basic insurance coverage if the services were not provided to SF members prior to the law's passage. Under the NHI Law, after the transition period, responsibility and budgets for providing preventive medicine, Mother and child care, care of the mentally ill, and nursing care are to be transferred from the MOH to the SFs.

Before NHI's passage, SF revenues were linked to the income of their members and were collected by the SFs themselves. According to the NHI law, the revenues from a health tax of 4.8% of income (with reductions granted to the elderly and poor) is collected centrally by the National Insurance Institute. These funds are combined with direct government contributions<sup>4</sup> and distributed by the National Insurance Institute to the

SFs according to a risk-adjusted, capitation formula based on number of members and their age distribution. Thus the SFs have an incentive to attract members, but they can only compete on the price of non-statutory (voluntary) supplementary insurance. Subsequent legislative modifications of the NHI bill in 1998 permitted additional limited price competition — over the levels of copayment for services contained within the basic benefits package. This move was intended to curtail further growth in governmental health expenditures and establish some competition on price as an incentive for SF efficiency. The assumption was that as they competed for members, the SFs would cut expenses, rather than raising copayments.

Under NHI the MOF and MOH share responsibility for monitoring the financial performance of the SFs, while the MOH is to insure the quality of SF services. The SFs are required to provide any information on their status and performance requested by the governmental regulators. In practice, the control process has focused primarily on the fiscal status of the SFs. Little information on health outcomes or quality has been reported to the MOH. To further enhance its fiscal and operational control over the SFs, the government introduced legislation in 1996 that authorizes the MOF to appoint an external comptroller over SFs that continue to run deficits and grants the MOH and the MOF the authority to review and approve SF development plans and contracts with external providers. In practice neither ministry has exercised these powers of control over SFs.

To what extent did the reform launch a system like that envisioned by theorists of managed competition? The main principles of managed competition in health care, as formulated by Enthoven (1993) include the following: (1) Sponsors (e.g., government, employers, purchasing cooperatives), which represent large groups of consumers, contract with insurers and HMOs. The sponsors manage enrollment and ensure that consumers enjoy freedom of choice and movement among insurers. (2) Insurers must accept all applicants. (3) Payments to insurers are based on risk-adjusted capitation, so to discourage risk selection. (4) Insurers compete over the size of additional premiums charged to consumers, in excess of the fees covered by capitation. (5) Sponsors negotiate standard benefits package with insurers so that consumers can compare the quality and cost of care provided by competing insurers. (6) Sponsors develop and disseminate quality-related information so as to enable informed choice of insurance plans.

Although the planners of the NHI reform did not explicitly aspire to implement a managed competition system, analysis of the components of the NHI law reveals a striking resemblance to Enthoven's theoretical model (Chinitz, 1994) as well as some prominent deviations from that model.

<sup>3</sup> Although the law forbade risk selection, it did not empower the MOH to prevent indirect risk-selection practices by SFs — for example, marketing insurance to selected populations or opening clinics in selected areas.

<sup>4</sup> Until 1997, the funding sources were: health tax (45%), employers' parallel tax (40%), direct budgetary allocations by the national government (10%) and patient copayments (5%). After 1997, following an amendment incorporated in the budget reconciliation bill, the employers' tax, which was earmarked for health care, was replaced by direct allocations from the national budget. The employers' parallel tax was replaced by a tax on employers payable to the National Insurance Institute. This agency distributes funds for most types of social insurance, as well as for health care. (Bin Nun, 1999).

The most obvious deviation is that the original NHI bill ruled out price competition among insurers over the premium for the statutory benefits package. Later riders to the NHI act introduced very limited possibilities for price competition over copayments and continued to permit price competition on supplementary insurance. Rather than encouraging vigorous price competition among HMOs, as envisioned by advocates of managed competition, the NHI bill and subsequent reform measures provided for tight governmental control over SF finances.

Theoretical treatments of managed competition in health identify lack of information as a fundamental market failure that needs to be corrected to allow for rational choice of insurers. Nonetheless, the Israeli reforms failed to provide adequate information to patients or public sponsors of patients, such as physicians or consumer groups, about the quality of the services provided by the SFs. In fact the NHI reform did not even provide for effective diffusion of information about the services that were covered under statutory and supplementary insurance. Nor did the reforms insure sufficient monitoring of the quality of services offered by insurers.

Later in the paper we will explain why these particular features of the ideal-typical model of managed competition were not implemented in Israel. We will further suggest that theoretical models of managed competition like Enthoven's suffer from two main weaknesses: failure to acknowledge the practical difficulties of implementing the model (e.g. developing and diffusing data about the quality of competing health insurers and providers), and overly optimistic assumptions about the ways in which health insurers and providers react to competitive incentives and regulation.

### Sick fund responses<sup>5</sup>

How did the SFs respond to the combination of limited competitive incentives, tight fiscal controls, and constraints on competition to which they were exposed? Spurred by the new system of reimbursement based on capitation, all funds engaged in aggressive, and sometimes even unethical, methods of enrolling new members, such as getting children to sign up their uneducated parents. Other techniques included employment of salesmen, negotiations with leaders in the Arab and Orthodox Jewish sectors, giving out presents to newcomers, and tailoring special services to populations with special needs, for example recent Russian immigrants and orthodox Jews. Consequently, SF advertising and marketing

budgets jumped from 51.5 million NIS in 1994 to 91.2 million NIS in 1996 (Gross & Harrison, 1998).

In addition to advertisement and marketing efforts, SF recruitment techniques included opening clinics and offering services in smaller settlements, where individuals without SF affiliations and those with larger families were highly concentrated. Now that SF revenues were not related to income of members and were allocated per capita, rather than per family, the SFs showed particular interest in increasing their enrollment among the less wealthy sectors of Israeli society, and among sectors having large families, including Israeli Arabs and ultra-orthodox Jews. The change in targeting of populations for recruitment was particularly dramatic in the smaller SFs, that had previously favored recruitment of younger individuals with small families. Contrary to expectations, the SFs did not compete vigorously to attract the elderly, since the SF managers regarded the reimbursement level created by the capitation formula as insufficient.

To draw in members and respond to public pressure, the SFs added coverage of some new drugs not specified in the original statutory benefits package. However, the funds quickly demanded government compensation for the additional costs. Moreover, to intensify pressure on the government during budget deliberations, the fund managers refused to supply other drugs that were listed in the statutory insurance package (Chinitz & Israeli, 1997).

The finance and health ministers viewed much of this competitive behavior as wasteful and costly. Hence they initiated legislation, which was passed in 1997, to restrict registration for SF membership to post offices and ban SF advertising. In this way the government sought to direct SF competition toward improvements in services and efficiency and reduce the high transaction costs created by managed competition. Although they competed for members, the SFs also collaborated closely in their efforts to convince the government to increase health care funding and restructure the system to their advantage. For example, the fund managers and their political allies lobbied for changes in hospital reimbursement methods and for funding increments to cover advances in health technology. The SFs also joined forces in negotiations with hospitals, drug companies, and other providers of goods and services. Moreover, the funds exchanged information on salary levels and in some cases even operated clinics together and sold services to one another. Cooperation among the SFs grew as the resources allocated to health care got tighter and the benefits of cooperation became increasingly evident to SF managers.

What is more, the SFs responded to the growing budgetary and organizational constraints to which they were subject by rejecting the government's attempt to intensify competition among them. They did not

<sup>5</sup>The analysis in this section is documented in Gross's dissertation, (see Gross, 1999).

compete by expanding the services provided within the statutory benefits package, improving the quality of medical care, or seeking efficiency gains. Instead, the SFs collaborated with one another and competed only on the accessibility of their services, their administrative quality, and supplemental benefits packages — which could be purchased for additional fees.

Rather than welcoming the expansion of their service domains, the SFs joined other opponents to the idea and successfully lobbied for postponement of the NHI clause transferring responsibility for state-run services from the MOH to the SFs. Opposition to this move by the SFs and the providers was explained by fear of inadequate reimbursement for these additional services.

Rather than adding services to the basic statutory care package, as they were permitted and encouraged to do by the 1998 budget bill, the SFs collaborated to pare down existing services. For example, they joined in closing their clinics on Fridays (the first day in Israel's emerging two-day weekend), reduced night services, and cut back the number of fertility treatments that are reimbursed under the basic insurance package. The SFs claimed that their growing deficits left them no choice but to restrict services so as to meet the law's requirement for balancing their budgets.

On the other hand, the SFs did add services to the supplemental insurance packages, for which they could charge additional premiums. In fact, SFs competed with one another by rapidly expanding their supplementary insurance policies. The SFs have since made many changes in these policies, for example, by covering additional procedures, increasing levels of compensation, and covering consultations for second opinions. The supplemental insurance programs provide important sources of revenue both directly through premiums and indirectly as a means to attract patients to join a SF (Gross & Bramli, 1996).

NHI financing methods led to reallocation of funds among SFs and budgetary reductions in three of them. Although the reform failed to produce fundamental SF reorganizations, it did lead the SFs towards cost-saving. In the three small sick funds between 1994 and 1995 expenses per standardized member declined. In 1996 the expenses remained stable in two SFs and continued to decline in the third. Expenses in KHC remained stable between 1994 and 1995, however they did rise in 1996 due to increased funding and other causes (Rosen, Ivankovsky & Nevo, 1997; Ivankovsky, Rosen & Nevo, forthcoming).

The SFs sought to improve their administrative services so as to attract members, and indeed succeeded in enhancing availability (e.g. reduced waiting in clinics) and patient satisfaction, which rose from 83% satisfied or very satisfied in 1995 to 91% in 1997 (Gross, Greenstein, Dubani, Berg, Yuval & Rosen, 1998a). However, the SFs did not seek to compete on the clinical

quality of their own services or those contracted from state providers. One reason for lack of competition on clinical quality was the concern of SF managers that improvements in sophisticated forms of care would attract severely ill members, who would generate unreimbursed costs for the SF. The funds also faced opposition to quality control by physicians. Moreover, there were concerns among managers that close monitoring of quality might uncover areas in which further expenditures were needed. The funds placed greater priority on improving visible forms of service, like the appearance of clinics and offices, because these improvements were considered more likely to attract desirable members than were less evident and less understandable improvements in clinical quality.

The SFs' responses to the reforms, like the market behavior observed in other for-profit and not-for-profit service providers (Light, 1992, 1999), suggest that it is unrealistic to expect managed competition mainly to generate incentives for desirable forms of competition, like quality improvement and price reduction through efficiency gains. Instead, managed competition — and not just bureaucratic regulation — can generate “perverse incentives”. These can lead insurers and service providers to collaborate and even collude, use underhanded marketing techniques, select clients who generate the most profit and require the least services (e.g., skimming by insurers), hide quality defects, and invent other tactics and strategies that provide maximum profits for minimal services.

### Analysis

Three prominent features of the health system that emerged in the wake of the 1995 NHI law deserve close attention: (1) growing dominance and regulation by central government and particularly the Ministry of Finance; (2) the emergent pattern of SF competition described above; (3) lack of public scrutiny of the quality of SF services. To account for these features, we draw on historical institutionalism and policy network analysis, the two theoretical approaches to policy making described above.

#### *Governmental dominance and increased regulation*

As implemented, the most important impact of the NHI reforms was to produce tighter governmental control over the SFs, rather than to foster regulated competition among them. The NHI act, subsequent legislative riders, and the actions of the Finance and Health Ministries all reduced SF autonomy and strengthened the hold of the MOF over SF finances. These outcomes were in keeping with the original interests of the governmental reformers, in particular

the MOF, who sought to enforce financial discipline on the SFs and the state health system, limit total costs, and reduce governmental expenditures for health. In these ways the reformers hoped to put an end to the health system's repeated deficit spending and financial crises.

Let us examine the nature of governmental dominance over the sick funds more closely before explaining how this pattern emerged. NHI regulations increased centralized control over the health system by assigning the task of collecting and distributing virtually all funds for statutory care to central government agencies. Furthermore the NHI bill designated the MOH and MOF as the agents responsible for monitoring and insuring the fiscal soundness of the SFs and the quality of SF services. The NHI bill further increased the dependence of all SFs on the MOF by making the MOF a senior partner in defining the level of the overall budget for funding of the statutory benefit package.<sup>6</sup> The Minister of Health and Minister of Finance were given the authority to decide about compensation for population growth and aging, and both ministers were to take part in decisions on changes in the capitation formula and decisions about additions to the statutory benefits package.

MOF actions since passage of the NHI have further tightened the ministry's hold over the health system. MOF officials had opposed the NHI bill, because it threatened to create a whole new set of entitlements to public spending. Unable to block the law altogether, the MOF officials extended their control over SF finances and resisted forms of implementation that would increase governmental obligations — including the specification of the statutory benefits package and automatic updating of charges for services. To this end, the MOF overcame MOH and SF resistance and succeeded in substituting direct governmental funding for earmarked employer contributions to health insurance in the 1997 budget reconciliation bill.

In exchange for fund transfers to KHC and the other SFs, the MOF demanded evidence of cost-cutting and other "efficiency moves". Furthermore, the MOF enforced budgetary ceilings on the SFs and the state hospitals. The MOF also acted to keep transfers to the SFs below the rising costs of health care. Since 1995 the MOF has reimbursed the SFs for increases in the Index of Health Costs, which includes labor costs, but has restricted additional increments to 2% per annum, the

estimated rate of growth of the economy as a whole. Until 1998 the Finance Ministry ignored pleas by the SFs and the MOH to consider cost rises associated with the aging of the population and with changes in health technologies.<sup>7</sup> Members of the MOF explained its restrictive budgeting policies in terms of the need to enforce fiscal discipline in the SFs and hospitals. Other explanations given for MOF actions cited the ministry's responsibility for preventing increases in government spending and its need to retain control over national priority setting and the allocation of public funds.

These fiscal policies apparently reduced the government's share of health care funding (Ministry of Health, 1998, p. 175), but they did not produce fundamental SF reorganization or resolve the chronic deficits of the health system. Although KHC's deficit declined in comparison to the pre-reform period, it was still massive in 1997. What is more, the smaller SFs, which usually had balanced budgets prior to the reform, have all run up deficits since 1995. Overall the reform failed to produce financial stability for the system. In 1997 SF deficits totaled about 1.5 billion NIS (around \$400 million). These disappointing fiscal outcomes probably stemmed from several sources, including the long-standing tradition of deficit spending within the KHC and other health providers, as well as in other public agencies in Israel. In addition, the SF deficits reflected the tendency for the MOF to update the health budget by a smaller percentage than the actual growth in the health care needs of the population.

Past policy precedents provide the most obvious explanation for the policies and actions of the MOF. During the late 1970s and 1980s the MOF and its allies in the cabinet and parliament frequently championed restrictive budgetary policies aimed at reducing government debt and curtailing inflation (Sharansky, 1987).<sup>8</sup> Kupat Holim Clalit and the Ministry of Health, like many other public and semi-public bodies, practiced deficit spending, depending heavily on the MOF for periodic injections of cash to help them overcome funding deficits and meet rapidly rising wage demands. Finance ministers repeatedly sought — with some success — to link these fund transfers to assurances that the recipients would enact tighter budgets, cut personnel, sell unproductive assets, and make other moves toward greater fiscal responsibility.

The result of the fiscal policies was a freezing of real government expenditures for health services, in keeping

<sup>6</sup> A major reason for the MOF's interest in this involvement is that the NHI law stipulates that government should make up the difference between the projected cost of providing the benefits package (i.e. the overall budget) and the actual revenues from the health tax, copayments and employers parallel tax. Therefore MOF wanted control on the decision of the overall budget.

<sup>7</sup> In 1998 in response to public pressures (Chinitz & Israeli, 1997) and in return for additional SF efficiency moves, the MOF agreed to allocate additional 150 million NIS per year for technological advancements.

<sup>8</sup> These policies were not pursued consistently and had only limited impacts on total government spending.

with a trend that began before the introduction of NHI and was not an exclusive outcome of the NHI reform. Although total health expenses rose from 7.1% of GNP in 1980 to 8.7% in 1997, government expenses remained at 3.7% (Weinblat, 1997). Since demand for care continued to grow, individual payments on health rose rapidly, increasing by 48% between 1986/1987 and 1992/1993 (Berg, Rosen & Ofer, 1995).<sup>9</sup> Altogether, the proportion of national health care expenditures financed by households rose from 39% in 1985 to 46% in 1994 (21% SF membership fees and 25% out-of-pocket payments). The percentage coming from of household expenditures continued to rise also after NHI to 52% in 1997 (26% health tax and 26% out-of-pocket payments) (State of Israel Ministry of Health, 1998).

The growing emphasis on household and individual expenditure was accompanied by a growth in private health insurance. In 1995, 17% of the citizens had private insurance, as compared to 13% in 1990. Moreover, in 1995 about 40% of the population held supplemental insurance policies that were offered by the SFs. Between 1986 and 1993 private insurance revenues from health premiums grew by 50%, and between 1993 and 1995 the revenues increased by an additional 30% (Gross & Bramli, 1996). Similar increases in private activity and funding occurred during the 1980s and 1990s in geriatric care, social services, education, and even neighborhood policing (Harrison 1992; Ben Yehuda, 1989).

Changing relations among the health system's powerful actors, and not just historical precedents, help explain the MOF's growing power over health finance. Until the 1970s, when Labor governments reigned unchallenged, the KHC-Histadrut-Labor Party alliance provided the KHC with an inside track to the MOF. Even after the Likud Party gained control of the government in 1976, KHC and its allies exercised some countervailing power. The MOF's hold over health finance tightened as the alliance between the Histadrut and KHC weakened during the late 1980s and early 1990s. Recurring cabinet and parliamentary rule by center-right coalitions further strengthened the hand of the finance minister.

Until recently the forces opposing governmental budget policies were highly fragmented and unable to influence the overall direction of MOF policy. They have grown more unified and vocal of late but have not yet been able to undermine the MOF's dominance over health finance. The loose coalition that has emerged in the last few years to support increased health spending

and oppose the MOF includes many of the stakeholders in the health sectors. The coalition's members include, many "socially concerned" members of parliament within the governing coalition and the opposition, the MOH, health professionals, the Histadrut, the SFs, consumer groups, immigrants' associations, the retirees' organization, and lobbies representing specific groups of patients. Confrontations between the Ministry of Finance and this coalition have centered on the ministry's attempts to level additional fees and taxes on the public since the passage of the NHI, the ministry's resistance to updating the set of minimum statutory services, and the ministry's refusal to adjust the formula for compensating the SFs for rising costs. Thus far the Finance Ministry has won the upper hand in most confrontations.

The Finance Ministry's power over other stakeholders partly reflects a long-standing pattern in Israeli politics, according to which the Minister of Finance exercises great influence over the funding of public services and plays a central role in negotiations over national wage settlements and development programs, as well as in the annual rounds of budget negotiations (Arian, 1985). The enduring power and prestige of the Finance Minister contrasts dramatically with the limited budgetary power of the Minister of Health and the Parliamentary Committee on Labor and Social Welfare, which often advocate increased funding for health and social services. Since the 1950s, weak cabinet members have been assigned the role of Health Minister,<sup>10</sup> while the role of Finance Minister had been one of the most important and prestigious cabinet appointments. The Health Minister is concerned mainly with running the state health services and has been unable to act as a source of countervailing power to that of the Finance Minister.

Yet a further explanation for the growing centrality and power of the MOF lies in support within the center-right cabinets and the public at large for ideas associated with the views of New Public Management (Ferlie, Ashburner, Fitzgerald & Pettigrew et al., 1996; Hood, 1991). In particular, it is widely assumed that public services can be improved by exposure to competition, requiring them to obtain funding in the private sector and leveling fees directly on users. These views are often expressed in the media by members of parliament in both the ruling coalition and the opposition, journalists, business people, and academics. Many of the advocates of these views apparently sincerely believe that user fees

<sup>9</sup>The individual payments include SF health premiums which rose by 91%, private insurance which rose by 210%, dental expenses which rose by 13%, and other out of pocket expenses (e.g. medication) which rose by 17%.

<sup>10</sup>An exception to that were the appointments of Ehud Ulmert in 1988 and Chaim Ramon in 1992 which enabled the NHI legislation. Both were aspiring young politicians member of the leading coalition party, and both saw health reform as a major plank in their political platform (Chinitz, 1995).

reduce unjustified demand for health services without threatening public health or violating norms of fairness and solidarity (in contrast, see Saltman & Figueras, 1997). Diffusion of these neo-conservative views helped sustain a fundamental reorientation of Israeli social policy during the late 1980s and early 1990s — from the welfare state ideal toward decreasing government involvement in the economy and growing reliance on market principles and privatization (Doron & Kremer, 1992).

#### *Emergent pattern of Sick Fund Competition*

The second critical feature of the implementation of NHI was the emergent pattern of SF competition described above. Sick Fund competition since 1995 poses an apparent paradox: If neo-conservative views gained sway within the Israeli government after 1995, why did the NHI reforms restrict SF competition and why did the SFs avoid engaging in many types of competition that were permitted by law? The resolution of this paradox lies in the dominance of the MOF over health finance and in that ministry's overwhelming concern with forcing a resolution of the funding crisis within KHC and shifting health expenditures to the private sector. Members of the MOF apparently espoused the theory of managed competition primarily as a justification for restraining government expenses and forcing KHC and the state-run hospitals to introduce cost constraints. Hence the MOF opposed any form of SF competition that threatened to increase public expenditures.

In theory, many of the MOF's economists favor exposing public services to the discipline of the market. However, in practice MOF officials only favored competition when it served to shift costs to the private sector. Therefore, the MOF joined the MOH in supporting a ban on SF advertising and in seeking to keep the SFs from opening clinics in small settlements that already had primary care clinics.<sup>11</sup> On the other hand, the MOF took a pro-competitive stance on copayments and the provision of supplementary insurance by SFs — moves that shifted costs to the private sector.

The MOF's conflicting positions on competition apparently reflected its officials' lack of trust in the ability of market-like mechanisms to produce system-level cost savings under conditions of market imperfection. Further evidence that the MOF pursued a strategy of restraining governmental expenses is found in its opposition to transferring responsibility for additional statutory services to SFs, as envisioned by the NHI act. The MOF made it clear that if state-run services, like

care for the mentally ill, were transferred to the SFs, the SFs would have to remain within the current budgets for these services. No extra funding would be provided to support reorganization or improvement of the transferred services.

The pattern of restricted scope of SF competition that emerged under NHI reforms can also be traced to the agendas and actions of policy actors besides the finance ministry — particularly the SFs, the MOH, and the health professionals working in them. Most importantly, the SFs reacted to the tight budgetary restrictions imposed upon them by resisting adding services within the framework of statutory care. Instead of expanding services, as permitted by the 1998 budget bill, the SFs restricted the services that they already offered within the minimum benefits package.

The MOH joined the SFs in opposing the transfer of state-run psychiatric and nursing services to the SFs, as did the professionals responsible for providing these services. The MOH directly operated most of these services and risked loss of funds and power. MOH officials and health professionals feared that they would lose their autonomy as providers and would be subject to pressures by the SFs to substitute less expensive services for more expensive ones — for example, replacing long-term psychiatric treatments with short-term interventions (Brick-Deshen, 1998, Feldman, Gross, Nirel & Barash, 1996).

In line with the principles of managed competition, the basic thrust of the NHI reform since 1995 was toward a regulated system of health care in which private not-for-profit SFs deliver a standard package of care. However, the Israeli reform also made SFs subject to increasingly tight fiscal regulation by centralized governmental bodies. Thus the MOF appears to have used rhetoric of managed competition to justify tightening control over the SFs, reallocating funds among SFs, and limiting government health expenditures.

#### *Lack of quality assessment*

The third feature of the emerging system that calls for explanation is the lack of public scrutiny of the clinical quality of SF services. The NHI Law and a subsequent legislative rider called for monitoring quality by the MOH and for the cooperation of the SFs in the provision of relevant quality data. But in fact, neither the MOF nor the MOH paid much attention to SF quality. Here again a combination of institutional and political forces were at work.

Of all the stakeholders in the system, only patients stood to gain directly from the gathering and publication of systematic quality data and from public deliberation over these data. Israel's physicians have traditionally taken a rather elitist and authoritarian approach to their professional roles (Shuval, 1992).

<sup>11</sup> The 1997 budget bill granted the MOH the power to limit the opening of clinics in small settlements. In 1998 it was given the power to close clinics that were judged redundant.

Until the 1980s few patients publicly challenged their physicians' expertise and authority. In the past two decades, as the consumer movement, patient activism, and malpractice suits have gained momentum, the physicians have dug in their heels to resist external efforts to monitor the quality of their activities — insisting that only professionals can be trusted to assess quality and improve quality (Harrison, 1993).

The SFs, in turn, also resisted demands by consumer advocates and the government that they become more accountable for the quality of their services. The SFs lack the technical capacity for gathering valid and comprehensive data on clinical outcomes and would encounter physician resistance to quality assessment drives. Moreover, SF managers, like physicians, have traditionally enjoyed decades of freedom from limited public accountability for quality. They are only likely to relinquish their operational autonomy when faced with overwhelming pressure to do so. What is more, by providing details on the nature and quality of services — including inputs to quality, like levels of professional expertise — SF managers would expose themselves to demands to improve their services without being granted the funds to do so.

In theory, the MOH might have been expected to insist that the SFs provide quality data so as assure quality and spur SF competition in this area. In fact, the MOH encouraged quality assurance by professionals long before the passage of the NHI, but after the passage of the NHI bill, the MOH did not lead a drive for obligatory quality assessment or public scrutiny of quality data. Instead the ministry made only limited moves to correct its historic failure to develop the infrastructure needed to monitor and guide the operations of the health system as a whole (State of Israel, 1990).

The MOH position on care quality appears to reflect two major constraints: First, the MOH is itself a major provider of health services and is resistant to external supervision and criticism. Second, many senior staff members in the MOH are physicians, who object to the monitoring of health services by non-physicians and reject public distribution and discussion of quality data. Members of the Finance Ministry in turn, probably fear that public revelations about problematic health services would lead to demands for additional state funding, as they have in countries like England. In short, all of the powerful actors in the health system have strong reasons to avoid vigorous monitoring of health-service quality by the MOH and to resist public distribution and discussion of systematic measures of provider quality.

### Conclusion

The NHI reforms implemented important elements of the model of managed competition as envisioned by Enthoven and others. However, competition among the

SFs was limited mainly to marketing, service improvements, and provision of supplementary health insurance. Furthermore, the NHI reforms failed to implement regular monitoring of clinical quality of care and provision of quality information to the public. Without the dissemination of quality data, consumers have no basis for rational choice, and regulators cannot insure that health maintenance organizations are in fact providing services that meet minimum quality standards.

Israel's competitive reform did not create powerful incentives for its HMOs to undertake basic reorganizations, which might have helped stabilize the health system financially. Nor did the reforms generate far-reaching steps toward quality assurance, as envisioned by the advocates of managed competition. Although the allocation of funds by an age-adjusted capitation formula gave SFs incentives to attract the poor, the NHI reform did not provide incentives for SFs to develop special services for the elderly and the sick, since the reimbursement levels for these services were perceived to be too low. The question arises whether any capitation rate can be set that would not be too high or too low as to discourage treatment of costly patients.

Furthermore, the NHI reform encouraged unanticipated forms of collaboration among the funds. The reforms encouraged the SFs to make cost saving efforts and to improve readily observable features of their administrative and ambulatory services. However, the reform also led SFs to use marketing tactics that produced quick payoffs. Hence the SFs increased their expenditures for advertising, marketing, and administration. The reported gains in micro (organizational) efficiencies mainly reflected economies that were enforced by governmental capping of SF budgets or masked reductions in the scope and quality of services provided. Moreover the system as a whole continued to be plagued by SF deficits and financial instability.

Many of these deviations from the ideal-typical model of managed competition have been widely observed in other countries. In particular, experimentation with managed care in Europe and the United States has not ordinarily produced consistent and unproblematic improvements in the efficiencies of insurers or providers, which led in turn to curtailment of total health costs. Progress by insurers and HMO-type organizations toward the attainment of micro-efficiencies has been spotty in Germany, the Netherlands, and the United Kingdom (Harrison, 1995; Saltman & Figueras, 1997). In the United States managed care has been marred by the tendency of insurers to engage in risk selection and withdrawal of expensive types of coverage (Light, 1992). Another barrier to micro-efficiencies are the high transaction costs flowing from competition among health providers and insurers (Harrison & Calltorp, 1997; Harrison, 1995; Himmelstein & Wolfhandler, 1986).

In a similar manner, no country has succeeded in establishing an adequate system for monitoring clinical quality and for disseminating quality data of the sort needed to make managed competition work (Audit Commission, 1995; Harrison, 1999; Kerrison, Packwood & Buxton, 1994; Light, 1999). These efforts have often been undermined by resistance by providers and by governmental actors, as well as by the sheer technical complexity of the task. Ironically, like earlier liberal attempts to sustain or create market forces in health care (Ruggie, 1992), managed competition reforms typically require extensive enabling legislation and often end up generating more governmental regulation, rather than reducing it (Light, 1997, 1999).

In summary, parallels between the Israeli experience with managed competition and that of other nations suggest that it may not be possible to implement managed competition in the fashion envisioned by Enthoven's model and other ideal-typical models. These models do not ordinarily take into account political and organizational forces which interfere with the model's implementation and lead to different outcomes than those anticipated. Yet these forces are not exogenous variables that can reasonably be excluded from models of the operation of health systems. Instead they lie at the very heart of publicly funded or publicly regulated insurance and health care. In addition the model of managed competition seems to contain unrealistic assumptions about the types of competitive behavior that result from exposure to competition (Light, 1999) and the capacity of government and health providers to regulate the system and monitor quality.

In addition to stemming from universal limitations to the managed competition model, the implementation pattern in Israel reflects local, historical forces and the interplay of Israel's powerful health system actors. The regulatory practices in the NHI reforms went far beyond those that were required to establish a foundation for fair competition among insurers. Instead, the main thrust of the reforms was to enable the central government to control health care expenditures by limiting sick fund autonomy and constraining competition. This thrust toward centralized control over health care reflected the drive by the Ministry of Finance to intensify its historic influence over health finance. The MOF used the rhetoric of managed competition to justify its drive toward shifting health costs onto citizens and to legitimate its efforts to force KHC and other health providers to cut costs. Although the rhetoric employed by the MOF and other governmental actors was new, the MOF's tactics were not. Instead, the ministry continued to manipulate the flow of funds to the SFs and the MOH so as to force them to become more cost-efficient. In like manner the policy of reducing governmental support for health was compatible with MOF policies of the previous fifteen years. In short, the governmental actors

who gained control over the NHI reform had little faith in the ability of market forces to generate micro- and macro-level efficiencies. Instead, they sought direct control over the routine operations of the sick funds in order to enforce financial discipline on them. These members of the MOF found it convenient to refer to the benefits of the market, while taking anti-competitive actions and shifting costs away from the government.

As the historical institutional approach suggests, these trends were very much in keeping with long-standing policy legacies of centralized governmental control over Israel's health system and other public sector activities. Despite a drift toward greater flexibility and pluralism, the Israeli public sector continues to be dominated by national government ministries, and the Ministry of Finance continues to exercise much power over publicly-supported bodies. While historical institutionalism helps illuminate these long-term continuities in public policy, the policy network can contribute more directly to our understanding of recent changes in health policy in Israel (Chinitz, 1995; Zalmanovitch, 1997) and other nations (e.g., Harrison & Lieverdink, 2000; Light, 1991). The policy network change that most directly affected the enactment and implementation of the NHI reforms was the disintegration of the powerful coalition that had existed for decades between the Histadrut, the General Sick Fund (KHC), and the Labor Party. The destruction of this coalition during the late 1980s and early 1990s created a power vacuum in the health sector. As a result of this development, the central government further centralized its control over the SFs and the Ministry of Finance further intensified its sway over health policy.

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#### References

- Arian, A. (1985). *Politics in Israel: The second generation*. Chatham, NJ: Chatham House.
- Audit Commission. (1995). *The doctors' tale: The work of hospital doctors in England and Wales*. London: Her Majesty's Stationery Office.
- Ben Yehuda, N. (1989). The social meaning of alternative systems: some explanatory notes. In B. Kimmerling, *The*

- Israeli state, society: Boundaries and frontiers* (pp. 152–164). Albany, NY: State University of New York.
- Berg, A., Rosen, B., & Ofer, G. (1995). *Changes in household expenditure on health between 1986/7 and 1992/3*. Jerusalem: JDC-Brookdale Institute.
- Bin-Nun, G. (1999). Cost and sources of the basket of services on the National Health Insurance Law. *Social Security*, 54, 35–52 (Hebrew with English abstract).
- Brick-Deshen, S. (1998). *The influence of mental health reform on the attitudes of psychiatrists to their professional control*. Unpublished Masters' Thesis, Department of Sociology, Bar Ilan University, Ramat-Gan, Israel. (Hebrew with English abstract).
- Chernikovsky, D., & Chinitz, D. (1995). The political economy of health system reform in Israel. *Health Economics*, 4, 127–141.
- Chinitz, D. (1994). Reforming the Israeli Health Care Market. *Social Science and Medicine* 39(10), 1447–1457.
- Chinitz, D. (1995). Israel's health policy breakthrough: The politics of reform and the reform of politics. *Journal of Health Politics, Policy and Law*, 20, 909–932.
- Chinitz, D., & Israeli, A. (1997). Health reform and rationing in Israel. *Health Affairs*, 16(5), 205–210.
- Dohler, M. (1991). Policy networks, opportunity structures and neo-conservative reform strategies in health policy. In B. Marin, & R. Mayntz, *Policy networks: Empirical evidence and theoretical considerations* (pp. 235–296). Boulder, CO: Westview.
- Doron, A., & Kremer, R. M. (1992). *The welfare state in Israel: Evolution of social security policy and practice*. Tel Aviv, Israel: Am Oved (in Hebrew).
- Enthoven, A. (1993). The history and principles of managed competition. *Health Affairs*, 12, 24–48.
- Feldman, D., Gross, R., Nirel, N., & Barash, M. (1996). *Staff attitudes toward the reform of the mental health system in Israel*. Jerusalem: JDC-Brookdale Institute, Ministry of Health and JDC-Falk Institute (Hebrew with English abstract).
- Ferlie, E., Ashburner, L., Fitzgerald, L., & Pettigrew, A. (1996). *The new public management in action*. Oxford: Oxford University Press.
- Gross R. (1999). *Organizational adaptation to a changing environment: Israeli Sick Funds' Strategies in Response to Implementation of the National Health Insurance Law* (in Hebrew with English abstract). Doctoral dissertation, Bar Ilan University, Ramat-Gan Isarel.
- Gross, R., & Bramli, S. (1996). *Supplemental and commercial health insurance in Israel*. Jerusalem: JDC-Brookdale Institute (Hebrew with English abstract).
- Gross, R., Greenstein, M., Dubani, A., Berg, A., Yuval, D., & Rosen, B. (1998a). *The level of service in Israel's sick funds following the National Health Insurance Law: principal findings from a 1997 members survey and comparison to the 1995 survey*. Jerusalem: JDC-Brookdale Institute (Hebrew with English abstract).
- Gross, R., & Harrison, M. (1998). Competitive strategies in a regulated environment: The Israeli case. *AHSR 15th annual meeting abstract book*, Washington, DC.
- Gross, R., Rosen, B., & Chinitz, D. (1998b). Evaluating the Israeli health care reform: strategies, challenges and lessons. *Health Policy*, 45(2), 99–117.
- Harrison, J. (1992). The growth of private education in Israel: Causes and consequences. *International Perspectives on Education and Society*, 3, 193–225.
- Harrison, M. (1993). Medical dominance or proletarianization: evidence from Israel. *Research in the Sociology of Health Care*, 10, 73–96.
- Harrison, M. (1999). Health professionals and the right to health care. In A. den Exter, & H. Hermans, *The right to health care in several european countries* (pp. 81–99). London: Kluwer Law International.
- Harrison, M. (1995). *Implementation of reform in the hospital sector: Physicians and health system reforms in four countries*. Tel-Hashomer: National Institute for Health Policy and Health Services Research.
- Harrison, M., & Calltorp, J. (1997). *Taking the competition out of managed competition: Sweden's experiments with market mechanisms in public health care*. Paper presented at the annual meeting of the European Health Management Association, The Hague.
- Harrison, M., & Lieverdink, H. (2000). Controlling medical specialists: Hospital reform in the Netherlands. *Research in the Sociology of Health Care* 17, 63–79.
- Hecló, H. (1974). *Modern social Politics in Britain and Sweden*. New Haven: Yale.
- Himmelstein, D., & Woolhandler, S. (1986). Cost without benefit: Administrative waste in U. S. health care. *Journal of the American Medical Association*, 31, 441–445.
- Hood, C. (1991). A public management for all seasons?. *Public Administration*, 69, 3–19.
- Hsaio, W. C. (1994). 'Marketization' — the illusory magic pill. *Health Economics* 3, 351–357.
- Immergut, E. (1998). The theoretical core of the new institutionalism. *Politics and Society*, 26, 5–34.
- Ivankovsky, M., Rosen, B., & Nevo, Y. (Forthcoming). *Changes in sick fund economy*. Jerusalem. 1995-6 JDC-Brookdale Institute.
- Kenis, P., & Schneider, V. (1991). Policy networks and policy analysis: Scrutinizing a new analytical toolbox. In B. Marin, R. Mayntz, & Boulder, *Policy networks: empirical evidence and theoretical considerations* (pp. 25–59). Colorado: Westview.
- Kerrison, S., Packwood, T., & Buxton, M. (1994). Monitoring medical audit. In R. Robinson, & J. Le Grand, *Evaluating the NHS Reforms* (pp. 155–177). London: King's Fund Institute.
- Kleinman, E. (1996). The political economy of Israel: Etatism on the crossroads. In M. Lisak, & B. Kney-Paz, *Israel towards the year 2000, society politics and culture* (pp. 196–212). Hebrew University, Jerusalem: Magnes Press (In Hebrew).
- Knoke, D., Pappi, F., Broadbent, J., & Tsujinaka, Y. (1996). *Comparing political networks: Labor policy in the United States, Germany, and Japan*. Cambridge: Cambridge University Press.
- Light, D. (1991). Professionalism as a countervailing power. *Journal of Health Politics, Policy and Law*, 16, 499–506.
- Light, D. (1992). The practice and ethics of risk-related health insurance. *Journal of the American Medical Association*, 267, 2503–2508.

- Light, D. (1997). From managed competition to managed cooperation: Theory and lessons from the British experience. *The Milbank Quarterly*, 75(3), 297–341.
- Light, D. (1999). The sociological character of health care markets. In: G. Albrecht, R. Fitzpatrick, & S. Schrimshaw, *Handbook of social studies in health and medicine*. London: Sage.
- Marin, B., & Mayntz, R. (1991). *Policy networks: Empirical evidence and theoretical considerations*. Boulder, CO: Westview.
- Rosen, B. (1991). *The Netanyahu commission report: Background, contents and initial reactions*. Jerusalem: JDC-Brookdale Institute.
- Rosen, B., Ivankovsky, M., & Nevo, Y. (1997). *Changes in the sick fund economy: Sick fund revenues and expenditures before and after the introduction of national health insurance*. Jerusalem: JDC-Brookdale Institute (Hebrew with English abstract.).
- Ruggie, M. (1992). The paradox of liberal intervention: health policy and the American welfare state. *American Journal of Sociology*, 97, 919–944.
- Saltman, R.B., & Figueras, J. (1997). *European health care reform: Analysis of current strategies*. European series No. 72, Copenhagen: World Health Organization Regional Office Publications.
- Shalev, C., & Chinitz, D. (1997). In Search of universality, equity, comprehensiveness and competition: Health care reform and managed competition in Israel. *Dalhousie Law Journal*, 20(2), 553–582.
- Sharansky, I. (1987). *The political economy of israel*. New York: Transaction Books.
- Shirom, A. (1995). The Israeli health care reform: a study of an evolutionary major change. *International Journal of Health Planning and Management*, 10, 5–22.
- Shirom, A. (1998). Personal communication.
- Shuval, J. (1992). *Social dimensions of health: The Israeli experience*. Westport, CT: Praeger.
- Skocpol, T. (1992). Bringing the state back in: Strategies of analysis in current research. In P. Evans, D. Rueschmeyer, & T. Skocpol, *Bringing the state back in* (pp. 3–37). Cambridge: Cambridge University Press.
- State of Israel (1990). *Report: The State Commission of Inquiry into the Operation and Efficiency of the Health Care System in Israel, vol. 1 — the Majority Opinion, vol. 2- The MinOpinion* State of Israel, Jerusalem.
- State of Israel Ministry of Health. (1998). *Health in Israel selected data*. Health Information and Computer Services, Jerusalem (in Hebrew).
- Weinblat, J. (1997). Government expenditure on social services. In J. Kop, *Resource allocation for social services 1996* (pp. 21–39). Jerusalem: Center for Social Policy in Israel.
- Weir, M., & Skocpol, T. (1985). State structures and the possibilities for “Keyensian” responses to the great depression in Sweden, Britain, and the United States. In P. Evans, D. Rueschmeyer, & T. Skocpol, *Bringing the state back in* (pp. 107–163). Cambridge: Cambridge University Press.
- Yishai, Y. (1990). *The power of expertise: Israel medical association*. Jerusalem: Jerusalem Institute for Israel Studies (In Hebrew.).
- Zalmanovitch, Y. (1997). Some antecedents to healthcare reform: Israel and the United States. *Policy and Politics*, 25, 251–268.



# **The Reform of the Israeli Health Care System: A Comparison between Older and Younger Consumers, One Year and Three Years after its Implementation**

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## The Reform of the Israeli Health Care System: A Comparison Between Older and Younger Consumers, One Year and Three Years After Its Implementation

Netta Bentur, PhD,\* and Revital Gross, PhD†

**OBJECTIVE:** One of the main objectives of the National Health Insurance Law, which was implemented in Israel in January 1995, was to increase equity among different population groups and improve services for weaker populations, such as older people. It is not clear, however, whether the law's goals are being achieved. This study aimed to examine changes in the satisfaction and perceived quality of healthcare services among older people one year and three years after enactment of the law, and to compare the satisfaction and perceptions of older people with those of young adults.

**DESIGN:** Two cross-sectional telephone surveys conducted by the JDC-Brookdale Institute.

**SETTING:** Israel.

**PARTICIPANTS:** Two random samples of the adult residents of Israel at the end of 1995 and at the end of 1997. Two hundred and eighteen older people (of 1116 respondents) were included in the first survey, and 198 older people (of 1205 respondents) were included in the second survey. Sixty-seven percent of older respondents in both surveys were 65 to 74 years old and the remaining 33% were 75 years old and over. Forty-three percent were men. Sixty-four percent reported having had at least one chronic illness. There were no differences between the two samples, with the exception of a higher percentage of new immigrants in the second survey.

**MEASUREMENTS:** Perception of changes in the level of services, satisfaction with services, and perceived quality of care (availability, accessibility, early detection procedures).

**RESULTS:** Older people felt there had been an improvement in the level of sick fund (who operate as health maintenance organizations [HMOs] in the United States) services since implementation of the law. The proportion reporting improvement increased from 13% in 1995 to

28% in 1997. At the same time, the proportion of older people who sensed a decline in the level of services also increased, albeit at a much lower rate (4% in 1995 and 8% in 1997). The percentage of younger adults reporting an improvement in services and the percentage reporting a decline were greater than the percentages of older people, in both surveys. Regarding access to services, 69% waited up to 15 minutes to see their physician and 56% received an appointment to see a specialist within one week; this was an improvement. While a higher proportion of younger adults received an appointment within a shorter time span in 1995, the gap had diminished by 1997. Most of the older people felt that the office hours of their family physicians, specialists, administrative services, and laboratories were convenient. The proportion of elderly reporting so increased between 1995 and 1997, and in both surveys was higher than among younger adults.

**CONCLUSION:** The study's findings show that older people perceived an improvement in a number of areas during the first three years of the law's implementation. Their experience was similar to that of younger adults and was even better in some areas. It is necessary to continue monitoring the impact of the law on the need for health services of vulnerable groups such as the chronically ill and disabled older people. *J Am Geriatr Soc* 49:56-64, 2001.

**Key words:** health system reform; patient satisfaction; quality of care

One of the main objectives of the National Health Insurance Law, which was implemented in Israel in January 1995, was to increase equity among different population groups and improve services for weaker populations, such as older people.<sup>1,2</sup> Other goals of the new law were to make universal and to clarify the rights of citizens to health insurance coverage, to increase citizens' freedom of choice among sick funds (which both insure members and deliver services in a model similar to that of health maintenance organizations [HMOs] in the United States), to stabilize the

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system financially, to improve the quality of care, and to free the Ministry of Health from operational responsibilities so that it could devote more effort to monitoring the system. Despite the advantages the law may have for weaker population groups such as older people, concern has been expressed that it may not be as beneficial to older people as expected.

This study is one of the first to focus on the effect that changes in Israel's health system have had on older people, based on self-reporting. The assessment of health services and medical care using self-reports is today perceived by policymakers, funding agencies, and service suppliers as legitimate and relevant.<sup>3-5</sup> Client satisfaction is considered significant, and is taken into account in making decisions about changes and improvements in services.<sup>6-8</sup>

The satisfaction of health-care consumers has been examined by many studies, using groups of patients with different characteristics. Interestingly, although the relationship between age and satisfaction has been examined frequently, relatively few studies have focused on older people as a separate population group with unique characteristics and needs.<sup>5,9-11</sup> In particular, no studies have examined older people's perceptions of the consequences of health system reform.

The goals of this study are to examine changes in older people's satisfaction with health care and their perception of its quality at two points in time: one year and three years after enactment of the National Health Insurance Law. It will also compare the reports of older and young consumers, and assess differences in the changes in these reports over time. The results will help policymakers and planners evaluate whether the law's goals have been achieved and whether the law has unwanted side effects.

### The National Health Insurance Law and Older People

To understand the changes that the National Health Insurance Law has generated and to understand its possible effect on older people, we will present a brief general overview of Israel's health system and the place of older people in it.

The National Health Insurance Law mandates compulsory health insurance for all Israeli citizens, through a sick fund of their choice. Each adult citizen pays a health tax (4.8% of monthly income), which is collected by the National Insurance Institute (Israel's social security administration). The National Insurance Institute distributes revenues from the health tax, combined with direct government contributions, to the sick funds according to a risk-adjusted capitation formula.<sup>1</sup>

A public system that is dominated by the Ministry of Health and four nonprofit sick funds provides health care in Israel. The sick funds deliver services to their members based on a model similar to that of health maintenance organizations in the United States. Services are delivered at the sick funds' own facilities or through contracted providers.

Before implementation of the National Health Insurance Law, the sick funds were also able to define their own benefit packages, leading to both inconsistency and lack of clarity in coverage. To redress this situation, the law stipulates the benefits package that sick funds are obliged to provide their members. Sick funds are allowed to offer supplemental coverage of services not included in the basic basket mandated by the law, and private insurers

may offer policies that cover both basic and additional services. In 1997, the national expenditure on health care was 8.4% of Israel's gross domestic product.

The Ministry of Health is responsible for planning, regulating, and coordinating the health system; for the general assessment and control of sick fund operation; and for implementing legislation concerning health care and its provision. The Ministry is also the major provider of inpatient services, including acute care, rehabilitative care, most long-term nursing care, hospital and community-based psychiatric services, and public health services. The National Health Insurance Law stipulates that provision of services such as preventive, psychiatric, and geriatric care be transferred from the government to the sick funds.

To date, implementation of this stipulation has been deferred. Even though policymakers in Israel, as elsewhere, are grappling with the possibility—if not the necessity—of combining acute and long-term services for older people,<sup>12-13</sup> the issue has yet to be resolved. Public debate continues: Those who support transferring responsibility to the sick funds claim it will enhance coordination and continuity of care and anchor the right to such care in law, thereby increasing equity and accessibility. Those who oppose the transfer claim that anchoring eligibility for such services in law will increase demand and thereby increase public expenditure.

Before the introduction of the National Health Insurance Law, Israel's sick funds, which insured 96% of the population, were entitled to enroll members selectively and set the rates of their membership dues. Because dues were income-linked, sick funds had an incentive to seek wealthier members, and because many older people have relatively low income, sick fund revenue from the dues of older members was lower than revenue from the dues of younger members. (In 1995, about 33% of all older residents of Israel were receiving social security benefits from the National Insurance Institute and 22% were living below the poverty line.<sup>14</sup>)

In addition, older people consume more services than do younger people,<sup>15,16</sup> such that sick funds spend more on delivery of comprehensive health services to older people than on delivery of health services to other age groups. Consequently, before the National Health Insurance Law, sick funds were not interested in recruiting and insuring older members. In fact, they could even reject older applicants, as stipulated in their regulations.

The National Health Insurance Law addressed these problems by allocating health tax monies to sick funds through a capitation formula, which takes into account the number of people registered with a sick fund and their ages. The formula assigns people age 65 and over a weight almost four times that of younger members (except infants). Giving the sick funds more reimbursement for older members gives them a strong incentive to recruit them.

In addition to guaranteeing universal insurance coverage, the law stipulates the right to transfer among sick funds, thus allowing older people, and all residents, freedom of choice. Lastly, the law set reduced insurance premiums for all residents age 65 and over, while ensuring the full basket of services mandated by the law. Thus the burden of cost on older people was reduced.

As noted, however, it is not clear whether these new

incentives are sufficient to ensure equitable care for older people. The sick funds may still perceive the reimbursement they receive for each older member as being lower than the actual cost of care and consequently may lack the incentive to develop services that older people are likely to use more than other population groups, such as certain types of specialty care, or rehabilitation services.

The importance of the law's effect on older people arises from their relatively greater needs and utilization of health services.<sup>17</sup> Moreover, their numbers are increasing. At the end of 1997, 582,962 of Israel's residents were age 65 or over; they constituted 9.9% of the total number of residents, as opposed to only 4% in 1950. While the rate of increase of older people age 65 and over has been stable during the past decade, the increase in older people age 75 and over has been more rapid: In 1997, they constituted 42% of the older population. Similarly, there was an increase in the percentage of disabled older people; according to estimates from a national database on planning for older people, they represented 13.8% of all older people.<sup>17</sup>

Seventy-seven percent of Israel's disabled older people live in the community. In order to help disabled older people remain in the community, long-term home care has been provided by law since 1988 to older people living in the community who meet certain eligibility criteria. In 1999, over 85,000 received benefits under this law.

**METHODS**

**Study Population and Sampling**

The study population included all permanent Israeli residents over the age of 22. Two telephone surveys were carried out—one in the fall of 1995 and one in the fall of 1997. Samples were drawn from the national computerized telephone listing of Israel's only telephone company (95% of households in Israel own a telephone), and repeated efforts were made during a two-month period to speak to the member of the household sampled. In the first survey, 1600 telephone numbers were sampled. Of them, 276 numbers did not match the study population (e.g., they were businesses). Of the 1324 eligible numbers, 1116 telephone interviews were completed, for a response rate of 85%. Reasons for nonresponse were refusal (8%), communication problems (5%), and failure to locate the sampled respondent (2%). In the second survey, telephone interviews were completed with 1205 of the 1464 eligible numbers sampled, for a response rate of 82%. Reasons for nonresponse were refusal (10%) and communication problems (8%). In all, 218 respondents in the first survey and 198 in the second survey were older (age 65 and older).<sup>18,19</sup>

**Research Question**

The following research question was posed in this study: What was the effect of the National Health Insurance Law on older people, compared with the younger population, in (1) perceived changes in level of sick fund services, (2) satisfaction with sick fund services, (3) availability of services, (4) accessibility of services, and (5) early detection procedures?

**Study Design**

In order to compare study variables from 1995 and 1997, we carried out cross-sectional surveys in 1995 and 1997

using a structured questionnaire. The questionnaire was translated into Arabic and Russian to accommodate the largest non-Hebrew-speaking populations.

**Statistical Analysis**

To analyze the effect of the National Health Insurance Law on older people, as opposed to the young, two sets of comparisons were conducted: a comparison between older (age 65 and over) and younger respondents to the 1995 and the 1997 surveys; and a comparison of changes (between 1995 and 1997) among older and younger people. An additional comparison was made between younger elderly (age 65 to 74) and older elderly (age 75 and over). Data from each period were analyzed using the Statistical Package for the Social Sciences (SPSS). Bi-variate analyses were performed using overall chi-square tests.

**RESULTS**

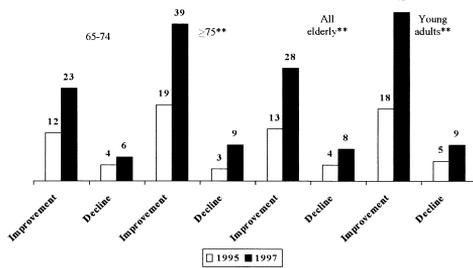
**Characteristics of the Study Population**

About two-thirds of older people surveyed were age 65 to 74 and the remainder were 75 and over. The average age of older respondents in both surveys was 73 and the average age of the younger respondents (age 22 to 64) was 40. Forty-three percent of older respondents were men. Over half of older respondents were married; one-third had an elementary school education or less; one-third had a secondary school education; and one-third had higher education. About two-thirds of older people reported that their health was either poor or "not so good," and two-thirds reported having a chronic illness. There were no differences between the two samples with the exception of the percentage of new immigrants in the second survey, which was higher than that in the first survey (28% and 16%, respectively; statistically significant) (see Table 1).

**Table 1. Characteristics of Older People**

	1995		1997			
	65-74	≥75	T	65-74	≥75	T
	%					
Gender						
Men	43	43	43	41	46	43
Marital status						
Unmarried (mostly widowers)	33	47	36	32	49	42
Education						
None or elementary	34	40	36	35	28	32
Secondary school	34	31	33	27	39	32
Postsecondary school	32	29	31	38	33	36
Language of interview						
Hebrew	78	79	78	67	64	66
Arabic	6	6	6	6	5	6
Russian	15	16	16	27	31	28
Assessment of health status						
Very good/good	37	32	36	42	38	41
Not so good	44	40	42	42	41	42
Poor/very poor	19	28	22	16	21	17
Chronic disease	63	63	63	64	64	64

T = total.



\*Statistically significant difference between all elderly and young adults in 1997 at a rate of 5%.  
 \*\*Statistically significant difference between 1995 and 1997 at a rate of 5%.

Figure 1. Percentage of respondents reporting an improvement or a decline in sick fund services in 1995 and 1997, by age.\*

### Perception of Changes in the Level of Sick Fund Services

In 1995, 13% of older people felt there had been an improvement in the level of services provided by their sick fund relative to the previous year, and in 1997, 28% of older people sensed an improvement. Nevertheless, the proportion of older people who believed there had been a decline in the level of services also increased between the two surveys—from 4% in 1995 to 8% in 1997. These differences are statistically significant (see Figure 1).

The proportion of younger respondents who believed that there had been an improvement in the level of sick fund services in 1995 (18%) and in 1997 (42%) was higher than the proportion of older people who reported perceived improvement. The proportion of younger respondents who believed there had been a decline in sick fund services was also higher than that of older people—5% in 1995 and 9% in 1997 (see Figure 1). The difference between older and younger respondents is not statistically significant in the first survey, although it is in the second survey.

### Satisfaction with Sick Fund Services

The majority of older respondents were satisfied with their sick funds' services. Satisfaction increased between 1995 and 1997: 85% claimed they were "very satisfied or satisfied" in the first survey, compared with 96% in the second survey. There were no statistically significant differences in the satisfaction of the younger elderly (age 65 to 74) and the old elderly (age 75 and over) in either survey.

The satisfaction of younger respondents also increased between the two surveys, although less so than that of older people: 83% and 90%, respectively. The difference between older and younger respondents' satisfaction with sick fund services is not statistically significant in either survey (see Table 2).

An examination of specific sick fund services revealed that the majority of older people were satisfied with most sick fund services, and that satisfaction with most services increased between 1995 and 1997. The greatest increase—from 80% to 93%, statistically significant—was in the proportion of older people who were very satisfied or satisfied with the professional level of specialists. The satis-

faction of younger respondents with most of the sick funds' services also increased, although less so than that of older people. In fact, in the 1997 survey, the satisfaction of older respondents was significantly higher statistically than that of younger respondents regarding several areas of service, particularly the professional level of family physicians and specialists, the attitude of office staff, the ease of making appointments and obtaining referrals for treatment, and laboratory services.

Comparison of the subgroups of older people revealed that in 1995 the older elderly were more satisfied with the professional level of specialists than were the younger elderly (85% were very satisfied or satisfied, compared with 65%, respectively;  $P$ -value  $< .04$ ). There were no statistically significant differences between the subgroups of older people in 1997 (93% of the younger elderly and of the older elderly).

### The Perceived Quality of Services

The surveys assessed several measures of the perceived quality of medical care, including the availability and accessibility of services and the performance of preventive procedures.

#### Availability of Services

Most of the older respondents had a permanent family physician. Between 1995 and 1997 there was a statistically significant increase in the proportion of older people who reported having a permanent family physician, from 85% to 96%. The proportion of older people who were chronically ill who had a permanent family physician was particularly high and increased between the two surveys (from 90% to 99%). Most of the younger sick fund members also had a permanent family physician; this proportion also increased between the two surveys (from 70% to 85%), although statistically it was significantly lower than that of older people.

#### Accessibility of Services

The accessibility of services was examined using a number of measures. First we examined the convenience of the hours during which sick fund services, e.g., family physicians, specialists, office services, laboratory tests, were offered. In both surveys, most of the older respondents felt that the hours of service were very convenient or convenient. Older people's satisfaction with the convenience of office services and specialists' hours increased between 1995 and 1997 (see Table 3).

At the same time, examination of the subgroups of older people revealed differences between the younger elderly and the older elderly, but the differences do not indicate a trend. The proportion of younger elderly reporting that office services were very convenient or convenient was greater in 1997 than in 1995 (95% and 88%, respectively;  $P$ -value  $< .05$ ). The attitude of the older elderly toward office services did not change between the two surveys. In contrast, the proportion of older elderly reporting that specialists' office hours were very convenient or convenient was greater in 1997 than in 1995 (89% reported that office hours were very convenient compared with 72%;  $P$ -value  $< .03$ ). At the same time, the percentage of younger elderly reporting that specialists' office hours

**Table 2. Satisfaction of Older and Younger Adults with their Sick Fund—Comparison Between 1995 and 1997**

	Older Respondents						Younger Respondents	
	1995			1997			1995	1997
	65–74	≥75	T	65–74	≥75	T		
	%							
In general*†								
Very satisfied	19	27	21	24	41	30	22	27
Satisfied	65	62	64	71	56	66	61	63
Not so satisfied/dissatisfied	16	11	15	5	3	4	17	10
Professional level of family physician†								
Very satisfied	32	38	34	42	42	41	31	34
Satisfied	52	52	52	47	51	49	49	53
Not so satisfied/dissatisfied	16	10	14	11	7	10	20	13
Attitude of family physician								
Very satisfied	46	57	49	48	62	52	45	49
Satisfied	40	41	41	42	33	39	45	43
Not so satisfied/dissatisfied	14	2	10	10	5	9	10	8
Attitude of nurses†								
Very satisfied	29	37	32	37	32	35	33	36
Satisfied	63	54	59	51	62	57	52	54
Not so satisfied/dissatisfied	8	9	9	12	6	8	15	10
Professional level of specialist**‡§								
Very satisfied	29	30	31	40	39	40	26	29
Satisfied	56	35	49	53	54	53	52	56
Not so satisfied/dissatisfied	15	30	20	7	7	7	22	15
Attitude of office staff**‡								
Very satisfied	25	23	24	21	33	27	24	28
Satisfied	65	66	66	70	63	64	56	54
Not so satisfied/dissatisfied	10	11	10	9	4	9	20	18
Selection of medications†								
Very satisfied	26	23	25	22	29	24	19	20
Satisfied	59	63	60	59	55	58	51	56
Not so satisfied/dissatisfied	15	14	15	19	16	18	20	24
Ease of receiving referral and payment vouchers†								
Very satisfied	27	21	25	28	27	28	28	29
Satisfied	60	68	62	59	62	60	49	49
Not so satisfied/dissatisfied	13	11	13	13	11	12	22	22
Laboratory services†								
Very satisfied	21	25	22	22	27	24	21	24
Satisfied	67	67	67	71	62	68	55	56
Not so satisfied/dissatisfied	12	8	11	7	11	8	24	20
Maintenance of facilities††								
Very satisfied	33	67	34	33	47	38	38	47
Satisfied	63	57	61	63	53	59	54	49
Not so satisfied/dissatisfied	4	6	5	4	0	3	8	4

\* Statistically significant differences between the two surveys at a level of 5%.  
 † Statistically significant differences between older and younger adults in 1997 at a level of 5%.  
 ‡ Statistically significant differences between older and younger adults in 1997 at a level of 5%.  
 § Statistically significant differences between younger elderly and older elderly in 1995 at a level of 5%.  
 || Statistically significant differences between older and younger adults in 1995 at a level of 5%.  
 T = total.

were convenient increased between the two surveys—from 81% to 88%, although the difference was not statistically significant.

The proportion of younger respondents who felt the hours of service were very convenient or convenient was significantly lower statistically than that of older people in all four areas and in both surveys (see Table 3).

Other measures related to waiting times. We asked older people how long it took them to reach the clinic where services were provided. We found that most of them reached their family physician’s clinic within 15 minutes, although it took some longer. The proportion of older people who reached the physician’s clinic within 15 minutes increased between the two surveys, although the dif-

**Table 3. Perceived Quality of Services: Percentage Reporting that Hours of Service Are Very Convenient Comparison Between 1995 and 1997, by Age\***

	Older Respondents						Younger Respondents	
	1995			1997			1995	1997
	65–74	≥75	T	65–74	≥75	T		
	%							
Laboratory tests	87	90	88	92	86	90	60	62
Office staff <sup>†</sup>	88	98	91	95	96	96	80	84
Specialists <sup>§</sup>	81	72	78	88	89	88	68	71
Family physicians	83	88	85	89	93	90	75	76

\* Statistically significant differences between older and younger adults in both surveys at a level of 5%.

<sup>†</sup> Statistically significant differences between older people in the two surveys.

<sup>§</sup> Statistically significant differences between younger elderly in the two surveys.

<sup>§</sup> Statistically significant differences between older elderly in the two surveys.

T = total.

ference is not statistically significant. Most of the younger respondents also reached their physician's clinic within 15 minutes, with the gap between older and younger respondents decreasing between the two surveys. The difference between older and younger respondents in the first survey is statistically significant, although in the second survey it is slight and not statistically significant (see Table 4).

After reaching the clinic, 69% of older people waited up to 15 minutes to see the physician. Although the proportion of older people who waited up to 15 minutes increased between the two surveys (from 57% to 69%), the proportion of those who waited more than half an hour decreased (from 15% to 7%); the difference between the two surveys is statistically significant. There was also an increase between the two surveys in the proportion of younger respondents who waited up to 15 minutes, and a decrease between the surveys in the proportion of those who waited more than half an hour; the difference between the two surveys is statistically significant. The difference between older and younger respondents is not statistically significant, however, in either survey (see Table 4).

We then asked how long respondents waited to obtain an appointment with a specialist, and found an increase in the proportion of older people who received an appointment within one week—from 46% in 1995 to 56% in 1997—and a decrease in the proportion of older people who received an appointment after two or more weeks, from 39% to 33%, respectively; however, the differences are not statistically significant. In both surveys, a greater proportion of younger respondents received an appointment in less than one week: 59% in 1995 and 69% in 1997; the difference is statistically significant relative to the increase among older respondents, as is the difference between the two surveys. The difference between older and younger respondents is statistically significant in the second survey. No correlation was found between reports of health status or chronic illness and the length of time it took to reach the family physician's clinic, the length of time waited to see the family physician, or the length of time it took to receive an appointment with a specialist (see Table 4). In all of the variables related to waiting times, no statistically significant differences were found between the young elderly and the old elderly.

**Table 4. Perceived Quality of Services: Access to Services—Comparison Between 1995 and 1997, by Age**

	Older Respondents						Younger Respondents	
	1995			1997			1995	1997
	65–74	≥75	T	65–74	≥75	T		
	%							
Able to reach family physician in less than 15 minutes*	79	79	79	85	82	84	88	89
Waiting time for physician up to 15 minutes <sup>†</sup>	53	65	57	66	73	69	60	68
Waiting time for appointment with physician up to one week <sup>‡</sup>	46	47	46	48	56	51	59	69

\* Statistically significant differences between older and younger adults in 1995 at a level of 5%.

<sup>†</sup> Statistically significant differences between the two surveys at a level of 5%.

<sup>‡</sup> Statistically significant differences between older and younger adults in both surveys.

T = total.

### Early Detection Procedures

Another measure of quality is the performance, during primary care, of preventive medical procedures for early detection of illnesses. One of the most-routine procedures for older people is a periodic check of blood pressure. Both surveys revealed that three-quarters of older respondents had had their blood pressure checked during the previous half year, but about 6% of older people in both surveys reported that their blood pressure had never been checked. The proportion of younger respondents who had had their blood pressure checked during the half year preceding the survey was much lower than that of older people; the difference between the two groups is statistically significant in both surveys (see Table 5). No statistically significant differences were found between the young elderly and the old elderly in early detection of blood pressure.

To assess the performance of procedures for early detection of prevalent illnesses among women, we asked older female respondents whether they had undergone a mammogram. According to the 1995 survey, only 27% of the older women had undergone a mammogram during the previous two years; according to the survey conducted two years later, this proportion rose to 36%; the difference is statistically significant. A statistically significantly greater proportion of younger women (age 50 to 64) had undergone a mammogram during the two years preceding the survey. Furthermore, this proportion increased between the two surveys, from 44% to 54% (see Table 6).

Approximately three years after implementation of the National Health Insurance Law, however, some two-thirds of older women had not undergone a mammogram as stipulated (that is, within two years), and the majority of them had never undergone a mammogram (see Table 6).

In 1997, large and statistically significant differences were found between the younger and older elderly women. It was found that 48% of the younger elderly women had undergone a mammogram during the two years preceding the interview, compared with 16% of the older elderly women; the difference is statistically significant ( $P$ -value < .01). In 1995, there were also differences (32% of the younger elderly women had undergone a mammogram, compared with 17% of the older elderly women), but they

were not statistically significant. Between 1995 and 1997, the increase in the percentage of younger elderly women who had undergone a mammogram—from 32% to 48%—was statistically significant ( $P$ -value < .05).

### DISCUSSION

One of the major issues that should concern policymakers and service providers in all countries introducing reform in health services is the effect of reform on weaker population groups such as the poor, chronically ill, or older and how they fare in an environment of managed competition.<sup>20</sup> This study provided an opportunity to partially examine the effects of the reform in the Israeli health system—implementation of the National Health Insurance Law—on the older population; it also provided information on changes in older peoples' perceptions of health services and their satisfaction with these services.

Nevertheless, it is not possible to determine unequivocally the National Health Insurance Law's effect, as it is impossible to know what trends would have developed had the law not been implemented. There is evidence that efforts at improvement in the sick funds—particularly in Kupat Holim Clalit, Israel's largest sick fund and the insurer of the majority (80%) of older people—began before implementation of the law and were an outgrowth of increased competition among the sick funds during the early 1990s. It is possible that this trend would have continued, even had no such law been passed. In addition, during this period (1995–1997) there have been other changes in the healthcare system that may have positively influenced the perceptions of those interviewed. For example, the waiting list for long-term institutional care had begun to shorten because of significant increase in budgets allocated to long-term care, and thus long-term care has become more readily available should an older person need it.

The findings reveal a complex picture: In general, older people felt there had been an improvement in the level of sick fund services since implementation of the National Health Insurance Law. One-quarter of older people felt that specific services in their sick fund had improved since implementation of the law and this proportion in-

Table 5. Blood Pressure Tests Among Older and Younger Adults\*

	Older Respondents						Younger Respondents	
	1995			1997			1995	1997
	65–74	≥75	T	65–74	≥75	T		
	%							
During the past 6 months	80	85	82	82	78	81	35	40
6–12 months ago	8	7	7	7	7	7	15	12
1–2 years ago	3	2	2	5	2	4	11	12
2–5 years ago	2	3	3	1	1	1	13	13
Never/don't remember	7	3	6	5	12	7	26	23

\* Statistically significant differences between older and younger adults at a level of 5%.

† Statistically significant differences between younger adults in both surveys at a level of 5%.

T = total.

**Table 6. Mammogram Examinations of Older Women and Women Age 50–64\*†‡§**

	Older Respondents						Younger Respondents	
	1995			1997			1995	1997
	65–74	≥75	T	65–74	≥75	T		
	%							
During the past year	18	11	16	42	13	32	30	38
More than 1–2 years ago	14	6	11	6	3	4	14	16
2 or more years ago	13	14	13	8	13	10	16	10
Was never examined	55	69	60	41	71	54	40	36

\* Statistically significant differences between older and younger women in both surveys at a level of 5%.

† Statistically significant differences between younger women in the two surveys at a level of 5%.

‡ Statistically significant differences between younger elderly and older elderly in 1997 at a level of 5%.

§ Statistically significant differences among younger elderly women, between 1995 and 1997.

T = total.

creased between 1995 and 1997. At the same time, the proportion of older people who felt there was a decline in the level of service also increased, albeit at a much lower rate.

The general sense among older people that there had been an improvement in sick fund services can be explained as a byproduct of efforts formerly made by the sick funds to attract members—particularly young members. The proportion of younger adults who reported that services had improved (as well as the proportion who reported that services had declined) was greater than the parallel proportions among older people. This may indicate that greater improvements were introduced in services that are more important to younger than to older people. Furthermore, in a study that examined the impact of the National Health Insurance Law on the sick funds, sick fund directors reported that their efforts had been invested primarily in developing services that would attract younger clients.<sup>21</sup> Older people also benefited from some of these improvements (e.g., in waiting times, hours of service, facilities). Nevertheless, the law has changed the allocation of monies to the sick funds through a capitation formula, which assigns older individuals a weight four times that of younger people. This might have created an incentive for sick funds to improve services to older people and to attract them as members.

This study's findings show that older people not only reported an improvement in sick fund services, but also expressed increasing satisfaction with these services between 1995 and 1997—more so than did younger adults. This may reflect older people's greater appreciation of sick fund efforts to improve services. Similar patterns have been observed by other studies comparing the satisfaction of younger and older adults: Older people tend to report greater satisfaction.<sup>22–24</sup> These findings dispel the fear expressed by some service providers that the level of services for older people would decline following the law's implementation; although the sick funds may not be developing specific services required by older people, it appears that older people are benefiting from the overall improvement in services that seems to be an outgrowth of the competition among sick funds for members.

Our findings with regard to availability and accessibility of services and the performance of preventive measures partially support previous findings. Older people, like younger respondents, report that the accessibility of services has improved during the past two years. Most older people (particularly those with a chronic illness) reported having a permanent family physician. There was an increase in the percentage of older people who reported waiting only a short time for their family physician, or for an appointment with a specialist. These findings are particularly significant, given the salutary effect of a continuous physician-patient relationship on the compliance and outcomes of care of chronically ill patients.<sup>25–27</sup> They also correspond to sick fund directors' views that coordinated care provided by a single primary care professional is economically advantageous.<sup>28</sup> Nevertheless, younger adults still waited less time to see their family physician or receive an appointment with a specialist than did older adults, although the gap is diminishing.

Comparison between the younger elderly and the older elderly revealed no statistically significant differences for most indices. Although differences were found in the perceived convenience of specialists' office hours and in sick fund hours of service, there was no consistent trend in differences between the two groups. An important difference was found in the rate of performance of mammograms. In 1997, more younger elderly women had undergone a mammogram than older elderly women, and the rate of performance of mammograms among the younger elderly increased, while that among the older elderly did not. This reflects the National Health Insurance Law's provision that mammograms be mandatory only for women up to age 75.

This study has certain limitations that should be noted. First, the law's impact was examined through respondents' self-reports, which are perforce subjective, and could be affected by a respondent's personal characteristics, such as age.<sup>9,22,23</sup> As information based on self-reports may also be affected by expectations, it is important to ensure that such information is not the sole measure of quality of care.<sup>29</sup>

Second, 80% of Israel's older people are insured by

one of the four sick funds; changes in their perception of services may thus reflect changes in their sick fund, which benefited financially from the law and greatly improved its services. The sample size precluded us from controlling for sick fund affiliation.

Third, examining equity in health services is problematic, in part because of the difficulty defining needs and determining whether the services supplied do, in fact, meet them.<sup>2,30</sup> While this study included measures of primary care services used frequently by older people, other services that older people use more than younger adults—such as acute hospital services, long-term care, hospital and community-based rehabilitation services, and home care services—were not included. Furthermore, older people who were in hospitals or institutions at the time of the survey were not included in the sample, even though it is reasonable to assume that they are “heavy” consumers of health services.

The study’s findings reflect the situation in 1997. Since then, several changes have occurred in the Israeli health system. The sick funds have large deficits and are under daily financial pressure, raising concern that the level of services may suffer. Further, the burden of payments on the client is heavier than it was. These changes may cause particular difficulty for vulnerable populations, such as the poor and older people, who frequently use a multitude of services. It is therefore important to continue monitoring patterns of service provision to older people and the quality of care they receive, concerning both services in the basic basket and services that have yet to be developed and that may or may not be included in the basic basket. It is also important to continue to follow the effect of the law on vulnerable subgroups of older people, such as the chronically ill, the disabled, and the handicapped.

At the same time, it will be important to examine in greater depth the extent to which the basket of services provided by the sick funds as designated by law is adapted to older people’s needs; whether older people have unmet needs, and if so in what areas; the sick fund’s service development policies; and what incentives are needed to induce the sick funds to tailor services to older people. Answers to such questions will provide a better, more-comprehensive response to the diverse health care needs of older people.

## REFERENCES

- Gross R, Rosen B, Chinitz D. Evaluating the Israeli health care reform: Strategies, challenges and lessons. *Health Policy* 1998;45:99–117.
- Chernichovsky D, Shirom A. Equity in the Israeli health system: Allocation of resources to social services in 1996. Jerusalem: Center for Studies in Israeli Policy 1996, 157–182.
- Ware JE, Davies-Avery A, Stewart AL. The measuring and meaning of patient satisfaction. *Health Med Care Serv Rev* 1978;1:2–15.
- Williams B. Patient satisfaction: A valid concept? *Soc Sci Med* 1994;38:509–516.
- Lee Y, Kasper JD. Assessment of medical care by elderly people: General satisfaction and physician quality. *Health* 1998;32:741–757.
- Owens D, Batchelor C. Patient satisfaction and the elderly. *Soc Sci Med* 1996;42:1483–1491.
- Cohen G. Age and health status in a patient satisfaction survey. *Soc Sci Med* 1996;42:1085–1093.
- Stump TE, Dexter PR, Tierney WM et al. Measuring patient satisfaction with physicians among older and diseased adults in a primary care municipal outpatient setting. *Med Care* 1995;33:958–972.
- Hall JA, Dornan MC. Meta analysis of satisfaction with medical care: Description of research domain and analysis of overall satisfaction levels. *Soc Sci Med* 1998;27:637–644.
- Snider EL. The elderly and their doctors. *Soc Sci Med* 1980;14A:527–531.
- Linn LS, DiMatteo, MR, Chang BL et al. Consumer values and subsequent satisfaction ratings of physician behavior. *Med Care* 1984;22:804–812.
- White J. Which “managed care” for Medicare? *Health Affairs* 1997;16(5):73–82.
- Schrijvers A, Duursma G, van de Weert O. Care for the elderly. In: Schrijvers A, Ed. *Health and Health Care in the Netherlands*. Utrecht: De Tijdstroom, 1997.
- National Insurance Institute. Benefit recipients by locality 1995. Jerusalem: National Insurance Institute No. 148, 1998. (In Hebrew with an English abstract.)
- Ministry of Health. Internal Medicine Wards in Israel, Repeated Hospitalizations and Characteristics of Hospitalizations, 1994–1996. Jerusalem: Ministry of Health, 1998. (In Hebrew with an English abstract.)
- Central Bureau of Statistics. *Health Survey 1996/1997. Preliminary: Findings for April–September 1996*. Jerusalem: Central Bureau of Statistics, 1997. (In Hebrew with an English abstract.)
- Brodsky J, Schnoor Y, Beer S. The Elderly in Israel: The 1998 Statistical Abstract. Jerusalem: JDC-Brookdale Institute and ESHEL, 1998. (In Hebrew with an English abstract.)
- Bentur N, Berg A, Gross R et al. Health system reform and the elderly: The case of Israel. *J Aging Soc Pol* 1998;10:85–103.
- Gross R, Greenstein M, Dubani A. The level of service in Israel’s sick funds following the National Health Insurance Law: Principal findings from a 1997 members’ survey and comparison with the 1995 survey. Jerusalem: JDC-Brookdale Institute, ES-17-98, 1998. (In Hebrew with an English abstract.)
- Van de Ven W, Rutten F. Managed competition in the Netherlands: Lessons from five years of health care reform. *Australian Health Rev* 1995;18:9–27.
- Gross R, Harrison M. Competitive strategies in a regulated environment: The Israeli case. *AHSR 15<sup>th</sup> Annual Meeting abstract book*. Washington, DC: Association for Health Services Research, 1998.
- Fox JG, Tromms DM. A different approach to sociodemographic predictors of satisfaction with health care. *Soc Sci Med* 1981;15A:557–564.
- Williams SJ, Calnan M. Convergence and divergence: Assessing criteria of consumer satisfaction across general practice, dental and hospital practice settings. *Soc Sci Med* 1991;33:707–716.
- Cleary PD, Edgman-Levitan S, McMullen W et al. The relationship between reported problems and patient summary evaluations of hospital care. *Qual Rev Bull* 1992;53–59.
- Franks P, Clancy CM. Gatekeeping revisited: Protecting patients from over treatment. *N Eng J Med* 1992;327:424–429.
- Starfield B. Primary care and health: A cross national comparison. *JAMA* 1991;266:268–271.
- Starfield B. Is primary care essential? *Lancet* 1994;344:1129–1132.
- Tabenkin H, Gross R, Bramli S. The primary care physician as “gatekeeper”: The perspectives of sick fund members, primary care physicians and policy-makers. RR-336-99. Jerusalem: JDC-Brookdale Institute, 1999. (In Hebrew with an English abstract.)
- Ross CK, Stewart CA, Sinacore JM. A comparative study of seven measures of patient satisfaction. *Med Care* 1995;33:392–406.
- Van Doorslaer E, Wagstaff A. Equity in the delivery of health care: Some international. Comparisons. *Health Eco* 1992;11:361–387.



# **Responses of Israeli HMOs to Environmental Change Following the National Health Insurance Law: Opening the Black Box**

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## Responses of Israeli HMOs to environmental change following the National Health Insurance Law: Opening the black box<sup>☆</sup>

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### Abstract

Managed competition was introduced into the Israeli health care system with the enactment of the National Health Insurance (NHI) Law of 1995, which radically transformed health management organizations' (HMO) regulatory and competitive environments. We conducted an in-depth, qualitative analysis of the strategies developed by two Israeli HMOs in response to this change, and developed the concept of a "strategic repertoire" to integrate diverse theories of organizational adaptation to environmental change. Although the responses of these organizations to managed competition were broadly comparable, they diverged from one another in important ways. Our analysis highlights how the interaction among organizational history, managerial choice, and environmental constraints creates divergence in organizational responses to national policy initiatives. Policy implications arising from the findings include ways of anticipating unintended consequences of policy initiatives, such as involving provider organizations in the structuring of reform, or simulating their response in advance, based on expert knowledge of their strategic repertoires; and the need to include mechanisms for obtaining feedback on organizational responses in the implementation of reform. This will facilitate the adjustment of program regulations and incentives in response to emerging practices.

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*Keywords:* Managed competition; HMO; Strategy; Organizational adaptation; Israel

### 1. Introduction

The National Health Insurance (NHI) Law, which was enacted in 1995, regulated the previously unregulated competition in the Israeli health maintenance organization (HMO) market, radically changing the environment in which Israel's four not-for-profit HMOs operate. This reform also created a valuable opportunity to observe how health care organizations

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respond to changes in their regulatory and competitive environments. To date, most studies of health care reform have analyzed the process of designing reform and changes in the system undergoing reform, or have assessed the outcomes of reform.<sup>1</sup> This study addresses a unique aspect of health care reform: the organizational behavior of HMOs adjusting to new regulations and incentives in the health care system.

The National Health Insurance reform incorporated many elements of Enthoven's [1] managed competition model, including universal coverage, freedom of choice, and transfer among insurers, a standard benefits package, and payment to insurers based on risk-adjusted capitation (since the formula in Israel includes only an age parameter, it does not achieve the perfect risk adjustment envisioned by the model).<sup>2</sup> The National Health Insurance reform was designed to overcome some major market failures in health care, specifically, to discourage cream skimming by insurers and ensure freedom of choice and transfer among HMOs, to enhance equity, and to ensure the financial stability of the HMOs.

The underlying assumption of reform is that providers of health care will respond to the new incentives and regulations in a way that is compatible with the intentions of those planning the reform, thus enabling the reform to achieve its objectives. However, reform efforts can prove to be ineffective or counter-effective if organizations respond to them differently than intended by policy makers, as has been the case to some extent in Israel [2–5], as well as in other coun-

tries undergoing reform [6–10]. However, the planners of reform, like the policy makers who implement it, are not sufficiently aware of how specific incentives are perceived by health care organizations, or of their actual effect on these organizations' strategies. For this reason, the outcomes are not always in line with goals. Only lately has evidence begun accumulating regarding actual responses to managed competition policies in several countries [11,12].

While information on the outcomes of reform alone may identify areas in which the incentives have not had the desired effect, they cannot provide insight into the reasons for a given organizational response, and therefore cannot be of help in designing new, more effective incentives or regulations. Therefore, an analysis of organizational behavior that aims to "open the black box" and analyze health providers' responses to health care reform is crucial to the effective implementation of reform. Understanding organizations' choice of strategy can be invaluable for designing regulations or incentives that may better achieve the desired effect, and prevent unintended and undesirable outcomes as well.

In addition, health policy reforms may have divergent impacts on the responses of different HMOs, because of their different positions in the health care market (e.g., competitive advantages, influence on policy makers, their leverage versus that of pharmaceutical companies and other providers) [13]. Divergent responses to national policy may also reflect differences in providers' organizational histories, resources, structures, and internal strategy formulation processes [14–16]. Thus, in order to gain a comprehensive understanding of response to reform, it is important to study multiple organizations, which differ in these parameters. The unique contribution of this study lies in its understanding of the responses of HMOs with different characteristics to an important reform – managed competition – whose principles are being implemented in many countries [11].

To better understand the process of policy implementation, the objective of this study was to examine intra-organizational processes in HMOs related to their response to the National Health Insurance reform in the Israeli health care system. We then suggest a model of strategy formulation (the "strategic repertoire"), which emerged from our analysis. We conclude by highlighting some policy implications arising from the Israeli

<sup>1</sup> The literature review was conducted using the electronic data bases Sociofile 1974–1998, Healthstar 1985–1998, and Webspurs 1998–2004, using the key words health maintenance organizations, sick funds, managed care, environment, and strategy.

<sup>2</sup> Two important elements of managed competition were not incorporated in the National Health Insurance Law: price competition among HMOs, and dissemination of information on quality to consumers by a central body (e.g., employers, the government). Another deviation from the ideal model of managed competition involved allowing the HMOs to market supplemental insurance, which covers benefits that are not included in the universal basic benefits package. Furthermore, a rigid fixed budget for the health system as a whole, and an updating mechanism for the budget controlled by the Ministry of Finance and the Ministry of Health, was defined to achieve overall cost containment. The modified model of managed competition implemented in Israel is an outgrowth of local political and organizational forces, as well as of historical policy precedents (for further analysis of the National Health Insurance reform see [2–5]).

experience, which may be instructive to others interested in implementing reform.

## 2. Literature review: organizational response to environmental change

Conceptually, reform of health care systems changes the environment in which health care organizations operate. Therefore, to provide background for our analysis of Israeli HMOs' responses to the NHI Law, we review the main theoretical approaches for analyzing organizational responses to environmental change [17–20].

*Strategic choice theories* emphasize rational adaptation to competitive environments [21–24]. They highlight the proactive acts of managers who initiate changes in organizational structure, processes, and strategies in an effort to enhance their organization's competitive advantage, rather than responding passively to external developments (see also [25,26]). According to this view, managers can also plan and execute strategies that alter critical features of their organization's operating environment (i.e., not only internal changes) [27].

*Neo-institutional* theorists adopt a different approach to understanding organizational adaptation to change. They focus on how organizations are shaped by, and respond to, components of their institutional (i.e., normative and regulatory) environments. Neo-institutional studies emphasize organizational change as a response to normative and cognitive changes in the surrounding society (e.g., [28–30]), which determine the actions of individuals and organizations through the internalization of values, norms, and rules.

Some neo-institutionalists argue that many activities are undertaken out of habit, convention, or social obligation, regardless of whether they further an organization's interests or contribute to its efficiency or effectiveness [31,32]. However, other neo-institutional theorists view organizational response to changes in the institutional environment as more deliberate, ensuing from the perceived benefit of obeying institutional rules: "Individual and collective actors (such as organizations) are assumed to have interests which they pursue in an intended rational manner . . . Actors obey these [institutional] rules primarily out of self-interest, out of expedience, in order to avoid sanctions" [33].

Both neo-institutional approaches focus on the regulatory environment rather than on the competitive (i.e., market) environment, and expect to find similarity in organizational structures and processes (isomorphism), which derives from the internalization of beliefs and norms by an organizations' members, conscious adaptation to institutional rules and expectations, and imitation of other organizations that appear to be successful [31].

*Ecological theory* rejects the assumption that organizations can readily adjust to external conditions—a view held by both strategic choice and neo-institutional theorists. Mainstream population ecologists [34–38] argue that organizational inertia makes it hard for managers to plan and carry out the major adjustments required by rapid change in institutional and competitive environments. Ecologists argue that uncertainty, multiple environmental changes, and incomplete information reduce the chances that managers will choose strategies that enhance organizational survival. The risks and costs of change, along with internal opposition, further reduce the probability that an organization will succeed in making survival-enhancing changes. Instead, according to organizational ecologists, managers often make maladaptive choices such that, in the long run, natural selection, rather than managerial choice, shapes organizational characteristics. Organizations possessing characteristics that fit the requirements of the changing environment survive and are replicated, while those possessing less appropriate characteristics gradually disappear.

The theories reviewed above lead to divergent expectations concerning three central features of organizational response to environmental change: (1) continuity—the degree to which organizations continue former practices, structures, and strategies. Ecological theories would lead us to expect continuity of structure, activities, and strategies, while the strategic choice and neo-institutional approaches would lead us to expect discontinuity. (2) Deliberateness—the extent to which managers consciously plan and enact adaptive change. Strategic choice theories expect deliberate change in response to changes in the competitive environment. Institutional theories that focus on normative and cognitive aspects of the environment expect gradual, non-deliberate, and often unconscious adjustment to environmental change. Institutionalists, who focus on regulatory aspects of the environment, expect delib-

erate efforts to adapt to new rules and requirements. Ecological theorists anticipate little deliberate change, due to internal resistance to change. (3) Similarity of adaptive strategies—the extent to which organizations respond to change in similar ways. Most institutional approaches expect to find similar strategies in organizations operating in the same institutional environment. Strategic choice theories lead to an expectation of differences in strategy, since managers pursue distinctive sets of objectives and diverge in their reading of the environment and their understanding of how best to obtain their objectives. To the extent that organizations can overcome inertia and adapt to change, ecological theories would anticipate divergence in strategies, because managers lack accurate information about the environment and face different forms of internal resistance to adaptation.

Taking into account the divergent predictions of these theoretical approaches, our analysis of the response of Israeli HMOs to the environmental change created by the National Health Insurance Law will be guided by three fundamental questions: (1) To what extent are the HMOs' observed actions and strategies<sup>3</sup> continuous with past practice? (2) To what extent do observed changes in strategy and action derive from deliberate choice by HMO managers, as opposed to non-deliberate responses to institutional forces? (3) To what extent did the two HMOs we studied employ similar strategies and actions in response to external developments?

### 3. Methods

We explored organizational responses to change through a comparative case study of two Israeli HMOs: the General Sick Fund (GSF) and the United Sick Fund (USF). These HMOs were chosen because they are significantly different in size, service delivery structure, consistency of management (i.e., same director versus change of director during the study period), managerial culture, market share, past adaptive strategies, political affiliations, and power (see below). In addition, the National Health Insurance Law affected their operating environments differently. These differences enabled us

to use a “theoretical replication” design, in which theoretical assumptions are examined in differing situations [40].

We used a qualitative research approach of the sort typically used in organizational case studies [41–43]. This method gave us an in-depth understanding of organizational responses to environmental change, while also enabling us to develop new, empirically grounded concepts to understand when and how these responses were shaped [44]. Data were collected during 1995–1996,<sup>4</sup> guided by research questions that focused on the facets of organizational change and strategy formulation highlighted above. The study drew on multiple methods and data sources: (1) semi-structured, in-depth interviews with 145 senior managers of HMOs and related organizations (e.g., the Ministry of Health, the Ministry of Finance), conducted by the first author between July and December 1996; (2) documents (1994–1996) from HMO and government archives, protocols (1993–1996) of parliament committee meetings, newspaper articles (1992–1996), and findings from previous research; (3) the official protocol of testimonies of senior HMO managers before the “Commission of Inquiry into the Functioning and Efficiency of the Israeli Health System” [45], and official reports of the State Comptroller on HMOs (1979–1995); (4) public proclamations by senior officials in the health system, made at conventions or professional meetings in 1995–1996 attended by the first author.

Our data collection concentrated on 1993–1996, including the period between August 1993 and June 1994, during which a parliamentary committee was discussing national health legislation, as organizational adaptation to regulatory change often begins in anticipation of actual change. Strategies employed during earlier periods (since the HMOs' establishment) were inferred mainly from documentary sources.<sup>5</sup>

<sup>4</sup> Due to the sensitivity of data on strategies in a competitive environment, we chose to postpone the report of our findings. This was also justified by the academic nature of our examination, whose insights into HMO strategy formulation and response to reform have long-term value, and was not intended to inform immediate action.

<sup>5</sup> We should note that the case study presented here is based on data gathered during the first years after reform, and therefore represents the initial responses of the HMOs. Data from subsequent periods were not used in the analysis. However, unstructured observations of HMO strategies in subsequent years confirm the findings presented in this paper regarding their strategic repertoire.

<sup>3</sup> The term strategy is used here to describe emergent strategies [39]—that is, the unifying patterns that characterize streams of specific activities and practices.

Data analysis employed classification to identify patterns, trends, and useful conceptual categories [46–48]. The use of multiple study tools and the diversity of data sources contributed to triangulation, and thereby to the validation of empirical inferences [49]. However, in some cases, multiple sources of information about a particular phenomenon were unavailable. It was particularly important to validate the information received through interviews, as it is known that people tend to portray their behavior in a rational way and imbue their past actions with new or added meaning [50,51]. To this end, we compared data from different respondents, as well as data gathered with different methods. In general, the information from the various sources was found to be highly consistent.

#### 4. The General Sick Fund and the United Sick Fund compared

Prior to the implementation of National Health Insurance, the General Sick Fund, which was established in 1911, operated under the auspices of the General Federation of Labor and provided medical care to its members. The General Federation of Labor was an umbrella trade union affiliated with the Labor Party. The Labor Party, which was in power from 1948 through 1977, treated the GSF almost as if it were a branch of state health services. Hence, since its inception, the GSF has maintained a close relationship with state agencies, been involved in important decision forums, and played a principal role in promoting national health system goals by operating medical schools and hospitals in peripheral regions [52–55]. Throughout this period, the GSF remained unequivocal in its loyalty to the Labor Party and its institutions, where collectivism and party solidarity were watchwords. GSF services were designed to conform to the ideology and interests of the General Federation of Labor and the democratic socialist ideology of the Labor Party—that is, broad geographic distribution, inclusion of as many members as possible, and equality of service provision. Traditionally, the GSF was administered by physicians who occupied key managerial roles and influenced strategic decisions. For example, a main consideration in designing services was safeguarding the rights and work conditions of the physicians [56]. Until 1994, the GSF continually

received government support [57], albeit to a lesser extent after the Labor Party became an opposition party in 1977.<sup>6</sup> Despite its ties to the state, the GSF has experienced financial difficulties almost since its inception.

In contrast, the United Sick Fund is a relatively “young” organization, established in 1974 following the merger of two older HMOs (the Amamit Sick Fund established by Hadassah Medical Organization in 1930, and the Merkazit Sick Fund, which was affiliated with the General Zionist party);<sup>7</sup> however, the USF was not formally affiliated with a political party. The board of this non-profit organization was composed of members and employees. Its mission was to provide health services to citizens who were not members of the General Federation of Labor and who were therefore excluded from membership in the GSF. In the past, the USF had few official contacts with state authorities. It remained financially stable over the years: from 1987 until implementation of the National Health Insurance Law in 1995, it needed no government support. Prior to the law’s implementation, the USF was oriented toward bourgeois sectors of Israeli society (e.g., it had contracts with trade associations of physicians and lawyers), as well as toward blue collar and religious workers in the Jerusalem area. The management of the USF was composed of administrators who were led by business values, as manifested in the USF’s efforts to balance its revenue and expenditures, in part by attracting younger, healthier, and wealthier members than did the GSF (see Appendix A).

Although the GSF controlled 60% of the health care market on the eve of National Health Insurance reform, its market share had been declining since the late 1970s. Conversely, the USF controlled a small but growing market share. Furthermore, over the years, patient satisfaction was significantly lower among members of the GSF than among members of the USF, who also enjoyed greater access to services and greater choice among providers.

These two HMOs also differed in their structure. The GSF’s organizational structure is centralized but,

<sup>6</sup> However, even after 1977 the GSF had government support, particularly when the Labor Party was once again part of the coalition (in 1984–1990 and in 1992–1996).

<sup>7</sup> We would note that after the merger, control remained in hands of the Amamit Sick Fund’s management; moreover, the basic framework of Amamit was retained by the USF [56].

because it is relatively large, its central offices actually have limited control over the activities of its sub-units. It is a complex, hierarchical, and highly formalized organization [53]. Since 1978, three director-generals have been appointed, the last at the end of 1992.<sup>8</sup> In contrast, the USF is a small organization with a flat executive hierarchy, a small number of administrators, and little formalization. The same director-general has been in office since 1974. Structurally, the USF is also centralized, but because it is small, its director-general has both formal and de facto control.

### 5. The National Health Insurance Law: analysis of environmental change

The National Health Insurance Law came into effect in January of 1995, mandating universal health insurance for all residents of Israel through the country's four private, non-profit HMOs. The General Sick Fund was the largest of these, insuring about 60% of the population in 1995. Maccabi Healthcare Services insured about 20% of the population, and the United Sick Fund and Leumit Sick Fund each insured about 10% of the population [58].

Prior to the NHI Law, health insurance was voluntary, and the HMOs were only loosely regulated by the Ministries of Health and Finance. The HMOs autonomously set membership dues (premium rates), and determined the composition of their benefits packages. Individuals and families paid a monthly premium to their HMO, and in return received services contained in the benefits package offered by the HMO. As a result of this arrangement, HMOs with wealthier and healthier members (i.e., Maccabi and the USF) had higher revenues and lower expenditures. Risk selection (cream skimming) was legal and widely practiced by these two HMOs,<sup>9</sup> which also used flexible premiums and ben-

efits to select more healthy and less costly members and to reject elderly and ill applicants. To illustrate, the GSF's members were (and are) significantly older, poorer, and less healthy than are those of the other HMOs, particularly the USF (see Appendix A). Thus, although members of the GSF had (and have) more health needs, its per capita income has traditionally been lower than that of the other HMOs. Furthermore, the General Federation of Labor was transferring only 75% of the membership dues it collected to the GSF (using the balance for its other activities). The General Federation of Labor also restricted discounts on dues, thereby impairing the GSF's efforts to compete. Inefficient management combined with these factors to cause financial instability: by 1995, the GSF had accumulated a deficit of about US\$ 1.5 billion.

In implementing the main principals of the managed competition model, the NHI Law fundamentally changed the structure and principles underlying Israel's health system, and consequently, the regulatory environment in which the HMOs functioned [3,4]. In the regulated market created by National Health Insurance, the law prohibits risk selection by HMOs. The government regulates the enrollment process to prevent risk selection, and monitors all HMO activities. To further discourage incentives for risk selection, some compensation to HMOs is provided through a risk-adjusted capitation formula based on the number of members<sup>10</sup> and their ages. Thus, larger HMOs and those with more elderly members (i.e., the GSF) receive a greater share of the health budget. The allocation formula was based on the assumption that the weights assigned to the age groups would in fact reflect actual differences in the risk of HMO members. However, adjustment by age alone is not sufficient [1], and correct pricing is very hard to achieve [62]. Therefore, the allocation method

<sup>8</sup> Dr. Doron served as the director-general from 1978 to 1988, and Mr. Fassa served from 1988 to 1992; Mr. Kaplan was appointed at the end of 1992.

<sup>9</sup> An example of strategies that enabled risk selection was the development of services in wealthier areas of the country, and the establishment of only a few clinics in peripheral areas. To illustrate: in 1982, 75% of the USF's members were registered at 11 branches located in the center of the country. The report of the State Comptroller for that year also noted that the quality of services was much higher at those branches than at the ones in peripheral areas

[59]. Another strategy was to provide limited benefits to the severely ill and elderly. For example, the waiting time for non-acute hospitalization stipulated in the benefit package of the USF prior to national health insurance was longer than that stipulated by the GSF. Both Maccabi and the USF offered a limited amount of geriatric rehabilitation, relative to the GSF [60]. Another strategy used by the USF was to offer lower premiums to the wealthy than those offered by the GSF [61].

<sup>10</sup> Prior to implementation of the law, the HMOs collected premiums by family, such that there was no benefit to insuring large families (e.g. with more members per family unit). According to the capitation formula instituted by the law, each HMO now receives a sum of money for each and every member.

established by the NHI Law may not discourage indirect risk selection.

Citizens pay a neutral health tax (4.8% of income) to the National Insurance Institute (Israel's social security administration). A flat minimum rate has been defined for the elderly, and recipients of income maintenance and other social benefits.<sup>11</sup> Revenues from the health tax are combined with direct government contributions and distributed to the HMOs, severing any link between members' wealth and the HMOs' income. All of the HMOs provide a uniform benefits package defined by the law, which is expected to simplify comparison among HMOs, thereby facilitating freedom of choice for consumers. These elements were also expected to lead to greater equity in the care provided to all citizens.

Under the NHI Law, the HMOs have no say in the rate of the health tax, the amount of co-payments, or the composition of the benefits package. National Health Insurance regulations have thus changed the nature of competition among the HMOs by precluding competition over premium rates and benefits, and allowing competition only over the quality of services in the basic benefits package, and supplemental insurance.

The law limits the HMOs' autonomy in other areas, as well. It specifies that the Ministry of Health regulate their activities and monitor the quality of services they provide, and that the Ministries of Finance and Health closely monitor their financial operation. The HMOs are thus accountable to the government, and are required to provide any administrative, fiscal, or medical information requested. The National Health Insurance Law also contains instructions regarding the HMOs' internal management: it specifies the structure of the governing body (an HMO "board"), requires the setting of regulations and the appointment of an internal ombudsman, and specifies the process for contracting with service providers. Moreover, the law sets penalties for general managers who do not comply with these instructions. In addition, it prohibits the transfer of funds from the HMOs to labor unions, as well as any connection between HMO and union membership.

<sup>11</sup> The progressivity of the health tax increased somewhat after implementation of the law, as the burden on the wealthy was increased somewhat while that on the poor was decreased [63].

### 5.1. *The divergent impact of National Health Insurance on the two HMOs*

The National Health Insurance Law had a very different impact on the institutional and competitive environments in which the two HMOs operate. Although both became more dependent on the government and more limited in their autonomy, the change was more marked for the USF than for the GSF. As noted, the GSF had long been dependent on government agencies because of its deficit [57,64–66]. The USF, on the other hand, was not accustomed to budgetary problems, and in the past could balance its budget by raising member fees.

National Health Insurance regulations mandating freedom to transfer among HMOs and prohibiting risk selection had different consequences for the two HMOs. As long as risk selection (based on age and health status) was legal, the USF pursued it to maintain a profitable membership composition. Conversely, the GSF had historically welcomed all applicants as a means of attracting members to its mother organization, the General Federation of Labor. The new National Health Insurance regulations therefore endangered the USF's membership mix by allowing sick and elderly patients to transfer to it and prohibiting it from refusing them. These same rules endangered the GSF's market share by allowing members who previously would not have been accepted by other HMOs to leave it; however, they also had the potential to improve its membership composition, by enabling the elderly and ill to transfer to other HMOs.

Following passage of the NHI Law, the GSF's income from the sources mandated by the law (i.e., health tax and government contributions allocated through the capitation formula) increased, relative to its previous income from membership fees and the employer's tax (NIS 2057 per standardized member in 1995, compared to NIS 1857 in 1994). The USF's income from these sources decreased (from NIS 2251 per standardized member in 1994 to NIS 2093 in 1995; [67]).

The NHI Law severed the GSF's financial ties to the General Federation of Labor, by prohibiting the transfer of health tax funds to unions, as had been practiced prior to the law. This freed the GSF to ignore political considerations and stop taking union interests into account in its service provision and

internal administration. On the other hand, the General Federation of Labor was weakened, and the GSF consequently lost the political clout and public “backing” that its ties to the union had provided [54].

## 6. Strategic responses to environmental change

Analysis of HMO response to environmental change following implementation of the NHI Law revealed a number of strategies which we classified into two categories: (a) strategies oriented toward the institutional environment (i.e., attempts to satisfy or influence state regulatory bodies) and (b) strategies oriented toward the competitive environment (i.e., attempts to satisfy customers and compete with other HMOs). In this section, we present the strategies we identified in this study, and assess them in light of the theoretical concepts presented above: the degree of continuity with past strategies; the degree of deliberate choice of strategy; similarity between GSF and USF strategies.

### 6.1. Strategies oriented towards the institutional environment

#### 6.1.1. Continuity and deliberateness in GSF and USF strategies

Continuity was identified in the strategies of both HMOs. GSF managers attempted to proactively influence the “rules of the game”, including both formal regulations and informal regulatory processes, much as they had before the passage of National Health Insurance [54,55]. For example, following the passage of the law, GSF managers proposed changing the parameters of the capitation formula to include health status; this would have substantially boosted its revenues. GSF managers also chose to continue those activities that seemed to them particularly effective in influencing national policy. For example, they continued to cultivate long-standing relationships with senior officials in the Ministry of Health through written and direct contact, thereby capitalizing on the GSF’s historic influence within the Ministry. GSF managers also continued trying to shape government decisions by maintaining relationships with political figures, lobbying, and campaigning to be included in decision-making forums,

such as the committee for setting per diem hospitalization rates.<sup>12</sup>

The USF also often acted much as it had in the past. It continued, for example, to demand incremental change that might improve its situation, without calling into question fundamental government assumptions or practices. To illustrate, after passage of the National Health Insurance Law, the USF’s managers demanded that every resident be accurately registered with the National Insurance Institute, so that the HMOs would receive the exact revenues due to them under the law. The potential financial gains of such procedural improvements were quite limited. (We would note that this demand for precise accounting is in line with a policy emphasizing a balanced budget, as will be described below.)

Alongside continuity in strategy, new strategies were identified in both HMOs. For example, the GSF employed new tactics in its efforts to influence the government. Notably, it began filing court claims, as one respondent described: “In the past, the HMO was identified with the state . . . the GSF was a national tool, and therefore did not go to court.” After the law’s implementation in 1995, the GSF sued the state on several issues, its main rationale being that “the court must decide the law’s interpretation—not bureaucrats in the ministries” (particularly in the Ministry of Finance). These suits centered on the allocation of resources: updating the cost of the benefits package, subsidization for the HMO’s psychiatric hospitals, the per diem rate of hospitalization.

The GSF also began using detailed data to support its demands. As one manager explained: “In the past, the GSF was not computerized and couldn’t provide data to support revision of the capitation formula. Today we have data and a statistical team that prepares data for the government to show that a problem exists”.

Another significant change within the GSF was the initiation in late 1993 of a vigorous strategy of cost containment and promotion of efficiency. This involved new ways to reduce operating costs—such as using internal facilities rather than external providers

<sup>12</sup> Since the GSF owned hospitals, inclusion in this committee was of particular importance to it (as the USF did not own hospitals, this was less crucial to it, even though hospitalization rates did affect its expenditures).

(e.g., channeling patients to GSF hospitals and developing community-based alternatives to hospital outpatient services), structural reorganization, and increased supervision and control of district-level operations.<sup>13</sup>

The timing of the GSF's strategic reorientation reflected intensified government insistence that the HMO become financially viable, or else risk bankruptcy and the termination of government support. In 1994, the GSF was in financial straits, with a deficit of around US\$ 1.5 billion. Government support was made contingent on an economic recovery program, which included increased efficiency and savings. The GSF had signed recovery agreements with the government in the past, but late 1994 was the first time it in fact met a considerable portion of its financial obligations [65]. As a result of the GSF's cost containment efforts, growth in per capita expenditure nearly halted: between 1992 and 1994, per capita expenditure grew 37.5% in real terms [68], but between 1994 and 1995, it increased by only 1.3% [67].

Interviews with GSF managers indicated that their expenditure cuts and efficiency measures were guided by the perception that implementation of the law had made the HMOs more dependent on the government. "The law has nationalized the HMOs", was a recurring phrase. GSF managers felt the increased urgency of meeting government demands, since, as one senior manager put it, "life and death are in the hands of the government." Thus, the GSF's adoption of cost containment strategies can be interpreted as compliance with the demands of the institutional environment. However, compliance also probably had a symbolic function: signaling that the organization is well run, and thereby enhancing its legitimacy and capacity to obtain public funds.

Finally, GSF strategy departed radically from past practice by initiating broad forms of cooperation with the other HMOs, which might even be seen as efforts to establish a cartel. In the past, the GSF had enjoyed a unique position among the HMOs because of its domination of the insurance market, its sta-

tus as sole provider in many locales, and its ownership of hospitals; it usually did not see the advantage of cooperation.<sup>14</sup> Following the passage of the NHI Law, the GSF initiated cooperation with other HMOs on a very wide range of issues. A statement prepared by the heads of the HMOs [69] envisioned unprecedented forms of cooperation on daily operation, such as joint agreements on salary levels and restrictions on services, to the point where their efforts were subsequently disqualified by the Israeli anti-trust authority. GSF managers explained that this new strategy of cooperation was deliberately chosen to further several objectives: increasing the GSF's power in negotiations with the government and lobbying parliament for changes in National Health Insurance-related legislation; and restricting competition among the HMOs, which was perceived as a threat to the GSF's viability.<sup>15</sup>

Similarly, the USF employed new strategies following National Health Insurance, alongside the continuity in strategy noted above. In a break with past practice, the USF tried to bring about fundamental change in the implementation of the NHI Law, so as to restore the funding arrangements that had prevailed prior to the law's passage. In 1995 and 1996, USF representatives tried to ensure that the HMOs would collect and retain part of the health tax. This procedure would have again made HMO revenues partially reflect members' income, to the advantage of the USF. After passage of the law, government and parliamentary decisions became much more crucial and immediate determinants of HMO revenues than they had been before. This change helps explain the USF's departure from its strategy of low-profile activity in the institutional sphere in favor of proactive attempts to influence government decisions. The USF's strategic shift was thus a direct and deliberate response to the new environmental conditions created by National Health Insurance legislation. In keeping with its new, proactive strategy, the

<sup>13</sup> Alongside these new means of cost containment, the GSF also continued past activities—albeit with greater effectiveness under its new director-general. These included computerization, developing internal monitoring systems, and management training.

<sup>14</sup> However, the GSF and other HMOs did sometimes coordinate their efforts when dealing with the government—for example, with regard to the per diem cost of hospitalization or the tariff for insuring immigrants.

<sup>15</sup> We would note that cooperation among HMOs is both a competitive strategy and an institutional strategy, since it strives to gain advantage in the market and also to influence the "rules of the game". We refer to it in this section for brevity and to avoid repetition.

USF actively sought to enhance its power by cooperating with other HMOs.

Another strategic shift occurred in the USF's response to the requirement of the Ministry of Finance that it demonstrate efficiency and budget cuts as a condition for receiving government subsidies. In the past, the USF had ensured profitability mainly by boosting its income, that is, by raising premiums. However, since the National Health Insurance Law mandated that the National Insurance Institute would collect the health tax, the USF could no longer rely on this mechanism to increase revenue. Increases in revenue were dependent on special government allocations that were part of a comprehensive financial recovery plan. For the first time ever, the USF had to make radical cost containment moves in order to assure its economic viability. These included eliminating staff positions and overtime hours, and cutting physician payments by 5%. The USF also adopted strategies that were popular at the time in other organizations: computerization, staff training, elaboration of control systems, and substitution of community services for hospital care. As a result of all these efforts to reduce costs, the USF's per capita expenditure in real terms decreased by 3.7% between 1994 and 1995 [67], compared to an increase of 11% between 1992 and 1994 [68].

#### 6.1.2. Similarity of GSF and USF strategies

When comparing the strategies of the two HMOs, we discover similarities in some, but not all, of their institutionally oriented activities. Furthermore, we find noticeable differences in the emphases that each HMO gave various types of activity or the motivations for employing them. As described above, both HMOs tried to influence policy regulations to increase their share of allocated funds and assure their managerial autonomy. Furthermore, the arguments used by HMO officials in pursuit of these objectives were similar, and appealed to similar norms and values, which were consistent with developments in the dominant beliefs and values within Israeli society [70–73]. Beginning in 1993, when its new director-general was appointed, the GSF based its requests for government support primarily on economic and rational arguments, such as, “The government's participation in [our] budget is not a subsidy, but rather a reasonable payment for services that the government purchases from us”

[74]. This type of argument corresponded to the growing emphasis in Israeli society on financial efficiency and business-like management of public institutions [73,75].

USF officials used similar rhetoric, presenting financial arguments that focused on sound business practices. For example, USF managers claimed that services in the mandatory benefits package should be specified in detail, and a price set for each. In this way, the cost of the total benefits package could be accurately estimated. USF managers claimed that this type of rational calculation of costs, rather than historical precedent, should serve as the basis for calculating the health budget.

Legal arguments were also used by both HMOs. A letter from the legal counsel for the GSF to the Minister of Health stated that, “It is your duty by law to amend the cost of the benefits package or limit its scope. If you do not take this action, my client will be forced to petition the court” (January 1996). USF managers also presented legal arguments: for example, that the increase in the per diem price of hospitalization was contrary to a Budget Reconciliation Law passed after the introduction of National Health Insurance. Such arguments were consistent both with social trends, which increasingly relied on court decisions in political and other disputes [76,77], and with the situation created by the National Health Insurance Law, in which HMOs could base their demands on the law's stipulations.

The two HMOs also used similar means to wield influence: their representatives personally lobbied senior officials and sought influence over key political agencies. They sought to collaborate to enhance their political impact and avoid sanctions for curtailing services. Spokespersons for both HMOs bolstered their arguments with statistical data and expert opinions. The two HMOs also employed similar means of efficient management and cost cutting in response to government requirements (e.g., purchasing services from less expensive providers, computerizing managerial systems). These, in part, mirrored widespread social and managerial trends, thus reflecting institutional influences.

However, there were important differences in the strategies employed by each HMO. The GSF proposed fundamental change in basic legal arrangements and regulations, while the USF continued to propose

mainly incremental change. GSF managers also made greater efforts than did USF managers to influence government policy. Thus, GSF managers sought inclusion in Ministry of Health decision-making forums and tried to influence the medical policy regulations that are periodically issued by the Ministry of Health. The USF was scarcely active in this direction, and placed much more emphasis on cost cutting and efficient operation than did the GSF. This emphasis was probably related to the belief among USF managers that efforts to influence policy were futile, like “crying at the Wailing Wall . . . [since] the country doesn’t have money and therefore there is no chance to increase revenue”. Moreover, they feared that the government would try to reduce costs and eliminate duplication by reducing the number of HMOs, and that a small HMO with a deficit would be particularly vulnerable. As one manager said, “Our [small] size is a disadvantage . . . we could disappear from one day to the next, and no one would even notice . . . they could close us down in a day.” Given its small market share, USF managers felt that the very existence of the organization was under threat, and that they had to “fight to survive”. Thus, managers believed that economic stability and profitability were the key to organizational viability under the new environmental conditions.

While GSF executives and managers ardently used the legal system to their advantage, filing claims against the state, the USF rarely employed such means, both because of the expense it incurred and because USF managers (reportedly) assumed their HMO would reap the benefits of claims won by other HMOs. The GSF was quite active in its effort to influence public opinion and enhance the legitimacy of its claims. Conversely, USF managers did not attempt to influence public opinion, because they believed it was pointless. In their view, “crucial decisions are made in parliament and the ministries, and not in the media or among the public at large”.

Although both HMOs employed a similar, new strategy of cooperation, their motives for doing so differed. Both wanted to use cooperation to gain more influence over the government. However, the GSF also saw cooperation as a means of limiting competition, and thus maintaining its market share, while the smaller USF mainly saw the financial advantages of cooperation (e.g., in bargaining with providers).

## 6.2. *Strategies oriented toward the competitive environment*

### 6.2.1. *Continuity and deliberateness of GSF and USF strategies*

The GSF and the USF used both old and new competitive strategies, as was observed above regarding strategies oriented toward the institutional environment. The GSF continued using many of the competitive tactics it had developed during the late 1980s, focusing on highly visible improvements in the services included in the basic benefits package – e.g., reduced waiting times, an increase in after-hours centers, renovated facilities, and marketing – as a means of attracting more members. Respondents attested that this continuity with past actions was deliberate. They viewed service improvements and marketing as the best way to halt the decline in the GSF’s market share, particularly as they felt that these familiar activities were being carried out more effectively under the new director-general than they had been in the past: “We moved from slogans about improved service, to action”, one senior executive noted. Indeed, while the GSF’s market share had declined by 10 percentage points (from 73% to 63%) between 1991 and 1994 (prior to National Health Insurance), between 1994 and 1997 the rate of decline was much lower—5 percentage points [78,79].

Continuity was also observed in the USF, which continued to use a strategy of controlled growth in membership, as it had before National Health Insurance (“we need to safeguard our demographic composition”, said one senior manager). This strategy aimed to maintain a membership profile that contained a disproportionate number of young and healthy people: in 1993, 4.1% of USF members were age 65 or older, compared to 13% of GSF members, and 6.3% had a chronic disease compared to 15.7% of GSF members [78]. USF recruiting agents were given express instructions to prefer favorable risks, and USF advertisements deliberately avoided appealing to sicker individuals by excluding references to the scope and sophistication of its medical services. “I hide the fact that we’re so good,” admitted one senior manager, “so that sick applicants won’t join [our HMO].” Analysis of USF market share trends confirms that the rates of growth were contained: in 1992–1993 (prior to National Health Insurance), the

USF's share rose from 6.8% to 7.9% (16.1%); in 1993–1994 (during anticipation of the new legislation), its market share rose from 7.9% to 8.7% (10.1%); and in 1994–1995 it increased from 8.7% to 9.0% (3.4%) [78–80].

Along with continuity, a most striking change in strategy was observed in the GSF, which for decades had largely ignored the competitive market. Although the GSF had tried to adapt to increasing competition in the 1980s [55], its efforts had been incremental, and were insufficient to halt the steep decline in its market share—from 85% in 1984 to 67% in 1993 [81]. After the appointment of a new director-general in 1993, the GSF adopted a strong business-market strategy, which was in accord with the new perception of the competitive environment as “a war”, “madness”, and “a danger to our existence”.

In a related strategic change, the GSF began to emphasize human resource development at all levels. Managers described this as a “cultural revolution”, aimed at reaching “every employee on ‘the front’, in the clinics, who has to confront clients each day and prevent them from leaving”. The idea of “changing the cassette” in the heads of the staff was repeated in many interviews with senior managers. Another new strategy followed an assessment of the HMO's market position and the effectiveness of alternative strategies. GSF management began working to prevent current members from leaving, rather than investing all of its marketing efforts in recruiting new members, as it had in the past: “It is easier to hold on to what you already have”, one manager explained. To this end, the GSF began a telephone and mail campaign to inform current members of improvements in services.

Another change was observed in the GSF's marketing methods: new means were being used, which were similar to those used to market other consumer goods. For example, the HMO contracted with leading advertising agencies to plan campaigns; it made heavy use of print, broadcast media, billboards, telemarketing, and direct mailings; and it offered gifts to members. In 1995, the GSF's expenses for marketing rose by 43% (in real terms) relative to 1994; in 1996, they jumped an additional 41% [66].<sup>16</sup>

The contents of the GSF's advertising campaigns also changed to reflect new social trends. The advertisements projected an image of a “young” HMO, geared toward young, healthy, well-off people. GSF marketing materials stressed improved customer service and responsiveness to members' preferences, claiming, “We're open more hours a day”, and “We have more clinics throughout Israel”. Advertising also stressed free choice of physicians and easy access to them, delivery of lab results by fax, patient information centers, and new night services—all of which matched current patient expectations for care and mimicked practices that had contributed to the popularity of the smaller, competing HMOs. Marketing campaigns were newly designed to match client preferences, as revealed by surveys and focus groups conducted by the GSF. In particular, efforts were made to tailor marketing messages to specific segments of the population, such as the ultra-orthodox, Arabs, immigrants, and young adults. For example, advertisements targeted at the orthodox offered this subgroup an option of considerable cultural importance—treatment of women by women physicians, rather than men. Managers attested that more sophisticated marketing was necessary to improve the GSF's ability to compete with the other HMOs and to ensure its survival, given the far-reaching change National Health Insurance had created in the competitive environment.

Changes in strategy were observed in the USF, as well, alongside the continuity noted above. Along with its age-old preference for the young and healthy, the USF cautiously expanded its target population to include large families and minority groups, which became “profitable” under National Health Insurance (as health tax revenues were dependent on the number of members, rather than on a family's income level). To attract these populations, the USF opened clinics in places it had never previously operated, which had concentrations of large families (e.g., Arab villages, poor neighborhoods). The USF also began advertising in Arabic, and recruiting Arab sales agents. As a result of these efforts, the USF increased its share of the Arab sector. According to a survey of the population conducted by the Central Bureau of Statistics, 3% of the USF's members were Arabs in 1981 [83]. According to National Insurance Institute data, 3.3% of USF members were Arabs at the end of 1993 [80]; this percentage had increased to 3.9% by the end

<sup>16</sup> See also, Reuveni et al. [82] on advertising strategies.

of 1994 and 6.7% by the end of 1996 [58].<sup>17</sup> USF managers explained that the profitability of these populations was reflected not only in higher revenues, but also in their health-care seeking behavior and the lower availability of services in their towns and neighborhoods.

Another example of the USF's new competitive strategy was observed in its approach to improving its "product". This predominantly involved improving services that were *not* included in the mandatory benefits package. For example, the USF increased the benefits included in its supplemental insurance package, opened clinics offering "alternative medicine" (e.g., acupuncture, homeopathy), developed childbirth preparation courses, and offered dental care, consultations with a dietician, and vaccinations for travelers going abroad. Interviews with managers revealed that the rationale behind this was mainly to collect additional income from members, since for these services the USF could legally charge extra fees.<sup>18</sup> Financial data show that this component of the USF's revenue indeed increased by 43% between 1995 and 1996, compared to an increase of only 11% in the GSF's revenue for these services [67].

#### 6.2.2. Similarity of GSF and USF strategies

Although the USF and GSF used similar marketing and advertising tactics, their competitive strategies differed. The GSF concentrated on maintaining its market share, so as not to lose capitation-based revenue. To this end, it tried to prevent existing members from leaving, while continuing to recruit as many new members as possible. USF executives felt that increasing membership was less important than maintaining a favorable age and health mix of members. Because they believed

that this mix accounted for their HMO's financial viability, they employed a "controlled growth" strategy.

Other strategic differences flowed from the managers' differing perceptions of how best to ensure organizational viability in the new environment. GSF managers believed that having a large number of members was crucial to ensuring income and influencing government decisions. The GSF therefore emphasized the improvement of services *included* in the mandated benefits package as a means of attracting members and preventing disenrollment (e.g., increasing the availability of services, training employees to have a better service orientation), and paid little attention to marketing extra services. Conversely, USF managers felt that profitability was the key to prosperity and therefore took deliberate steps to develop services that were *not included* in the mandated benefits package, and thus could incur extra funding.<sup>19</sup> Although the USF advertised the high quality of the services provided in the mandated uniform benefits package, it deliberately did not invest in improving the quality of these services, which were perceived by both managers and members as already being of high quality. To illustrate, in a national survey conducted in 1995, 94% of USF members reported great or very great satisfaction with the level of services in their HMO, compared to 80% of the members of the GSF [84]. Similar beliefs were also expressed by USF managers, e.g., "Despite all of the cutbacks and efficiency measures, the level of quality and availability [in our HMO] are far better than those of the competition."

## 7. Summary of the findings

Let us now review the findings in light of the three research questions posed at the outset. First, were HMO strategies largely continuous with pre-reform strategies, or did they shift substantially in response to

<sup>17</sup> We note that the data on the composition of HMO members are incomplete. The National Insurance Institute began publishing regular population based data only in 1993 (probably in anticipation of the National Health Insurance Law, for which the data would be used in allocating funds). The last population survey before that was conducted by the Central Bureau of Statistics in 1981.

<sup>18</sup> Although the respondents did not mention selection as an objective of this strategy, the development and marketing of "luxury" services could nevertheless also be seen as a means of attracting healthier members who seek such services when choosing an HMO, rather than considering the quality of services for the severe or chronically ill. These services also may attract more wealthy people who could afford to buy them.

<sup>19</sup> While the GSF also developed such services, during the period studied, its managers viewed them mainly as a way of improving service, rather than as a source of extra funding. Consequently, the GSF put much less emphasis on marketing its supplemental services and policies. It should be noted that several years after completion of this study, the GSF changed its orientation toward supplemental insurance, and began marketing it aggressively. However, even then it was perceived as a means of improving services rather than as a source of income.

National Health Insurance's transformation of the regulatory environment? The GSF's strategic response to National Health Insurance departed substantially from its prior strategies. Before the reform, the GSF had for decades sought to shape its institutional environment, while GSF managers had largely ignored developments in their competitive environment. In the 1980s, GSF managers made their first halting efforts to adapt to growing competition from the smaller HMOs. In 1993, following intensive preparations for the legislation of National Health Insurance, and the appointment of a new director-general, the GSF developed a strong business-market strategy, without abandoning its institutional activism.

The USF presents a more mixed picture, since its strategic changes were less dramatic. After the introduction of National Health Insurance, the USF pursued the same competitive strategy that it had used prior to the reform, although it modified it to be more effective under the new environmental conditions. The USF also became more institutionally active after the sudden change in its regulatory environment, although its efforts in this sphere were still moderate compared to those of the GSF.

Second, how deliberate was the process of change within the HMOs? In both HMOs, managers deliberately adopted some strategies and actions in response to specific environmental developments. For example, after the advent of National Health Insurance, the GSF deliberately chose to initiate cooperation with the other HMOs; the USF deliberately chose to emphasize in its marketing strategy services not included in the basic basket of services. Moreover, managers deliberately altered their rhetoric as part of their effort to improve their institutional and competitive positions. On the other hand, the rhetorical themes used by HMO spokespersons and advertisers drew on popular norms and values. In like manner, when the HMOs sought to gain members or rationalize their internal operations, they used tactics that were in vogue in many Israeli organizations.

Third, how similar were the strategies and actions adopted by the two HMOs? The common regulatory and normative environment faced by both HMOs led to broad similarities in their strategies. Yet the similarities were greater in the competitive sphere than in the institutional arena. In the face of growing competition, both HMOs vigorously sought to attract or

retain members so as to enhance revenues from capitation. Moreover, as they sought to gain members and rationalize their operations, the HMOs used similarly fashionable management and marketing techniques. The pursuit of organizational efficiency also helped the HMOs cope with institutional pressures—including tighter funding and stricter regulation by the national government. As they sought to improve their institutional and competitive positions, the HMO managers also used comparable rhetorical devices that referred to popular norms and values.

Despite broad commonalities, the institutional strategies of the HMOs diverged, as managers drew on their organization's distinct experiences and history, as well as on their different perceptions of the environment. Managers in the GSF more consistently and vigorously pursued a strategy of directly influencing government decision makers and regulations. Moreover, the GSF's managers paid far more attention to the entire institutional arena than did managers in the USF. In contrast, USF managers pursued regulatory reform cautiously, placing greater emphasis on improving internal operations to conform to changes in funding and regulation. The organizations also differed in their competitive strategies: the GSF sought to preserve or even increase its market share, while the USF tried to ensure a profitable case mix of members.

## 8. Discussion

Health insurers and providers may respond to new regulations and incentives in ways that broadly resemble one another, yet also diverge. By opening the "black box" and looking within two very different Israeli HMOs, we were able to account for this dual pattern of similarities and differences in strategic responses to national regulatory and market reforms. We explained each HMO's strategies in light of its past strategies and history, its managers' reading of external developments, and the organizational impact of objective features of managed competition, such as the level of national funding and a new capitation arrangement.

How can we explain the complex pattern of response to the environmental change created by National Health Insurance reform? None of the theories on which we based our research provided a sufficient explanation of how the two HMOs responded to the regulatory and

market changes triggered by the implementation of managed competition.<sup>20</sup> Instead, the observed strategies fit some of the expectations generated by strategic choice theories (e.g., the influence of managers and their activism in response to changes in the competitive environment); neo-institutional theories (e.g., similarity in HMO strategies and non-deliberate responses to the beliefs, symbols, and norms of the society at large); ecological theories (e.g., internal resistance to change and continuation of former strategies and orientations). Our study thus joins a growing body of research that points to the need to combine elements of several theories in order to provide a convincing analysis of organizational responses to environmental change [14,25,85–88]. It also provides additional, empirically grounded insight into organizational behavior.

Analysis of response to the changes created by National Health Insurance reform furthers an understanding of the process of strategy formulation, as illustrated by the Israeli case studies. In this section, we will present the model of strategy formulation that emerges from our analysis of these case studies. We would note that the model is an outgrowth of the conclusions we drew from our qualitative case studies, drawing on the “grounded theory” approach [44].

However, first we would note the limitations of our study, which require that generalizations from the case studies be treated more as hypotheses than as unequivocal findings. There are at least three forms of limitation on our ability to generalize from these cases to other types of organization and other types of policy change. First, we examined a specific type of organization—one that is voluntary, well established, supplies an essential public service, and is highly institutionalized. Such organizations operate in a tightly regulated environment, in which competitors are few and competition is limited. Hence, institutional rules have a more decisive impact on revenue flow than do competitive conditions. This highly institutionalized environment is found in many public services, but departs substantially from that found in most commercial and industrial sectors.

Second, there are distinctive features of the health sector, in which the organizations we examined were embedded. Among these are asymmetry of information, the power of service providers to shape demand, and (in insurance-based systems) limited sensitivity to the price of services at the point of delivery. Third, we examined organizational responses to a specific policy change—a form of managed competition that involved legal and regulatory change, while also affecting the HMOs’ competitive environment.

Nevertheless, in order to explain the process of strategy formulation, we suggest using the integrating concept of “a *strategic repertoire*”. This concept was first used in the context of historical studies [89] and more recently by Miller and Chen [90] to explain competitive strategy. We extend this concept to explain both competitive strategies and strategies directed at institutional forces, such as state regulation. Based on our findings, we suggest that managers and other powerful actors respond to changes in their organization’s environment by selecting strategies and adaptive actions (as the strategic choice theory implies) from a finite repertoire of existing strategies and tactics, and altering elements in the repertoire in keeping with current conditions.

Organizational decision makers will choose among the contents of their repertoire in accordance with their understanding of environmental conditions and their assessments of the likely impact of particular actions. They will adopt actions or strategies that are not contained in the repertoire when they conclude that the actions in the repertoire are unlikely to attain the desired ends, or that some new alternative will be more effective. These decisions can result from unsuccessful attempts to use familiar strategies and tactics, exposure to new ideas and tactics, or reframing of environmental conditions following a perception of radical change such that past actions are no longer workable.

An important factor affecting a decision to adopt new actions is a change in leadership which can lead to radical change in an organization’s structure and strategies, because a director-general’s professional background, managerial approach, and world view affect his perception of the environment in which his organization functions and his choice of actions and strategies [91,92]. Thus, the change in leadership at the GSF appeared to affect its strategies, which changed more markedly than those of the USF. However, the extent

<sup>20</sup> The three basic theoretical approaches we reviewed use different conceptual tools to explain organizational behavior, arguing that these tools are most helpful in understanding the complex relationship between organizations and their environment. The theorists did not aim to disprove other approaches; rather, each endeavored to provide a unique and comprehensive conceptual framework for analyzing this relationship.

to which the change in strategies at the GSF was the result of the change in leadership cannot be precisely determined—as evidenced, perhaps by the significant changes also found in the USF’s strategies, despite continuous leadership of that organization since 1974.

Using the concept of a “strategic repertoire” helps in understanding why organizations operating in the same competitive and regulatory environment may nonetheless develop distinctive strategies for dealing with that environment, as occurred in our case studies. Differences in strategy ensue from the different choices made by senior managers, each of whom chooses from his or her own “strategic repertoire”, which includes distinct past practices and histories. Our understanding of the impact of past practices and strategies does not assume that inertia typically undermines effective adaptation, as the ecologists do. Instead, we simply assume that strategic choices are anchored in the history of each organization, and are shaped by the interactions, perceptions and orientations of top managers and other powerful stakeholders.

However, the concept of a repertoire also allows for a change in strategy over time, if the strategies in the repertoire begin to be perceived as ineffective. The HMO managers in our study changed their strategies when they concluded that former strategies were no longer workable. For example, when the GSF faced the loss of its autonomy under the 1997 Budget Reconciliation Law, its managers adopted a radically different strategy than that used in the past: collaboration with other HMOs. In like manner, when the GSF’s new general-manager took over in 1993, he pushed through a new business-marketing strategy, which reflected recognition of the failure of earlier GSF efforts to retain market share. GSF and USF managers deliberately chose to continue existing strategies or adopt new ones according to their perception of the best way to respond to the environmental conditions facing their organization.

Our view of the process through which managers extend their strategic repertoire brings together themes from strategic choice and institutional theory. Strategic choice lends the idea that managers engage in informed and deliberate choice to adapt to their environments. Institutional theory lends the idea that environments impose constraints on strategic options. Moreover, institutional environments provide many of the ideas and practices that decision makers incorporate. Thus,

we would expect organizations operating in a similar institutional environment to undertake some similar actions (organizational isomorphism), which they draw from their common institutional environment, while engaging in some distinctive actions. The latter reflect deliberate managerial choice, which is influenced by the organization’s history, its managers’ backgrounds, and the dynamics of decision processes.

In summary, strategy formulation is neither a simple continuation of past practice nor a process of unconstrained innovation. Organizational leaders both continue past lines of action and engage in strategic innovation. Furthermore, when confronting environmental change, organizations operating in the same institutional environment may undertake some similar actions, which they draw from their common institutional environment, while also engaging in some distinctive actions. Given the limitations of qualitative case study methodology, it may be important for future studies to examine the concept of strategic repertoire as presented here, to determine the extent to which it may be generalized to include organizations operating in different task environments.

### 8.1. Policy implications

These conclusions have significant implications for policy makers implementing reform. It is difficult to anticipate how organizations responsible for policy implementation will respond to new incentives and regulations, as their responses depend on distinctive intra-organizational features and traditions, as well as on the external conditions created by policy implementation. For example, Israeli policy makers thought that by legally forbidding selection of members and compensating the HMOs for serving older members, they would remove the HMOs’ incentive and means to prefer younger and healthier members. However, our findings indicate that they were not wholly successful in this, as remuneration for elderly members is not perceived as sufficient, and the HMOs have found indirect ways of cream skimming (e.g., marketing).

Consequently, we suggest that involving provider organizations in the structuring of reform can help planners understand how incentives are in fact perceived, before they are enacted. This will give them an opportunity to redesign incentives to increase their chance of being effective and eliciting the desired responses from

provider organizations. However, it might also give actors too great an opportunity to shape policy in their favor, thereby undermining the efforts of far-reaching reform that is meant to benefit the population, but that may not be in the best interest of current actors. Alternatively, policy makers could conduct simulations of reform with experts on organizational behavior, whose in-depth knowledge of the actors' strategic repertoires could help predict responses to policy changes, and thus be of help in designing incentives that are better geared to achieve policy goals.

Another way to discover organizational responses to policy (in advance) is to implement policy on a pilot basis. This would enable national implementation programs to be designed in response to the results of the pilot, thereby increasing the likelihood of achieving the desired outcomes. For example, 2 years after implementation of the reform, changes were indeed implemented in Israel's National Health Insurance Law in response to undesirable effects of the reform, most prominent among which was a US\$ 1.4 billion deficit [4]. These actions could have been taken in advance if a pilot program had been conducted, along with an evaluation of HMO strategies.

Where this proves impractical, national policy initiatives might benefit from early, systematic assessment of the implementation process, as well as continuous surveillance and monitoring of providers' behavior, to identify the strategies organizations are likely to

employ, and thus assess at an early stage the degree to which the objectives of reform are being met. Feedback from the field can enable national decision makers to discover how, in practice, the managers of affected organizations are interpreting and responding to new regulations and incentives. These might reveal unwanted strategies at an early stage, such as Cartel strategies; aggressive and illegal marketing techniques; or extensive reliance on "lobbying" tactics to increase their budgetary framework, as was the case in Israel. Without such feedback and subsequent adjustment, new policy initiatives are liable to run aground on the shoals of the unforeseen and undesirable responses of the organizations most affected by them.

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### Appendix A. Comparison of structure and market share of the General and United Sick Funds

	General Sick Fund	United Sick Fund
Affiliation	Established in 1912, owned by the General Federation of Labor trade union, <sup>a</sup> which is affiliated with the Labor Party	Established in 1974 (following the merger of two older HMOs). No political affiliation. Oriented toward the middle-class
Size (as of 1996)	3.5 million members	400,000 members
Service infrastructure	Broad (1300 community clinics, 8 hospitals, pharmacies, ancillary facilities, such as physiotherapy)	Limited (100 clinics, no hospitals, pharmacies or ancillary facilities)
Employment arrangements	Salaried employees	Contracts with independent providers
Continuity in management	New director-general appointed in 1978, 1988 and again at the end of 1992	Same director-general in office since 1974
Member characteristics (as of 1996)	12.9% elderly; 38% have chronic disease; 44% earn minimum wage	4.4% elderly; 17% have chronic disease; 35% earn minimum wage
Market share 1989–1996	Decline from 72.3% to 60.1%	Increase from 6.3% to 9.8%

<sup>a</sup> An umbrella trade union and owner of socialized enterprises, which was very powerful when the Labor Party was in power (1948–1977). GSF services were designed to conform with the ideology and interests of the General Federation of Labor and the democratic socialist ideology of the Labor Party. Prior to National Health Insurance, about 25% of all health premiums collected for the GSF were used to fund trade union activities.

## References

- [1] Enthoven A. The history and principles of managed competition. *Health Affairs* 1993;12:24–48.
- [2] Gross R. Implementing health care reform in Israel: organizational response to perceived incentives. *Journal of Health Politics Policy and Law* 2003;28(4):659–92.
- [3] Gross R, Harrison M. Implementing managed competition in Israel. *Social Science and Medicine* 2001;2:1219–31.
- [4] Gross R, Rosen B, Shirom A. Reforming the Israeli health system: findings of a three-year evaluation. *Health Policy* 2001;56:1–20.
- [5] Gross R, Anson O. Health care reform in Israel. In: Twaddle A, editor. *Health care reform efforts around the world*. Westport, Connecticut: Greenwood Publishing Group; 2002. p. 198–220.
- [6] Light D. The practice and ethics of risk-related health insurance. *JAMA* 1992;267:2503–8.
- [7] Light D. The sociological character of health care markets. In: Albrecht G, Fitzpatrick R, Schrimshaw S, editors. *Handbook of social studies in health and medicine*. London: Sage; 1999.
- [8] Harrison M, Calltorp J. Taking the competition out of managed competition: Sweden's experiments with market mechanisms in public health care. Paper presented at the annual meeting of the European Health Management Association, The Hague; 1997.
- [9] Hsiao WC. Marketization—the illusory magic will. *Health Economy* 1994;3:351–7.
- [10] Robinson R. Introduction. In: Robinson R, Le Grand J, editors. *Evaluating the NHS reforms*. London: Kings Fund Institute; 1994. p. 1–12.
- [11] Light D. Comparative institutional response to economic policy managed competition and governmentality. *Social Science and Medicine* 2001;52:1151–66.
- [12] Harrison MI. Implementing change in health systems: market reforms in the United Kingdom, Sweden, and the Netherlands. London: Sage; 2005.
- [13] Brown R, Gold M. What drives Medicare managed care growth? *Health Affairs* 1999;18(6):140–9.
- [14] Greenwood R, Hinings CT. Understanding radical organizational change: bringing together the old and the new institutionalism. *Academic Management Review* 1996;21(4):1022–64.
- [15] Kondra A, Hinings CR. Organizational diversity and change in institutional theory. *Organization Studies* 1998;19(5):743–67.
- [16] Pettigrew A, Ferlie E, McKee L. *Shaping strategic change*. London: Sage; 1992.
- [17] Bolman LG, Deal T. *Reframing organizations: artistry, choice, and leadership*. San Francisco: Jossey-Bass; 1991.
- [18] Harrison M, Shirom A. *Organizational diagnosis and assessment: bridging theory and practice*. Thousand Oaks, California: Sage; 1999.
- [19] Morgan G. *Images of organizations*. Thousand Oaks, California: Sage; 1986.
- [20] Schon D, Rein M. *Frame reflection: toward the resolution of intractable controversies*. New York: Basic Books; 1994.
- [21] Child J. Organizational structure, environment and performance: the role of strategic choice. *Sociology* 1972;6:1–22.
- [22] Child J. Strategic choice in the analysis of action, structure, organizations and environment: retrospect and prospect. *Organization Studies* 1997;18(1):43–76.
- [23] Miles RE, Snow C. *Organizations: new concepts for new forms*. California Management Reviews 1986;28:62–73.
- [24] Porter M. *Competitive strategy: techniques for analyzing industries and competitors*. New York: Free Press; 1980.
- [25] Pettigrew A. *The awakening giant: continuity and change in ICI*. Oxford: Blackwell; 1985.
- [26] Quinn JB. *Strategies for change: logical incrementalism*. Homewood, Illinois: Irwin; 1980.
- [27] Pfeffer J, Salancik G. *The external control of organizations*. New York: Harper and Row; 1978.
- [28] Berger P, Luckman T. *The social construction of reality*. Garden City, New York: Doubleday; 1967.
- [29] Meyer J, Rowan B. Institutionalized organizations: formal structures as myth and ceremony. *American Journal of Sociology* 1977;83(2):340–63.
- [30] Thomas GM, Meyer JW, Ramirez FO, Boli J. *Institutional structure: constituting state, society, and the individual*. Newbury Park, California: Sage; 1987.
- [31] DiMaggio P, Powell WW. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *American Sociological Review* 1983;48:147–60.
- [32] Oliver C. Strategic responses to institutional processes. *Academic Management Review* 1991;16(1):145–79.
- [33] Scott RW. Institutional theory and organizations. In: Scott RW, Christensen S, editors. *The institutional construction of organizations*. London: Sage; 1995. p. 11–23.
- [34] Hannan MT, Freeman JH. The population ecology of organizations. *American Journal of Sociology* 1977;82:929–64.
- [35] Hannan MT, Freeman JH. *Organizational ecology*. Harvard University Press: Cambridge, Massachusetts; 1999.
- [36] Aldrich HE. *Organizations and environments*. Englewood Cliffs, New Jersey: Prentice-Hall; 1979.
- [37] Baum JAC. Organizational ecology. In: Clegg S, Hardy C, Nord W, editors. *Handbook of organization studies*. London: Sage; 1996. p. 77–114.
- [38] Carroll G, Hannen M. *The demography of corporations and industry*. Princeton, New Jersey: Princeton University Press; 2000.
- [39] Mintzberg H, McHugh A. Strategy formation in an adhocracy. *Administrative Science Quarterly* 1985;30:160–7.
- [40] Yin RK. *Case study research*. London: Sage; 1984.
- [41] Van Maanen J. Reclaiming qualitative methods for organizational research. In: Van Maanen J, editor. *Qualitative methodology*. London: Sage; 1979. p. 520–6.
- [42] Eisenhardt KM. Building theories from case study research. *Academic Management Review* 1989;14(4):532–50.
- [43] Cassel C, Symon G. Qualitative research in work contexts. In: Cassel C, Symon G, editors. *Qualitative methods in organizational research*. London: Sage; 1994. p. 1–13.
- [44] Glaser BG, Strauss AL. *The discovery of grounded theory: strategies for qualitative research*. Chicago: Aldine Publishing Company; 1967.
- [45] State of Israel. Official testimony protocols before the commission of inquiry into the functioning and efficiency of the health

- system in Israel. Jerusalem: Government Printing Office; 1988 [in Hebrew].
- [46] Lincoln YS, Guba EG. *Naturalistic inquiry*. London: Sage; 1985.
- [47] Patton MQ. *How to use qualitative methods in evaluation*. London: Sage; 1987.
- [48] Miles MB, Huberman MA. *Analyzing qualitative data: a source book of new methods*. 2nd ed. London: Sage; 1994.
- [49] Jick TD. Mixing qualitative and quantitative methods: triangulation in action. *Administrative Science Quarterly* 1979; 24:602–11.
- [50] Weick KE. *The social psychology of organizing*. 2nd ed. Reading, Massachusetts: Addison-Wesley; 1979.
- [51] Weick KE. Sources of order in under-organized systems: themes in recent organizational theory. In: Lincoln Y, editor. *Organizational theory and inquiry*. London: Sage; 1985. p. 106–21.
- [52] Yishai Y. Politics and medicine: the case of Israeli NHI. *Social Science and Medicine* 1982;16:285–91.
- [53] Shuval JT. Political processes in health care: a case study of Israel. *Research in the Sociology of Health Care* 1991;9: 279–304.
- [54] Zalmanovitch Y. *Setting public policy at the margins of government and public administration in Israel: the case of health policy in Israel between 1970 and 1984*. Doctoral dissertation. Jerusalem: The Hebrew University; 1991 [in Hebrew].
- [55] Steinberg G, Bick E. *Resisting reform: a policy analysis of the Israeli health care system*. Maryland: University Press of America and Jerusalem, Jerusalem Center for Public Affairs; 1992.
- [56] Shvarts S. *The workers health fund in Eretz Israel*, Kupat Holim, Rochester. New York: University of Rochester Press; 2002.
- [57] State Comptroller. *Forty-fifth annual report for 1994 and financial reports for the 1993 fiscal year*. Jerusalem: Government Printing Office; 1995 [in Hebrew].
- [58] National Insurance Institute. *Average wages, employment and sick fund membership by settlement*. Publication 140. Jerusalem: Government Printing Office; 1997 [in Hebrew].
- [59] State Comptroller. *Thirty-fifth annual report for 1983 and financial reports for the 1982 fiscal year*. Jerusalem: Government Printing Office; 1984 [in Hebrew].
- [60] Danai N. *Mapping the uniform benefits package of Israel's health plans*. Tel Hashomer: The Gertner Institute for Epidemiological and Health Policy Research in Israel; 1993 [in Hebrew].
- [61] Milner I. *Ha'aretz Daily Newspaper*; September 1989 [in Hebrew].
- [62] Newhouse JP. Risk adjustment: where are we now? *Inquiry* 1998;35(2):122–31.
- [63] Achdut L. *Progressivity in the finance of the national health expenditure in Israel: annual research report 1996–1997*. Tel Hashomer: The Israel National Institute for Health Policy and Health Services Research; 1998 [in Hebrew].
- [64] Suari Y. *Examination of the situation of Clalit Health Services towards a recovery plan*. Tel Aviv; 1992 [in Hebrew].
- [65] Suari Y. *The report of the follow-up committee on implementation of the recovery plan for Clalit Health Services*. Report 31. Tel Aviv; 1995 [in Hebrew].
- [66] Suari Y. *The report of the follow-up committee on implementation of the recovery plan for Clalit Health Services*. Report 37. Tel Aviv; 1997 [in Hebrew].
- [67] Rosen B, Ivancovsky M, Nevo Y. *Changes in sick fund economy: sick fund revenues and expenditures before and after the introduction of National Health Insurance*. RR-317-98. Jerusalem: JDC-Brookdale Institute; 1988 [in Hebrew].
- [68] Rosen B, Nevo Y. *Sick fund revenues, expenditures, and utilization patterns: a comparative analysis*. RR-273-96. Jerusalem: JDC-Brookdale Institute; 1996 [in Hebrew].
- [69] Clalit Health Services, Maccabi Healthcare Services, Meuchedet Health Services, Leumit Health Fund. *The position of the health plans regarding proposed changes in the National Health Insurance Law and future cooperation*. Position Paper. Tel Aviv; 1996 [in Hebrew].
- [70] Horowitz D, Lisak M. *Trouble in utopia: the overburdened polity of Israel*. Am Oved Publishers: Tel Aviv; 1992 [in Hebrew].
- [71] Doron A, Kramer RM. *The welfare state in Israel*. Tel Aviv: Am Oved; 1992 [in Hebrew].
- [72] Knei-Paz B. *Israel toward 2000: a changing world*. In: Lisak M, Knei-Paz B, editors. *Israel toward 2000: society, politics and culture*. Jerusalem: Magnes Press; 1996. p. 408–28 [in Hebrew].
- [73] Kleinman E. *Political finance in Israel: atavism at a crossroads*. In: Lisak M, Knei-Paz B, editors. *Israel toward 2000: society, politics and culture*. Jerusalem: Magnes Press; 1996. p. 196–212 [in Hebrew].
- [74] Kaplan A. *"Lamifne" Program*. Tel Aviv: Clalit Health Services (internal document); 1993 [in Hebrew].
- [75] Aharoni Y. *The culture of management in the public–business sector in Israel*. In: Shinar A, Yarkoni A, editors. *The culture of management in Israel*. Tel Aviv: Goma Science and Research Books, Cherikover Publishers; 1993. p. 245–65 [in Hebrew].
- [76] Mautner M. *The decline of formalism and the increase in values in Israeli law*. Tel Aviv: Maagalei Daat; 1993 [in Hebrew].
- [77] Barzilay G, Yaar-Yochtmann E, Segal Z. *The supreme court in the eyes of Israeli society*. Tel Aviv: Papyrus Press; 1994 [in Hebrew].
- [78] Rosen B, Steiner R. *Recent trends in sick fund market shares*. RR-275-96. Jerusalem: JDC-Brookdale Institute; 1996 [in Hebrew].
- [79] Bendelek Z. *Sick fund membership*. Periodical Survey No. 150. Jerusalem: The National Insurance Institute; 1998 [in Hebrew].
- [80] National Insurance Institute. *Average wages, employment and sick fund membership by settlement*. Publication 122. Jerusalem: Government Printing Office; 1994 [in Hebrew].
- [81] Steiner R. *Twenty years to the Parallel Tax Law 1992–1993*. Annual review. Jerusalem: National Insurance Institute; 1993 [in Hebrew].
- [82] Reuveni H, Shvarts S, Meyer J, Elhayany A, Greenberg D. *Newspaper advertising by health maintenance organizations following the reform of healthcare services in Israel*. *The Israel Medical Association Journal* 2001;3(6):422–6.
- [83] Central Bureau of Statistics. *1981 population survey*. Jerusalem: Government Printing Office; 1982 [in Hebrew].

- [84] Berg A, Gross R, Rosen B, Chinitz D. Public perception of the health system following implementation of the National Health Insurance law: principal findings from a survey of the general population, RR-284-97. Jerusalem: JDC-Brookdale Institute; 1997 [in Hebrew].
- [85] Abel P. The new institutionalism and rational choice theories. In: Scott WR, Christensen S, editors. *The institutional construction of organizations*. London: Sage; 1995. p. 3–14.
- [86] Arndt M, Bigelow B. Presenting structural innovation in an institutional environment: hospitals' use of impression management. *Administrative Science Quarterly* 2000;45(3):494–524.
- [87] Usher JM, Evans MG. Life and death along gasoline alley: Darwinian and Lamarckian processes in a differentiating population. *Academic Management Journal* 1996;39(5):1428–66.
- [88] Allmendinger J, Hackman JR. Organizations in changing environments: the case of East German symphony orchestras. *Administrative Science Quarterly* 1996;41:337–69.
- [89] Tilly C. Repertoires of contention in America and Britain, 1750–1830. In: Zald MN, McCarthy JD, editors. *The dynamics of social movements*. Cambridge, Massachusetts: Winthrop Publishers; 1979.
- [90] Miller D, Chen MJ. The simplicity of competitive repertoires: an empirical analysis. *Strategic Management Journal* 1996;17:419–39.
- [91] Tichy NM, Devanna MA. *The transformational leader*. New York: John-Wiley and Sons; 1990.
- [92] Romanelli E, Tushman ML. Organizational transformation as punctuated equilibrium: an empirical test. *Academic Management Journal* 1994;37(5):1141–66.

# **Reforming the Israeli Health System: Findings of a 3-year Evaluation**

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## Reforming the Israeli health system: findings of a 3-year evaluation

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### Abstract

Israel, like many other European countries, has recently reformed its health care system. The regulated market created by the National Health Insurance (NHI) law embodies many of the principles of managed competition. The purpose of this paper is to present initial findings from an evaluation of the first 3 years of the reform (1995–1997) regarding the implementation of the reform and the extent to which it has achieved its main goals. The evaluation was conducted using multiple quantitative and qualitative research tools: interviews with key informants; analysis of documents and sick fund financial statements; analysis of trends in sick fund membership; and population surveys conducted in 1995 and 1997 to assess the impact of the reform on outcome measures related to level of services to the public. Data from the evaluation show that the NHI law achieved a considerable number of its goals: to provide insurance coverage for the entire population, to ensure freedom of movement among sick funds, and to standardize the way resources are allocated to sick funds. The incentives that are embodied in the law have encouraged the sick funds to improve the level of services provided to the average insuree, and to develop services in the periphery and for some of the weaker populations. From the financial perspective, concerns that NHI would lead to a rise in the national health expenditure were not realized as of 1997. In the wake of NHI, there has been a decline in the age adjusted per capita expenditure in three sick funds, with no reports by insurees, at least through 1997, on a decline in satisfaction or level of service. However, the Israeli experience shows that regulating

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<sup>1</sup> Some of the information presented in this article was gathered in the framework of research conducted by Revital Gross as part of her doctoral studies under Professor Michael Harrison, Department of Sociology and Anthropology, Bar Ilan University.

competition does not necessarily lead to economic stability and equality. Regulating the competition also did not solve some of the major policy issues in the Israeli health system including level of resources allocated to health, organizational structure of the hospital system, manpower planning and the extent of government involvement in system. Additional policy changes may be needed to resolve these issues. Up-to-date information is essential in helping policymakers track the process of reform implementation and results, and identify problems which need to be addressed in the future. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

*Keywords:* Health system reform; Evaluation; Managed competition

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## **1. Introduction**

Israel, like many other European countries, has recently reformed its health care system. The reform that followed the enactment of the National Health Insurance (NHI) Law in 1995, brought about a fundamental change in some of the operating principles of the Israeli health system. A unique aspect of the Israeli reform is the directive whereby 0.1% of the health budget is designated for studying the law's effect enabling ongoing evaluation of the reform. The purpose of this paper is to present initial findings from an evaluation of the first 3 years of the reform (1995–1997) regarding the implementation of the reform and the extent to which it has achieved its main goals. Among these main goals are: extending health insurance coverage to previously uninsured residents, cost containment, enhanced equality, improved level of services and relatively unrestricted movement among sick funds. The findings are of special interest to other countries since the Israeli reform embodies many elements of the managed competition model. The evaluation provides, for the first time, comprehensive data on the problems in implementing this model and the effects it has on major outcome variables of a health care system.

## **2. Antecedents and principles of the Israeli reform**

In the pre-NHI period, health care to the country's residents was offered by four not-for-profit sick funds, with membership based on voluntary enrollment. Some of the major problems in the pre-NHI period were: (a) The financial instability of Kupat Holim Clalit (KHC), Israel's largest sick fund insuring about two-thirds of the population in 1994, which had accumulated a deficit of about \$1.5 billion by 1995; (b) constraints on free choice of a sick fund since two funds (Maccabi and Meuchedet), which provided higher quality of care than KHC, practiced cream skimming policies which led to a two-tiered system; (c) distribution of resources among sick funds in a way that was not proportionate to member's health needs but to their income; (d) inequality in services for low income populations as compared with high income groups and to peripheral areas of the country, where sick funds had no incentive to develop high quality services; (e) lack of clarity

regarding service eligibility — each sick fund offered a different basket of services which was ill-defined and seldom made public in full; (f) Incomplete insurance coverage — 4% of the population overall but up to 12% among the Arab population were not members of a sick fund [1].

These problems led the Israeli government to appoint a state commission of inquiry into the functioning and efficiency of the health system.<sup>2</sup> The recommendations of the majority report included national health insurance legislation, which was implemented in January, 1995. The NHI law was designed to deal with the financial crisis of KHC and the other problems cited above by regulating the sick fund market.<sup>3</sup> The NHI law ensured universal insurance coverage for every permanent resident and spelled out the state's responsibility to supply a detailed basic basket of services. It also specifically defined the financing and allocation principles of this basket of services.

The law ensured eligibility for services regardless of one's financial ability and established progressive earmarked health tax premiums and an allotment of resources to sick funds according to an age-adjusted capitation formula as a proxy for health needs. The law allowed sick funds to offer supplemental coverage of services not included in the basic benefits package for an additional fee. The law made it mandatory for each sick fund to accept any new applicant for membership, thus ensuring freedom of choice. An additional principle of the law was forbidding transfer of funds from sick funds to other organizations thus ending the financial and organizational bonds between sick funds and labor unions.<sup>4</sup> Finally, the law aimed to release the Ministry of Health from its operational responsibilities in order to enable it to concentrate on ministerial duties such as priority setting, planning and supervision of health care providers. To this end, the law stated that the responsibility and funds for providing individual preventive care (including pre- and post-pregnancy health care to mothers and children), psychiatric and geriatric care, and rehabilitative instruments should be transferred from the Ministry of Health to the sick funds<sup>5</sup> [3].

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<sup>2</sup> Dissension within the commission over the essence of the proposed reforms and the National Health Insurance law in particular (see [2], vol. 1, pp. 78–83 and vol. 2, pp. 38–64) resulted in a majority and a minority report [2].

<sup>3</sup> It should be noted that the law dealt exclusively with community-based primary and secondary medical services. The commission also recommended reform of the hospital sector and the structure of the Ministry of Health, which were not formally adopted, and therefore are not discussed in this article.

<sup>4</sup> Historically, Kupat Holim Clalit, Israel's largest sick fund, was tied to the General Labor Federation, and Leumit sick fund was tied to the National Worker's Federation, transferring part of their health premiums to these parent organizations.

<sup>5</sup> However, to date, the transfer of these responsibilities from the MOH to the sick funds has yet to be carried out.

### **3. The Israeli reform and managed competition**

The regulated market created by NHI embodies many of the principles of managed competition outlined in Enthoven's [4] model: citizens pay uniform premiums; government allocates risk-adjusted premiums to insurers in order to match resources to the needs of the population served; insurers are required to provide a uniform benefits package; government regulates enrollment process; and government monitors the quality of care provided by the sick funds. The principles of the managed competition model were meant to overcome some of the major market failures in health care — cream skimming by insurers and lack of information for informed choice by consumers. They are also expected to lead to greater equity among individual insurees by changing incentives for health plans to attract low income population groups, and by providing the means to do so.

However, some principles of the managed competition model were not incorporated in the NHI law: The Israeli government is not obligated by law to provide information to consumers. In addition, although the law stated that the sick funds should provide the Ministry of Health with any information requested, it did not provide the necessary tools for enforcement. Therefore the consumers do not receive information on outcomes, treatments, and resources used and cannot base their decisions on these data. The Israeli reform did not adopt the principle of price competition outlined in Enthoven's model, and does not allow competition between sick funds on level of premiums. The main reason for prohibiting price competition was to induce sick funds to compete on quality of services, and not use price as a means of selectively enrolling members. The NHI law does, however, allow price competition on supplemental insurance (for a supplemental benefits package) offered by the sick funds. In 1997 about 40% of citizens had supplemental insurance. The programs offered by the sick funds differed widely in their respective penetration rate or percent of members enrolled (between 22 and 74%) [5].

In Enthoven's model, price competition was perceived as a mechanism expected to induce efficiency in sick fund operations and overall cost containment. However, under NHI, the main policy tool for achieving cost containment has been setting a firm budgetary framework for the health system, thus ensuring that total resources allocated to the health system are subject to government control. In addition, sick fund expenses are monitored by the Ministry of Health (MOH) and Ministry of Finance (MOF); this supervision is expected to lead to efficiency in resource utilization.

In the following sections, after first describing the methods of the evaluation study, we present findings on the implementation of the NHI law and discuss consequent legislation that has modified the NHI law. We then present findings on the effects of the reform in the first 3 years on three main outcome measures: sick fund income and expenditures; sick fund services; and changes in sick fund affiliation and composition of insurees. We conclude by examining to what extent the NHI law has succeeded in achieving its original goals, and discuss the limitations of the managed competition model to solve major policy issues confronting the Israeli health care system.

#### 4. Methods

We base our assessment of the law largely on the JDC-Brookdale evaluation of the NHI reform. This ongoing evaluation of the law was described elsewhere, and will be summarized here. This evaluation combines elements of formative and summative evaluation,<sup>6</sup> uses a case study approach which seeks to integrate in-depth understanding of the changing health system and of health provider's organizational behavior, and relates to a variety of outcome measures. The main variables monitored in this study included: the process of implementing the reform; sick fund organizational responses; and a variety of outcome measures: sick fund income and expenditures, changes in sick fund affiliation, and the impact of the reform on services to the public including, quality of service, patient satisfaction, equity, and financial burden on households. (For a detailed description of the evaluation strategy see [3]).

The evaluation was conducted, using multiple quantitative and qualitative research tools: (a) Interviews were conducted with key informants and relevant documents were analyzed to provide data on implementation of the law and sick fund organizational responses; (b) sick fund financial statements were analyzed in order to assess the law's impact on financial status of sick funds; (c) the trends in sick fund membership over time were analyzed using the National Insurance Institute records; (d) population surveys were conducted in 1995 and 1997 to assess the impact on outcome measures related to level of services to the public.

The survey population included all permanent residents of Israel over age 22, and was drawn from the national computerized telephone listing of Israel's only telephone company. In the first survey, 1116 telephone interviews were conducted and in the second 1205 telephone interviews were conducted. The response rate was over 80% for both surveys. In each household sampled, one randomly chosen member of the family was interviewed. The questionnaires were translated into Arabic and Russian in order to accommodate these large non-Hebrew speaking populations. Repeated efforts were made during a 2-month period to interview the family member who was sampled.

#### 5. Findings

##### 5.1. Implementation of the reform and changes in the NHI law

As is the case with many reform efforts, the Israeli reform has not been implemented exactly as planned, and modifications have been made during the first 3 years following the initial legislation, which is the period covered by our study. In

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<sup>6</sup> Formative evaluation focuses on providing on-going information to policymakers implementing a program in order to assist in more effective implementation by improving the program or implementation process. Summative evaluation assesses the outcomes and impact of a given program after it has been implemented, and contributes to accountability as well as to planning future programs [6].

this section we will discuss the implementation process and the modifications in the NHI law which have increased government regulation of the health system.

Enactment of the NHI reform was accompanied by opposition from two main sources: two sick funds who stood to lose income and the Ministry of Finance. These sick funds lobbied intensively to change some aspects of the law, in particular to allow them to collect a portion of the health tax by themselves as income-related membership fees (as was the arrangement prior to the law), and to change the parameters of the capitation formula to their advantage. Their efforts were not successful.

The MOF, a very powerful actor in Israeli politics, also opposed the law. In addition to fears that entitlement to services and government responsibility for funding would lead to a growth in government expenditures and in the national health expenditure, Ministry of Finance officials opposed the specific allocation of funds to the health system since the health tax is collected by the NII and managed separately — which limits the government in defining priorities and allocating taxes accordingly. Another reason for MOF opposition was ideological — support of the market theory as a mechanism for efficiency and quality.

This opposition resulted in fundamental changes to the NHI law through governmental legislative initiatives, initiated by the MOF. The changes to the NHI law were included in ‘budget reconciliation’ bills accompanying the annual budget bills. The changes to the NHI law initiated in 1996 (for the 1997 budget) and 1997 (for the 1998 budget) show a clear shift from a managed competition model to increased government involvement in the law’s implementation in order to tighten supervision and increase regulation of managerial and decisionmaking processes in the sick funds. The government policy of increased sick fund regulation is apparently aimed at restricting health system expenditures and preventing deficits.

Although the national health expenditure as percent of GDP decreased from 8.8 in 1994 (before the NHI law) to 8.6 in 1995 and 8.4 in 1996 and 1997, the sick funds accumulated a large deficit. In 1996 the accumulated deficit of the sick funds system was about 225 million (6% of income), and in 1997 it grew to about \$350 million (9%) [7]. The MOF were concerned that the NHI law policy of setting a global budget for the sick funds was inadequate for restricting expenditures and preventing deficits. Furthermore, the law had failed to specify the means for enforcing sick fund responsibility to remain within their budget. Therefore, the MOF initiated budget reconciliation bills that included additional directives for achieving this objective, for example: limitations on marketing and advertisement and on investments in new infrastructure, appointment of external comptrollers for sick funds with large deficits, and restrictions on sick funds operating in small settlements. Besides the directives limiting the sick funds, there were other directives concerning system-wide savings, for example, canceling duplicate services and encouraging competition in the import of pharmaceuticals.

These amendments to the NHI law, restricting sick fund expenditures and autonomous decisionmaking, could adversely affect some of the law’s initial goals. For example, the quality of sick fund services can be compromised in small localities where there is no competition. The limitation on development budgets can also adversely affect the quality of services, primarily in the long term.

Having examined the components of NHI and later legislative amendments, we will now present findings concerning NHI's impact on three central issues: the financial situation of sick funds, the level of sick fund services, and freedom of movement among sick funds.

## 5.2. Sick fund income and expenditures

This section addresses the question of the sick funds' financial state following implementation of the NHI law, based on an analysis of sick fund financial reports [8–10]. The analysis is presented in real terms, based on the Consumer Price Index (CPI),<sup>7</sup> and deals with current income and expenditures related to the services in the NHI basket. The analysis does not include income and expenditures related to financing and development.

Before we survey the changes that have taken place in the financial situation of sick funds since NHI, we must note two very significant events that took place in 1994. First, physicians, nurses and other health workers were awarded substantial wage increases compared to those awarded in other economic sectors. Second, within the framework of the rehabilitation agreement between the government and the Clalit sick fund, KHC was awarded a large subsidy to cover its current deficit (in addition to government assistance in covering the accumulated debt). These events meant that during the base year (1994), income and expenditure levels were much higher than for previous years.<sup>8</sup> These events had a continuous impact since the wage agreements were for 3 years and most of the rehabilitation agreement money was received by KHC after 1995.

### 5.2.1. Changes during the first year of the law (1995)

During the first year of NHI, total revenue for all sick funds rose by almost 8%. This growth rate was only slightly higher than that of the age adjusted number of persons insured by the sick funds, meaning that there was almost no change in total age adjusted revenue. Alongside this stability, there was a dramatic change in the revenue's composition (see Table 1). 'Income as per law', meaning funding that the

<sup>7</sup> The analysis was conducted on an accrual basis, which is to say that income and expenditures related to activity in a given year are attributed to the same year, even if the funding was transferred during a different year.

<sup>8</sup> Opinions differ as to the extent to which these two events were related to government efforts to create successful conditions for legislating NHI. In other words, it is unclear whether and to what extent the 1994 wage increases, and the subsidy awarded the same year to KHC, should be included when tabulating 'the effects of NHI'.

government transferred to sick funds for ‘basket cost’<sup>9</sup> under the provisions of NHI, was much higher than what the sick funds received from member payments and the employer taxes on the eve of NHI. This increase, however, was offset almost completely by the substantial decrease in the extent of government subsidy.

As expected, the patterns of change were different among the sick funds. The almost 15% increase in income as per law per person in KHC, was offset by a dramatic decline in the scope of government subsidies. On the other hand, the dramatic decline in income as per law in a number of the small sick funds (e.g. almost 10% in Maccabi) was partially offset by government subsidies provided for 1995 activities in order to assist in making the transition to the new rules. Due to these offsetting changes, the rates of change in total age adjusted per capita income in various sick funds were much more similar than the rates of change in income as per law: an increase of about 2% in Leumit, an increase of about 1% in KHC, a decline of about 1% in Meuhedet and a decline of about 2% in Maccabi.

The year 1995 was also characterized by cash flow problems in the sick fund economy (that are not expressed in the aforementioned figures, which were calculated on an accrual basis). The Ministry of Finance transferred money to finance the activities of January, 1995 only at the beginning of 1997, influencing the 1995 cash flow in all sick funds. In addition, the cash flow in 1995 of some of the small

Table 1

Age adjusted per capita income and expenditures, and deficit in the overall sick fund economy, 1994–1997, in December 1996 prices (NIS)

	1994	1995	1996	1997
Income as per law (a)	2179	2364	2319	2280
Co-payments	121	129	135	153
Other income	90	100	96	75
Total, without subsidies	2389	2594	2550	2508
Subsidies	277	91	39	3
Total	2665	2685	2589	2511
Expenditures	2649	2578	2711	2621
Deficit (in millions)		200	900	1400

<sup>a</sup> Funding transferred to sick funds for provision of services in the basic health basket covered by the NHI law.

<sup>9</sup> According to the law, ‘basket cost’ is determined annually by the Minister of Health and Minister of Finance. ‘Basket cost’ is the allocation to sick funds for the provision of the services in the basic health basket covered by NHI. In 1995, the decision on the basket’s cost was based to a great degree on professional estimates which analyzed sick fund expenditures per standardized person in 1993 and constructed estimates concerning 1993–1995 expenditure growth stemming from expected increases in the price of key inputs, a widened circle of insurees and additional changes. NHI stipulates that the basket cost be updated annually according to the Health Price Index, and that the Minister of Finance and Minister of Health are authorized to update the basket cost also according to additional parameters, such as population growth and aging.

sick funds was affected by delays in the transfer of government assistance for the transition period.

The sick funds reacted to developments concerning the scope of income and cash flow by undertaking various efforts aimed at curbing expenditures, the result being that 1995 age adjusted per capita expenditures declined by almost 3%, the drop being much steeper in some of the smaller sick funds (Table 1). This decline is especially impressive in light of the fact that in 1995, the cost of a hospitalization day rose 10% beyond the rise in the CPI. Among the steps that contributed to the reduction in expenditures (especially in the small sick funds) were salary reductions in some of the sick funds, pressure on medical suppliers to reduce prices, and an increase in efforts to monitor hospitalization and save on hospital services. Ceilings imposed on hospital income from sick funds also assisted the sick funds in reducing their expenditure levels.

Due to the decline in age adjusted per capita expenditures and the stability in age adjusted per capita income in the overall sick fund economy, 1995 was characterized by a balance between current income and current expenditures, with no significant deficit [7].

### 5.2.2. Changes during 1996–1997

Unlike 1995, 1996 witnessed the advent of a significant deficit for the entire sick fund economy, the scope of the deficit increasing in 1997 [7]. The question is, were these deficits caused by the increase in age adjusted per capita expenditures, or by the decline in age adjusted per capita income? Apparently, they stemmed from both, though the contribution of the decline in age adjusted per capita income was larger. During this period, total age adjusted per capita income decreased by about 6%, and total age adjusted per capita expenditures rose by almost 2%. In the following paragraphs we will first discuss changes in income, and then changes in expenditures.

As Table 1 shows, the primary source for the decline in total age adjusted per capita income in 1996 and 1997 was the decline in the scope of subsidies;<sup>10</sup> the age adjusted per capita decline in subsidies had a major influence on the small sick funds. In addition, there was a considerable decline in age adjusted per capita income as per law, which had an effect on all sick funds. In setting the basket cost each year, the government and the Knesset decide how to monetarily express increases in population, as well as aging, advances in technology, better efficiency and other changes.

The decline in age adjusted per capita income was apparently influenced by, among other things, economic developments that influenced policy. First, the recession that characterized the Israeli economy in 1996 and 1997 probably influenced the scope of overall government revenue, which limited the state's ability to invest in health. Second, MOF policy has been to try to reduce the government's share of the GNP in order to direct resources to the business sector and thus encourage growth. Third, the Ministry of Finance claimed that by streamlining, it would be possible for sick funds to reduce age adjusted per capita income without adversely affecting the level

<sup>10</sup> A considerable part of the subsidies awarded to sick funds in 1995 were predefined as temporary and designated for assisting in the transition to the new rules of the game.

of service, especially in light of the rise in the number of insurees and the opportunities for exploiting the advantages of size. Fourth, health system income was probably affected by changes in governmental priorities, expressed in the transfer of resources from health to education, social services and transfer payments [11], and possibly to other areas of activity as well. The exact contribution of each factor to the decline in age adjusted per capita income in the health system is currently under debate.

It is important to note that there were considerable differences among sick funds in the decline in overall age adjusted per capita income for 1995–1997. For KHC there was a decline of about 4%, and for the rest of the sick funds there was a decline of about 10% (following the cancellation of subsidies).

As already noted, age adjusted per capita expenditures in the entire sick fund economy rose by about 2% during 1995–1997 (Table 1). It should be noted that the increase took place primarily in KHC, which is in line with one of the goals of NHI — to shift the allocation of resources among sick funds and increase that of KHC, whose population has greater health needs.<sup>11</sup> The age adjusted per capita expenditure in the Maccabbi sick fund in 1992 was some 30% higher than that of KHC; by 1996, the gap had almost disappeared. If we take into account the entire period between 1994 and 1997, we find that total age adjusted per capita expenditures for the overall sick fund economy declined by about 1%: In KHC it rose by about 3%, while in the other sick funds there were declines ranging from 4 to 13%.

In conclusion, the NHI law and following legislative amendments failed to provide financial stability to sick funds. Although expenditures decreased, there was a larger decrease in income and therefore sick funds operated with deficits.

### *5.3. Level of service and insurance satisfaction in the sick funds*

An analysis of the incentives in the system following the NHI law shows that because of the new allocation method (based on number of members), the sick funds have an incentive to improve services to attract members, unrelated to their income. NHI also stipulated that there be freedom of movement among sick funds, which also should affect sick funds efforts to attract members by providing improved services.<sup>12</sup>

However, the NHI basket of services, which is identical to the basket provided by KHC on the eve of the law's enactment, is in a number of areas more limited than the pre-NHI baskets provided by the other sick funds [12]. This means that the law could adversely affect the extent of services provided. In addition the shortage of resources (see previous section) could also adversely affect the level of services, as

<sup>11</sup> KHC insures about 80% of the elderly population, about two-thirds of the recipients of income supplements from the National Insurance Institute, and about half of recipients of unemployment payments [23].

<sup>12</sup> It should be noted that between 1995 and 1997, Israel absorbed 217 000 new immigrants mainly from the former Soviet Union. Sick funds competed to register them as well as to attract young people registering for the first time and members from competing funds.

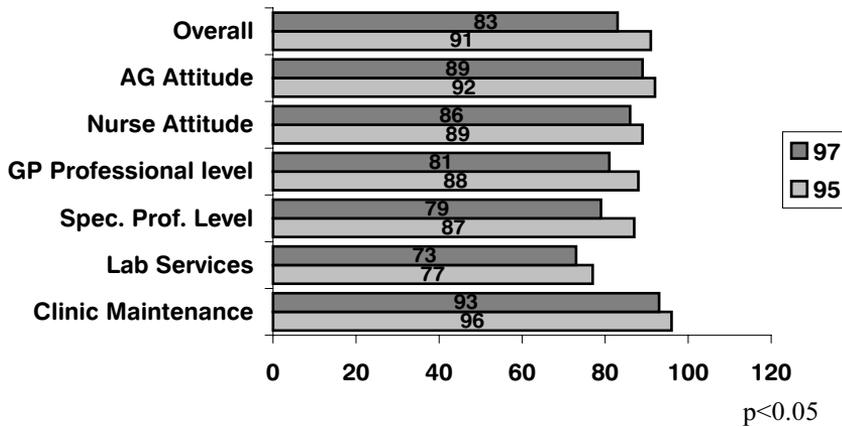


Fig. 1. Satisfaction with sick fund services 1995–1997.

could the limitations on competition included in the legislation that modified the NHI law.

Findings from surveys of insurees conducted by the JDC-Brookdale Institute in 1995 and 1997 show the actual effects that NHI has had on the level of sick fund services and insuree satisfaction. The findings show that in the fall of 1995, some 18% of the insurees reported an improvement in services compared to the previous year, 4% reported a decline, and the rest felt there had been no change. The proportion reporting an improvement was much larger in KHC (23%) than in the other sick funds, where the vast majority of respondents felt there had been no change, 7–11% felt there had been an improvement, and 4–13% felt there had been a decline [13].

The findings from 1997 show that, in comparison with 1995, higher proportions of members in all sick funds felt there had been an improvement. Approximately 40% of the respondents felt there had been an improvement in sick fund services compared to the previous year, and only 9% reported that the situation had worsened. Between 1995 and 1997 there was also a statistically significant<sup>13</sup> increase in the proportion of respondents reporting a ‘high’ or ‘very high’ level of satisfaction with their sick fund (from 83 to 91%). The increase was especially substantial in KHC, though even in 1997 satisfaction in this sick fund was still lower than in the other sick funds. Increased satisfaction was also found in specific areas of service: the professionalism and attitude of family physicians (GP’s), the professionalism of specialists, nurses’ attitudes, the variety of pharmaceuticals, laboratory services, and facility cleanliness and maintenance [14] (Fig. 1).

The study findings also show that in the wake of NHI, there has been an improvement in additional indices of service quality (Fig. 2). There was a rise in the proportion reporting that they had a regular family physician, that they spent less than 15 min in the family physician’s waiting room, and that they waited less than

<sup>13</sup> Only statistically significant changes will be noted hereafter.

1 week for an appointment with a specialist. There has also been a rise in the provision of preventive medicine (blood pressure measurements and mammograms for women aged 50+). In addition, there was an increase in the proportion assessing their health as being ‘very good’ or ‘good’ [14].

One of NHI’s goals was to increase equality for different population groups and geographical areas. It was expected that with the adoption of the capitation formula, more funds would be transferred to KHC, with its higher concentration of vulnerable populations (elderly, lower socio-economic strata, etc.), enabling it to improve the services it provides to these and other populations. Similarly, it was expected that the capitation formula would be an incentive for all sick funds to compete for the weaker populations. The formula provides a greater incentive than in the past for attracting the elderly, for whom funding is almost four times higher than it is for the young. However, there is a debate among policymakers and providers whether this formula provides an adequate incentive to make it worthwhile to attract the elderly. The capitation formula also provides an incentive for insuring Arabs and the poor, whose families are often large, as sick fund income for the basic basket is no longer related to insuree income, but to the number of persons enrolled and their age mix. Therefore, an improvement was expected in the level of services and satisfaction for these population groups. However, it is still possible that sick funds will prefer young populations that require fewer services, as well as populations that are financially better off, as the sick funds’ financial sources also include income from supplemental health insurance premiums and from co-payments.

In order to learn about the changes in the level of services and satisfaction among the weak populations, a special analysis was conducted of the findings from JDC-Brookdale Institute surveys (1995 and 1997). The findings on the elderly population show an increase in satisfaction with their sick fund, and that their level of satisfaction is greater than that of the young. There was also improvement in the indices of service accessibility and availability, and of the provision of preventive medical services. Nevertheless, the elderly still have longer waiting times in the

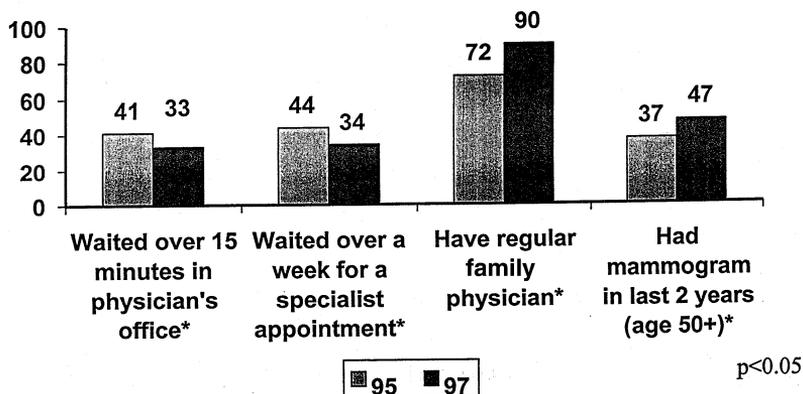


Fig. 2. Sick fund quality indices 1995–1997.

family physician's waiting room, and wait longer for an appointment with a specialist. Finally, A lower rate of elderly women have had a mammogram in the last 2 years compared to women aged 50–64 [15].

Findings from a study of the Israeli Arab population [16] show that from 1995 to 1997, some gaps between this population and the Jewish population were reduced. There was a reduction in the gap concerning self-perceived health status, time spent in the family physician's waiting room, time spent waiting for an appointment with a specialist, and convenience of specialist reception hours. In 1997, a very high proportion of the Arab population (70 versus 34% among the Jewish population) reported that there had been an improvement in the level of services since the previous year. However, the rise in the level of satisfaction among the Arab population between 1995 and 1997 was still smaller than among the Jewish population.

The findings also show that gaps for other areas of service still exist. There were lower utilization rates among the Arabs for urgent medical care in the community, mental health services and specialists.<sup>14</sup> The utilization rate of preventive medicine is still lower among Israeli Arabs than among the country's Jewish population, as is the rate of supplemental insurance. A higher rate of Arabs reported forgoing medical service due to the distance involved. The study found additional indications that services do not meet the needs of the Arab population to the same extent that they do the needs of the Jewish population: a higher rate of Arabs reported that the time it takes to travel to physician offices and the time spent waiting for appointments with specialists were unacceptable. Another study of the Arab population [17] resulted in similar findings. An additional study indicates a problem among Bedouin in southern Israel, many of whom appear to be unaware of their rights under NHI [18].

Findings from a study that analyzed JDC-Brookdale Institute surveys while focusing on low-income persons [19] show that insurees from the lowest economic quintile reported improvements between 1995 and 1997 in certain quality of service indices: having a regular physician, time spent in family physician waiting rooms, time spent waiting for appointments with specialists, and convenience of sick fund office and laboratory reception hours. In addition, there was an improvement in the satisfaction of low income earners, and the rate of low income earners reporting improved services was higher (49%) than among higher income earners (35%). Nevertheless, the study findings show that for certain areas (travel time to family physician, satisfaction with sick fund services and accessibility to supplemental health insurance) considerable gaps remained between low income earners and others. For example, only 18% of the lowest quintile had sick fund supplemental insurance compared to 42% among the other income groups.

The incentives in the NHI law do not specifically encourage sick funds to supply improved services to insurees suffering from a serious illness, especially those whose illness requires expensive care for which the sick funds are not reimbursed (except

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more, among those who left KHC there were considerable proportions of young people and high income earners. It was also found that the tendency to join KHC and remain there was much lower among new immigrants than among non-immigrants. It is also important to point out that during both 1993 and 1994, about 4% of all sick fund members moved to a different sick fund.

It was expected that allocating resources to sick funds according to the capitation formula would increase the attractiveness of the poor and elderly as potential members. A priori, it was unclear whether the change in incentives would be sufficient to lead to change in sick fund policy on membership recruitment. It was also unclear whether the reform would affect KHC's market share. Certain researchers felt that the clause in NHI allowing membership transfers would diminish KHC's market share, believing that many of its elderly, ill or Histadrut-affiliated members would move to a different sick fund. Others claimed that the change in the allocation of resources and the increase in KHC's share would allow it to improve its services and strengthen its position.

The trends that actually took place can be seen in an analysis of National Insurance Institute data [23]. From 1995 through 1997, each sick fund competed vigorously for new members [25]. Nevertheless, at the end of 1997, the annual rate of changes in sick fund affiliation was 4%, what it had been prior to NHI. KHC's market share continued to drop, from about 62% at the end of 1995 to 58.6% at the end of 1997 [23]. However, the rate of decline was lower compared to the pre-NHI period. In 1994–1997, KHC's market share dropped by 5% points compared to a drop of 10% points in 1991–1994.

The findings of population surveys conducted by the JDC-Brookdale Institute show a considerable drop in the proportion of KHC members who felt they would receive better services in another sick fund (from 37 in 1993 to 15% in 1997). Nevertheless, even in 1997, this proportion was higher than in other sick funds. The survey findings also show a considerable rise in the proportion of residents who reported that more than one sick fund is operating in the area where they live, meaning there exists the possibility of choice [26].

Israel's Arab population became a sick fund marketing objective, both because of the change in sick fund financing (which no longer is related to family income, but to the number of persons and their age) and because this population uses fewer services than the Jewish population. The rates of changes in sick fund affiliation among the Arabic-speaking population was considerably higher than among the Hebrew speaking population (12 and 5%, respectively).<sup>16</sup>

There is less of a tendency among the elderly population to change sick fund affiliation. For example, in 1997, about 8% of insurees aged 15–25 changed sick fund affiliation, compared to just 1% of insurees aged 65–74 [23]. No data are available in order to examine whether the elderly have been changing affiliation at

<sup>16</sup> This may have been due, in part, to the after-effects of the random assignment of the pre-NHI uninsured to various sick funds. It may be that many of these people found themselves assigned to a sick fund which did not provide services in their area, and therefore switched soon thereafter. There was a high concentration of Arabs among the pre-NHI uninsured.

a higher rate since NHI. NII data [24] show that since NHI, the growth rates in elderly membership at the Maccabi and Meuhedet sick funds have been higher than for non-elderly membership growth. For example, in 1994–1997 at the Maccabi sick fund, the number of elderly members grew by 47% while overall membership grew by 30%. This trend is the opposite of what took place at Maccabi prior to NHI: In 1991–1994, the number of elderly members grew by 31%, while overall membership grew by 58%. There was a similar about-face at the Meuhedet sick fund.<sup>17</sup> A possible explanation is that NHI made the elderly population more attractive to sick funds (and gave the elderly opportunity to change sick funds, something that was not possible in the pre NHI period). Nevertheless, an analysis of sick fund marketing efforts and interviews with sick fund managers indicate that all sick funds still prefer the young, suggesting that additional refinements may still be needed in the capitation formula.

The transition to funding by capitation did not make the chronically ill more attractive compared to healthy people of the same age. Furthermore, interviews conducted in sick funds show that due to the complete freedom of movement stipulated by the law, there is now a tendency to refrain from developing improved services for the ill so as not to attract them to the sick fund. As it is now impossible to prevent people who are ill from joining, as had been the case in the past, some sick fund managers claimed that there has since been a reduction in the development of these services [27]. As such, it is of interest that initial data from a 1997 CBS survey of the utilization of health services show a more even distribution of the chronically ill among sick funds than the findings from a similar survey conducted in 1993; this is also true after neutralizing the effect of the reduction in gaps in the age structure [28]. It is possible that grounding freedom of inter-sick fund movement in law paved the way for the transfer of substantial numbers of chronically ill members of KHC to other sick funds, even though there is no true financial incentive for the sick funds to try to attract this population.

## 6. Summary and discussion

The NHI legislation was the first step toward reforming Israel's health system. Data from the evaluation of the functioning of the health system since NHI show that the law achieved a considerable number of its goals: to provide insurance coverage for the entire population, to ensure freedom of movement among sick funds, and to standardize the way resources are allocated to sick funds. The incentives that are embodied in the law have encouraged the sick funds to improve the level of services provided to the average insuree, and to develop services in the periphery and for some of the weaker populations. Overall, it can be seen that the law has advanced the equality of populations and regions. However, problems, such

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<sup>17</sup> On the other hand, at KHC in 1991–1994, the number of elderly members rose by 10%, while overall membership remained unchanged; in 1994–1997, the number of elderly members rose by 9%, while overall membership grew by 6%.

as economic instability and inequality, remain. It appears that these problems have not been remedied by managed competition and may require additional policy changes. For example, special allocations can be given for development of services in the Arab sector or in poor neighborhoods to achieve more equality in access to services. Special programs can be developed to raise rates of mammography and other screening procedures among these populations.

From the financial perspective, concerns that NHI would lead to a rise in the national health expenditure were not realized as of 1997. Since NHI was implemented, the national health expenditure's share of the GDP dropped from 8.8% in 1994 to 8.4% in both 1996 and 1997 [29]. In the wake of NHI, there has been a decline in the current age adjusted per capita expenditure in the Maccabi, Meuhedet and Leumit sick funds, with no reports by insurees, at least through 1997, on a decline in satisfaction or level of services. This trend could indicate greater efficiency. In KHC, the picture is different; indeed, one of the goals of NHI was to increase KHC's per person income to the point where it equals those of other sick funds. Accordingly, and in parallel with insuree reports of an increase in satisfaction and service level, there has been a slight increase in per person expenditure.

Nevertheless, the findings indicate that despite NHI, the system has yet to attain financial stability and is operating with an ongoing deficit. In addition, there is disagreement concerning the system's overall level of finance, and the updating processes of the basic basket leave much to government discretion, as in the past. The directives of budget reconciliation bills legislated since 1996 strengthen the government's status, as well as sick fund dependence on government decisions, especially concerning the extent of resources. Therefore, the Israeli experience shows that regulating competition and even establishing budgetary caps for the system do not necessarily suffice to achieve cost containment, since providers can exceed their budget. Special measures should therefore be used to prevent this.

In the Israeli case, regulating the competition did not solve another major policy question — level of resources allocated to health, which was a major issue in debate throughout the period. The MOH and the sick funds lobbied for additional resources to compensate for the aging of the population and technological developments (an increase of 4–6% per annum), while the MOF insisted that the level of resources should not change in real terms (i.e. an increase of 2% per annum).<sup>18</sup> Therefore, it should be recognized that in itself, managed competition is not a mechanism for setting the level of overall resources.

Allowing price competition among the sick funds was suggested by some health economists in Israel: they claimed that the law should be amended to allow the sick funds to collect a capped flat-rate premium from their members. However, this proposal has been rejected mainly due to fears concerning the effect on equity. It might be that allowing price competition will contribute to more efficient operation of health care providers, i.e. quality improvement and expenditure reduction

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<sup>18</sup> The MOF first compensated the sick funds for technological developments in 1998. This means that there were no specific payments for technological improvements in the basket of services during the period under investigation.

through efficiency gains. In spite of not having price competition in the Israeli managed care model, the findings of the evaluation indicate that some of the sick funds made reductions in expenses per person. However, due to lack of data, it is not possible to determine to what extent this can be attributed to greater efficiency.

Evidence from the literature on market behavior observed in for-profit and not-for-profit providers suggest that price competition does not always lead to efficiency. Studies have found that providers try to cut back on costs by collaborating among themselves, practicing cream skimming, aggressive marketing, hiding quality problems and using other tactics that provide maximum profits for minimal services [30,31]. In the Israeli case, research on the organizational behavior of sick funds has shown similar competitive methods [32].

Another main issue that health care systems confront is the question of government involvement. In the managed competition model, sponsors, which may be employers or government, play a central role. However, the Israeli experience shows that the role of government is much wider than that envisioned in the managed competition model, and that there are problems in fulfilling this role. The evaluation indicates that the MOH does not play the major role in monitoring quality and providing information to the consumers, as expected according to the managed competition model. Furthermore, one of the NHI goals was to release the MOH from having to supply services and to strengthen its ministerial functioning. However, the Ministry is still responsible for providing preventive, psychiatric and geriatric services due to second thoughts concerning the transfer of these services to sick funds and is also still involved in the management of government hospitals. This continues to affect the Ministry's ability to focus on policymaking, priority setting, supervision and regulation, functions which are critical to effective implementation of the health system reform.

Among the areas urgently requiring Ministry of Health involvement are effective regulation of sick funds, hospital development, and regulation of technological advancements. Another area concerns regulations designed to prevent unwarranted surgery. In addition, it is important to establish principles for the operation of specialty services in order to prevent redundancy. Ministry intervention is urgently required for the distribution of information that allows citizens to make educated decisions (e.g. information on the quality of care in sick funds and hospitals). Finally, yet another area in which the MOH has failed to live up to its ministerial responsibilities is that involving the sick funds' accountability to their members. The law allowed the MOH to regulate some aspects of the formal arrangements allowing sick funds members a representation on the sick funds' governing bodies. However, the MOH never implemented this regulative powers, and the sick funds are still managed and administered according to the pre-law arrangements.

The evaluation also indicated that the Ministry of Finance is playing a central role in policymaking related to the health system, even greater than that dictated by its role in defining the overall state budget. This raises the question about the feasibility of limiting government intervention only to the role of facilitator of competition as envisioned in Enthoven's managed competition model. It may be that the power structure and historic role of government will lead to much more

interference in the market than envisioned as necessary in a managed competition system.

In conclusion, while the regulation of competition among health care providers is one important aspect of health care reform, there are other aspects which need to be addressed separately in the policymaking process. In the Israeli case, health care reform as reflected in the NHI law, did not address some major issues affecting the functioning of the health care system, including: the organizational structure of the hospital system, manpower planning and the provision of dental care.

As is already known from the experiences in other countries, health system reform is a long and dynamic process. Up-to-date information is essential to help policymakers track the process of reform implementation and results, and identify problems which need to be addressed in future reform efforts. On the basis of this information, reform programs can be continuously improved and problematic components adjusted. Therefore, it is important to continue to assess the functioning of health care systems undergoing reform and to work with policymakers in order to maximize the use of research findings in the decisionmaking process.

## References

- [1] Rosen B, Gross R, Berg A. The National Health Insurance Law — fourteen months since its implementation. *Hadea Harovachat* 1996;14:1–2.
- [2] State of Israel, Commission of Inquiry into the Functioning and Efficiency of the Health System in Israel Findings. Vol. 1, Majority Opinion; Vol. 2, Minority Opinion. Jerusalem, 1990.
- [3] Gross R, Rosen B, Chinitz D. Evaluating the Israeli health care reform: strategies, challenges and lessons. *Health Policy* 1998;45(2):99–117.
- [4] Enthoven A. The history and principles of managed competition. *Health Affairs* 1993;12:24–48.
- [5] Brammli-Greenberg S, Gross R. Supplemental and commercial health insurance, 1998: changes in policy, financing, and consumer behavior. RR-349-99. JDC-Brookdale Institute, Jerusalem, 1999.
- [6] Herman JL, Morris LL, Fitz-Gibbon CT. *Evaluators Handbook*. London: Sage Publications, 1987.
- [7] Bin Nun G. The primary developments in the cost of the basket of services, and sources for its funding, in the four years since implementation of the National Health Insurance Law. *Social Security* 1999;54:35–52.
- [8] Rosen B, Ivancovsky M, Nevo Y. Changes in the sick fund economy: sick fund revenues and expenditures before and after the introduction of national health insurance. RR-317-98. JDC-Brookdale Institute, Jerusalem, 1998.
- [9] Ivancovsky M, Rosen B, Nevo Y. Changes in the sick fund economy, 1996 compared to 1995. JDC-Brookdale Institute, Jerusalem (forthcoming).
- [10] Vitcovsky Y, Nevo Y. Report on sick fund activity in 1997. Tel Aviv, 1998.
- [11] Kop Y. The social expenditure and its composition. In: Kop Y. Ed. *The allocation of resources to social services*. Center for Social Policy Research in Israel, Jerusalem, 1998.
- [12] Gross R, Brammli S. Medical insurance in Israel, 1996. RR-272-96. JDC-Brookdale Institute, Jerusalem, 1996.
- [13] Berg A, Gross R, Rosen B, Chinitz D. Public perception of the health system following Implementation of the National Health Insurance Law. RR-284-97. JDC-Brookdale Institute, Jerusalem, 1997.
- [14] Gross R, Greenstein M, Dubani A, Berg A, Yuval D, Rosen B. The level of service in Israel's sick funds following the National Health Insurance Law: Principal Findings from a 1997 members survey and a comparison to the 1995 survey. ES-17-98. JDC-Brookdale Institute, Jerusalem, 1998.

- [15] Bentur N, Gross R, Chinitz D. The Health Insurance Law and the elderly: accessibility and quality of services, and satisfaction. *Social Security* 1999;54:76–91.
- [16] Farfel M, Yuval D. Arabs' and Jews' perceptions and use of the health system 2.5 years following implementation of the National Health Insurance Law. The Israel National Institute for Health Policy and Health Services Research Annual Research Report 1996–1997. Tel Hashomer, 1998.
- [17] Adler V, Lotan M. The impact of the National Health Insurance Bill (1995) on the Arab sector in Israel. The Israel National Institute for Health Policy and Health Services Research Annual Research Report 1996–1997. Tel Hashomer, 1998.
- [18] Shvarts S, Burkan J, Murad M. Satisfaction with, perception and use of the health system by Beduins in the Negev after implementation of National Health Insurance. The Israel National Institute for Health Policy and Health Services Research Annual Research Report 1996–1997. Tel Hashomer, 1998.
- [19] Berg A, Rosen B, Morgenstein B. The poor and Israel's health care system under National Health Insurance. The Israel National Institute for Health Policy and Health Services Research Annual Research Report 1996–1997. Tel Hashomer, 1998.
- [20] Rubin HR, Olmer L, Friedman L, Mozes B. Comparative consumer evaluations of different Israeli health plans (Kupot Holim): The importance of surveying ill respondents and measuring health status. The Israel National Institute for Health Policy and Health Services Research Annual Research Report 1996–1997. Tel Hashomer, 1998.
- [21] Rosen B, Cohen M, Berg A, Nevo Y. Consumer behavior in the sick fund market. RR-237-95. JDC-Brookdale Institute, Jerusalem, 1995.
- [22] Rosen B, Steiner R. Recent trends in sick fund market shares. RR-275-96. JDC-Brookdale Institute, Jerusalem, 1996.
- [23] Bendelek Z. Sick fund membership. Periodical Surveys, No. 150. National Insurance Institute, Jerusalem, 1998.
- [24] Cohen S. A series of memoranda on the rate of distribution of funding from the parallel tax. National Insurance Institute, Jerusalem, 1993–1998.
- [25] Shvarts S, Reuveni H, Meyer J, Greenberg D. HMO newspaper advertising in a new, competitive Israeli health care market. The Israel National Institute for Health Policy and Health Services Research Annual Research Report 1996–1997. Tel Hashomer, 1998.
- [26] Rosen B, Shamai N. Financing and resource allocation in Israeli health care. Published on the JDC-Brookdale Institute Web site at: [www.jdc.org.il/brookdale/health/findings\\_health\\_overview.htm](http://www.jdc.org.il/brookdale/health/findings_health_overview.htm), 1998.
- [27] Gross R. Sick fund reorganization since the National Health Insurance Law. JDC-Brookdale Institute, Jerusalem, (forthcoming).
- [28] Rosen B. Workshop on Capitation — Executive Summary. The Israel National Institute for Health Policy and Health Services Research, Tel Hashomer, 1998.
- [29] Ministry of Health. Health in Israel. Information and Computer Services Dept. Jerusalem, 1998.
- [30] Light D. The practice and ethics of risk-related health insurance. *Journal of the American Medical Association* 1992;267:2503–8.
- [31] Light D. The sociological character of health care markets. In: Albrecht G, Fitzpatrick R, Schrimshaw S, editors. *Handbook of Social Studies in Health and Medicine*. London: Sage, 1999. Forthcoming.
- [32] Gross R, Harrison M. Competitive strategies in a regulated environment: the Israeli case. AHSR 15th Annual Meeting Abstract Book, Washington, 1998.

# **Evaluating the Effect of Regulatory Prohibitions against Risk Selection by Health Status on Supplemental Insurance Ownership in Israel**

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## Evaluating the effect of regulatory prohibitions against risk selection by health status on supplemental insurance ownership in Israel

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### Abstract

In Israel, supplemental insurance, which covers services not included in the mandatory basic benefits package, is offered by sick funds and regulated by the Ministry of Health. In 1998, policy regulations were set to eliminate barriers that prevented the ill from purchasing supplemental insurance, thereby increasing equality and risk solidarity. In this paper, we examine whether these regulations have indeed changed the extent of ownership and characteristics of policyholders, using data from surveys conducted in 1995, 1997, 1999, and 2001. The findings indicate that while there were no significant changes between 1995 and 1997, there was a significant increase in ownership among those with poor health status after the new regulations came into effect. We conclude that administrative regulations can influence the structure of supplemental insurance to achieve desired social values, and discuss additional policy options that are currently under debate in Israel to further promote equality and solidarity in this market by increasing accessibility to low income and other underserved populations.

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*Keywords:* Supplemental insurance; Regulation; Equality; Solidarity; Vulnerable populations; Health System Reform; Israel

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### Introduction

Private insurance has developed alongside public social health insurance in most European countries (Gress, Kieke, & Okma, 2002, Kay & Roter, 2001; Schneider, Dennerlein, Kose, & Scholtes, 1992). In these countries, residents are entitled to a standard basic insurance package, which may not meet their demand for higher quality care (e.g., advanced procedures and medications, choice of provider, luxury facilities), and this can lead to the development of a market for private insurance (Shmueli, 1998).

Private insurance enables the scope and accessibility of services to expand, without drawing on the public

budget. Moreover, private insurance increases competition in the health system and this can improve the quality of services and the efficiency of their provision (Glazer & McGuire, 1995; Cohen & Barnea, 1992). However, private insurance can reduce equality and solidarity among service recipients and encourage the development of a two-tiered system: one for those who have means, and one for those who do not. Furthermore, private insurance can lead to over-use of services, increased burden on the system, and increased national expenditure on health (Gross & Brammli-Greenberg, 1996; Garfinkel, Bonito, & McLeroy, 1987; Short & Vistnes, 1992; Shmueli, 1995; McCall, Rice, Boismar, & West, 1991; Evans, 1984).

In Israel, national health insurance was introduced with the enactment of the National Health Insurance Law in 1995. The law laid the foundation for regulating competition among the country's four private,

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not-for-profit sick funds. The law ensured universal coverage for every resident, specified a mandatory benefits package, established progressive earmarked health tax premiums,<sup>1</sup> which are collected by the National Insurance Institute, and defined an age-adjusted capitation formula for the allocation of monies to the sick funds. The law prohibited cream skimming, and ensured freedom of choice by making it mandatory for each sick fund to accept any new applicant for membership. The government regulates the enrollment process, and has a mandate to monitor the quality of care provided by the sick funds (Gross, Rosen, & Shirom, 2001).<sup>2</sup>

Under the National Health Insurance Law, health care is provided by Israel's four competing sick funds, which directly provide services rather than acting as financial intermediaries. Clalit Health Services insures about 56% of the population, Maccabi Healthcare Services insures about 24% of the population, and Meuhedet Health Services and Leumit Health Services each insure about 10% of the population. The sick funds differ in their organizational structure,<sup>3</sup> the demographic characteristics of their members, and their growth trends. Notably, Clalit's membership has declined over the years (its market share was 86.2% in 1982), as well as becoming significantly older, poorer, and less healthy than that of the other sick funds (Gross & Harrison, 2001).

In addition, residents of Israel have access to private insurance policies of two types: *commercial insurance*, which is offered by for-profit insurance companies, and *supplemental insurance*, which is offered by the sick funds. Both types of insurance require the voluntary participation of the individual, who is asked to pay a premium over and above the monthly health tax. However, they differ in three main respects: their benefits package structure, premium structure, and risk selection practices. Commercial insurance offers modular policies tailored to individual preferences and coverage, and sets premiums according to an individual's level of risk. Premiums tend to be high, especially for the ill, the elderly, and people at high risk of illness. Furthermore, insurance companies may refuse to insure an applicant or limit his or her coverage due to

pre-existing conditions. In contrast, the sick funds offer standard supplemental insurance packages that must be purchased as a whole, set premiums that vary by age group only, regardless of personal risk (community rating) and, since 1998, have been obligated to accept all applicants regardless of health status. (For a detailed comparison of the coverage of the three types of insurance, see Appendix A.)

Since implementation of the 1995 National Health Insurance Law in Israel, policy makers have debated the advantages and disadvantages of integrating private insurance into the public system (i.e. allowing the sick funds to market private insurance alongside providing the mandatory benefits package), as opposed to separating the two types of insurance (i.e. allowing only commercial insurance companies to provide supplemental insurance).

Integration poses several problems, which stem from cross effects between basic public insurance and supplemental insurance. For example, sick funds may use information from medical files to select risks in their supplemental insurance programs ("cream skimming"). Sick funds may also tailor their supplemental insurance programs to members who are a better risk, in order to attract them to their basic public insurance program, or provide better care to members who agree to purchase supplemental insurance, thereby creating pressure to purchase supplemental insurance (Shmueli, 1998).

Another major concern related to integration is the implications for the equality of receipt of services in the public system, and for solidarity in the financing of health care. This concern stems, in part, from the basic perception in Israel (as in western European countries) that health is not a "commodity", that its provision to the individual is beneficial to society, and that society therefore has an interest in ensuring that all individuals receive health services (Reinhardt, 1996). Furthermore, in Israel, equality and solidarity are perceived as desired values; they guide health policy attempts to ensure an appropriate level of and equal access to health care for all sectors of the population, regardless of social status, religion, ethnic background or financial ability (State Commission of Inquiry, 1990; Ministry of Health, 1989). This is embodied in the National Health Insurance Law, which states that "national health insurance will be based on principles of justice, equality, and mutual aid" (State of Israel, 1994).

Supplemental insurance provided by sick funds is perceived by some policy makers in Israel as infringing on these values, as it enables those with financial ability to receive additional services from their sick fund for a fee. In other words, supplemental insurance enables those who own it to receive preferred service from the same agencies that are meant to provide equal service to all. Furthermore, supplemental insurance premiums,

<sup>1</sup>The rate is 4.8% of income, with a ceiling 5 times the average wage; discounts are granted to the elderly and the poor.

<sup>2</sup>For a detailed discussion of the national health insurance reform and its effect on the health system, see Gross et al. (2001); Gross & Harrison, 2001; and Gross, forthcoming.

<sup>3</sup>Clalit's delivery system is based on salaried physicians and public clinics, while the other sick funds' delivery systems are based on contracts with independent physicians. Clalit also owns about one-third of the nation's acute care hospital beds, as well as psychiatric and long-term care beds, and several medical, nursing, and dental schools.

Table 1  
Factors affecting growth of the supplemental insurance market after 1998

*Provisions in the 1998 bill regulating the supplemental insurance market*

Sick funds allowed to manage supplemental insurance programs by themselves (no need to involve an insurance company)  
Risk selection is prohibited—sick funds are not allowed to reject applicants or limit their coverage because of pre-existing conditions  
Ministry of Health appointed to approve supplemental programs and all future changes in policies and premiums  
Supplemental programs not allowed to provide monetary compensation (only services in kind)  
Supplemental programs not allowed to provide long-term care insurance, except by contracting to a commercial insurance company

*Other provisions in the 1998 bill that may affect the supplemental insurance market*

Limits on competition among sick funds: advertising budgets limited; transfer to another sick fund allowed only at the post office, for a fee; direct subscription in sick fund offices or by sale agents prohibited; limits on opening clinics in small villages  
Sick funds allowed to increase co-payments for medications and charge co-payments for visits to specialists and diagnostic services. (levels to be approved by the Ministry of Health and parliament)

*Other changes in the health system that may affect the supplemental insurance market*

Allocation of NIS 150 million to update the basic benefits package for new medications and technologies<sup>a</sup>  
Sick fund financial status: deficit rates (in million NIS): 200 in 1995; 1,500 in 1997; 230 in 1999; 730 in 2001<sup>b</sup>  
Satisfaction with sick fund services (% satisfied or very satisfied): 83% in 1995; 91% in 1997; 89% in 1999; 86% in 2001<sup>b</sup>  
Marketing efforts of commercial insurance companies, as reflected by ownership rates: 16% in 1995; 16% in 1997; 24% in 1999; 26% in 2001<sup>b</sup>

<sup>a</sup> A separate allocation of the Ministry of Finance in 1998, but not part of the Budget Arrangement Law.

<sup>b</sup> Source: Gross and Brammli-Greenberg (2003).

which are not related to income, are regressive, impinging on the value of solidarity in finance.

*Regulation of the health insurance market*

Many western European countries that mix public and private funding of their health care systems (e.g., The Netherlands, Germany, Austria, France, Switzerland, Belgium) have deemed regulation of the private health insurance market necessary to ensuring that it remain compatible with prevailing values regarding solidarity in health care. To this end, their regulations address the issue of access to private insurance coverage for “bad risks”, such as the chronically ill, and ensure that premiums are affordable for aging policyholders and, in some cases (France), for the poor, as well (Gress et al., 2002).

Policy regulating Israel’s supplemental insurance market was set in 1998 (State of Israel, 1998) in the framework of a Budget Arrangement Law, which also regulated other aspects of the health system (see Table 1). It aimed to design supplemental insurance such that it would generate the advantages of integrating private sources of funding into the public system, while infringing only minimally on equality. To this end, the principal components of these regulations determined that the sick funds would manage their supplemental insurance programs by themselves. (Prior to 1998, Clalit Health Services and Leumit Health Services marketed supplemental insurance through (and shared profits with) a commercial insurance company, while the other

two sick funds operated their own supplemental insurance programs.) According to these regulations, supplemental insurance policies and premiums, and any future changes in terms, would require the approval of the Ministry of Health. The regulations also stipulated that supplemental insurance programs would only cover services in kind (and not provide monetary compensation), and that long-term care insurance would be provided only by commercial insurance companies, which have the financial ability to manage actuarial reserves. However, the sick funds would be allowed to offer this option in their policies, provided they contracted it to commercial insurance companies that would receive the premiums and assume the risk. The regulations further stipulated that the sick funds could charge differential premiums based on age, but not on health status or other risk factors (with Ministry of Health supervision of premium levels).<sup>4</sup>

However, the main innovation of the regulations was that they forbade the sick funds from rejecting applicants or limiting their coverage because of prior illness (i.e. pre-existing conditions). Prior to 1998, all of the supplemental insurance programs placed restrictions

<sup>4</sup> It should be noted that when the supplemental insurance programs were approved in 1998, so, too, was a moderate increase in premiums, which were then linked to the Cost of Living Index. However, premiums remained relatively low, ranging from almost no charge for children under 17 to about \$22 per month for a person over 75, with differences among the sick funds.

on the ill: All of them had required a medical examination prior to purchase, and all of them had limited their coverage, based on pre-existing medical conditions. In addition, the sick funds had been allowed to reject applicants on the basis of age or medical condition.

It was hoped that these regulations would promote equality by enabling a greater number and variety of people—including those who had previously been excluded by age or pre-existing conditions—to purchase supplemental insurance. These regulations also aimed to promote risk solidarity between the healthy and the ill, since both would be paying the same premiums, even though the ill have higher levels of risk.

Fundamental aspects of the regulatory framework instituted in Israel are similar to those of social health insurance systems in western European countries. The main policy tools used in these countries to safeguard access include similar restrictions on pre-existing conditions, restrictions on exclusion clauses or minimal coverage, and community rating requirements to prevent risk underwriting (Gress et al. (2002)). Nevertheless, we found no studies evaluating the implications of these policy measures on supplemental insurance markets. The purpose of this study was, therefore, to examine whether the regulations set in the Israeli health care system in 1998 have indeed affected the extent of ownership and the characteristics of policyholders of supplemental insurance. In particular, we wished to determine whether supplemental insurance had become more accessible to vulnerable population groups than it was prior to 1998.

The need to evaluate the policy change inaugurated by the regulations also stems from the uncertainty regarding their effect. First, it is possible that the regulations have curtailed the marketing of supplemental insurance, which may now be perceived as being less profitable. Second, there are indications that information to consumers is insufficient (Gross & Brammli-Greenberg, 2001); it is therefore possible that they have not noticed the changes in policy and hence have not responded to them, in effect precluding any change in the purchase of supplemental insurance. Lastly, it is possible that, despite the regulations, the sick funds have continued to practice risk selection so as to limit the purchase of supplemental insurance by potentially costly populations.

Analysis of changes in the rates of ownership and characteristics of owners of supplemental insurance are thus likely to provide an indication of whether the regulations have had the effect on the supplemental health insurance market expected by policy makers.

It should be noted, however, that since the regulations were implemented nation-wide, we could not use a controlled experimental or quasi-experimental design, and therefore could not rule out the indirect effect of

exogenous variables on supplemental insurance ownership (see Table 1). These variables are basically of two types. (a) *Other provisions in the 1998 law* may have affected the supplemental insurance market, such as limitations on sick fund competition, which may have led to the channeling of competition to supplemental insurance, or increased co-payments for medications, which may have increased the perceived need for supplemental insurance policies, which offer discounts on medications. (b) *Other changes in the health system* may also affect the growth trends of the supplemental market. Updating of national health insurance benefits and increased satisfaction with sick fund services (observed in 1997) are both expected to reduce the perceived need for supplemental coverage. Conversely, declining satisfaction with sick fund services (observed in 1999 and 2001), or financial difficulties in the sick funds (observed most notably in 1997), may increase the perceived need for extra coverage. The increased marketing of commercial insurance policies may also be affecting the demand for supplemental insurance (either by raising awareness of the need for extra coverage, or by providing a better alternative to supplemental insurance, and thus reducing its market share).<sup>5</sup>

To address this inevitable limitation in the study design, we used the theory-based approach to evaluation (Chen, 1990), which analytically traces the causal pathways among changes in policy, new incentive structures in the market, and outcome variables. This approach guided our interpretation of the findings, and is presented in the discussion.

Analysis of the Israeli case can provide an empirical basis for improving regulation in the Israeli health insurance market, as well as providing empirical evidence of value to policy makers in other countries who are considering approaches to regulating their supplemental insurance markets.

## Methods

Our primary sources of information about policy regarding supplemental insurance were official documents, publications in the media, and interviews conducted between 1996 and 1999 with key staff in the Ministry of Health, the office of the Insurance Comptroller, the sick funds, and insurance companies.

<sup>5</sup>It should be noted that, according to insurance theory, changes in personal preferences or status, such as risk aversion, perceived need for extra coverage related to personal health status, expectations regarding health, and personal preferences regarding the use of one's financial means, also affect the demand for insurance (Folland, Goodman, & Stano, 2001). However, we do not have a reason to assume that the 1998 regulations have affected these personal factors.

Information about consumer behavior was gathered from JDC-Brookdale Institute population surveys, which are conducted periodically to evaluate the National Health Insurance Law (Gross, Rosen, & Chinitz, 1998). These surveys were conducted in August–October of 1995, 1997, 1999, and 2001, and the study population included all permanent residents of Israel over age 22. The sampling framework was the computerized telephone list of Israel's sole telecommunications corporation; in each apartment, one resident was sampled randomly. Telephone interviews were conducted by specially trained interviewers who used a structured questionnaire in Hebrew, Arabic, or Russian.

In the 1995 survey, 1089 people were interviewed for a response rate of 84%. In 1997, 1205 people were interviewed for a response rate of 81%. In 1999, 1727 people were interviewed for a response rate of 83%. In 2001, 1849 people were interviewed for a response rate of 83%. The sample was weighted at two stages: During the first stage, each individual was given a weight that reflected the probability of his being sampled.<sup>6</sup> During the second stage, the population was divided into strata according to nationality (Arabs/Jews), gender (men/women), and age (under/over age 65). Each stratum in the sample was given a weight that took into consideration its size in the population (Gross & Brammli-Greenberg, 2001).

Since the sampling framework was the national computerized telephone list, no other data existed on the non-respondents. Therefore, in order to check for non-response bias, characteristics of the weighted sample for each year were compared to the general adult population based on available national data published by the Central Bureau of Statistics. We compared data on age, gender, education, country of birth (Israel/Europe and North America/Asia–Africa), ethnic origin (Jewish/Arabic), and area (center/periphery). No significant differences were found between our samples and the national data of Israel's Central Bureau of Statistics. Data on sick fund affiliation were compared with National Insurance Institute data; no significant differences were found.

It should be noted that no comparable data were available on income or health status, both of which may affect supplemental insurance ownership rates. However, we can assume that, over time, there was no significant difference in the proportion of ill people or people in the bottom quintile among non-respondents. Therefore, we may assume that our analysis of rates of

change in supplemental insurance ownership was not biased. On the other hand, it is possible that our estimates of ownership rates are inexact.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago Illinois). Bivariate analysis was performed using overall  $\chi^2$  tests. Multivariate analysis was performed using logistic multivariate regression, since the dependent variable was defined dichotomously.

## Findings

Below we review the extent of ownership of supplemental insurance and the characteristics of policyholders prior to implementation of the regulations (1995, 1997), and following their implementation (1999, 2001).

*The extent of ownership:* Table 2 indicates that between 1995 and 1997 there was no statistically significant change in the extent of ownership of supplemental insurance. In contrast, between 1997 and 1999 there was an increase in the rate of ownership of supplemental insurance (from 37.5% in 1997 to 51% in 1999). The increase was particularly notable among members of Clalit Health Services (from 22% in 1997 to 44% in 1999). In 2001 there was an additional increase, with the rate of ownership reaching 65%. A significant increase was noted among members of Clalit Health Services (61% in 2001) and Leumit Health Services (from 35% in 1999 to 53% in 2001).

An examination by background variables (Table 2) reveals that while there was almost no change in the extent of ownership among vulnerable population groups between 1995 and 1997, between 1997 and 1999 there was a significant increase in the ownership of supplemental insurance among people with poor or fair self-assessed health status<sup>7</sup> (1.7 times). There was also a significant increase among other vulnerable population groups: people with elementary education or less (2.2 times), people with low income (1.8 times), and people who speak Arabic (2.7 times). In 2001 there was a significant increase in ownership among the elderly (1.7 times), as well as additional increases in ownership among the other vulnerable population groups. (The latter were more moderate, however, and similar to increases among stronger population groups.)

*Characteristics of policyholders:* Analysis of the characteristics of supplemental insurance policyholders in 1999 (Table 2) revealed that while the ownership of supplemental insurance policies increased among vulnerable populations, the proportion of ownership was still greater among stronger populations. Table 2 indicates that the rate of ownership in 1999 was lower

<sup>6</sup>The sampling ratio was determined by the number of telephones in the area code zone from which the number was sampled, the number of adults over age 22 in the home, and the number of telephone lines in the home. The weights were calculated in consultation with the Statistical Consultation Services of The Hebrew University of Jerusalem.

<sup>7</sup>All references to health status are to self-assessed health status.

Table 2  
Supplemental insurance owners, by background variables (in %)

	Percentage of supplemental insurance owners			
	1995	1997	1999	2001
Total <sup>a,b</sup>	35	37.5	51	65
Health plan <sup>c,a,b</sup>	*	*	*	*
Clalit	16	22	44	61
Maccabi	80	74	72	78
Meuhedet	65	59	63	64
Leumit	50	33	35	53
Age <sup>a,b</sup>	*	*	*	*
22–44	39	38	54	64
45–64	36	42	57	67
65+	20	26.5	34	58
Gender <sup>a,b</sup>				
Men	34	35	50	62
Women	35	40	53	66
Education <sup>a,b</sup>	*	*	*	*
Elementary or less	13	14.5	33	48
Secondary	36	37	52	65
Post-secondary	34	38	54	63
University	44	50	59	71
Self-reported health status <sup>a,b</sup>	*	*	*	*
Fair/poor	21	24	41	54
Good/excellent	42	42	56	68
Standard per capita income <sup>c,a,b</sup>	*	*	*	*
Bottom quintile	18	18	32	45
Second and Third quintiles	32	33	43	56
Fourth quintile	35	41	64	80
Top quintile	47	62	72	80
Language <sup>a,b</sup>	*	*	*	*
Hebrew	39	46.5	59	74
Arabic	18	11.5	32	40
Russian	29	22	27	38

\*Statistically significant difference between categories in the relevant year ( $p < 0.001$ ).

<sup>a</sup>Significant difference between 1997 and 1999.

<sup>b</sup>Significant difference between 1999 and 2001.

<sup>c</sup>Significant difference between 1995 and 1997.

among the elderly (34%) than among younger people (54% among those ages 22–44 and 57% among those ages 45–64). The rate of ownership among those with university education (69%), post-secondary education (54%), and secondary education (52%) was higher than that among people with elementary education or less (33%). Similarly, the rate of ownership among those in the top income quintile (72%) and the fourth quintile (64%) was greater than that among those in the second and third quintiles (43%) or the bottom quintile (32%).

The rate of ownership among Hebrew speakers (59%) was greater than that among Arabic speakers (32%) or Russian speakers (27%). The rate of ownership also remained higher among those who assessed their health as being good or very good (56%) than among those who assessed their health as being fair or poor (41%). Similar characteristics were found among supplemental insurance policyholders in 2001.

Comparison of the odds ratios of background variables in the regressions for 1995 and 1997 (prior to

Table 3  
Supplemental insurance owners in 1995, 1997, 1999 and 2001, by background variables (logistic regression) and 1995

	1995		1997		1999		2001	
	<i>B</i> coefficient	Odds ratio (CI)						
Member of Maccabi	3.1**	22.9 (14–37)	2.4**	11 (7–17)	1.1**	2.8 (2.0–3.7)	0.7**	2.0 (1.5–2.8)
Member of Meuhedet	2.4**	11 (6–19)	1.7**	5 (3–9)	0.7**	2.0 (1.4–2.9)	0.2	1.1 (0.8–1.7)
Member of Leumit	2.2**	8.8 (5–15)	0.5*	2 (1.1–2.9)	–0.3	0.7 (0.5–1.1)	–0.1	0.9 (0.6–1.3)
Age 45–64	0.5*	1.7 (1.1–2.5)	0.5*	2 (1.1–2.3)	0.2	1.2 (0.9–1.6)	0.2	1.3 (0.9–1.7)
Age 65+	0.04	1 (0.6–1)	0.3	1.3 (0.8–2.2)	–0.7**	0.5 (0.3–0.7)	–0.07	0.9 (0.6–1.3)
Gender (women)	0.13	1.1 (0.8–1.6)	0.1	1.1 (0.8–1.5)	0.2	1.2 (1–1.5)	0.3*	1.4 (1.1–1.7)
Bottom quintile	–0.5	0.6 (0.4–1)	–0.6*	0.5 (0.3–0.9)	–0.9**	0.4 (0.3–0.5)	–0.4**	0.6 (0.5–0.9)
University education	0.17	1.2 (0.8–1.7)	0.5**	1.6(1.2–2.3)	0.3*	1.4 (1.1–1.7)	0.5**	1.7 (1.3–2.1)
Hebrew speaker	1.0**	2.8 (1.7–4.5)	1.6**	5(3.3–7.6)	1.1**	2.8 (2.2–3.7)	1.4**	4.0 (3.1–5.3)
Good self-reported health	0.6*	1.7 (1–2.7)	0.5**	1.6(1.2–2.4)	0.07	1.1 (0.8–1.4)	0.2	1.2 (0.9–1.6)

\* $p < 0.05$ .

\*\* $p < 0.001$ .

Sample sizes for the multivariate analysis: 1995:  $n = 1072$ ; 1997:  $n = 1205$ ; 1999:  $n = 1615$ ; 2001:  $n = 1792$ .

the regulations) shows that the variables “assesses health as being good or very good” and “age 45–64” had an independent positive effect on supplemental insurance ownership in both years. Also in both years, sick fund membership (member of Maccabi, Meuhedet, or Leumit, compared to Clalit) had a positive effect on supplemental insurance ownership; however, the effect was weaker in 1997 than in 1995 (see Table 3).

Comparison of the odds ratios of background variables in the 1997 and 1999 regressions revealed that a change had taken place in 1999 (see Table 3).<sup>8</sup> The variable “assesses health as being good or very good” no longer had an independent effect on supplemental insurance ownership. Other changes were related to the respective effects of age (a negative effect was found for “age 65 and over”) and sick fund membership (no effect was found for “member of Leumit”, and a weaker effect was found for “member of Maccabi” and “member of Meuhedet”). Analysis of the 2001 data reinforced this trend. “Assesses health as being good or very good” still did not have a statistically significant effect on ownership in 2001. The odds ratio for membership in Maccabi Health Services or Meuhedet Health Services (as opposed to Clalit Health Services)

was weaker in 2001 than it had been in 1999, and “age 65 and over” no longer had a statistically significant effect.

Trends in the variables “university education”, “bottom income quintile”, and “Hebrew speaker” were not consistent over the years. In 1995, income and education did not have an independent effect on ownership, while in 1997, 1999, and 2001 they did have an independent effect.<sup>9</sup> The effect of education was stronger in 1997 and 2001 than in 1999. The effect of the variable “Hebrew speaker” was stronger in 1997 than it was in 1995, 1999, or 2001.

Multivariate analysis was conducted separately for those with poor and good health on the pooled samples of 1997, 1999, and 2001 (Table 4). For those with good health, the odds ratio of the variable “time” (after the 1998 regulations) was 2.5, while for those with poor health the odds ratio of “time” was 3.4. This indicates that the variable “time” had a stronger effect on ownership among those with poor health status.<sup>10</sup>

## Discussion

Analysis of the empirical data revealed that in 1999 and 2001, compared to 1995 and 1997, there was an overall increase in the rate of ownership of supplemental

<sup>8</sup>The marginal effects for main variables in 1997 compared to 1999 were as follows: “good self-reported health status” increased the probability of supplemental insurance ownership by 0.09 in 1997 and 0.04 in 1999; “member of Maccabi” increased the probability of ownership by 0.55 in 1997 and 0.3 in 1999; “member of Meuhedet” increased the probability of ownership by 0.19 in 1997 and 0.17 in 1999; “member of Leumit” increased the probability of ownership by 0.4 in 1997, and decreased the probability by –0.08 in 1999; “age 65 and over” increased the probability of ownership by 0.06 in 1997, and decreased the probability by –0.12 in 1999.

<sup>9</sup>This may be due to sample size effects. The number of cases in the regression in 1995 was 1072; in 1997 it was 1205; in 1999 it was 1615; and in 2001 it was 1792.

<sup>10</sup>We also ran a single regression with the interaction term “good health and year” on the pooled data for 1997, 1999 and 2001 (the 1995 data could not be pooled because of technical compatibility problems). The coefficient for the interaction term was –0.296 (OR = 0.744, CI 0.5–1.1), as expected, but did not reach statistical significance.

Table 4  
Supplemental insurance ownership by time, health status, and background variables (pooled logit regression for 1997, 1999, 2001)

	Good health status		Poor health status	
	B coefficient	Odds ratio (CI)	B coefficient	Odds ratio (CI)
Time (post 1998 reform)	0.9**	2.5 (2.0–3.0)	1.2**	3.4 (2.4–4.8)
Member of Maccabi health services	1.3**	3.8 (3.0–4.8)	1.1**	2.9 (2.0–4.3)
Member of Meuhedet health Services	0.7**	2.0 (1.5–2.6)	0.9**	2.5 (1.4–4.4)
Member of Leumit health services	0.02	1.0 (0.8–1.3)	0.01	1.0 (0.6–1.7)
Age 45–64	0.3**	1.4 (1.2–1.7)	–0.03	1.0 (0.7–1.4)
Age 65+	0.01	1.0 (0.7–1.4)	–0.7**	0.5 (0.3–0.7)
Gender (women)	0.38**	1.5 (1.2–1.7)	–0.3	0.8 (0.6–1.0)
Bottom quintile	–0.7**	0.5 (0.4–0.6)	–0.6**	0.5 (0.4–0.8)
University education	0.4**	1.5 (1.3–1.8)	0.6**	1.8 (1.4–2.5)
Hebrew speaker	1.1**	3.0 (2.5–3.6)	1.5**	4.6 (3.4–6.4)

Size of the pooled sample:  $n = 4781$ .

insurance, with particular growth in ownership among those with poor health status.<sup>11</sup> The question then arises as to whether or not this increase was a result of the 1998 regulations. We will begin by examining possible causes of the overall increase in ownership rates. Analysis of the incentives generated by the regulations supports the argument that, to some degree, this growth was related to the stipulation that sick funds could provide supplemental insurance themselves (rather than through an insurance company). This enabled them to reap the profits, and therefore made supplemental insurance a lucrative endeavor. Evidence of this is offered by the concerted marketing efforts of the sick funds—particularly Clalit and Leumit which, prior to 1998, had offered supplemental insurance through commercial insurance companies, and so found the change most significant.<sup>12</sup> Indeed, the data indicate that the primary increase in supplemental insurance ownership was experienced by Clalit and Leumit. The growth in ownership rates may also be related to the regulation that removed barriers related to health status, thereby making supplemental insurance available to additional population groups, which broadened the membership base.

However, we cannot entirely rule out alternative explanations for the growth of the market. Analysis of other, concurrent changes in the health system (specified

in Table 1 and discussed in the introduction) indicates that other factors (e.g., limits on sick fund competition, increased co-payments, and financial difficulties in the sick funds) may also have contributed to the growth in ownership of supplemental insurance. At the same time still other factors, such as updating of national health insurance benefits, may have contributed to a reverse trend, i.e. to a decrease in ownership.

Furthermore, we cannot underestimate the effect of the natural growth of the market, especially in the case of Clalit, which developed a new supplemental insurance program in 1995 and began marketing it then. It is reasonable to assume that entry into the market takes some time; therefore, we would expect natural growth over time. Unlike Clalit, Maccabi and Meuhedet continued to market their existing programs (which, as noted, were compulsory prior to 1995) and indeed, no significant change in ownership was noted in either of these sick funds, although they did experience a slight decline in ownership in 1997. In 1995, Leumit was marketing a program that had existed previously. However, in 1996 it changed this program, and began marketing supplemental insurance through a commercial insurance company (which may explain the decline in ownership that it experienced in 1997). After introduction of the regulations in 1998, Leumit again changed its program, and began marketing it itself. The time it took for this program to penetrate the market may be reflected in the growth observed in ownership of supplemental insurance in Leumit in 2001.

In summary, analysis of the factors influencing overall growth in the ownership of supplemental insurance indicates that it is reasonable to assume that this growth was affected in part by the new regulation of the supplemental insurance market. However, since the regulations were implemented nationwide with no control group, we could not rule out the effect of additional changes in the health system—some of which

<sup>11</sup> Obviously, we did not expect the entire population to be covered by supplemental insurance, since the decision to buy extra insurance is in part affected by personal preferences—e.g., the extent of risk aversion, or the perceived need for extra coverage—which the regulations were not expected to affect. The decision to purchase supplemental insurance is also affected by an individual's financial means (for a detailed discussion of factors affecting the demand for insurance, see Folland et al., 2001).

<sup>12</sup> As noted, Maccabi and Meuhedet marketed their own supplemental insurance policies even prior to 1998.

may have reinforced the growth trend observed, while others may have offset it.

In contrast, it appears that the 1998 regulations are the only factor explaining the significant growth in supplemental insurance ownership among those who assessed their health as being fair to poor, such that in 1999 and 2001, health status no longer had an independent influence on ownership of supplemental insurance. There is no reason to assume that any of the exogenous factors presented in Table 1 would have affected the accelerated purchase of supplemental insurance by the ill, had the regulations not prevented the sick funds from rejecting them—since, like any other insurer, the sick funds have an incentive to reject high risks, especially since they are not allowed to collect premiums that reflect the level of risk. The increase in ownership rates among the ill may therefore be attributed solely to the regulations, which specifically stipulated that the sick funds accept all applicants for supplemental insurance, and which prohibited exclusion on the basis of pre-existing conditions. Moreover, since no increase in supplemental insurance ownership was observed among people with poor to fair health status prior to implementation of the regulations (1995–1997), this change cannot be attributed to the “natural” development of the market.

The Israeli case thus indicates that changing policy regulations can affect demand, and within a short time. Achieving the objective of greater equality in access to supplemental insurance, regardless of health status, is worthy of note, especially given the finding that, in Israel, the chronically ill are more likely than those who are not ill to be rejected by commercial health insurance companies (Shmueli, 2001).

Furthermore, the Israeli case shows that regulations can prevent sick funds from formally limiting the purchase of supplemental insurance. However, we do not have empirical data indicating whether the sick funds have continued to practice risk selection in more subtle ways. For example, we found that in 1999, being “age 65 and over” had an independent *negative* effect on supplemental insurance ownership (although this effect diminished in 2001). This may indicate an attempt at risk selection, based on the higher risks associated with age (a “visible” variable, unlike “health status”, which must be revealed through medical examination).

Another way to cream skim may be to charge older people higher premiums (as age is highly related to health status, and can therefore serve as a proxy for it if sick funds wish to discourage the enrollment of ill people). Data are available on the premiums of the two largest sick funds (Clalit and Maccabi). After 1998, Clalit changed its supplemental insurance program coverage (mainly, it removed long-term care and added other benefits), as well as its premiums. Comparison of fees for the 1995 package (which still included long-term

care) to those of the 2000 package (which no longer included long-term care) shows a reduction of fees for both younger and elderly individuals, and a 20% increase for those aged 40–49.<sup>13</sup> Analysis of Maccabi’s fees before and after the 1998 regulations (comparing packages without long-term care in both periods, since Maccabi has always offered a package without long-term care, as well as one with such care prior to the 1998 regulations) shows no change in the fees for members age 30 or under, and a decrease in fees for older people, including the elderly.<sup>14</sup>

Apparently, fees were not increased disproportionately for the elderly to discourage them from purchasing supplemental insurance; on the contrary. This may be related to the stipulations in the 1998 regulations that the Ministry of Health approve changes in programs and premiums. In light of their policy to promote equality, it is reasonable to assume that the Ministry would not have approved programs in which a significant increase had been effected in the premiums of the elderly.

Another problem related to cream skimming is that of insufficient information to the consumer. Data from a recent population survey revealed that only 31% of the public knew that the sick funds were forbidden to reject applicants to supplemental insurance programs. Furthermore, only 40% had received information on the supplemental insurance program provided by their sick fund (Gross & Brammli-Greenberg, 2001). Deficient information to consumers raises concern as to the ability to ensure effective implementation of the 1998 regulations, since people may be unaware of their rights and therefore unable to object to cream skimming practices.

Also of issue is the effect of restrictive regulations of this sort on the viability for sick funds of supplemental insurance. For example, concern has been raised in the

<sup>13</sup>Data were available for the 1995 package (prior to the regulations) and the 2000 package (which was designed and approved by the Ministry of Health after the 1998 regulations). Comparison was conducted in real terms, based on the price index for February 2003. The rates of change in premiums were as follows: a decrease of from 7.6 NIS to no charge for people ages 0–17; a decrease of 67% for people ages 17–20; a decrease of 24% for people ages 20–30; an increase of 6% for people ages 30–39; an increase of 20% for people ages 40–49; a decrease of 5% for people ages 50–59; a decrease of 38% for people ages 60–64; a decrease of 39% for people ages 65–69; and a decrease of 49% for people age 70 and over.

<sup>14</sup>Data were available for 1998 (before regulations came into effect) and 2000, after new packages had been approved by the Ministry of Health. Comparison was conducted in real terms (based on the price index for February 2003). The rates of change were as follows: no change for people ages 0–29; an 8% decrease for people ages 30–45; and 18% decrease for people ages 46–60; a 16% decrease for people ages 61–70; and a 14% decrease for people age 71 and over.

literature about adverse selection, in which people who are at high risk of needing medical care will prefer to purchase insurance and thereby endanger the stability of insurance companies due to moral hazard (Wolfe & Goddeeris, 1991; Ettner, 1997; Shmueli, 2001). Furthermore, theoretically (Newhouse, 1996), if an insurance market consists of providers offering community rating alongside providers offering individual risk-related premiums, instability may be expected because people with low risk will tend to leave community rating programs and purchase individual policies that will be less expensive for them, leading to financial losses for the community rating programs (this process is known as the “adverse selection death spiral”); Buchmeueller & DiNardo, 2002). The data on ownership rates of supplemental insurance (37.5% in 1997, 51% in 1999 and 65% in 2001), particularly the continuing increase in ownership among those with good health (42% in 1997, 56% in 1999 and 68% in 2001), indicate that the supplemental market has remained stable. However, data on owners of commercial insurance indicate that although the overall rate of ownership has stabilized (16% in 1997, 24% in 1999 and 26% in 2001), ownership among those with good health is continuing to grow: from 18% in 1997 to 24% in 1999 and 30% in 2001 (Brammli-Greenberg & Gross, 2003). Therefore, monitoring these trends over time and an in-depth analysis of market behavior are needed before we will be able to confirm or rule out the above-mentioned “death spiral” process. In particular, it is worth monitoring the market’s response to the recent (2003) Ministry of Health approval of an update of supplemental insurance premiums, which may lead to the exit of low-risk policyholders.<sup>15</sup>

Finally, it appears that in Israel, even though the regulations have created conditions that ostensibly encourage the ill to purchase insurance—a situation not preferred by insurance companies—and that limit increases in premium rates, supplemental insurance is still worthwhile for the sick funds. This was indicated by an analysis of their financial reports, which revealed that supplemental insurance is a profitable source of income. To illustrate, in 1999, the sick funds’ aggregate profit from supplemental insurance was NIS 165 million, compared to NIS 104 million in 1998. Profit continued to rise, reaching NIS 181 million in 2000. Moreover, while the sick funds’ total income increased by 4.5% between 1998 and 1999, their income from supplemental insurance increased by 51.4%. Between 1999 and 2000, the sick funds’ total income again increased by 4.5%, while their income from supplemental insurance increased by 37% (Witkowsky & Nevo, 2000).

<sup>15</sup>In February 2003, a uniform rise of 11% in Clalit’s premiums (for all age groups) was approved. Other sick funds have also submitted similar requests.

These findings suggest that despite the imposition on insurers of “social” demands and their attendant, less favorable conditions, the sick funds continue to profit from supplemental insurance. This may be attributed in part to the sick funds’ success in marketing the insurance to a large proportion of their members. As a result, though more unhealthy members have purchased supplemental insurance, their proportion in the market has remained small enough not to endanger the sick funds’ profitability.

### **Policy debate regarding additional regulation of the supplemental insurance market in Israel**

Given the high value attributed to equality in the Israeli health care system, the apparently successful implementation of regulations that make supplemental insurance accessible to people with poor health status, and the fact that the sick funds, which provide the mandated basic benefits package according to principles of equality and solidarity are also those that provide supplemental insurance (which enables those who own it to receive preferred service), public debate in Israel has concerned policy options to further promote equality and solidarity in this market.

Our findings indicate that a notable barrier to supplemental insurance ownership is low income: Significantly smaller percentages (45%) of those in the bottom income quintile than those in the top income quintile (80%) owned supplemental insurance in 2001. Moreover, although supplemental insurance premiums in Israel are relatively low, in a national survey conducted in 1999, price was the main reason cited for not purchasing such insurance by 27% of respondents in the lowest income quintile, as opposed to 19% of the respondents in the other quintiles who had not purchased supplemental insurance (Brammli-Greenberg & Gross, 1999).

This corroborates studies that have found an association between wealth and supplemental insurance coverage, which is less affordable for those with low income—even though they may need it more than others (Wolfe & Goddeeris, 1991; Pourat, Rice, Kominski, & Snyder, 2000; Lillard, Rogowski, & Kington, 1997).

One possible explanation for this is that people with lower income and more pressing needs may find the cost–benefit ratio of supplemental insurance less attractive. Moreover, the percentage of available income that must be used to pay premiums, even if low, may represent a greater burden for those with low income than for those with high income. Consequently, supplemental insurance may be perceived as being unaffordable, even if the coverage it offers is attractive.

Some policy makers claim that, as in other areas, the rich and poor have different means and priorities, such

that inequality is not an issue and policy makers should not be concerned with it. Others claim that supplemental insurance, which is provided by the same agents that provide national health insurance, infringes on the value of equality in the public health system. One option considered was to prohibit sick funds from providing supplemental insurance, thus safeguarding the principle of equal services to all sick fund members. However, this option was rejected in light of the perceived advantages of integration (detailed in the introduction). An alternative option considered was to add the services currently offered through supplemental insurance to the mandatory benefits package, thereby making them accessible to all. However, since many supplemental services are considered “luxury services” (as opposed to life-saving technologies), they are at low priority for being added to the basic benefits package according to the current criteria for updating the package (i.e. criteria for saving lives; Shani, Siebzeiner, Luxenburg, & Shemer, 2001).<sup>16</sup>

Another possible measure for increasing access to supplemental insurance might be to require sick funds to set differential premiums based on income level, as is the case with basic health insurance premiums in Israel. Since regulations have succeeded in inducing the sick funds to accept all applicants (regardless of their level of risk), we may assume it is possible to induce sick funds to institute income-based premiums, as well, in order to further promote equality and solidarity among the rich and poor. However, effects on cream skimming should be considered, since sick funds would have an incentive to attract high-income members who would pay higher premiums. Furthermore, this policy might endanger the stability of the supplemental programs, if the rich found the premiums too high and chose to purchase commercial insurance instead.

Another barrier to supplemental insurance purchase for those with low income may be that of co-payments for supplemental services. Almost all supplemental policies impose a high co-payment at the point of service provision. This may deter people with low income from purchasing supplemental insurance, or it may prevent them from realizing their eligibility for services. To illustrate, data from an Israeli national survey indicated that 25% of those in the bottom quintile did not get necessary care or medications because of co-payments, compared to 8% of those in the top quintile (Gross & Brammli-Greenberg, 2001). Other studies have also noted the effect of co-payments on utilization rates (Trude & Colby, 1997; Khandker & McCormack, 1999).

<sup>16</sup> Adding these services to the mandatory benefits package by increasing the health tax is not politically feasible; in any case, the priority of adding these “luxury services” would remain low.

In order to overcome this barrier and increase the accessibility of supplemental insurance to those with low income, policy makers could consider instituting progressive co-payments, so that these not become a barrier to the use of services covered by supplemental insurance. (A similar policy covering co-payments for the poor was instituted in France, in response to concern regarding the effect of supplemental insurance on equity in health care delivery; Gress et al., 2002). Alternatively, they could choose to set low co-payments only for fundamental supplemental services such as dental care or medications, but not for “luxury” services like a private surgeon or alternative medicine. However, effects on premium rates and over-use of services due to moral hazard should be considered.<sup>17</sup>

Barriers to the purchase of supplemental insurance are posed not only by prices and co-payments, but also by the differing needs of different segments of the population. Our findings indeed revealed lower rates of ownership among non-Hebrew speaking populations, and people with less education. To further reduce gaps in the ownership of supplemental insurance among people from different population groups, it might be possible to encourage the sick funds to offer a variety of insurance packages, adapted to the needs of populations that speak different languages, belong to different age groups, or have different levels of income and education. For example, a benefits package that includes fewer services but imposes smaller co-payments may be suited to the needs of people with low income. A package that specializes in child development services might be particularly attractive to the Arab minority, in which families tend to be large, while a package that emphasizes other types of care might be preferred by new immigrants, many of whom have few children. However, close control of premiums will be needed to prevent sick funds from using differential packages to cream skin.

## Conclusion

In conclusion, the Israeli case suggests that administrative regulations can influence the structure of supplemental insurance to achieve desired social values—in this case, equality of accessibility and solidarity in financing between the healthy and the ill. The policy implemented to remove barriers to the purchase of

<sup>17</sup> A link has been found between the existence of supplemental insurance and the use of services and medications (Saag et al., 1998; Stuart & Grana, 1998; Blustein & Weiss, 1998; Blustein, 1995). Although this link may in part be due to the effects of moral hazard, the use of services and medications does, in some cases, improve health status (Broyles, Narine, & Brandt, 2000).

supplemental insurance by the ill has been shown to have had an effect on consumer behavior, increasing rates of ownership especially among people with poor health status.

However, our findings indicate that those with low income still have less access to supplemental insurance policies. Since supplemental insurance is provided by the sick funds—the public agents that provide national health insurance—this is perceived by some policy makers as impeding the attainment of equality and solidarity in the public health system. Therefore, additional regulations that will increase the accessibility of supplemental insurance to the poor and to populations with special needs, such as the elderly, ethnic minorities, and new immigrants, are being considered. The measures discussed in this paper may assist in resolving the inherent conflict between the advantages and disadvantages of integrating private insurance into a public health system.

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#### Appendix A. Benefits provided by national, supplemental and commercial health insurance

Subsequent to the enactment of the National Health Insurance law in 1995, the Israeli health insurance market offered three types of insurance. The first of these is *national health insurance*, which stipulates a uniform, benefits package to be provided by Israel's four sick funds. The benefits are comprehensive, and include services to prevent breast, colon and cervical cancer; diagnosis, consultation and ambulatory care for all medical conditions; medications (based on a list of medications comprised in 1994, and updated from time to time in a structured process; see Shani et al., 2000); hospitalization (including IVF treatments for two healthy children, and transplants and other life-saving operations abroad, if they cannot be performed in Israel); medical assistive devices; and rehabilitation.<sup>18</sup> The law allows sick funds to collect co-payments for medications, specialist visits, outpatient clinics and diagnostic institutes, as well as several other services (e.g., an ambulance, assistive devices, fertility treatments).

<sup>18</sup>The specific services in each area are detailed in the National Health Insurance Law, and can be found on the Ministry of Health website ([www.health.gov.il](http://www.health.gov.il)).

In addition, under national health insurance residents are entitled to personal prevention services provided directly by the Ministry of Health, such as immunization and routine care of mothers and children at family health centers; long-term care hospitalization for the poor; community mental health services and psychiatric care; and devices that assist with the rehabilitation of walking and mobility.

The National Health Insurance Law also authorized the sick funds to provide *supplemental insurance*, which would cover services not included in the mandatory basic benefits package for an additional fee paid directly to the sick fund.<sup>19</sup> These programs are overseen by the Ministry of Health. The standard supplemental packages differ slightly among the sick funds; however, the principal services included in most packages (both before as well as after the 1998 regulations) are of three types: (a) *services that are not covered by social insurance*—mainly dental care, alternative medicine, medications and immunizations not included in the basic benefits package, cosmetic surgery, sports medicine, and recuperation after hospitalization; (b) *enhanced coverage of social insurance services*—mainly more IVF treatments, more child development treatments, greater compensation for transplants and life saving procedures abroad, more tests during pregnancy, and more cardiac rehabilitation; and (c) *alternatives to the services provided through the social insurance system*—mainly hospitalization in a private hospital, private surgery, consultation with private specialists, and a private nurse when hospitalized. It should be noted that most services require a co-payment, and limits are imposed on both reimbursement and choice of provider. Before 1998, the sick funds could offer long-term care insurance, as well; as noted, the 1998 regulations stipulated that long term care insurance could be offered only by commercial insurance companies, which have the necessary actuarial reserves.

The third component of the Israeli health insurance market is *commercial insurance*, offered by private, for-profit insurance companies, in addition to the national and supplemental health insurance provided by the sick funds. Commercial insurance policies are overseen by the Insurance Comptroller of the Ministry of Finance, as is the case with other (e.g., life) insurance programs. Like supplemental insurance, commercial insurance includes services not covered by national insurance, enhanced coverage, and alternative coverage. Specific

<sup>19</sup>The premiums are relatively low. In Clalit, premiums range from almost no charge for children under 17 to about \$ 9 per month for the elderly over 70; in Maccabi, they range from about \$ 2 per month for children to about \$ 15 per month for the elderly. In Meuchedet they range from about \$ 5 for children to about \$ 16 for those over 55. In Leumit they range from \$ 3 for children to about \$ 22 for those over 70.

services are similar to those offered by supplemental insurance (e.g., operations in private hospitals or by private physicians in public hospitals, transplants and other life saving operations abroad which cannot be performed in Israel, medications not included in the basic benefits package, consultation with a private physician, dental care (including emergency dental care), alternative medicine, and psychological counseling). However, compared to supplemental insurance, commercial insurance offers higher compensation, lower co-payments, or a greater choice of providers, depending on the specific policy and premium rates a person chooses to buy. Consequently, although the areas covered are similar, the extent of coverage may differ. Finally, commercial insurance policies may also include compensation for a terminal illness (undetected at the time of purchase) and, in some cases, life insurance and worker's compensation which are prohibited in supplemental insurance policies.

When compared to national health insurance, it should be noted that commercial insurance when offering benefits that are an alternative to those provided by national insurance, offers different conditions for care (e.g., private hospitals and physicians), and easier access to care. For example, transplants abroad through national health insurance are conditional on the approval of a government committee, which deems that the procedure cannot be performed in Israel, based on strict criteria. Commercial insurance offers coverage for transplants which could technically be performed in Israel if an organ were available, and without the need to wait for the approval of a government committee. Commercial insurance covers long-term care, which is also provided by the Ministry of Health based on a severe means test and available budgets (this leads to a long waiting list, even for the eligible). Compensation by commercial insurance is provided to all insureds (based on medical need alone).

## References

- Bluestein, J. (1995). Medicare coverage, supplemental insurance and the use of mammography by older women. *New England Journal of Medicine*, 332(17), 1138–1143.
- Bluestein, J., & Weiss, L. J. (1998). Visits to specialists under Medicare: Socioeconomic advantage and access to care. *Journal of Healthcare of the Poor and Underserved*, 9(2), 153–169.
- Brammli-Greenberg, S., & Gross, R. (1999). *Supplemental and commercial health insurance 1998: changes in policy, finances and consumer behavior*. RR-349-99. Jerusalem: JDC-Brookdale Institute [in Hebrew].
- Brammli-Greenberg, S., & Gross, R. (2003). *The private health insurance market in Israel, 2001*. RR-403-03. Jerusalem: JDC-Brookdale Institute [in Hebrew].
- Broyles, R. W., Narine, L., & Brandt, E. N. (2000). Equity concerns with the use of hospital services by the medically vulnerable. *Journal of Health Care for the Poor and Underserved*, 11(3), 343–360.
- Buchmueller, T., & DiNardo, J. (2002). Did community rating induce an adverse selection death spiral? *The American Economic Review*, 92(1), 280–294.
- Chen, H. (1990). *Theory-driven evaluations*. London: Sage Publications.
- Cohen, M., & Barnea, T. (1992). Private outlets for public limitations: The rise of commercial health insurance in Israel. *Journal of Health Politics, Policy and Law*, 17(4), 783–811.
- Ettner, S. L. (1997). Adverse selection and the purchase of Medigap insurance by the elderly. *Journal of Health Economics*, 16(5), 543–562.
- Evans, R. G. (1984). *Strained mercy: The economics of Canadian health care*. Toronto, Canada: Butterworth.
- Folland, S., Goodman, A. C., & Stano, M. (2001). *The economics of health and health care*. Englewood Cliffs, NJ: Prentice-Hall.
- Garfinkel, S. A., Bonito, A. J., & McLeroy, K. R. (1987). Socioeconomic factors and Medicare supplemental health insurance. *Health Care Financing Review*, 9(1), 21–30.
- Glazer, J., & McGuire, T. G. (1995). Risk adjustment and performance of market for health insurance. Presented at the *International Conference on Government and Health Systems: Implications of Differing Involvement*, Jerusalem.
- Gross, S., Kieck, G. H., & Okma, J. W. (2002). *Private health insurance in social health insurance countries—market outcomes and policy implications*. Discussion paper 01/2002. Geneva: WHO Observatory.
- Gross, R., Brammli-Greenberg, S. (1996). *Medical insurance in Israel 1996*. RR-272-96. Jerusalem: JDC-Brookdale Institute [in Hebrew].
- Gross, R., Brammli-Greenberg, S. (2001). *Israel's health system as perceived by the public—1995, 1997 and 1999*. RR-362-01. Jerusalem: JDC-Brookdale Institute [in Hebrew].
- Gross, R., & Brammli-Greenberg, S. (2003). *Israel's health system as perceived by the public—2001*. Jerusalem: JDC-Brookdale Institute, forthcoming [in Hebrew].
- Gross, R. & Harrison, M., (2001). Implementing managed competition in Israel. *Social Science & Medicine*, 52, 1219–1231.
- Gross, R., Rosen, B., & Chinitz, D. (1998). Evaluating the Israeli health care reform: Strategies, challenges and lessons. *Health Policy*, 45(2), 99–117.
- Gross, R., Rosen, B., & Shirom, A. (2001). Reforming the Israeli health system: Findings of a three-year evaluation. *Health Policy*, 56, 1–20.
- Kay, R., & Roter, R. (2001). *Complementary health insurance in Europe and the west: Dilemmas and directions*. R-366-01. Jerusalem: JDC-Brookdale Institute.
- Khandker, R. K., & McCoramack, L. A. (1999). Medicare spending by beneficiaries with various types of supplemental insurance. *Medical Care Research Review*, 56(2), 137–155.
- Lillard, L., Rogowski, J., & Kington, R. (1997). Long-term determinants of patterns of health insurance coverage in the medicare population. *Gerontologist*, 37(3), 314–323.

- McCall, N., Rice, T., Boismar, J., & West, R. (1991). *Private health insurance and medical care utilization: Evidence from the medicare population*. Los Angeles: School of Public Health, University of California.
- Ministry of Health. (1989). *Goals for 2000*. Jerusalem: Government Printing Office [in Hebrew].
- Newhouse, J. P. (1996). Reimbursing health plans and health providers: Efficiency in production versus selection. *Journal of Economic Literature*, 34(3), 1236–1263.
- Pourat, N., Rice, T., Kominski, G., & Snyder, R. E. (2000). Socioeconomic differences in Medicare supplemental coverage. *Health Affairs*, 19(5), 186–196.
- Reinhardt, U. E. (1996). Germany's health care system: It's not the American way. *Health Affairs*, 13(4), 22–24.
- Saag, K. G., Doebbeling, R. N., Rohrer, J. E., Kolluri, S., Peterson, R., Hermann M, E., & Wallace, R. B. (1998). Variation in tertiary prevention and health service utilization among the elderly: The role of urban–rural residence and supplemental insurance. *Medical Care*, 36(7), 965–976.
- Schneider, M., Dennerlein, R. K. H., Kose, A., & Scholtes, L. (1992). Health care in the EC member states. *Health Policy*, Special Issue 20 (1 and 2), 111–238.
- Shani, S., Siebzeher, M. I., Luxenburg, O., & Shemer, J. (2000). Setting priorities for the adoption of health technologies on a national level—the Israeli experience. *Health Policy*, 54, 169–185.
- Shmueli, A. (1995). *Adverse selection and cream-skimming effects in the supplemental health insurance market in Israel*. Jerusalem: The Hebrew University and the Gertner Institute.
- Shmueli, A. (1998). Supplemental health insurance ownership in Israel: An empirical analysis and some implications. *Social Science & Medicine*, 46(7), 821–829.
- Shmueli, A. (2001). The effect of health on acute care supplemental insurance ownership: An empirical analysis. *Health Economics*, 10, 341–350.
- Short, P. F., & Vistnes, J. P. (1992). *Multiple sources of Medicare supplementary insurance*. Rockville, MD: CGHSIR, Division of Medical Expenditure Studies, Agency for Health Care Policy and Research.
- State Commission of Inquiry into the Functioning and Efficiency of the Health Care System. (1990). *Final report, volume 1: Majority opinion, volume 2: Minority opinion*. Jerusalem: Government Printing Office [in Hebrew].
- State of Israel. (1994). *National Health Insurance Law 1994*, Book of Laws, Law No. 1469. Jerusalem: Government Printing Office [in Hebrew].
- State of Israel. (1998). *Budget Arrangement Law 1998*, Book of Laws. Jerusalem: Government Printing Office [in Hebrew].
- Stuart, B., & Grana, J. (1998). Ability to pay and the decision to medicate. *Medical Care*, 36(2), 202–211.
- Trude, S., & Colby, D. C. (1997). Monitoring the impact of the Medicare fee schedule on access to care for vulnerable populations. *Journal of Health Politics, Policy and Law*, 22(1), 49–71.
- Witkowsky, Y., & Nevo, Y. (2000). *Report on the sick funds' activities for 1999*. Tel Aviv: Witkowsky and Co. Accountants [in Hebrew].
- Wolfe, J. R., & Goddeeris, J. H. (1991). Adverse selection, moral hazard and wealth effects in the Medigap insurance market. *Journal of Health Economics*, 10(4), 433–459.

# **A Consumer-Based Tool for Evaluating the Quality of Health Services in the Israeli Health Care System Following Reform**

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# A consumer-based tool for evaluating the quality of health services in the Israeli health care system following reform

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## Abstract

Many countries have reformed their health care systems in the past decade and, as such, the need to monitor health system performance is widely recognized. In this paper we present a method for constructing quality indicators, which were used to evaluate the reformed Israeli health care system, and demonstrate the sensitivity of these indicators to change over time and to differences in quality among health plans and among population groups. The quality indicators were developed based on consumers' reports of their experiences in the health system. The indicators were measured in periodic population telephone surveys conducted between August and October of 1995, 1997, and 1999, using a structured questionnaire in Hebrew, Arabic, or Russian, this ensured the inclusion of all major sub-groups of Israel's population. Between 1080 and 1749 people were interviewed, with a response rate of over 80% each year. Using the theory-based evaluation approach, we specified the plausible causal links among intervention (components of the National Health Insurance Law), intermediate outputs (changes in health plan organizational behavior), and consumer outcomes. This led to the identification of indicators of quality of ambulatory health services, which included measures of accessibility, availability, patient satisfaction, performance of preventive medicine, and utilization of private medical services. The consumer-based evaluation tool presented in this paper was found to be easy to apply, sensitive, and relatively inexpensive. We hope that our approach will be of use to other countries that want to evaluate system-wide change and monitor quality of services over time.

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*Keywords:* Health care reform; Evaluation; Quality; Ambulatory care; Consumers

## 1. Introduction

Many countries have reformed their health care systems in the past decade [1,2], consequently, the need

to monitor health system performance is widely recognized [3–7]. However, despite the acknowledged importance of evaluation, few governments have initiated ongoing evaluation of health care reform and health system performance, and only a few studies (e.g., [6,8]) have evaluated national health care reform efforts.

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Evaluating a national reform poses both professional and political challenges. Professional dilemmas arise because experimental or quasi-experimental designs that involve a control group cannot be used in evaluating a national reform, therefore making it difficult for the researcher to control for other, concurrent processes and to attribute specific changes to the reform itself [9,10]. Political dilemmas arise because governments are reluctant to support an evaluation that may ultimately criticize government-initiated reform and damage those politicians who supported it (see [11]).

Israel reformed its health care system in 1995 with the enactment of a National Health Insurance Law, which regulates the operation of its health plans. A unique characteristic of the Israeli health care reform is the provision, set in law, that the functioning of the health care system be evaluated, and that 0.1% of the health care budget be earmarked for this purpose. This has enabled the JDC-Brookdale Institute (as well as other institutions), an independent, non-profit research institute, to conduct a continuous, long-term evaluation of the reform. The institute has adopted a case study approach, which seeks to integrate in-depth understanding of changes in the system and in health care providers' organizational behavior, with a variety of outcome measures [10,12].

The purpose of this paper is two-fold: (a) to present the method used to construct the quality indicators that are used to evaluate Israel's reformed health care system; and (b) to demonstrate the sensitivity of these indicators to change over time, and to differences among health plans and among population groups.

In the following sections, we will first discuss potential uses and different types of indicator of quality of health services. Then we will present the methods for conducting the population surveys, through which we gathered empirical data. Following this, we present a brief analysis of the Israeli health care reform, and identify main dimensions in which change is expected and therefore should be monitored. Next, we describe the process of constructing the quality indicators for monitoring these dimensions, and demonstrate their sensitivity to changes in the health care system and to differences among health plans and population groups. Lastly, we argue that changes in the quality indicators (as measured by our consumer-based evaluation tool) reflect changes in health care policy over time,

indicating that this tool is useful for monitoring health care reform.

## **2. Indicators of quality of health services: the need for indicators and types of indicator**

An adequate information base is fundamental to the efficiency of any economic system functioning in a competitive environment, particularly the health system, in which information asymmetry is a known market failure [13]. Awareness is growing that performance indicators are an important means of promoting informed or evidence-based health policy [14]. These indicators are also important as a source of information about the quality of services, which may be used by agencies responsible for purchasing health services or for the surveillance of service providers, as well as by consumers. Quality indicators are especially important for monitoring health care reforms that are designed to improve efficiency, but that may consequently harm equity and quality of care [6].

Given the problematic nature of administrative data as a sole source of information, the prevalent approach supports using information from a number of sources, including the consumer. This makes it easier to surmount the unintended and dysfunctional behavioral consequences of the monitoring of health care organizations by performance indicators (e.g., "tunnel vision", misrepresentation of data, gaming), which are an outgrowth of much administrative data's being in the direct control of the staff of the monitored organization [13].

In line with this approach, in order to assess the effects of the health care reform in Israel, we used indicators based on administrative data (such as financial information about economic functioning and efficiency, and information about transfers among health plans [10]), as well as indicators based on consumer reports. To measure the latter indicators, we developed a consumer-based evaluation tool, which we present in this paper. Since the Israeli reform exclusively addressed community-based primary and secondary medical services (and not the hospital sector), the indicators developed refer mainly to the quality of ambulatory health services. The Israeli experience may be added to that gathered in recent years in other countries regarding the development and

implementation of health service quality indicators (for an extensive review, see [7]).

Adopting the conceptual framework developed by Ovreteit [7], our approach to monitoring the quality of health care services may be defined as a “comparative measurement evaluation”, in which we compare measures of the quality of the same services at different points in time, as well as comparing different service providers at the same point in time. Such an approach has also been used by the National Health Service in the UK, as well as in Sweden, Norway, Denmark, and by the Joint Commission in the US. This approach is distinct from the “organization of clinical quality assessment”, or “audit”, in which a statement of what a service should provide is compared to what the service actually provides. The latter approach is used mainly when granting accreditation, quality awards, and ISO 9000 certificates [7].

In light of the growing interest in monitoring health system performance [7,13,14], our experience may add to the development of reliable indicators of change over time, which will be sensitive to differences among providers and among population groups, and which are easy to implement. Therefore, we believe that the Israeli experience may be of interest to other countries that wish to develop quality indicators.

### 3. Methods

Multiple research tools were used to develop the quality indicators. The National Health Insurance Law [15] and subsequent amendments to it were analyzed to understand the changes the reform brought about in the operation of the health system. In-depth interviews were conducted with 160 health plan managers and government officials, in an effort to understand the health plans’ strategic behavior following the introduction of the law [16]. Published and unpublished documents, newspaper reports, and statements by senior managers at conferences and government committee hearings were also analyzed throughout the period of study (1995–1999), to enable us to further understand changes in the health system and health plan strategies.

The issue of quality of health services was specifically addressed in interviews that were conducted

in the process of building the quality indicators. We interviewed key decision makers in the Ministry of Health, and in the health plans. We also interviewed professionals (physicians, nurses) and consumers to understand which dimensions of quality were important to them, and which would be most relevant to evaluating performance in the reformed system.

The validity of the quality indicators was ascertained in several ways. Face validity was ascertained by the research team which, prior to construction of the research tool, studied the planned reform in depth. Consequently, the research team chose indicators that would reflect the areas in which the reform was expected to affect quality of services. In addition, the researchers appointed a steering committee consisting of representatives of all of the key organizations in the system: the Ministry of Health, the Ministry of Finance, the four health plans, and an organization representing consumers of health services. This committee was consulted throughout the construction of the questionnaire, it confirmed that the indicators related to significant aspects of quality in the Israeli health care system. Finally, the data were presented to the management of each of the health plans, as well as to the management of the Ministry of Health, both of which confirmed that the findings corroborated internal surveys (and informal impressions) on the levels of service and satisfaction. Construct validity was ascertained after collecting the first round of data in 1995, and again in the subsequent surveys in 1997 and 1999, by confirming expected associations between the indicators and background variables such as health plan affiliation, age, ethnic origin (language), income, and health status (selected findings were reported in [17,38,39]). The analysis presented in the discussion of this paper also confirms the construct validity of the tool. As is shown, changes in the indicators are compatible with changes in policy over time, as we would expect (when comparing 1997–1995 and 1999–1997).

As noted, the quality indicators were based on consumers’ reports of their experiences with the health system. They were measured through periodic population surveys conducted by the JDC-Brookdale Institute to evaluate the National Health Insurance Law [10] between August and October of 1995, 1997, and 1999. The study population included all

adult permanent residents of Israel over age 22.<sup>1</sup> The sampling framework was the computerized telephone list of Israel's sole telecommunications corporation, which covers over 95% of all households. All of the adult residents in each apartment were listed, and one of them was sampled using random selection tables. Telephone interviews were conducted by specially-trained interviewers who used a structured questionnaire in Hebrew, Arabic, or Russian, to ensure the inclusion of all major sub-groups of Israel's population.

In the 1995 survey, 1089 people were interviewed, for a response rate of 84%. In 1997, 1205 people were interviewed, for a response rate of 81%. In 1999, 1727 people were interviewed, for a response rate of 83%.<sup>2</sup> A comparison was made of the samples for each of the 3 years, using the variables "health plan", "age", "gender", "area of residence", "chronic illness", "language", "education", and "marital status". Comparison of the samples between 1995 and 1997 revealed a larger proportion of Russian speakers in the 1997 sample (16%) than in the 1995 sample (10%), and no differences for the other variables. Comparison of the samples between 1997 and 1999 revealed no statistically significant differences for any of the variables examined [17].

The sample was weighted at two stages—during the first stage, each individual was given a weight that reflected the probability of his being sampled, adjusting for household size.<sup>3</sup> During the second stage, the pop-

ulation was divided into eight strata according to nationality (Arabs/Jews), gender (men/women) and age (under/over age 65). Each stratum of the sample was given a weight that took into consideration its size in the population [17]. These variables were chosen for weighting because they are significantly representative of the background of Israel's heterogeneous population, and because national data on their joint distribution among the population are available. After weighting, the samples were compared each year to national data from the Central Bureau of Statistics on gender, age, nationality (Arabs/Jews), immigrants from the former Soviet Union, education, and country of birth, and to data from the National Insurance Institute (Israel's social security administration) on health plan affiliation. Almost all of the variables were found to be similar (with variance of no more than 2%), with the exception of education: A larger percentage of those in our 1999 sample reported having university education (31%) than those listed with the Central Bureau of Statistics (22%). This similarity supports the weighting method and confirms that the sample is representative.

### 3.1. Statistical analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago IL). Bivariate analysis was performed using overall chi square tests. Analysis of differences in ratios over time (percentage among Arabs/percentage among Jews) was based on the statistical distribution of the ratios [18], as calculated by the Hebrew University Statistical Advisory Service. Multivariate analysis controlling for differences in background variables was conducted for differences among health plans and differences between years in the quality indicators [17,38,39]. However, in this paper, we present the bivariate analysis findings only.

## 4. Analysis of the Israeli health care reform and new incentives affecting health plan behavior

Health care in Israel is provided through four non-profit health plans, which deliver services to their members at their own facilities or through contracted providers. Of the four health plans, Clalit Health

<sup>1</sup> In Israel, most men serve in the army between the ages of 18–21, and most women between the ages of 18–20. During that time, they are required to use army medical facilities, rather than civilian health services (whose performance is measured in this study). We therefore, could not include them in our surveys of civilian health services. In order to have comparable samples of men and women, we sampled all residents over age 22.

<sup>2</sup> The proportion of Hebrew speakers was 75% in 1995, 69% in 1997, and 71% in 1999, the proportion of Arabic speakers was 15% in each sample, and the proportion of Russian speakers (that is, immigrants from the former Soviet Union) was 10% in 1995, 16% in 1997, and 14% in 1999.

<sup>3</sup> The sampling ratio was determined by the number of telephones in the area code zone from which the number was sampled, and the number of adults over age 22 in the home. (In 1999, the number of telephone lines in the home was added as a weighting factor.) The weights were calculated in consultation with the Statistical Consultation Services of The Hebrew University of Jerusalem.

Services is the largest, and insures about 60% of the population. Maccabi Healthcare Services insures about 20% of the population, and Meuhedet Health Services and Leumit Health Services insure about 10% of the population each. The Ministry of Health is responsible for the planning, regulation, and coordination of the health system, the surveillance of health plan operation, and the implementation of legislation concerning health care.

The Israeli health care reform,<sup>4</sup> embodied in the National Health Insurance Law that went into effect in January 1995, ensured eligibility for services for all Israeli residents. The law made it mandatory for the health plans to accept all applicants for membership, thereby encouraging competition among them, ensuring freedom of choice for consumers, and prohibiting risk selection, which had been practiced prior to the law (i.e., the rejection of elderly and ill applicants, or limitations on their insurance coverage). The law established progressive, earmarked health tax premiums. Resources are allocated to the health plans according to an age-adjusted capitation formula, as a proxy for health needs thus, promoting financial stability of the system. This replaces the income-linked membership dues (per household) that were collected by the health plans prior to the law, and is meant to increase equity by reducing the incentive that health plans previously had to prefer wealthy members and small families, so as to maximize their income and minimize their expenditures.

The total budget for health care is defined in the law and adjusted annually using a formula that accounts for changes in the size and age of the population. Additional funds are allocated for technological improvements at the discretion of the Ministries of Health and Finance. As a consequence, the health plans have a limited budget and lack the autonomy to increase it, as they could have prior to implementation of the law.

The law mandates a uniform benefits package that is meant to guarantee an appropriate minimum level of care to all citizens, which the health plans are obligated to provide their members. (Prior to the law, each health plan defined its own benefits package.) The law allows the health plans to offer supplemental coverage

of services that are not included in the basic benefits package, for an additional fee. It permits private insurers to offer policies that cover both basic and supplemental services, as was the case prior to the law.<sup>5</sup>

#### 4.1. The 1998 amendments to the National Health Insurance Law

In the years following enactment of the National Health Insurance Law, several modifications were made to it through so-called budget arrangement laws, which have accompanied every government budget enacted since 1997. These modifications aimed to increase government oversight of the health plans, in an attempt to control their budgetary deficits—which had reached about NIS 1.5 billion by the end of 1997.<sup>6</sup>

In order to help health plans to balance their budgets, the 1998 Budget Arrangement Law allowed collection of new co-payments, as well as an increase in co-payments for medications. The 1998 law also restricted competition among health plans, in an attempt to reduce costs. For example, transfer among health plans was allowed only in person at a post office, rather than directly at health plan facilities or through a health plan's marketing agent. The 1998 law also regulated the supplemental insurance market, with the most notable changes being that the health plans were now required to accept all applicants for supplemental insurance on equal terms, regardless of their age or health status.

## 5. Construction of the quality indicators

We defined “quality” based on the multi-dimensional approach suggested by Donabedian [19], who defined quality of care as “that kind of care which is expected to maximize an inclusive measure of patient welfare after one has taken account of the balance of expected

<sup>5</sup> Before 1995, three of the health plans (Maccabi, Meuhedet, and Leumit) offered supplemental insurance, while the fourth (Clalit) offered only obligatory supplemental insurance. The new law included in the mandated basic benefits package those services that had been part of Clalit's obligatory supplemental package.

<sup>6</sup> This deficit was attributed to both an increase in age-adjusted per capita expenditures and a decline in age-adjusted per capita income (the increases in rates of expenditure and decreases in income varied among the health plans [12]).

<sup>4</sup> In this section we summarize the main principals of the national health insurance reform. For a more detailed discussion of this reform, see [10,12].

gains and losses that attend the process of care in all its parts". Donabedian [20] further suggested that quality of care might be assessed by the combined evaluation of its separate dimensions, which include the technical aspects of care (e.g., professional level), the inter-personal relationships among those concerned with care, and the amenities of care.

The above analysis of the National Health Insurance reform and of the incentives introduced in its wake suggests that it was unclear whether the quality of care would improve (as reform planners had hoped), or deteriorate (e.g., due to budgetary constraints on the health plans and restrictions on competition). Furthermore, it was possible that the health plans would react differently at different points in time as they adjusted to the new reality, and as policy modifications were introduced over time. Lastly, analysis of the National Health Insurance Law suggests that it may have had a differential effect on both the different health plans, and on different population groups. In particular, the Arab population was expected to receive improved services from the health plans because of the new incentives [34]. It was therefore important that the evaluation tool be sensitive to differences over time, both among health plans, and among population groups.<sup>7</sup> Using the theory-based evaluation approach [27], the research team specified the plausible causal links among intervention (components of the National Health Insurance Law), intermediate outputs (changes in health plan organizational behavior), and consumer outcomes. Analysis of the specific components of the law, the new incentives in the system, and the anticipated, subsequent changes in health plan behavior led to the identification of outcome indicators of quality of ambulatory health services that specifically reflected those dimensions of the system that could be expected to be affected by the reform and new incentives it created for the health plans. Below we present the indicators chosen, and the analysis that led to their choice.

<sup>7</sup> Because of the breadth of this topic, we will demonstrate the tool's application to differences between the Arab and Jewish populations only. For a further discussion of these populations, see [34]. For an application of the tool to a comparison of the elderly and younger populations, see [37], and for an application of the tool to a comparison of low- and high-income populations, see [38]. An application of the tool to an analysis of the chronically ill and recent immigrants from the former Soviet Union can be found in [17].

In our evaluation, we used a "consumer-based" evaluation tool to monitor the quality indicators. By this term, we mean that we collected information through consumer surveys to extract consumer reports, and assessments of the above dimensions of care. This approach is based on Kaplan and Ware's [23] approach to the use of information from consumers to evaluate quality of care. The specific items that were to represent each dimension of care were chosen based on two sources: (a) items used in the literature to reflect the quality of ambulatory services, and (b) interviews with health system decision makers, professionals, and consumers, in which we obtained their perspective on items most relevant to evaluating performance in the reformed system.

A consumer-based evaluation tool assumes that patients' reports of the care they receive are a valuable source of information. Patients are capable of both rating the quality of care and reporting facts concerning the process of care (e.g., waiting times). Numerous studies have shown that patients are a reliable source of information on a wide variety of aspects of health care (see for example [3,21–24]). Nevertheless, we wish to note the limitations attendant to an approach based on consumers' self-reports. Self-reports, which are perforce subjective, can be affected by a respondent's personal characteristics, such as age or gender, as well as by a respondent's expectations [25,26]. This source of information should therefore not be the sole measure for assessing the quality of health services. Nevertheless, the use of self-reports is still valid for assessing change over time, as any existing bias is likely not to change, making comparison possible.

We should note that the indicators (summarized in Table 1) reflect different types of data on quality. Reported convenience of working hours (availability) and satisfaction (with technical competence, inter-personal relations, auxiliary services accessibility, and overall) represent consumers' subjective assessments of the quality of health services.<sup>8</sup> Conversely, reported

<sup>8</sup> These indicators are known to be affected by confounding variables such as age, gender, socio-economic status, and ethnicity. However, as noted in the methods section, there were almost no significant changes in the composition of the samples over time. Therefore, when comparing indicators over time, we were relatively unconcerned about these confounding effects.

Table 1  
Indicators for evaluating the quality of ambulatory services

Dimension of quality of services	Specific indicator
Consumer assessments	
Availability	Reported convenience of office hours (a five-item scale) of Family physician Specialist Administrative services Laboratory
Satisfaction with technical competence	Satisfaction with the professional level (a five-item scale) of Primary care physician Specialist
Satisfaction with inter-personal relations	Satisfaction with attitude (a five-item scale) of Primary care physician Nurse Administrative services
Satisfaction with auxiliary services and amenities	General satisfaction (a five-item scale) with Lab services Emergency care services Maintenance of facilities
Satisfaction with accessibility	Ease of obtaining referrals and medications (a four-item scale)
Overall satisfaction with health plan services	Overall satisfaction (a five-item scale)
Consumer reports	
Accessibility	Reported waiting time in primary care physician's office (for last visit) Reported waiting time for specialist appointment (for last visit)
Performance of preventive medicine activities	Mammograms for women age 50 and over during the past 2 years Blood pressure measurement during the past 6 months
Consumer actions reflecting dissatisfaction	
Use of private services	Visit to a private physician during the past 3 months Ownership of private health insurance Ownership of health plan supplemental insurance

waiting times and performance of preventive medicine activities represent more objective measures of the performance of the health system, as reported by consumers. Finally, consumers' actions—that is, visits to a private physician and purchase of supplemental and commercial insurance (which covers private medicine and services not included in the mandated benefits package)—may indicate dissatisfaction with the health system.<sup>9</sup>

<sup>9</sup> Analysis of the relationship among these groups of indicators revealed a correlation between overall satisfaction with health plan, and several objective measures: waiting times, blood pressure measurement, and visits to a private physician. These correlations may indicate that the objective measures reflect in part consumer perceptions of quality. However, no statistically signifi-

### 5.1. Accessibility, availability, and maintenance of facilities

The new allocation system gives all of the health plans an incentive to attract as many members as possible, regardless of the member's income. Therefore, an improvement was expected in visible dimensions of quality, such as accessibility, availability, and maintenance of facilities. Improvement in accessibility was

cant correlation was found between overall satisfaction with health plan and other objective measures: performance of mammograms or purchase of commercial insurance. This is not surprising since the indicators were meant to reflect other dimensions of quality, as well, and not only dimensions that the consumer perceives as reflecting quality.

expected to be particularly notable for those populations that became attractive only after implementation of the law (e.g., people with low income, or population sectors such as Arabs and ultra-orthodox Jews, in which families are large).

However, since health plan budgets are now determined by the government, they cannot increase membership dues to cover deficits or improve services. The potential shortage of resources resulting from this situation might be expected to adversely affect the level of accessibility, availability, and maintenance of facilities. Specifically, in order to save costs, health plans might have to reduce staff, refrain from improving facilities, or place administrative constraints on referrals and prescription medications. This would then be translated into longer waiting times, less convenient office hours, limited availability of expensive medications, and more difficulty obtaining referrals to specialists and expensive treatments.

### 5.2. Patient satisfaction

There is ample evidence that patients respond to changes in the provision of services like those described above [26,28,29]. Since increasing patient satisfaction was one of the objectives of reform, and since the health plans employed strategies to increase patient satisfaction, this indicator was selected as one of the outcome measures—an approach that is consistent with the accepted view of satisfaction as an outcome measure [30]. Consequently, the evaluation team measured patient satisfaction with both the overall level of health plan services and with specific dimensions of care. The dimensions selected were those that were expected to be affected by changes in incentives following National Health Insurance—that is, visible aspects of care that would attract members. These included satisfaction with accessibility, auxiliary services (e.g., laboratory and emergency services), and maintenance of facilities.

### 5.3. Satisfaction with staff behavior and competence

As noted, by defining a uniform benefits package and premiums (which are collected by Israel's social security administration), National Health Insurance restricted competition among the health plans to competition over the quality of services, within the budgetary

restrictions described above. Consequently, we would expect the health plans to encourage their employees to improve their relations with patients—an improvement that does not require additional expenditure and that has a positive effect on consumer satisfaction. We would also expect the health plans to invest in improving the competence of their staff, and/or to try to recruit staff with a high professional level. However, financial constraints might be expected to limit the ability (particularly of the small health plans) to do so.

### 5.4. Preventive medicine activities

Since reimbursement was based on capitation, the health plans were expected to have an incentive to improve their members' health in the long term, as has been the case with health maintenance organizations [31,32]. Thus, on the one hand we expected that among other things they will invest in preventive activities. On the other hand, the health plans' financial difficulties raised concern that the short-term expense of preventive activities might outweigh its long-term benefits. Two specific indicators were used: mammograms for women age 50 and over (mandated in the basic benefits package), and blood pressure measurement. These were chosen for several reasons: they are included in the mandated benefits package and are relevant for large proportions of the adult population, they have been used as indicators in other quality measurement systems [40], and self-reports on specific procedures such as these have been found to be reliable [21,23].

### 5.5. Utilization of private medical services

Finally, the use of private services was also chosen as an indicator in the evaluation, as use of these services indirectly reflects dissatisfaction with the public health system. Included in this were visits to a private physician, purchase of commercial insurance, and purchase of health plan supplemental insurance. All three represent consumer actions indicating the desire to "opt out" of the public system, as well as to obtain additional services not included in the uniform mandated benefits package. It should be noted, however, that since supplemental insurance is offered by the health plans, consumers may perceive it as part of the health plans' services, such that rates of ownership would not necessarily reflect dissatisfaction with

Table 2  
Measurement of quality of ambulatory services in 1995–1999 (in percentage)

	1995	1997	1999
<b>Availability</b>			
Office hours of family physician are very convenient	19	19	18
Office hours of specialists are very convenient <sup>a</sup>	12	14	9
Office hours of administrative staff are very convenient <sup>a,b</sup>	15	21	14
Office hours of laboratories are very convenient <sup>a,b</sup>	12	19	11
<b>Satisfaction</b>			
Not satisfied with technical competence of			
Primary care physician <sup>a</sup>	19	12	11
Specialist <sup>a</sup>	21	13	14
Not satisfied with inter-personal relations of			
Primary care physician <sup>a</sup>	11	8	7
Nurse <sup>a</sup>	14	10	10
Office staff <sup>a</sup>	19	16	15
Not satisfied with auxiliary services and amenities			
Lab services <sup>a,c</sup>	22	18	17
Emergency services	–	31	27
Maintenance of facilities <sup>a</sup>	7	4	4
<b>Satisfaction with accessibility</b>			
Very satisfied with ease of obtaining referrals <sup>b</sup>	28	29	21
Very satisfied with assortment of medications <sup>b</sup>	20	21	14
<b>Overall satisfaction with health plan services (satisfied and very satisfied)<sup>a</sup></b>			
<b>Accessibility</b>			
Less than 15 min waiting time in primary care physician's office <sup>a,b</sup>	59	68	58
Less than 1 week waiting time for specialist appointment <sup>a,b</sup>	56	66	50
<b>Performance of preventive medicine activities</b>			
Women age 50 and above who had a mammogram during past 2 years <sup>a,b</sup>	34	44	60
People who had their blood pressure tested during past 6 months <sup>a</sup>	40	47	45
<b>Use of private services</b>			
Visit to private physician during the past 3 months <sup>a,b</sup>	20	9	18
Ownership of private health insurance <sup>b</sup>	16	6	24
Ownership of supplemental insurance <sup>b</sup>	35	37	51

Source: Gross and Brammli-Greenberg, 2001 [17].

<sup>a</sup> For difference between 1995 and 1997 ( $P < 0.05$ ).

<sup>b</sup> For difference between 1997 and 1999 ( $P < 0.05$ ).

<sup>c</sup> Significant change between 1997 and 1999 related to decline in the percentage of those who were very satisfied and increase in the percentage of those who were satisfied ( $P < 0.05$ ).

health plan services (but rather with the composition of the mandated benefits package).<sup>10</sup>

## 6. Demonstration of the use of the evaluation tool

The evaluation tool was first applied in 1995, immediately following the reform. It was applied again

in 1997, a year characterized by intense competition among the health plans over quality of service as a means of attracting members, as well as by high deficits [33]. The evaluation tool was applied again in 1999 after the policy changes incorporated in the 1998 Budget Arrangement Law.

### 6.1. Change over time

The consumer-based evaluation tool reveals that, between 1995 and 1997, there was an increase in indi-

<sup>10</sup> Indeed, we found that rates of ownership of supplemental insurance were higher among those highly satisfied with their health plan.

Table 3  
Selected indicators for measuring quality of services, by health plan, 1999 (in percentage)

	Health plan			
	Clalit	Maccabi	Meuhedet	Leumit
Office hours of specialist are very convenient <sup>a</sup>	5	15	14	9
Not satisfied with technical competence of				
Primary care physician <sup>b</sup>	14	6	8	16
Specialist <sup>b</sup>	16	9	8	20
Not satisfied with emergency services <sup>b</sup>	28	38	22	3
Very satisfied with ease of obtaining referrals <sup>b</sup>	15	33	25	27
Very satisfied with assortment of medications <sup>b</sup>	8	24	16	19
Overall satisfaction with health plan services <sup>b</sup>	86	96	95	85
Waited less than 1 week for specialist appointment <sup>a</sup>	41	62	57	66
Women age 50 and above who had a mammogram during past 2 years <sup>a</sup>	62	55	52	44
Ownership of private health insurance <sup>a</sup>	44	72	63	35

Source: Gross and Brammli-Greenberg, 2001 [17].

<sup>a</sup>  $P < 0.01$  for differences between health plans.

<sup>b</sup>  $P < 0.05$  for differences between health plans.

caters of availability and accessibility, while between 1997 and 1999, there was a decrease in most of these indicators (see Table 2).

The findings reveal a similar trend for indicators of patient satisfaction. Rates of performance of mammograms continued to increase throughout this period, although increases in blood pressure measurement were noted between 1995 and 1997 only, while no change in these indicators was noted between 1997 and 1999.

A change in the trend of use of private services was also found. If between 1995 and 1997 there was a decline in consultations with private physicians and no change in the ownership of supplemental and commercial insurance, between 1997 and 1999 there was an increase in all of these indicators. The increase in the use of private services was noted concurrent with a decrease in patient satisfaction and in the indicators of accessibility and availability.

### 6.2. Differences among health plans

The consumer-based evaluation tool was found to be sensitive to differences among health plans, as demonstrated by data from 1999 (see Table 3). As can be seen in Table 3, Clalit Health Services scored lower on quality indicators than did the other health plans (especially Maccabi and Meuhedet). However, it had higher

rates of performance of mammograms, and lower rates of ownership of supplemental insurance.<sup>11</sup>

Despite the relatively small size of the samples from some of the health plans,<sup>12</sup> the evaluation tool was found to be sensitive to differences among health plans in change over time. This is demonstrated in Table 4. In general, the findings reveal that between 1995 and 1997, there was an increase in several indicators of accessibility and availability to the services of Clalit Health Services, and no change in those of the other health plans. Between 1997 and 1999, there was a decrease in several indicators of accessibility and availability in all of the health plans.

### 6.3. Differences between the Arab and Jewish populations

We chose to demonstrate the sensitivity of the consumer-based evaluation tool to differences between population groups by comparing indicators for the Jewish and Arab populations, the latter of which was expected to be particularly affected by the incentives created by the National Health Insurance

<sup>11</sup> Most of the differences among health plans remained after controlling for age, gender, socio-economic status, and ethnicity in a multivariate analysis [17,38].

<sup>12</sup> The random sample on which this was based was designed to reflect the relative size of each health plan.

Table 4  
Change in selected indicators of quality of services over time, by year and health plan (in percentage)

	Health plan			
	Clalit	Maccabi	Meuhedet	Leumit
Office hours of specialists are very convenient <sup>a</sup>				
1995	12 <sup>b</sup>	8	13	18 <sup>a</sup>
1997	13	13	15	21
1999	5	15	14	9
Office hours of administrative staff are very convenient <sup>a,b</sup>				
1995	13 <sup>a,b</sup>	25	13 <sup>b</sup>	18 <sup>a,b</sup>
1997	19	23	21	30
1999	10	20	15	21
Office hours of laboratories are very convenient <sup>a,b</sup>				
1995	9 <sup>a,b</sup>	21 <sup>b</sup>	10	12 <sup>a,b</sup>
1997	16	26	14	28
1999	8	16	14	8
Not satisfied with competence of primary care physician				
1995	20 <sup>a</sup>	16	14	22 <sup>a</sup>
1997	14	10	9	10
1999	14	6	8	16
Not satisfied with competence of specialist				
1995	26 <sup>a</sup>	10	16	20
1997	15	11	9	12
1999	16	9	8	20
Very satisfied with ease of obtaining referrals				
1995	25 <sup>b</sup>	41	21 <sup>a,b</sup>	27
1997	24	32	41	42
1999	15	33	25	28
Overall satisfaction with health plan services (satisfied and very satisfied)				
1995	80 <sup>a</sup>	91	91	85
1997	90	94	95	91
1999	86	96	95	85
Waited less than 1 week for specialist appointment				
1995	49 <sup>a,b</sup>	76 <sup>b</sup>	51 <sup>a,b</sup>	68
1997	58	80	74	69
1999	41	62	57	66
Women age 50 and above who had a mammogram during past 2 years				
1995	36 <sup>b</sup>	44	50 <sup>b</sup>	22 <sup>a</sup>
1997	47	47	27	50
1999	62	55	52	44
Ownership of supplemental insurance				
1995	15 <sup>a,b</sup>	79	61	51 <sup>a</sup>
1997	22	74	59	33
1999	24	72	63	35

Source: Gross and Brammli-Greenberg, 2001 [17].

<sup>a</sup> For difference between 1995 and 1997 ( $P < 0.05$ ).

<sup>b</sup> For difference between 1997 and 1999 ( $P < 0.05$ ).

Table 5

Measurement of quality of ambulatory services: ratio between the Arab population and the Jewish population, 1995–1999

	Ratio		
	1995	1997	1999
<b>Availability</b>			
Office hours of family physician are very convenient	1.67 <sup>a</sup>	1.88 <sup>a</sup>	0.9 <sup>a</sup>
Office hours of specialists are very convenient <sup>b,c</sup>	1.17	2.0 <sup>a</sup>	0.5 <sup>a</sup>
Office hours of administrative staff are very convenient <sup>b,c</sup>	1.05	2.0 <sup>a</sup>	0.59 <sup>a</sup>
Office hours of laboratories are very convenient <sup>b,c</sup>	0.62	1.33 <sup>a</sup>	0.31 <sup>a</sup>
<b>Satisfaction</b>			
Very satisfied with technical competence of			
Primary care physician <sup>b,c</sup>	0.73 <sup>a</sup>	1.18	0.51 <sup>a</sup>
Specialist <sup>b,c</sup>	0.61 <sup>a</sup>	1.38 <sup>a</sup>	0.58 <sup>a</sup>
Very satisfied with inter-personal relations of			
Primary care physician <sup>c</sup>	0.81	1.06	1.14 <sup>a</sup>
Nurse <sup>c</sup>	0.69 <sup>a</sup>	1.52 <sup>a</sup>	1.54 <sup>a</sup>
Office staff <sup>c</sup>	0.92	2.08 <sup>a</sup>	0.81 <sup>a</sup>
Very satisfied with auxiliary services and amenities			
Lab services <sup>b,c</sup>	0.35 <sup>a</sup>	0.8 <sup>a</sup>	0.08 <sup>a</sup>
Maintenance of facilities <sup>c</sup>	0.87 <sup>a</sup>	1.52 <sup>a</sup>	1.43 <sup>a</sup>
<b>Satisfaction with accessibility</b>			
Very satisfied with ease of obtaining referrals <sup>b</sup>	0.79 <sup>a</sup>	0.9	0.22 <sup>a</sup>
Very satisfied with assortment of medications <sup>b,c</sup>	0.81 <sup>a</sup>	1.40 <sup>a</sup>	0.24 <sup>a</sup>
Overall satisfaction with health plan services (very satisfied) <sup>b</sup>	0.83 <sup>a</sup>	0.72	0.21 <sup>a</sup>
<b>Accessibility</b>			
Less than 15 min waiting time in primary care physician's office <sup>b</sup>	1.12	1.31 <sup>a</sup>	1.50 <sup>a</sup>
Less than a week waiting time for specialist appointment	1.29 <sup>a</sup>	1.11 <sup>a</sup>	0.98
<b>Performance of preventive medicine activities</b>			
Women age 50 and above who had a mammogram during past 2 years <sup>b,c</sup>	0.03 <sup>a</sup>	0.35 <sup>a</sup>	0.78 <sup>a</sup>
People who had their blood pressure tested during past 6 months <sup>c</sup>	0.66 <sup>a</sup>	1.00	1.02
<b>Use of private services</b>			
Visit to private physician during the past 3 months <sup>c</sup>	1.21	0.6	0.52 <sup>a</sup>
Ownership of private health insurance			
Ownership of supplemental insurance <sup>b,c</sup>	0.47 <sup>a</sup>	0.29 <sup>a</sup>	0.53 <sup>a</sup>

Source: Gross and Brammli-Greenberg, 2001 [17].

<sup>a</sup> Significant difference between Arabs and Jews in relevant year.

<sup>b</sup> For difference between 1997 and 1999 ( $P < 0.05$ ).

<sup>c</sup> For difference between 1995 and 1997 ( $P < 0.05$ ).

reform, which were intended to increase equality in the system. Using these indicators, statistically significant differences were found between Arabs and Jews in each year (Table 5). In 1995, the Arab population reported shorter waiting times for specialists and gave higher ratings to the convenience of family physicians' office hours. However, in satisfaction indicators, their ratings were lower than those of the Jewish population. This was also the case regarding the performance of preventive medicine activities, and ownership of supplemental insurance. In 1997,

the Arab population rated higher in accessibility and availability indicators and in satisfaction scores than the Jewish population, but continued to rate lower in preventive medicine and supplemental insurance ownership. In 1999, the Arab population had higher rates of satisfaction with waiting time to see a primary care physician, with the inter-personal relationship with the physician and nurse, and with the maintenance of facilities. However, in other indicators their rates were lower than those of the Jewish population.

The tool also proved to be sensitive to changes over time in the ratios between Arabs and Jews. In general, in 1997 we found an improvement in how Arabs rated many items (e.g., availability, satisfaction) compared to Jews, however, in 1999, this trend was reversed (see Table 5).

## 7. Discussion

This paper has presented a method for constructing a consumer-based evaluation tool based on analysis of change in the Israeli health care system following reform, and its expected effect on dimensions of quality of service provision. Using findings from population surveys that employed this tool, we have demonstrated that the tool is sensitive to change over time, as well as to differences among health plans and population groups.

In order to determine the utility of this tool for evaluating reform, we endeavored to assess whether changes in the various indicators could be attributed to changes in health care policy. In Israel's case, it was difficult to unequivocally determine a causal relationship, as the reform was system-wide, precluding the use of a controlled evaluation design. However, use of the theory-based evaluation approach [27] and data from complementary tools (such as in-depth interviews and documents) allowed us to trace the causal pathways among changes in policy, changes in provider behavior, and outcome measures, and consequently to attribute changes in outcome variables to the appropriate sources. Following, we present this analysis.

The evaluation findings reveal that, overall, between 1995 and 1997 there was an improvement in indicators of accessibility, availability, satisfaction, and prevention, accompanied by a decrease in private physician visits and no change in the rates of ownership of private and supplemental insurance.

These changes can be understood in light of changes in health plan activities at the time, which were a direct response to the new incentive system instituted by the National Health Insurance Law. In order to recruit members, health plans engaged in aggressive competition, which was expressed in increased marketing budgets (from NIS 51.5 million in 1994 to NIS 91.2 million in 1996), and expanded services (more facilities and manpower, more office hours).

The health plans also employed controversial methods of enrolling new members (e.g., getting the children of parents who were uneducated or uninformed to sign application forms), and used marketing agents, gave gifts to newly enrolled members, and tailored services to specific populations, such as Arabs and ultra-orthodox Jews. Such populations were attractive for two reasons: Their families tend to be large, and their members usually comply with the instructions or example of respected leaders (who sometimes made agreements with one or another health plan, see [33]). These activities depleted the health plans' resources, as reflected in their growing deficits.

The findings indicate that between 1997 and 1999 there was a trend toward decline in a number of areas of service, in satisfaction, and in indicators of accessibility and availability. These findings correspond to the health plans' activities in 1998 and 1999, following the passage of amendments to the National Health Insurance Law. The health plans made a considerable effort to reduce their expenditures by decreasing office hours and the number of staff and clinics, and by consolidating clinics in small towns (as required of them by the new regulations). They also reduced inter-plan competition and marketing efforts, since they were prohibited from directly recruiting members (as noted, the new regulations required applicants to enroll at the post office, rendering gimmicks such as gifts and marketing agents useless). These actions resulted in a decrease of 3.3% in the health plans' expenses per standardized member between 1997 and 1998, and in an additional decrease of 0.73 and 0.18% in 1999 and 2000, respectively. Following 2 years of budgetary restrictions and increased co-payments, the deficit dropped—from NIS 1.5 billion in 1997 to NIS 400 million in 1998 and NIS 200 million in 1999. However, this apparently also caused a decline in the level of services and a concomitant decline in consumer satisfaction.

The decline in consumer satisfaction in 1999 was accompanied by a trend toward increased use of private services, such as private physician visits and ownership of commercial and supplemental insurance. This may be a result of reduced accessibility in the public system, as well as of lower satisfaction with services. However, the increase in the purchase of supplemental insurance (which may be perceived as a part of health plan services) may actually have restrained the decline in satisfaction, it may also

explain the lack of change in several of the quality indicators between 1997 and 1999.

In spite of the reduction in expenditures, we found considerable improvement in the performance rates of mammograms for women age 50 and over. This may be an outgrowth of a special campaign launched by the Israel Cancer Association, the Ministry of Health, and the health plans, which involved increasing the public's awareness through education, supporting health plan efforts to invite women to be screened, and monitoring their screening. It may also reflect the health plans' policy of reducing expenditures in areas that do not affect the quality of medical care, rather than in other areas.

Analysis by health plan reveals that, between 1995 and 1997, statistically significant improvements were more noticeable in Clalit Health Services than in the other health plans. There are several possible explanations for this. First, following the introduction of capitation-based allocation of resources to the health plans, Clalit's per capita budget increased (because of its large proportion of elderly members), while those of the other health plans decreased or did not change. Thus, Clalit had more resources for improving its services than did the other plans. Second, a priori, Clalit's services needed more improvement than did those offered by the other plans. Lastly, Clalit is the largest health plan, and therefore changes in Clalit's indicators were more apt to be statistically significant than were changes in the indicators of the other health plans.

Similarly, the trend of decline in indicators observed between 1997 and 1999 was particularly significant in Clalit Health Services. In addition to the statistical explanation offered above, the data reflect Clalit's distinct organizational behavior: although financial constraints affected all of the health plans, Clalit had to reduce services more than did the other plans (which had expanded their services less immediately after the law's implementation). Clalit's relatively large deficit also contributed to its need to reduce services.

Changes over time in the indicator ratios between the Arab and Jewish populations can also be traced to changes in incentives and, consequently, in the health plans' service provision strategies. Before 1995, 12% of the Arab population was uninsured; the health plans therefore saw this population as a preferred target for recruiting members, and consequently invested in de-

veloping and improving services in Arab towns and villages. Furthermore, the capitation formula for distributing funds among the health plans is based only on the number of members and their age distribution. The Arab population, in which families tend to be large, was also preferred for this reason. (This was the reverse of the situation prior to national health insurance, when large families with low income, such as many of those in the Arab sector, were not preferred.)

Until 1998, health plans were allowed to directly recruit members using marketing agents. In Arab towns and villages, contracts were signed with the heads of clans regarding the enrollment of all of their members. The health plans therefore, perceived improving services in these villages as a worthwhile investment, since doing so might immediately result in a change in the health plan affiliation of an entire clan. Following the 1998 regulations, as noted, these activities were restricted, and transfer among health plans could only be done personally at a post office. Since the heads of clans could no longer sign agreements transferring all of their members from one health plan to another, the health plans found it less worthwhile, financially, to improve services [33,34].

In summary, the trend of improvement in many indicators between 1995 and 1997, and the trend of decline in indicators between 1997 and 1999, apparently do reflect respective changes in health plans' activities in response to new incentives instituted by the National Health Insurance Law and by subsequent amendments to the law.

## 8. Conclusion

This study has demonstrated the utility of a consumer-based evaluation tool developed specifically to monitor changes in the quality of health services following health system reform in Israel. It has also shown that it is possible to relate these changes to changes in health policy over time by analyzing the causal links among the components of reform, changes in health plan behavior, and changes in quality indicators.

The quality of health services is a principal outcome variable of health system reform, in Israel as in other countries. In Israel, it has been especially important to monitor the quality of services, as reform has limited

the health plans' flexibility in raising funds, increased government control of their financial operation, and limited competition among them. Moreover, the Israeli reform changed the system of incentives, as has been the case in other countries [22,35,36]. The underlying assumption is that people and organizations that provide health care (e.g., hospitals, health plans, physicians) will respond to new incentives in a way that is compatible with the intentions of those who planned the reform. However, health system reform, like other types of public policy reform, is a protracted and dynamic process, and incentives may prove to be ineffective or even counter-effective if organizations respond to them differently than anticipated or intended by policy makers [9,13,33]. Therefore, continuous monitoring of important outcome indicators over time is necessary, in order to ensure that health care providers do not deviate from the path designed for them by policy makers. Furthermore, periodic monitoring of key indicators can provide a factual basis for modifying the reform principles or its implementation.

The consumer-based evaluation tool presented in this paper may be suggested as an easy-to-apply, relatively inexpensive way of monitoring the quality of health services, which is an important component of health system performance worldwide. However, implementation of the tool in other settings should be attempted with caution. The tool's effectiveness in identifying change over time and among providers is related to how it has been constructed, based on an in-depth analysis that leads to identifying those aspects of quality that are expected to be affected by reform. Consequently, the tool should be adapted to the specific circumstances of the reform being evaluated.

We hope that our approach to the construction of the consumer-based evaluation tool, based on the theory-driven approach to evaluation, will be of value to researchers and policy makers in other countries who are confronting the need to evaluate system-wide change and monitor a system's performance over time.

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### References

- [1] Hurst J. Reforming health care in seven European nations. *Health Affairs* 1991;10(3):7–21.
- [2] World Health Organization. *European health system reforms. Regional Office for Europe*. Copenhagen: 1997.
- [3] Blendon RJ, Kim M, Benson JM. The public versus the World Health Organization on health system performance. *Health Affairs* 2001;20(3):10–20.
- [4] World Health Organization. *Health systems: improving performance*. World Health Organization, Geneva; 2000.
- [5] Murray CJ, Frenk J. A framework for assessing the performance of health systems. *Bulletin of the World Health Organization* 2000;78(6):717–31.
- [6] Brownell MD, Roos NP, Roos LL. Monitoring health reform: a report card approach. *Social Science and Medicine* 2001;52:657–70.
- [7] Ovretveit J. Quality evaluation and indicator comparison in health care. *International Journal of Health Planning and Management* 2001;16:229–41.
- [8] Bergman S. Swedish models of health care reforms: a review and assessment. *International Journal of Health Planning and Management* 1998;13(2):91–106.
- [9] Martin S, Sanderson J. Evaluating public policy experiments. *Evaluation* 1999;5(3):245–58.
- [10] Gross R, Rosen B, Chinitz D. Evaluating the Israeli health care reform: strategies, challenges and lessons. *Health Policy* 1998;45(2):99–117.
- [11] Robinson R. Introduction. In: Robinson R, Le Grand J. *Evaluating the NHS reforms*. London: Kings Fund Institute; 1994. p. 1–12.
- [12] Gross R, Rosen B, Shirom A. Reforming the Israeli health system: findings of a 3-year evaluation. *Health Policy* 2001; 56:1–20.
- [13] Goddard M, Mannion R, Smith P. Enhancing performance in health care: a theoretical perspective on agency and the role of information. *Economics of Health Care Systems* 2000;9:95–107.
- [14] Niessen LW, Gisjseels EWM, Rutten FFH. The evidence-based approach in health policy and health care delivery. *Social Science and Medicine* 2000;51:859–69.
- [15] State of Israel. *National Health Insurance Law*. Jerusalem: Government Printing Office; 1995 [in Hebrew].
- [16] Gross R. Organizational adaptation to a changing environment: Israeli health plans' strategies in response to implementation of the National Health Insurance Law. Doctoral

- dissertation. Ramat-Gan (Israel): Bar Ilan University; 2000 [Hebrew, English abstract].
- [17] Gross R, Brammli-Greenberg S. Israel's health service as perceived by the public—1995, 1997 and 1999. RR-362-01. Jerusalem: JDC-Brookdale Institute; 2001 [in Hebrew].
- [18] Santer TJ, Duffy DE. The statistical analysis of discrete data. New York: Springer; 1989.
- [19] Donabedian A. The definition of quality and approaches to its assessment. Ann Arbor (MI): Health Administration Press; 1980.
- [20] Donabedian A. Institutional and professional responsibilities in quality assurance. *Quality Assurance in Health Care* 1989;1(1):3–11.
- [21] Hargraves JL, Palmer RH, Zapka J, et al. Using patient reports to measure health care system performance. *Clinical Performance and Quality Health Care* 1993;1(4):208–13.
- [22] Brown BJ, Adams ME. Patients as reliable reporters of medical care process. *Medical Care* 1992;30(5):400–11.
- [23] Kaplan SH, Ware JE. The patient's role in health care and quality assessment. In: Goldfield N, Nash DB, editors. *Managing quality of care in a cost-focused environment*. Tampa (FL): Aspen Publication; 1999.
- [24] Ludbrook A, Gordon C. Performance indicators: a patient-centred approach. In: Davies H, Tavakoli M, Malek M, Neilson AR, editors. *Managing quality: strategic issues in health care management*. Brookfield: Ashgate; 1999. p. 185–98.
- [25] Hall JA, Dornan MC. Meta analysis of satisfaction with medical care: description of research domain and analysis of overall satisfaction levels. *Social Science and Medicine* 1998;27:637–44.
- [26] Pascoe GC. Patient satisfaction in primary health care: a literature review and analysis. *Evaluation and Program Planning* 1983;6(3–4):185–210.
- [27] Chen H. *Theory-driven evaluations*. London: Sage Publications; 1990.
- [28] Ware Jr JE, Snyder MK, Wright WR, Davies AR. Defining and measuring patient satisfaction with medical care. *Evaluation and Program Planning* 1983;6:247–63.
- [29] Mechanic D, Weiss N, Cleary PD. The growth of HMOs: issues of enrollment and disenrollment. *Medical Care* 1983;21(3):338–47.
- [30] Cleary PD, McNeil BJ. Patient satisfaction as an indicator of quality care. *Inquiry* 1988;25:25–36.
- [31] Miller RH, Luft HS. Managed care plan performance since 1980. *Journal of the American Medical Association* 1994;271:1512–9.
- [32] Weisman CS, Henderson JT. Managed care and women's health: accessibility, preventive services, and satisfaction. *Women's Health Issues* 2001;11(3):201–15.
- [33] Gross R. Implementing health care reform in Israel: organizational response to perceived incentives. *Journal of Health Politics Policy and Law* 2003;28(4):659–92.
- [34] Farfel M, Yuval D. Arabs' and Jews' perceptions and use of the health system two and a half years after implementation of the National Health Insurance Law: findings from a survey of the general population. Jerusalem: JDC-Brookdale Institute; 1999. p. RR-351-99.
- [35] Houseman D, Le-Grand J. Incentives and health policy: primary and secondary care in the British National Health Service. *Social Science and Medicine* 1999;49(10):1299–307.
- [36] Tuohy CH. Dynamics of a changing health sphere: the United States, Britain and Canada. *Health Affairs* 1999;18(3):114–34.
- [37] Bentur N, Gross R. The reform of the Israeli health care system: a comparison between older and younger consumers, 1 year and 3 years after its implementation. *Journal of the American Geriatric Society* 2001;49:56–64.
- [38] Berg A, Rosen B, Morginstin B. Gaps between lower-income and middle- to high-income individuals following the implementation of the National Health Insurance Law. Jerusalem: JDC-Brookdale Institute; 1999. p. RR-342-99 [in Hebrew]. 2002.
- [39] Brammli-Greenberg S, Gross R. Supplemental and commercial health insurance, 1998: changes in policy, financing, and consumer behavior. Jerusalem: JDC-Brookdale Institute; 1999. p. RR-349-99 [in Hebrew].
- [40] HEDIS—Health plan Employer Data and Information Set. <http://www.ncqa.org/communications/publications/hedispub.htm>.

## Afterword

Sophia Schlette

*"To make an end is to make a beginning. The end is where we start from."* T.S. Eliot

Little did I know about Israel's health care system and reform efforts, until I met Revital. Little did I know about how enriching and rewarding our years-long collaboration would become.

Some time in the spring of 2003, I got an email from Israel inquiring about a possible participation in the Health Policy Monitor. I was surprised. Back then I had just embarked on a new collaborative project, the International Network Health Policy and Reform. A few months earlier, the project's website, a hybrid between a journal and a knowledge platform, had just gone live with still very little content and minimal traffic on it. So I was surprised that Revital had found us out, and I was even more surprised about her keen interest in joining our then still young initiative.

In September 2003, I traveled to Israel with a colleague to meet with Revital. Throughout the country we conducted interviews with researchers, experts, health plan representatives and government officials – a study trip into the Israeli health care system that Revital had put together for us. A few months later, Revital and her wonderful teams, both at the JDC-Myers-Brookdale Institute and at Bar Ilan University, and, what can I say, colleagues from pretty much all over Israel, became part of our group.

Between 2004 till 2010, working with Revital turned out to be one of my most productive and enjoyable experiences ever. In addition to her many publications in renowned journals, she managed to contribute no fewer than 59 reports to the Health Policy Monitor in that time span. Never mind that the HPM wasn't a peer-reviewed journal, never mind that no academic merits could be earned. Regardless, her Israeli health policy monitor team grew to be the largest single country collaborative group in a network of 20 expert teams from around the world. Indeed, my hunch is that almost every expert in Israel who had ever thought and written about health care policy

must have contributed to this enterprise at some point in those years. Her authors, co-authors, and reviewers covered virtually every topic with equal depth, knowledge, diligence and commitment.

And so I learned about Israel. When the foundation I worked for advised policy formulation and implementation on integrated delivery systems and the key role of primary care in it through international good practice, I invited Revital to Berlin. She talked to a hand-picked audience of decision-makers and media representatives about how quality measures in primary care were used in Israel – and how they were borrowed and adapted from the U.S.-developed HEDIS indicators. Her messages: Benchmarking in primary care can be done, you can actually take an indicator system developed elsewhere, adapt it to local circumstances, and run with it, but – gather the data and just do it.

Her findings and recommendations are as valid today as they were in 2008. Until today, in Germany we are still haggling about why and how to measure quality in ambulatory care. Quite obviously, measurement will remain a challenge as long as outpatient care providers continue to work in mini-practices, according to a recent expert study commissioned by the government.

When the EU and WHO came out with green and white papers on the surging epidemic of mental health conditions – around 2006 -, Revital and her team had already assembled reports on how best to finance and organize mental health care, sharing the Israeli experience with dealing with this pressing and delicate issue. When the HPV vaccine was introduced around the world and began to enter publicly funded benefit baskets largely without much evidence to support its claimed efficacy and safety in young women, Revital described the market entry process in Israel. From that report, I learned that the manufacturers hadn't made much of a culturally tailored marketing effort: instead, commercial ads already produced for other markets were replicated. And at a time when Germany had just established two major institutions, the Federal Joint Committee along with the Institute for Quality and Efficiency in Health Care, commissioned to

conduct HTA and CER, Revital had already published on that topic based on the Israel experience. Similarly, early on she began reporting on another key issue related to health care reform and greater transparency: I learned that with the sick funds taking a lead, Israel was way ahead of Germany in the use of electronic medical records and real-time online access to treatment information when needed.

At the time of writing, I am actually preparing a report on the organization and funding of medical education of primary care physicians in selected European countries. How do others manage to attract and incentivize the young generation to become general practitioners? Not surprisingly, I have found an answer in one of Revital's earlier reports, where she discusses the pros and cons of transferring residents' training into community settings – not just for primary care physicians but also for specialists.

The above topics are all issues where I think countries can learn relatively easily about and from each other. But Revital went further, looking deep into the harder, nuttier challenges of health care reform. Since the mid-90s, she closely monitored how managed competition played out in Israel – a management tool imported from the U.S. Along with it, she analyzed how copayments impacted on access and equity in care, how monies to health funds were allocated in order to avoid cream skimming and create level playing fields for competition among health plans, how hospital ownership was impacted, and so on. On all of these issues, high on the health policy agenda then and now, she published extensively -- early on in *Health Policy* and, from 2004 onwards, via the *Health Policy Monitor*. Through her multiple analyses Revital shed a light on Israel as a microcosm of health reform experiences – a laboratory of good (and not so good) practice.

In addition to publishing on Israeli health policy developments, Revital found the time and passion to embrace cross-country learning. She took a sabbatical to travel to New Zealand, and she continuously deepened and broadened the exchange with other network members as well. She had so much to share!

One of the things that I admire so much about Revital is that she was such a genuine system thinker. She had a grasp of all the important issues and knew about their interdependencies, intricacies, and control knobs - a complexity that pushes others out of their comfort zone since nothing is really linear or logical in this world. She was under no illusion that politics was a major confounder of many a model reform project. She knew where politics kicked in and changed the originally intended path of a reform, and how, in a world of scarce resources, financial restrictions can actually bring about change - Israeli reforms vividly illustrate how budgetary constraints set free collaborative efforts in order to achieve the best results in dire times. Revital was absolutely key in my understanding of it. I also learned about the role of sick funds in Israel, where, interestingly, funds are referred to as health care providers, not mere payers, and play an active role in promoting health and health care. Under financial pressure, sick funds and physicians are quite able to collaborate constructively – in that regard, the Israeli sick funds are quite different from sick funds in Germany and elsewhere.

I also learned from Revital that in countries where health care is tax funded the Ministry of Finance is the true MoH – which can and will, in times of budget constraints or ideological fads, impose price competition over quality competition. I could sense how much that bothered her: To her, equality was of the essence to any equitable, well functioning health care system.

In many of her writings, HPM or other, Revital attributed singular importance to social fairness and access to a health care system – a continuing challenge for health policy makers ranging from policies on children's dental health to care of the frail elderly in the community to end-of-life care. And the list goes on. For Revital, health care reform was a means to an end, and equality was the whole point of it – best achieved by good access to a strong, service-ready primary care system. She was sensitive to the health care needs of deprived populations and minorities, probably taken aback by how much difference there can be even in a closely knit, culturally homogeneous society. On the other hand, in this area as well, Israeli

reforms vividly illustrate how budgetary constraints can set free creative, collaborative efforts in order to achieve the best results.

Revital was an invaluable asset to the Health Policy Monitor. We all admired her sound analyses, her thorough and yet very readable research papers, and her clear oral presentations as much as we liked her as a dear friend and colleague. If anything, she was so humble about her vast areas of expertise that we only realize in hindsight just how deep a mark she left in a crowded, sometimes blurry field of research: at the crossroads of health policy studies, health systems research, and health services research. She would weave it all together.

Through Revital's legacy - her curiosity, her thinking ahead, beyond boundaries and beyond borders – we have gained a much deeper understanding of multi-professional system thinking in health care and, ultimately, of evidence-informed policy making.



**Part II:**

**Primary Care**



## Introduction

*Hava Tabenkin*

I first met Revital in the early 1990s in my capacity as advisor to Health Minister Haim Ramon on primary care and family medicine, and subsequently as a research fellow at the Myers-JDC-Brookdale Institute. At the time, she was working on analyzing data from the NIVEL (Netherlands Institute for Health Services Research) study of primary care in Europe and Israel. As she did not know many family physicians at that early stage of her career, she turned to me to help her understand the data. This eventually led to our publishing two articles from the research data – a collaboration that continued for 20 years and, sadly, was prematurely cut off.

Israel's healthcare system, based to a large extent on primary care and family medicine, has undergone dramatic change following the legislation of the National Health Insurance Law. Until the early 1990s, family physicians at Clalit Health Services, which insured most of the population, were the gatekeepers for all its medical services on offer. However, due to economic difficulties in this period, Clalit lost numerous insurees to other health funds and one way to bring them back was to adopt a measure used by Maccabi Healthcare Services, permitting insurees direct access to five specialists; for the remaining services, family/primary physicians continued to act as gatekeepers. This period saw the specialty of family medicine flourish.

Revital and I considered it necessary to examine whether the specialty of family medicine had significant added value for patient care and the gatekeeper's role. We also felt it was important to examine the opinions of primary physicians on their position in the healthcare system, and the opinions of patients on both family physicians as gatekeepers and on direct patient access to consultants/specialists. Moreover, the National Health Insurance Law was then in the process of legislation. Clalit supported it while Maccabi, for example, opposed it: prior to the law, Maccabi was able to limit its acceptance of insurees to mainly the young and healthy. We therefore thought it useful to find out what physicians at these health funds

thought about the imminent reform of the healthcare system, about their sense of autonomy within their respective health funds, and whether there were any differences between the health funds.

These subjects are discussed in the chapter on primary care. The selected articles concern three distinct, significant topics: 1) the patients' opinions of family physicians, 2) the physicians' opinions of the reform of the healthcare system and their level of identification with the health funds where they worked, and 3) quality assurance.

Two articles in this chapter present the opinions of members of Israel's four health funds. The first, *Who needs a gatekeeper? Patients' views of the role of the primary care physician* concerns the patients' opinions of the role of the family physician. Though the medical services are structured to meet the needs of patients, the latter are not usually asked their opinions or wishes. This was the study's innovation. We examined the opinions of a representative sample of health fund insurees on the role of the primary/family physician and on access to additional specialists. The study found that a third of the respondents preferred direct access, 40% preferred that the family physician act as gatekeeper, and another 19% wanted both the family physician to manage their care and the possibility of direct access. The model of family physician as gatekeeper was preferred by Clalit insurees with these characteristics— sick people, people of a low socioeconomic level, men more so than women, those living in peripheral areas, and those with a regular family physician with whom they were satisfied.

The second article, *Patients' views of direct access to specialists*, deals with direct patient access to specialists/consultants versus referral by the family physician and examined the opinion of Clalit patients on direct access to specialists in three regions. It was found that 48% preferred the gatekeeper model while from the analysis of independent variables affecting their preferences, it was found that older patients, those whose family physician was a specialist in family medicine, and those satisfied with their family physicians preferred direct patient access to a lesser degree. More young and educated people preferred direct access. Of the respondents, 33%

answered that they would leave the health fund if there were no direct access while 48% said they would not leave. The results of these studies showed that specialists in family medicine play a significant role in managing patient care, and supported the position that it is important for primary physicians to be specialists in family medicine. Furthermore, even with the option of direct access, there was room to inform young, educated insurees of the importance of consulting their family physicians.

The second topic concerns the opinions of primary care physicians on the reform of the healthcare system, and the impact of the physicians' identification with their health funds on their attitudes toward guidelines about medical care (e.g., for the treatment of diabetes). The assumption among scholars had been that physicians in general and primary physicians in particular maintain autonomy and their special professional role regardless of their organizations. Revital came up with the highly original idea to examine this assumption – how a physician's organization has a significant impact on her/his opinions and responsiveness to the organizational guidelines on care. In the study of the opinions of primary physicians on the National Health Insurance Law, described in *Factors affecting primary care physicians' perceptions of health system reform in Israel: Professional autonomy versus organizational affiliation*, the physicians' opinions were found to tend to be similar to those of their organizations. For example, as noted above, Clalit favored the national health insurance law while Maccabi opposed it. The study showed that a higher proportion of Clalit primary care physicians supported the law compared with primary care physicians at Maccabi. The idea to check the opinions of physicians and their organizational identification was entirely Revital's, resulting in innovative, important studies that showed the importance of both encouraging physicians to identify with their health funds and of involving them in the development of their health funds' policies.

The third topic concerns the implementation of quality improvement programs at the health funds, at a time when the subject of quality assurance and measures of quality were still in their infancy, Revital initiated

a study of factors affecting the success or lack of success of such programs. The article *Implementing QA programs in managed care health plans: Factors contributing to success* describes how successful programs were found to benefit from an investment of resources, the support of a health fund's management, the involvement of the medical staff in the community, and the preparation of the front-line providers for implementation. There can be no doubt that the study made an important contribution to the great strides subsequently achieved in the field of quality measurement in primary care. The conclusions of these studies remain highly relevant.

I would like to close by noting how much I enjoyed working with Revital. Pleasant, with a sense of humor, she was a fine colleague, professional, efficient and strong-minded. She could take criticism and was open-minded, listening, learning and absorbing. Helpful, generous about others' achievements, precise, and taking no shortcuts, she was a thorough and excellent researcher, a gifted writer, capable of publishing results, methodologically professional and dependable. She stood behind her results but had a balanced view and original, logical explanations.

The old adage, "I have learned from everyone" applies to her in both its senses – she learned and absorbed from everyone and ultimately surpassed them all.

# Who Needs a Gatekeeper? Patients' Views of the Role of the Primary Care Physician

Revital Gross, Hava Tabenkin,  
Shuli Brammli-Greenberg

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## Who needs a gatekeeper? Patients' views of the role of the primary care physician

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Gross R, Tabenkin H and Brammli-Greenberg S. Who needs a gatekeeper? Patients' views of the role of the primary care physician. *Family Practice* 2000; **17**: 222–229.

**Background.** The primary care physician serving as a 'gatekeeper' can make judicious decisions about the appropriate use of medical services, and thereby contribute to containing costs while improving the quality of care. However, in Israel, sick funds competing for members have not adopted this model for fear of endangering their competitive stance. The purpose of this study was to examine, for the first time, the stated preferences and actual behaviour of a national sample of members of the four Israeli sick funds regarding self-referral to specialists, and to identify the characteristics of patients who prefer the gatekeeper model.

**Methods.** Data were derived from a national telephone survey carried out in 1997. A random representative sample of 1084 of all adult sick fund members were interviewed, with a response rate of 81%. Bivariate analysis was conducted using over all chi-square tests, and multivariate analysis was performed using logistic regression models.

**Results.** A third of all respondents prefer self-referral to a specialist, 40% prefer their family physician to act as gatekeeper and 19% prefer the physician to co-ordinate care but to refer themselves to a specialist. Independent variables predicting preference for the gatekeeper model are: living in the periphery, sick fund membership, low level of education, being male, fair or poor health status, having a permanent family physician and being satisfied with the professional level of the family physician. A significant correlation was found between practising self-referral and preference for self-referral.

**Conclusions.** The findings indicate the importance of surveying patients' attitudes as an input in policy formulation. The study identified specific population groups which prefer the gatekeeper model, and explored the advantages of a flexible model of gatekeeping.

**Keywords.** Gatekeeping, patient surveys, primary care.

### Introduction

The task of a primary care physician who serves as a 'gatekeeper' is to manage and co-ordinate a patient's care, as well as to be the sole referring agent to specialists. On the one hand, the gatekeeper is the patient's 'health adviser'. On the other hand, he can make judicious decisions about the best and most appropriate use of medical services, and thereby contribute to containing costs while improving the quality of care.<sup>1–3</sup> In

countries where primary care physicians co-ordinate care and control access to specialists and the utilization of associated services, the cost of health services and their share of the national economy are lower compared with developed countries who offer direct access to medical services.<sup>4–6</sup>

In Israel, as in other countries, health care organizations are considering implementation of the gatekeeper model in light of these advantages. However, despite its potential benefits, there are obstacles to the actual implementation of the gatekeeper model. In a survey of members of one Israeli sick fund, resistance of service recipients who prefer direct access to specialists was identified. Furthermore, 33% said that they would leave the sick fund if self-referral was prohibited.<sup>7</sup> Therefore, sick funds competing for members have not yet adopted service models which limit access to specialists for fear of endangering their competitive stance.

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The purpose of this study was to examine, for the first time, the stated preferences and actual behaviour of a national sample of adult members of all four Israeli sick funds regarding self-referral to specialists, and to identify the characteristics of patients who prefer the gatekeeper model.

Knowing the preferences of patients will assist health care organizations to develop a gatekeeper model that will fit the preferences of different patient populations. It will enable the organizations to offer service models that contribute to cost containment, while meeting the expectations of the public. By identifying population groups that oppose this model, it will be possible to design educational and guidance programmes to gain their co-operation.

#### *Background—the Israeli health care system*

Primary health care in Israel is provided through four non-profit-making sick funds that deliver services to their members based on a model similar to that of health maintenance organizations in the USA. Services are delivered at the sick funds' own facilities or through contracted providers. Kupat Holim Clalit (KHC) insures ~60% of the population, Maccabi insures ~20%, and Meuchedet and Leumit each insure 10%.<sup>8</sup> The Ministry of Health (MOH) is responsible for: planning, regulation and co-ordination of the health system; for the general assessment and supervision of sick fund operation; and for implementation of legislation concerning health care and its provision. The MOH is also the major provider of in-patient services, public health services and community-based psychiatric care. KHC owns and operates eight general hospitals, or ~17% of the country's general hospital beds.

The National Health Insurance Law which came into effect in January 1995 mandates compulsory health insurance for all residents in a sick fund of their choice. In all sick funds, members are entitled to choose a primary care physician and change physicians if not satisfied. The sick funds differ regarding their policy for access to specialists. Since 1993, KHC has changed its gatekeeping policy and allows direct access to dermatologists, ophthalmologists, otolaryngologists and orthopaedists. Other specialists still require referrals by the family physician. The other three sick funds have always had a policy of self-referral to almost all specialists. None of the sick funds require an extra payment if patients go directly to a specialist, and the appointment procedure is the same as for patients who were referred by their family physician. Family physicians who take responsibility for referring patients to specialists do not receive extra reimbursement for performing this role.

In 1997, the total expenditure on health was ~8.4% of the Gross National Product. Life expectancy in 1995 was 75.5 years for men and 79.5 years for women. On average, in 1996, there were 2.4 visits per person

to a family practitioner in 6 months, and 0.9 to a specialist.<sup>9</sup>

## Methods

Between August and October 1997, the JDC-Brookdale Institute conducted a telephone survey which included questions concerning respondents' attitudes toward the role of the family physician and their behaviour when needing specialist care (i.e. self-referral or through the family physician).

The study population comprised all permanent residents of Israel over the age of 22 years. A random representative sample of 1600 telephone numbers was drawn using the national computerized telephone listing of Bezek, the Israel Telecommunications Corporation. For each listing sampled that met the criteria for the study population, one randomly chosen adult household member was interviewed. Repeated efforts were made over a 2 month period to contact the individual sampled. Furthermore, the questionnaire was translated into Arabic and Russian for respondents who did not speak Hebrew. The sample was weighted according to the probability of each respondent, i.e. family size.

Of the 1600 telephone numbers sampled, 16.4% did not fit the criteria for the study population (i.e. they belonged to businesses, institutions, fax-modems, foreign workers or people under the age of 22 years). In all, 1084 questionnaires were completed, for a response rate of 81% and a refusal rate of 10.6%. (Seventy-six per cent of the questionnaires were completed in Hebrew, 10% in Arabic and 14% in Russian.) In 8.3% of the cases, no contact was made with the individual sampled (either because there was no answer at any hour of the day or night, or because the individual sampled was not at home), or else contact was made but the interview was not conducted (due to language problems, medical or emotional problems, etc.).

The socio-demographic characteristics of the study population are presented in Appendix 1.

## Results

### *Patients' attitudes toward the role of the family physician as gatekeeper*

In order to learn what patients thought about the role of the family physician as gatekeeper, they were asked: "Would you like your family physician to become your personal physician, to co-ordinate all your care, and to be exclusively responsible for referring you to a specialist?" The respondents were then asked to choose one of the following categories: (i) "I would like to refer myself to a specialist"; (ii) "I would like the family physician to co-ordinate care and be exclusively responsible for referring me to a specialist"; (iii) "I would

TABLE 1 Patients' attitudes to the role of the family physician as gatekeeper (n = 1065)

	Total n (%)	Patient preference Self-referral n (%)	Physician co-ordinates care and refers n (%)	Physician co-ordinates care and self-referral n (%)	Not sure n (%)
Total	1065 (100)	361 (33.9)	422 (39.5)	203 (19.1)	79 (7.5)
Sick fund**					
KHC	622 (100)	171 (27.5)	284 (45.9)	116 (18.6)	51 (8.2)
Maccabi	255 (100)	114 (44.7)	74 (29.0)	49 (19.2)	18 (7.1)
Leumit	88 (100)	30 (34.1)	35 (39.8)	17 (19.3)	6 (6.8)
Meuchedet	100 (100)	47 (47.0)	27 (27.0)	21 (21.0)	5 (5.0)
Gender**					
Male	469 (100)	129 (27.5)	213 (45.4)	91 (19.4)	36 (7.7)
Female	596 (100)	232 (38.9)	209 (35.1)	112 (18.8)	43 (7.2)
Age**					
22–24	80 (100)	32 (40.0)	26 (32.5)	15 (18.8)	7 (8.8)
25–44	488 (100)	170 (34.8)	179 (36.7)	95 (19.5)	44 (9.0)
45–64	369 (100)	128 (34.7)	146 (39.6)	77 (20.9)	18 (4.9)
65+	124 (100)	27 (21.8)	70 (56.5)	16 (12.9)	11 (8.9)
Education**					
Up to 8 years	173 (100)	36 (20.8)	96 (55.5)	14 (8.1)	27 (15.6)
9–12 years	345 (100)	94 (27.2)	157 (45.5)	66 (19.1)	28 (8.1)
12+ years	538 (100)	225 (41.8)	168 (31.2)	122 (22.7)	23 (4.3)
Monthly income**					
Up to NIS 3500	292 (100)	86 (29.5)	140 (47.9)	34 (11.6)	32 (11.0)
NIS 3501–7000	294 (100)	89 (30.3)	131 (44.6)	56 (19.0)	18 (6.1)
NIS 7001–13 000	216 (100)	88 (40.7)	65 (30.1)	55 (25.5)	8 (3.7)
NIS ≥13 001	123 (100)	56 (45.5)	34 (27.6)	28 (22.8)	5 (4.1)
Area of residence**					
Jerusalem	125 (100)	43 (34.4)	47 (37.6)	28 (22.4)	7 (5.6)
Tel Aviv and centre	481 (100)	193 (40.1)	156 (32.4)	103 (21.4)	29 (6.0)
Haifa and North	313 (100)	89 (28.4)	148 (47.3)	44 (12.4)	32 (10.2)
South	145 (100)	35 (24.1)	71 (50.0)	28 (19.3)	11 (7.5)
Employed during past 3 months**					
Yes	711 (100)	263 (37.0)	258 (36.3)	151 (21.2)	39 (5.5)
No	353 (100)	97 (27.5)	164 (46.5)	52 (14.7)	40 (11.3)
Has serious health problems**					
Yes	280 (100)	79 (28.2)	129 (46.1)	57 (20.4)	15 (5.4)
No	780 (100)	281 (36.0)	291 (37.3)	145 (18.6)	63 (8.1)
Has permanent family physician**					
Yes	942 (100)	307 (32.6)	385 (40.9)	185 (19.6)	65 (6.9)
No	111 (100)	52 (46.8)	29 (26.1)	16 (14.4)	14 (12.6)
Satisfaction with family physician's professionalism*					
Dissatisfied, not so satisfied	129 (100)	58 (45.0)	37 (28.7)	23 (17.8)	11 (8.5)
Satisfied	529 (100)	179 (33.8)	207 (39.1)	106 (20.0)	37 (7.0)
Very satisfied	335 (100)	99 (29.6)	149 (44.5)	65 (19.4)	22 (6.6)
Satisfaction with family physician's attitude***					
Dissatisfied, not so satisfied	85 (100)	41 (48.2)	28 (32.9)	12 (14.1)	4 (4.7)
Satisfied	433 (100)	135 (31.2)	171 (39.5)	35 (21.2)	35 (8.1)
Very satisfied	489 (100)	166 (33.9)	201 (41.1)	31 (18.6)	31 (6.3)

\* $P = 0.00$ ; \*\* $P = 0.03$ ; \*\*\* the correlation between 'satisfaction with the physician's attitude' and 'prefers that the physician co-ordinate care' is at the limit of significance,  $P = 0.084$ .

like the family physician to co-ordinate care but to refer myself to a specialist".

Table 1 shows the distribution of responses by various background variables. As can be seen, a slightly higher percentage of respondents (39.5%) prefer that their family physician co-ordinate their care and refer them to

a specialist, compared with those who preferred self-referral (34%). Furthermore, an additional 19% prefer self-referral but would still like the physician to co-ordinate their care.

The proportion of those preferring that their family physician co-ordinate their care was higher among

members of KHC (46%) than among members of Maccabi (29%) and Meuchedet (27.3%) sick funds. More women preferred self-referral to a specialist than men, and more respondents aged 44 years and under preferred self-referral than did those aged 65 years and over. More respondents with 12 or more years of schooling preferred self-referral than did those with up to 8 years of schooling. Higher proportions of preference for self-referral were found among respondents with high income or who lived in Jerusalem, Tel Aviv or central Israel, than among residents of the periphery and of Arab towns and villages. The proportion of those preferring self-referral was higher among those who did not report severe medical problems and those who were employed during the previous 3 months.

High percentages of preference for self-referral were also found among those who did not have a permanent family physician, and among those who were dissatisfied with the professional level or attitude of their family physician. No differences in preference regarding referral were found in terms of general satisfaction with the sick fund.

A multivariate logistic regression analysis was conducted to determine which variables have an independent influence on the preference for referral to a specialist through a family physician, versus self-referral. Table 2 shows the outcome of this analysis, which revealed that the predictor variables that have an independent effect on the preference for referral to a specialist through the family physician are: living outside of Tel Aviv and central Israel, being a member of KHC, having <12 years of schooling, being male, having self-reported fair or poor health, having a permanent family physician, and being satisfied with the professional level of the family physician. (Income does not have a significant influence on the preference for referral to a specialist through a family physician. The variables 'income' and 'education' were

not used in the same model because of their interdependence.)

#### *Patients' actual behaviour*

Ninety per cent of the respondents reported having a permanent family physician, and ~40% reported that they had visited a specialist in the last 3 months. All respondents were asked about their actual behaviour regarding referral to a specialist: "When you want to see a specialist, do you turn to him directly or do you turn first to your family physician?" (These two questions did not appear on the questionnaire consecutively in order to prevent any response bias.) About half (46.6%) reported that they go directly to a specialist when necessary, 37.1% reported that they first turn to their family physician, and 11.6% reported that it depends on the type of problem (Table 3).

The rate of self-referral was high among the members of Meuchedet and Maccabi (67% each) and the members of Leumit (62.5%), compared with the members of KHC (32.8%). The proportion of women who turn directly to a specialist was higher than that of men. In addition, more of those aged 25–44 years turned directly to a specialist than those aged 65 years and over, as did more of those with 12 or more years of schooling relative to those with up to 8 years of schooling, those with high income relative to those with lower income, those who did not report severe medical problems, those who had seen a specialist during the last 3 months and those who were employed during the last 3 months. The proportion of those turning directly to a specialist was also higher among residents of Jerusalem, Tel Aviv, central Israel and Arab towns and villages than among residents of Haifa, and the north and south of Israel.

Those who did not have a permanent family physician were more apt to go directly to a specialist than were those with a permanent family physician. No differences

TABLE 2 Variables predicting preference for referral to a specialist through a family physician—logistic regression analysis

Variable	B	SE	Odds ratio (95% CI)
Residing in central Israel	-0.41**	0.14	0.66 (0.50–0.88)
Member of KHC	0.38**	0.15	1.47 (1.10–1.96)
≥12 years of schooling	-0.60**	0.14	0.55 (0.41–0.72)
Has permanent physician	0.60*	0.29	1.83 (1.03–3.23)
Female	-0.54**	0.15	0.60 (0.44–0.78)
Satisfied with family physician	0.70**	0.22	2.00 (1.26–3.02)
Aged 65+	0.37	0.24	1.44 (0.90–2.30)
Has medical problems	-0.10	0.17	0.90 (0.64–1.27)
Assesses health as fair or poor	0.50**	0.19	1.64 (1.14–2.37)
Employed in past 3 months	-0.10	0.17	0.89 (0.64–1.25)

\* $P < 0.05$ ; \*\* $P = 0.00$ .

TABLE 3 Patient behaviour in seeking specialist care, by background variables (n = 1074)

	Total n (%)	Self-referral n (%)	Through family physician n (%)	Depends on type of problem n (%)	Never sees sick fund specialist n (%)
Total	1074 (100)	499 (46.4)	397 (37.0)	125 (11.6)	53 (5.0)
Sick fund**					
KHC	632 (100)	207 (32.8)	310 (49.4)	80 (12.7)	35 (5.5)
Maccabi	254 (100)	170 (66.9)	37 (14.6)	33 (13.0)	14 (5.5)
Leumit	88 (100)	55 (62.5)	21 (23.9)	9 (10.2)	3 (3.4)
Meuchedet	100 (100)	67 (67.0)	29 (29.0)	4 (4.0)	0 (0.0)
Gender**					
Male	478 (100)	185 (38.7)	206 (43.1)	47 (9.8)	40 (8.4)
Female	598 (100)	315 (52.7)	192 (32.1)	78 (13.0)	13 (2.2)
Age					
22–24	79 (100)	35 (44.3)	33 (41.8)	8 (10.1)	3 (3.8)
25–44	485 (100)	238 (49.1)	176 (36.3)	44 (9.1)	27 (5.6)
45–64	373 (100)	168 (45.0)	126 (33.8)	61 (16.4)	18 (4.8)
65+	135 (100)	55 (40.7)	63 (46.7)	13 (9.6)	4 (3.0)
Education					
Up to 8 years	179 (100)	46 (25.7)	120 (67.0)	9 (5.0)	4 (2.2)
9–12 years	352 (100)	158 (44.9)	136 (38.6)	38 (10.8)	20 (5.7)
≥12 years	537 (100)	291 (54.2)	141 (26.3)	78 (14.5)	27 (5.0)
Monthly income**					
Up to NIS 3500	296 (100)	104 (35.1)	149 (50.3)	30 (10.1)	13 (4.4)
NIS 3501–7000	300 (100)	134 (44.7)	123 (41.0)	29 (9.7)	14 (4.7)
NIS 7001–13 000	217 (100)	118 (54.4)	62 (28.6)	26 (12.0)	11 (5.1)
NIS ≥13 001	122 (100)	78 (63.9)	14 (11.5)	21 (17.2)	9 (7.4)
Area of residence**					
Jerusalem	126 (100)	65 (51.6)	42 (33.3)	14 (11.1)	5 (4.0)
Tel Aviv and centre	486 (100)	267 (54.9)	123 (25.3)	68 (14.0)	28 (5.8)
Haifa and North	317 (100)	116 (36.6)	156 (49.2)	35 (11.0)	10 (3.2)
South	147 (100)	51 (34.7)	77 (52.4)	9 (6.1)	10 (6.8)
Employed during past 3 months**					
Yes	712 (100)	355 (43.2)	229 (39.9)	83 (13.0)	45 (3.9)
No	364 (100)	144 (71.8)	169 (13.6)	43 (1.8)	8 (12.7)
Has serious medical problems					
Yes	294 (100)	118 (40.1)	133 (45.2)	38 (12.9)	5 (1.7)
No	777 (100)	380 (48.9)	262 (33.7)	87 (11.2)	48 (6.2)
Has permanent family physician**					
Yes	954 (100)	412 (43.2)	381 (39.9)	124 (13.0)	37 (3.9)
No	110 (100)	79 (71.8)	15 (13.6)	2 (1.8)	14 (12.7)
Satisfaction with family physician's professionalism					
Dissatisfied, not so satisfied	127 (100)	52 (40.9)	49 (38.6)	19 (15.0)	7 (5.5)
Satisfied	528 (100)	264 (50.0)	186 (35.2)	58 (11.0)	20 (3.8)
Very satisfied	333 (100)	139 (41.7)	144 (43.2)	41 (12.3)	9 (2.7)
Saw a specialist during past 3 months					
Yes	436 (100)	228 (52.3)	136 (31.2)	68 (15.6)	4 (0.9)
No	639 (100)	272 (42.6)	260 (40.7)	58 (9.1)	49 (7.7)
Referral preference**					
Self-referral	361 (100)	238 (65.9)	66 (18.3)	44 (12.2)	13 (3.6)
Through family physician	419 (100)	112 (26.7)	256 (61.1)	35 (8.4)	16 (3.8)
Both	200 (100)	107 (53.5)	44 (22.0)	38 (19.0)	11 (5.5)
Maybe/don't know	79 (100)	36 (45.6)	24 (30.4)	7 (8.9)	12 (15.2)

\*\*P = 0.0.

were found in the likelihood of going to a family physician in terms of satisfaction with the professional level or attitude of the family physician, or overall satisfaction with the sick fund.

A significant correlation was found between practising self-referral and preference for self-referral, such that 65.9% of the respondents who reported preferring self-referral to a specialist did indeed go directly to a specialist when necessary. In addition, ~61% of those who reported preferring that their family physician co-ordinate their care indeed turned to their family physician for a referral to a specialist. Of those who reported preferring that their family physician co-ordinate their care and refer them to specialists, 26.7% actually went directly to a specialist when necessary, and 18.3% of those who reported preferring self-referral actually turned first to their family physician. Finally, 30.4% of those who were unsure whether they preferred self-referral or physician referral to a specialist actually went to their family physician whenever they needed a referral to a specialist.

We conducted a multivariate regression to determine which variables had an independent effect on going to a family physician for referral to a specialist. As seen in Table 4, the independent variables predicting which sick fund members would request referral to a specialist from their family physician are: residence outside of Tel Aviv and central Israel, being a member of KHC, having fewer than 12 years of schooling, being male, not working and having a permanent family physician. (Income has significant influence on actual referral to a specialist through a family physician, such that having a low income positively influences referral through a family physician. The variables 'income' and 'education' were not used in the same model because of their interdependence.)

## Discussion

The findings of this study indicate that there are differences among the members of KHC compared with the other sick funds regarding preferences and actual behaviour when seeking specialist care. In the three sick funds which traditionally have had a policy of self-referral to almost all specialists, a high percentage of members prefer that option, but an even higher percentage employ self-referral when needing specialist care. On the other hand, in KHC, which in the past employed a policy of gatekeeping and even today restricts self-referral to a certain extent, a larger proportion of members prefer visiting their primary care physician first. These findings can be a result of self-selection in which members choose sick funds which fit their views on self-referral. On the other hand, it is known that offering a clinical service to the public creates a demand for this service,<sup>10,11</sup> and such may be the case regarding self-referral.

There are also differences in preferences among population groups. In each of the sick funds there are a considerable proportion of patients who prefer the family physician to co-ordinate care and be the sole referring agent. Characteristics correlated with this preference are: having a lower socio-economic status, being elderly, living in the periphery, being male and having fair or poor health status. These findings indicate that primary care providers can design differential models of care for different populations, in which members will participate voluntarily. This means that the sick funds should explicitly offer all options and encourage their members to choose the option which fits their preferences: self-referral, gatekeeping or co-ordinated care with self-referral.

A gatekeeping model which is flexible may have the advantage of responsiveness to a patient's needs as well

TABLE 4 Variables predicting referral to a specialist through a family physician—findings of a logistic regression

Variable	B	SE	Odds ratio (95% CI)
Residing in central Israel	-0.80**	0.15	0.45 (0.34–0.61)
Member of KHC	1.11**	0.16	3.05 (2.22–4.18)
≥12 years of schooling	-0.71**	0.15	0.50 (0.36–0.66)
Has permanent family physician	0.82*	0.33	2.27 (1.19–4.37)
Female	-0.70**	0.15	0.50 (0.36–0.67)
Satisfied with family physician	0.07	0.22	1.07 (0.69–1.66)
Aged 65+	0.18	0.24	0.83 (0.51–1.36)
Has medical problems	0.14	0.18	1.14 (0.80–1.64)
Assesses health as fair or poor	0.21	0.20	1.24 (0.84–1.82)
Employed in past 3 months	-0.39*	0.18	0.67 (0.47–0.96)

\* $P < 0.02$ ; \*\* $P = 0.00$ .

as improving co-ordination of care and cost containment. This approach is in line with core values in primary care stressing the key role of the physician in the healing process, and the importance of responsiveness to individual patient needs and of trust in the relationship between physician and patient.<sup>12</sup> This approach is also in line with recent social trends which see medicine as a service and stress increased personal freedom, rights of individuals, free choice and consumerism.<sup>13</sup> A flexible model in which gatekeeping is a voluntary option for patients who prefer it has a better chance of being adopted. Furthermore it would not arouse objections as does the practice of managed care organizations limiting access by administrative means.<sup>14</sup>

In time, the gatekeeper model can be expanded to include additional population groups if primary care providers undertake an active campaign to explain the benefits to members. At the same time, it might be worthwhile providing members with incentives for turning to specialists through their family physician. Possible incentives include giving priority for appointments with a specialist to those who were referred by their physician, or waiving extra payments, where these are required, for members who are referred to a specialist through their family physician.

The study also revealed a correlation between sick fund members' preferences and their satisfaction with their family physician (e.g. the physician's professional level, attitude toward patients). Therefore, sick funds that are considering asking their primary care physicians to be gatekeepers must ensure that each of their members has a permanent family physician to whom they may turn under all circumstances, and that primary care physicians receive appropriate training. This involves not only the physicians' formal knowledge, but also their approach and attitude toward patients, which have been found to have a significant effect on patient preferences. In addition, the sick funds will have to examine how to increase their primary care physicians' motivation to serve as gatekeepers. It can be assumed that implementing gatekeeping voluntarily, only for patients who prefer this model, will be more acceptable to physicians, since a primary cause of physician opposition, i.e. that it might have a detrimental effect on patient relations, will not exist in a voluntary model.<sup>15</sup> Furthermore, being a gatekeeper under these circumstances, i.e. without confrontation with the patient, may enrich the family physician's job<sup>16</sup> by enhancing their responsibility and authority and providing an opportunity to practise medicine in a comprehensive manner, including having control over the course of treatment.

The findings of this study have implications for primary health care providers in other countries considering

implementing a gatekeeper model. The findings indicate the importance of surveying patients' attitudes as an input in policy formulation. The findings also suggest the benefits of developing a flexible gatekeeping model adjusted to the preferences and needs of different population groups. In the Israeli case, we have identified characteristics of people who prefer their family physician to co-ordinate their care and refer them to specialists when needed, while others prefer self-referral. Therefore, implementing a gatekeeper model among members voluntarily may be a recommended policy which is financially beneficial for health care organizations, as well as responsive to patients' needs. Future studies are needed in order to assess the generalizability of the findings to other health care systems.

## Acknowledgements

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## References

- 1 Franks P, Clancy CM. Gatekeeping revisited—protecting patients from overtreatment. *N Engl J Med* 1992; **327**: 424–429.
- 2 Starfield B, Powe NR, Weiner JR. Costs vs quality in different types of primary care settings. *J Am Med Assoc* 1994; **272**: 1903–1908.
- 3 Martin DP, Diehr P, Price KF *et al.* Effect of gatekeeper plan on health services use and charges: a randomized trial. *Am J PH* 1989; **79**: 1628–1632.
- 4 Grumbach K, Fry J. Managing primary care in the US and in the UK. *N Engl J Med* 1993; **328**: 940–945.
- 5 Starfield B. *Primary Concept Evaluation and Policy*. Oxford: Oxford University Press, 1992.
- 6 Wachter RH. Rationing health care: preparing for a new era. *South Med J* 1995; **88**: 25–31.
- 7 Tabenkin H, Gross R, Bramli S, Shvartzman P. Patients' views of direct access to specialists. *J Am Med Assoc* 1998; **279**: 1943–1948.
- 8 Bendlack J. *Sick Fund Membership*. Survey Series 150. Jerusalem: The National Insurance Institute, 1998.
- 9 Ministry of Health. *Health in Israel*. State of Israel, Jerusalem, 1998.
- 10 Ginsberg E. The restructuring of US health care. *Inquiry* 1985; **22**: 272–281.
- 11 Bishop C, Wallack SS. National health expenditure limits: the case for a global budget process. *Milbank Q* 1996; **74**: 361–376.
- 12 McWhinney IR. Core values in a changing world. *Br Med J* 1998; **346**: 1807–1809.
- 13 Boerma GW, Fleming DH. *The Role of General Practice in Primary Health Care*. WHO Publication: Stationery Office Ltd, 1998.
- 14 Davies K. *Managed Care: The Patients Perspective*. New York: Commonwealth Fund, 1995.
- 15 Taylor T. Pity the poor gatekeeper: a transatlantic perspective on cost containment in clinical practice. *Br Med J* 1989; **299**: 1323–1325.
- 16 Herzberg F. *The Managerial Choice*. Homewood IL: Dow Jones Irwin, 1976.

Appendix 1 *Distribution of sick fund members by key characteristics*

No. of respondents	Characteristics	Percentages
1081	<b>Sick fund</b>	
	KHC	58.9
	Maccabi	23.7
	Leumit	8.2
	Meuhedet	9.2
1084	<b>Gender</b>	
	Male	44.6
	Female	55.4
1078	<b>Age</b>	
	22–24	7.4
	25–44	45.5
	45–64	34.6
	65+	12.5
1075	<b>Education</b>	
	Up to 8 years	16.7
	9–12 years	32.9
	12+ years	50.4
1081	<b>Area of residence</b>	
	Jerusalem	11.7
	Tel Aviv and centre	45.3
	Haifa and North	29.5
	South	13.5
1082	<b>Employed during the past 3 months</b>	
	Yes	66.1
	No	33.9
942	<b>Monthly income</b>	
	Up to NIS 3500	28.4
	NIS 3501–7000	32.3
	NIS 7001–13 000	25.1
	NIS ≥13 001	14.2
1078	<b>Has serious health problems</b>	
	Yes	27.2
	No	72.8
1071	<b>Has permanent family physician</b>	
	Yes	89.6
	No	10.4

# **Patients' Views of Direct Access to Specialists - an Israeli Experience**

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Shuli Brammli, Pesach Shvartzman

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## Letter From Israel

# Patients' Views of Direct Access to Specialists

## An Israeli Experience

Hava Tabenkin, MD, MS; Revital Gross, MA; Shuli Brammli, BA; Pesach Shvartzman, MD

**Context.**—Surveys carried out among users of medical services can be a useful tool for health care organizations in designing proper services. Specifically, patients' views of direct access to specialists can be useful to health organizations considering the gatekeeper model.

**Objective.**—To assess patients' opinions about direct access to specialists and referral to specialists through their primary care physician.

**Design.**—An intercept survey, in which patients were interviewed at the randomly selected service provision sites, was carried out in 3 districts in Israel during 1995. A total of 1445 and 1289 patients were interviewed in primary care and specialty clinics, respectively.

**Setting.**—Primary care and specialty clinics in 3 regions in Israel serving 750 000 members of Kupat Holim Clalit, Israel's largest sick fund.

**Participants.**—Hebrew-speaking members of Kupat Holim Clalit who visited the primary care or specialty clinics in the 3 regions during the study period.

**Main Outcome Measures.**—Rate of preferences for direct access to specialists and preferences for referral through primary care physician.

**Results.**—Fifty-two percent of the respondents preferred direct access to specialists, while 48% preferred a referral from their primary care physician. Multivariate logistic regression analysis indicated that the preference for direct access was significantly lower among patients older than 45 years (odds ratio [OR], 0.75; 95% confidence interval [CI], 0.62-0.91); patients whose primary care physician was a specialist in family medicine (OR, 0.80; 95% CI, 0.67-0.97); and patients who were satisfied with their primary care physician (OR, 0.34; 95% CI, 0.27-0.44). Preference for direct access was significantly higher among more highly educated patients (OR, 1.38; 95% CI, 1.16-1.65) and patients residing in Jerusalem (OR, 2.46; 95% CI, 2.05-2.95) and those younger than 45 years who were dissatisfied with their family physician or a primary care physician who was not board certified. If direct access was not available, 33% of respondents would leave the sick fund and 48% would remain; 19% did not know.

**Conclusions.**—Informing sick fund members, particularly the younger and more educated among them, about the advantages of consulting with the primary care physician, as well as providing specialty training in family medicine to primary care physicians, may reduce patients' preference for direct access to specialists.

THE RAPIDLY INCREASING costs of health care pose a major challenge to many governments, particularly those of developed countries.<sup>1,3</sup> In Western countries with strong primary health care systems, high-quality medical services are provided at low cost.<sup>4</sup> In countries where primary care physicians take the lead in coordinating care and access to specialists, the utilization of specialty resources,<sup>5,6</sup> the cost of health services, and their share of the national economy are lower as compared with developed countries that offer direct access to all medical services.<sup>3,4,7,8</sup>

This system (often called gatekeeping) ideally allows primary care physicians to meet patients' needs and comply with their preferences while making optimal use of health care services. The physician gatekeeper who knows patients and their families is an advisor on health matters. The physician gatekeeper can protect patients from overtreatment and unnecessary procedures, coordinate comprehensive treatment, and ensure continuity of care. These physicians also critically evaluate the appropriate use of medical and health services, which is particularly important in view of today's rapid technological advances, the proliferation of new treatments, and the increase in the number of specialties and subspecialties. As gatekeeper, the primary care physician helps not only to restrain costs but also to improve the level of patient care.<sup>9-18</sup>

On the other hand, the physician gatekeeper's responsibility for budget and resources may conflict with the duty to patients if the administrative pressures of managed care impose limits on treatment.<sup>19-21</sup> Thus, say critics, the gatekeeper model prevents patients from seeing specialists and deprives them of tests they may need. Furthermore, concerns have been raised as to whether the medical training of family physicians suitably prepares them to fill the role of gatekeeper.<sup>22-24</sup>

Surveys carried out among users of medical services can be a useful aid to health care organizations in designing a gatekeeper model that fits patient preference patterns. Several reports have already dealt with patient satisfaction with primary care physicians and medical services and patient views

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The design and interpretation of the preliminary results were discussed and presented in EGPRW (European General Practice Research Workshop) conference in Dublin, Ireland, and in national conferences in Israel. The results were also sent to the Ministry of Health and the Director of the Kupat Holim Clalit sick fund.

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on various health issues.<sup>25-31</sup> To the best of our knowledge, our study on managed care organization member preferences for direct access to specialists or referral by primary care physicians is the first of its type to be carried out.

In conducting our research, we studied opinions on direct access to specialists and the role of the primary care physician among members of Kupat Holim Clalit (KHC), Israel's largest sick fund, during its transition from exclusive use of the gatekeeper model to a system that allows direct referral to some specialists. Since KHC restricted direct access to some specialists, our research may be useful to health organizations considering the gatekeeper model, as it facilitates the identification of factors affecting patient preference.

## BACKGROUND

In Israel, under the National Health Insurance Law, which came into effect in January 1995, compulsory health insurance is provided to all citizens in 1 of the 4 sick funds operating in Israel. Kupat Holim Clalit, which is the largest sick fund, insures 60% of the population and is run as a prepaid, capitated managed care organization. The remaining 40% of the population are insured in the other 3 sick funds. Israeli citizens can choose their sick fund and their primary care physician within each sick fund.

Each KHC member chooses a primary care physician. The majority of primary care physicians have a defined population and are on a fixed salary. Some of the specialists work as salaried physicians and some as independent physicians within KHC. Physician income is based on a capitation model, with a price per registered patient fixed by KHC.

At KHC and the other sick funds, there is no difference in how physicians are paid under the direct access and gatekeeper models. There is also no extra charge or co-payment if patients go directly to a specialist. Therefore, patients can choose either to go to the specialist directly or to go to their family physician first. Either way, they are enlisted on the same waiting list. Primary care appointments can be made for the same day, with waits of up to 3 days for nonurgent appointments; for nonurgent specialist appointments, the wait is 7 to 40 days.

In the previous exclusive gatekeeper system, which required all patients to first see their primary care physician, as well as in the current mixed gatekeeper-direct access system, patients can "jump the queue" by either requesting intervention of the primary care physician to advance the queue, or by going to a private specialist physician. There is no direct access to specialists for emergencies or after-hours calls. Medical emergency care is provided in emergency departments to which the patients can access directly or by referral.

Until 1993, KHC did not allow self-referral to specialists, with the exception of gynecologists, who also provide obstetric care. Only in 3 large urban centers, where there was stiff competition among sick funds, was direct access to a few specialists allowed. In view of the increasing competition among sick funds, KHC's management altered its policy in 1993 and allowed direct access to certain specialists (dermatologists, ophthalmologists, otolaryngologists, and orthopedists) in all regions. These specialties were selected because KHC management thought they were frequently used by patients and that patients wanted direct access in these areas; access to other specialists still required referrals by family physicians. This requirement is enforced by administrative guidelines in

which an appointment can be made only with a referral letter from the primary care physician. Thus, it became possible to study patients' opinions in regions where this model was new (rural North and urban South) and to compare these opinions with a region where this policy had already been in effect since the late 1980s (Jerusalem).

## METHODS

### Study Population and Sampling

The study population included Hebrew-speaking members of KHC aged 18 years or older (including parents of children being treated by pediatricians) who visited primary care or specialty clinics in the mostly rural Jezreel Valley in the North, the southern city of Beersheva, or the central city of Jerusalem. The KHC insures about 250 000 citizens in each of these regions; the 750 000 members comprise more than 25% of KHC's nationwide membership. Jerusalem was representative of KHC districts in the center of the country, where there had long been a high level of sick fund competition (non-KHC penetration into Jerusalem was approximately 45%) and where direct access to specialists had been possible since the late 1980s. The Jezreel Valley and Beersheva represented peripheral districts, where the competition among sick funds was less intense (non-KHC penetration was about 20%), and before 1994 there was no direct access to specialists. It should be noted that the study population was geographically stable, with little mobility. Each patient is assigned to a neighborhood clinic by geographic location and can choose a regular primary care physician employed at that clinic. For the purpose of this study, it was not relevant or appropriate to distinguish between Ashkenazi or Sephardic Jews. We also did not distinguish between Jews and Arabs. Distribution by ethnic origin according to country of birth (either the patient's country or the parents' country if the patient was born in Israel) in the sample was Israeli, 47%; Asia or Africa, 23%; and Europe or America or other, 30.0%.

### Research Questions

Our research posed the following questions: (1) Do patients who believe they need to consult a specialist prefer to go directly to the specialist or to be referred by their primary care physician? (2) What are the reasons behind patient preferences regarding direct access to specialists? (3) What characterizes patients who prefer direct access, and those who prefer a referral from their primary care physician?

### Study Design

Our research was carried out by the intercept survey method,<sup>32</sup> in which patients are interviewed at the service provision site. In this case, patients were interviewed at KHC primary care clinics and specialty practices. At the primary care clinics, interviews were conducted with patients who were visiting general practitioners, specialists in family or internal medicine, or pediatricians (in which case a parent accompanying the patient was interviewed). As obstetric services are provided by gynecologists in Israel, these patients were not included in the study.

Specialty interviews were conducted at 2 types of clinics: (1) those dealing mainly with common conditions frequently presented in general practice, such as those requiring consultation in dermatology, otolaryngology, and orthopedics, where

Table 1.—Characteristics of the Study Population, by Site\*

Characteristics	Total, No. (%)	Jerusalem (Center)		Jezreel Valley (North)		Beersheva (South)	
		Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)
Age, y†							
21-24	218 (8.1)	25 (4.5)	28 (6.5)	28 (6.1)	25 (8)	51 (12.2)	61 (11.5)
25-44	1080 (39.9)	219 (39.3)	144 (33.6)	227 (49.6)	153 (48.9)	148 (35.3)	189 (35.7)
45-64	840 (31.1)	174 (31.2)	137 (32)	136 (29.9)	88 (28.1)	133 (31.7)	172 (32.5)
≥65	566 (20.9)	140 (25)	119 (27.8)	66 (14.4)	47 (15)	87 (20.8)	107 (20.2)
<b>Total</b>	<b>2704 (100)</b>	<b>558 (100)</b>	<b>428 (100)</b>	<b>457 (100)</b>	<b>313 (100)</b>	<b>419 (100)</b>	<b>529 (100)</b>
Sex†							
Men	1064 (39.1)	189 (33.9)	191 (44)	151 (33)	126 (40.1)	152 (36.3)	255 (47.5)
Women	1656 (60.9)	369 (66.1)	242 (56)	308 (67)	188 (59.9)	267 (63.7)	282 (52.5)
<b>Total</b>	<b>2720 (100)</b>	<b>558 (100)</b>	<b>433 (100)</b>	<b>459 (100)</b>	<b>314 (100)</b>	<b>419 (100)</b>	<b>537 (100)</b>
Education, y‡							
<12	1776 (65)	342 (61.1)	266 (61.3)	325 (70)	217 (68.7)	288 (68.4)	338 (62.7)
≥12	958 (35)	217 (38.9)	168 (38.7)	140 (30)	99 (31.3)	133 (31.6)	201 (37.3)
<b>Total</b>	<b>2734 (100)</b>	<b>559 (100)</b>	<b>434 (100)</b>	<b>465 (100)</b>	<b>316 (100)</b>	<b>421 (100)</b>	<b>539 (100)</b>
Chronic illness‡							
Yes	944 (34.9)	204 (37)	136 (31.7)	160 (34.7)	81 (26.4)	164 (39)	199 (37.2)
No	1760 (65.1)	348 (63)	293 (68.3)	300 (65.3)	226 (73.6)	257 (61)	336 (62.8)
<b>Total</b>	<b>2704 (100)</b>	<b>552 (100)</b>	<b>429 (100)</b>	<b>460 (100)</b>	<b>307 (100)</b>	<b>421 (100)</b>	<b>535 (100)</b>
Primary physician's specialty‡							
General practice	1090 (45.2)	249 (46.0)	254 (68.5)	91 (20.4)	123 (46.4)	160 (43.6)	215 (50.7)
Family medicine	1013 (42)	174 (32.3)	59 (15.9)	292 (65.7)	114 (43.0)	192 (52.3)	180 (42.5)
Pediatrics	282 (11.7)	117 (21.7)	38 (10.2)	62 (13.9)	21 (7.9)	15 (4.1)	29 (6.8)
Internal medicine	27 (1.1)	0 (0)	20 (5.4)	0 (0)	7 (2.6)	0 (0)	0 (0)
<b>Total</b>	<b>2412 (100)</b>	<b>540 (100)</b>	<b>371 (100)</b>	<b>445 (100)</b>	<b>265 (100)</b>	<b>367 (100)</b>	<b>424 (100)</b>
Satisfaction†							
High or very high	2219 (83.5)	464 (85.3)	316 (75.1)	398 (88.3)	245 (79.8)	357 (86.0)	439 (84.4)
Moderate	343 (12.9)	66 (12.1)	77 (18.3)	47 (10.4)	45 (14.7)	45 (10.8)	64 (12.3)
Low	96 (3.6)	14 (2.6)	28 (6.7)	6 (1.3)	17 (5.5)	13 (3.1)	17 (3.3)
<b>Total</b>	<b>2658 (100)</b>	<b>544 (100)</b>	<b>421 (100)</b>	<b>451 (100)</b>	<b>307 (100)</b>	<b>415 (100)</b>	<b>520 (100)</b>
Direct access to specialists†							
Yes	1178 (44.4)	253 (45.4)	241 (55.7)	162 (36.7)	123 (44.6)	175 (41.6)	225 (42.9)
No	767 (28.9)	187 (33.6)	123 (28.4)	160 (36.2)	101 (36.6)	74 (17.6)	122 (23.2)
Do not know	708 (26.7)	117 (21)	69 (15.9)	119 (27.1)	52 (18.8)	172 (40.9)	178 (33.9)
<b>Total</b>	<b>2653 (100)</b>	<b>557 (100)</b>	<b>433 (100)</b>	<b>441 (100)</b>	<b>276 (100)</b>	<b>421 (100)</b>	<b>525 (100)</b>

\*P values were based on overall  $\chi^2$  tests for characteristics, by the site variable.  
 †P<.001.  
 ‡P<.005.

Table 2.—Preferred Mode of Access to a Specialist: Direct Access vs Referral\*

Preference	Total, No. (%)	Jerusalem (Center)		Jezreel Valley (North)		Beersheva (South)	
		Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)
Direct access	1407 (52)	346 (62.2)	310 (72.1)	162 (36)	190 (61.3)	157 (37.3)	242 (45)
Referral through primary care physician	1297 (48)	210 (37.8)	120 (27.9)	287 (64)	120 (38.7)	264 (62.7)	296 (55)
<b>Total</b>	<b>2704 (100)</b>	<b>556 (100)</b>	<b>430 (100)</b>	<b>449 (100)</b>	<b>310 (100)</b>	<b>421 (100)</b>	<b>538 (100)</b>

\*P values were based on overall  $\chi^2$  tests for direct referral by the site variable. P<.001.

referral and self-referral is frequent (the respondents included both referred and self-referred patients); and (2) those dealing with conditions less frequently presented in general practice, such as those requiring cardiology and neurology consultations, where referral is by the primary care physician only. (Acute myocardial infarctions and stroke are defined as emergencies and are not defined as cardiology or neurology consultations.)

A list of all the clinics in each region was compiled, and clinics were selected using random-number tables. The samples and interview days at each clinic were also randomly selected. Interviews were conducted by specially trained research assistants at different hours of the day (morning, midday, and evening) under the assumption that different population groups would come to the clinics at different times. At each data collection time, all the patients at the clinic were interviewed.

The interviews were conducted using a structured, pre-tested questionnaire. Most questions were multiple-choice, while a few were open-ended. They covered the following issues: (1) whether the patient preferred referral to specialists by a primary care physician or direct access to specialists, and the reasons for this preference; (2) the primary care physician's area of specialization (eg, family medicine, internal medicine), and whether the patient was satisfied with this physician, as measured by a standard 5-point scale question: "To what extent are you satisfied with your primary care physician?"; (3) whether there existed an arrangement permitting direct access to specialists, and whether the patient was satisfied with this arrangement; and (4) background characteristics of the patient: age, sex, chronic diseases, ethnic origin, and education.

For each patient not interviewed, a noninterview form was filled out, including data on the region, the type of clinic (primary or specialty), the patient's age and sex, the specialization of the physician, and type of physician (employed by KHC or independent).

**Statistical Analyses**

Data were analyzed by using SPSS (Statistical Package for the Social Sciences, SPSS Inc, Chicago, Ill) software. Univariate analyses were performed by using overall  $\chi^2$  tests; multivariate analyses were performed by using logistic multivariate regression. Only those variables that, through bivariate analysis, were found to be significantly related to the dependent variables were included in the multivariate analysis.

**Study Limitations**

There are limitations to the intercept survey. In this case, the study sample is representative of only those who visit the clinics, with emphasis given to frequent visitors. In addition, it is impossible to accurately estimate the variable values for the entire study population because, as in this case, there is no information concerning sampling ratios among the different sites. The intercept method, nevertheless, was chosen because the survey questions made it important, due to problems of recall, to conduct real-time interviews with people during their encounters with health services. The method allows the interviewing of people who actually contend with the issue at hand. It also offers a high rate of response, as well as low costs per interview.

In addition, respondents were not asked to note past experiences in visiting specialists, though the experiences might be important in terms of understanding respondent attitudes to-

ward the referral process. Finally, we do not have data on the patient's presenting symptoms, reasons for seeking treatment, or diagnosis.

**RESULTS**

A total of 2734 patients were interviewed, 1445 at primary care clinics and 1289 at specialty clinics. Eighty-eight percent of the questionnaires were completed. The main reasons for failing to conduct an interview were refusal, language barriers, or physical or mental disability. In comparing interview and noninterview groups, there were no differences found with respect to region, age, ethnic origin, or the physician's area of specialization. A higher proportion of men (19.5% vs 13.8%, for women) were among those not interviewed, as were patients visiting general practitioners (13.1% vs 5.1%, for those visiting family physicians), and patients visiting specialty clinics (18.1% vs 14.2%, for those visiting primary care clinics). Of the respondents in the specialty clinics, 62.5% were referred by the family physician, while 37.5% were self-referrals.

The characteristics of the study population by place of interview are shown in Table 1. Analysis of the data reveals differences among the patients at the different clinics according to the following background variables: age, sex, education, chronic disease, physician's area of specialization, level of patient satisfaction, and the existence of direct access to specialists. In multivariate analysis, there were controls for the region and type of clinic (primary or specialty) variables.

The study's central question was, "When you believe you have to see a specialist, do you prefer to go to your primary care physician first, or directly to the specialist?" Fifty-two percent of the respondents preferred to go directly to the specialist, while 48% preferred to first see their primary care physician. A significant difference was found by region, as shown in Table 2.

Logistic multivariable regression analysis was carried out to determine which independent variables predict preference for direct access to specialists (Table 3). The results were as follows: being younger than 45 years; having more than 12 years of education; having a primary care physician who is not a specialist in family medicine; being treated in a specialty clinic (rather than in a primary care clinic); being from Jerusalem (rather than from a nondirect access area); being dissatisfied with the primary care physician; and being aware that one may turn directly to a specialist.

The respondents who preferred direct access to specialists were asked to give the main reason for their preference (Table 4). The main reasons given for preferring direct access to a specialist were that it "saves time and reduces bureaucratic complications" (72.1%), "the specialist was more professional than the primary care physician" (23.9%), and a combination of these (4.1%). Being dissatisfied with the primary care physician

Table 3.—Independent Variables Predicting Preference for Direct Access vs Referral to a Specialist\*

Independent Variable	$\beta$	SE	Odds Ratio (95% CI)
Aged $\geq 45$ y	-0.28†	0.09	0.75 (0.62-0.91)
Has chronic illness	-0.08	0.09	0.91 (0.76-1.11)
Female	0.05	0.08	1.04 (0.88-1.25)
$\geq 12$ y of education	0.32‡	0.09	1.38 (1.16-1.65)
Primary physician specializes in family medicine	-0.22†	0.09	0.80 (0.67-0.97)
Primary physician specializes in pediatric or internal medicine	-0.17	0.14	0.84 (0.64-1.12)
Interviewed in primary care practice	-0.40‡	0.08	0.66 (0.56-0.79)
Satisfied or very satisfied with primary care physician	-1.07‡	0.12	0.34 (0.27-0.44)
From Jerusalem	0.90‡	0.09	2.46 (2.05-2.95)
Knows about direct access	0.60‡	0.08	1.83 (1.55-2.18)

\*The variables that were included in the multivariate analysis were chosen after performance of bivariate analysis. Variables with significant correlation were included.  $\beta$  indicates a regression coefficient; CI, confidence interval. Hosmer-Lemeshow goodness-of-fit test = 14.84;  $P = .06$ .

† $P < .02$ .  
‡ $P < .001$ .

Table 4.—Reasons for Preferring Direct Access to a Specialist, by Region and Type of Clinic

Reason	Total, No. (%)	Jerusalem (Center)		Jezreel Valley (North)		Beersheva (South)	
		Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)
Saves time, reduces bureaucracy	951 (72.0)	256 (76.6)	225 (73.8)	76 (72.7)	123 (66.1)	116 (75.3)	155 (65.7)
Specialist is more professional than primary physician	314 (23.9)	68 (20.4)	65 (21.3)	25 (24.2)	52 (28)	33 (21.4)	71 (30.1)
Both of the above	54 (4.1)	10 (3)	15 (4.9)	3 (3.1)	11 (5.9)	5 (3.2)	10 (4.2)
<b>Total*</b>	<b>1319 (100)</b>	<b>334 (100)</b>	<b>305 (100)</b>	<b>104 (100)</b>	<b>186 (100)</b>	<b>154 (100)</b>	<b>236 (100)</b>

\*Of the 1407 patients who preferred direct access to specialists, 1319 provided reasons for their preference.

Table 5.—Reasons for Preferring a Referral to a Specialist From the Primary Care Physician, by Site

Reason	Total, No. (%)	Jerusalem (Center)		Jezreel Valley (North)		Beersheva (South)	
		Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)	Primary Clinic, No. (%)	Specialty Clinic, No. (%)
Primary care physician knows me and my condition	545 (42.8)	69 (32.9)	33 (27.3)	160 (55.7)	56 (47.5)	110 (43.3)	117 (41.3)
Primary care physician knows better to whom I should be referred	286 (22.5)	76 (36.2)	43 (35.5)	33 (11.5)	28 (23.7)	45 (17.7)	61 (21.6)
I trust my primary physician	259 (20.3)	45 (21.4)	30 (24.8)	74 (25.8)	26 (22)	52 (20.5)	32 (11.3)
Other	183 (14.4)	20 (9.5)	15 (12.4)	20 (7)	8 (6.8)	47 (18.5)	73 (25.8)
<b>Total*</b>	<b>1273 (100)</b>	<b>210 (100)</b>	<b>121 (100)</b>	<b>287 (100)</b>	<b>118 (100)</b>	<b>254 (100)</b>	<b>283 (100)</b>

\*Of the 1299 patients who preferred a referral to a specialist from their primary care physician, 1273 provided reasons for their preference. P values were based on overall  $\chi^2$  tests for reason, by the site variable.  $P < .001$ .

was not mentioned as a major reason for preferring direct access to a specialist. There were no significant differences in the response levels by region. Respondents who preferred referral through a primary care physician were also asked to state the main reason for their preference (Table 5). The main reasons for preferring a referral to a specialist from the primary care physician were “the primary care physician’s familiarity with the patient and his condition” (42.8%), “the primary care physician’s knowledge and judgment regarding the best specialist” (22.3%), and “I trust my primary physician” (20.3%). There were significant differences in these responses by region; respondents from the North were most likely to report that primary care physicians were familiar with their conditions, while respondents from Jerusalem were most likely to say that primary care physicians knew best to whom to refer them.

Respondents were asked whether they would leave their sick fund if the possibility of direct access to specialists were to be suspended: 33% said that they would leave, 48% said they would not leave, and 19% responded that they did not know what they would do. A logistic regression analysis was carried out to determine the factors predicting which patients would leave the sick fund if direct access were to be rescinded. The findings are reported in Table 6. The significant independent variables predicting whether a patient would leave his or her sick fund if it were to suspend direct access to specialists were being younger than 45 years, being dissatisfied with the primary care physician, and being from the Jerusalem area.

**COMMENT**

In this study, we evaluated the views and preferences of KHC members on direct access to specialists. However, in generalizing the model to apply to other countries, local, cultural, and other factors that might influence patient preference must be taken into consideration.

Our findings show that 52% of the respondents preferred direct access to specialists, though there were differences by region and type of clinic. Multivariate analysis indicates several independent explanatory variables related to preference for direct access to specialists. They include being younger than 45 years; having more than 12 years of education; having a primary care physician who is not a specialist in family medicine; being dissatisfied with the primary care physician; residing in Jerusalem; awareness as to the option of direct access; and being interviewed in a specialist clinic.

A possible explanation may be that older patients, who make greater use of health care services, prefer to turn first to their primary care physicians, having had ample experience with them as their representatives and advocates in the health care system. Patients who are not as well educated may prefer to take advice and direction from their primary care physician,

Table 6.—Independent Variables Predicting Which Patients Would Leave Their Sick Fund if There Were No Direct Access to Specialists\*

Independent Variable	$\beta$	SE	Odds Ratio (95% CI)
Aged $\geq 45$ y	-0.57†	0.13	0.56 (0.43-0.73)
Female	0.00	0.14	1.00 (0.76-1.32)
$\geq 12$ y of education	1.13	0.13	1.14 (0.88-1.49)
Primary physician specializes in family medicine	-0.08	0.15	0.91 (0.68-1.23)
Primary physician specializes in pediatric or internal medicine	0.17	0.19	1.19 (0.80-1.76)
Interviewed in primary care practice	-0.14	0.13	0.86 (0.67-1.12)
Satisfied or very satisfied with primary care physician	-0.68†	0.16	0.50 (0.36-0.69)
From Jerusalem	0.39†	0.14	1.48 (1.13-1.94)

\*Variables that through bivariate analysis were found to be significantly connected to the dependent variable were inserted for the sake of multivariate analysis.  $\beta$  indicates a regression coefficient; CI, confidence interval. Hosmer-Lemeshow goodness-of-fit test = 14.07;  $P = .07$ .

† $P < .001$ .  
‡ $P < .003$ .

while more highly educated patients may believe they are capable of making their own decisions about health and disease. Satisfaction with one’s primary care physician may indicate faith in that physician and the preference for referral through that physician.

It is known that offering a clinical service to the public creates a demand for this service.<sup>33,34</sup> Therefore, it can be assumed that offering the possibility to go directly to a specialist creates demand for direct access and influences patient preferences. This is borne out by our findings that residing in a locale where direct access is long established and knowing that direct access to specialists is available (as is the case in Jerusalem) were predictors for preferring direct access. In contrast, where there is a strong tradition of family medicine being central to the provision of health care services, and where family physicians have served as gatekeeper for many years, there was less expectation for direct access to specialists. Patients from areas having no experience with direct access tended to prefer a referral from their primary care physician.

About a third of the respondents at clinics where direct access was possible stated that they would leave the sick fund if direct access were to be withdrawn. The independent variables predicting a member’s leaving the sick fund were being younger than 45 years, being dissatisfied with one’s primary care physician, and residing in the Jerusalem region. A possible explanation for this profile is that residents of Jerusalem are accustomed to the system of direct access and have not experienced the advantages of prior consultation with their primary care physicians. In this case, it seems that supply of services influences patient preferences and demand for services. Obviously, patients who are dissatisfied with their physicians do not trust them, and, therefore, prefer not to consult

with them and access the specialists directly. Although when a sick fund member is dissatisfied with the primary care physician, he or she can change to another; this can only be done twice a year. Regarding the effect of young age, it might be that younger people have less complicated medical conditions and, therefore, feel confident in their ability to choose the right specialist for consultation. They also may be more comfortable as self-help-oriented consumers of health care services than the older generation, and, therefore, wish to control the process of their medical care.

Since the expertise of the primary care physician and patient satisfaction significantly influence patient preference, health care organizations that are considering the gatekeeper model should provide the physicians with appropriate training through both formal education (eg, specialty in family medicine, primary pediatrics, and primary internal medicine) and informal instruction. Most of the reasons patients prefer a referral from their primary care physician, even when professional consultation is required, seem to indicate high regard for the primary care physician's medical and professional expertise. Some of the responses illustrate the following: "The primary care physician knows me and is familiar with my problems"; "I want to consult my primary care physician and hear his opinion"; and "The primary care physician knows best to which specialist to send me." It, thus, seems that patients will accept the gatekeeper model if primary care physicians are of a high professional caliber and if this service mode is offered in a positive way as a response to their needs and as a way to improve quality of care.

The main reason for preferring direct access to specialists was to save time and avoid bureaucracy (72%). Thus, an important strategy in promoting the gatekeeper model is to reduce the bureaucracy involved in making appointments as well as the waiting times for consultations and to increase the primary care physician's accessibility through a system of 24-hour on-call service.

Another strategy for promoting the primary care physician as first point of referral and as being central to community medicine involves informing sick fund members, particularly the younger and more educated among them, about the advantages of consulting with the primary care physician, and providing them with the opportunity to choose a primary care physician who will meet their expectations. Thus, the system may be gradually reformed to be based more on primary care physicians who provide high-quality care at low cost, making prudent use of specialty consultation.

Nevertheless, there is a need for future research on issues such as the attitudes of primary care physicians and specialists toward the gatekeeper model. Research comparing the cost-effectiveness of treatment provided by primary care physicians and specialists is also needed.

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#### References

1. Boerma GW, de Jong AJ, Mulder PH, eds. *Health Care and General Practice Across Europe*. Utrecht, the Netherlands: NIVEL, Netherland Institute of Primary Care; 1993:9-112.
2. World Bank. *World Development Report 1993: Investing in Health*. Oxford, England: Oxford University Press; 1993.
3. The Royal College of General Practice. *The Nature of General Practice: Report of a Working Party, Report From General Practice*. Exeter, England: The Royal College of General Practice; 1996. No. 27.
4. Starfield B. *Primary Concept, Evaluation and Policy*. Oxford, England: Oxford University Press; 1992.
5. Rosenthal TC, Horwitz ME, Snyder G, O'Connor J. Medicaid primary care services in New York State: partial capitation versus pull capitalization. *J Fam Pract*. 1996;42:362-368.
6. Grumbach K, Fry J. Managing primary care in the US and in the UK. *N Engl J Med*. 1993;328:940-945.
7. Sips FA. Common basis of general practice/family medicine. *J Fam Pract*. 1995;41:24-26.
8. Wachter RH. Rationing health care: preparing for a new era. *South Med J*. 1995;88:25-31.
9. Franks P, Clancy CM. Gatekeeping revisited: protecting patients from over-treatment. *N Engl J Med*. 1992;327:424-429.
10. Yodanis Y. The rising cost of health services and the family physician as gatekeeper against over-utilization [in Hebrew]. *Harefu'a*. 1994;126:361-364.
11. Levinsky NG. Recruiting for primary care. *N Engl J Med*. 1993;328:656-660.
12. Starfield B. Primary care and health: a cross national comparison. *JAMA*. 1991;266:268-271.
13. Starfield B. Is primary care essential? *Lancet*. 1994;344:1129-1132.
14. Reagan MD. Physicians as gatekeepers. *N Engl J Med*. 1987;317:1173-1174.
15. Starfield B, Powe NR, Weiner JR. Costs versus quality in different types of primary care settings. *JAMA*. 1994;272:1903-1908.
16. Martin JP, Diehr P, Price KP, et al. Effect of gatekeeper plan on health services use and charge: a randomized trial. *Am J Public Health*. 1989;79:1628-1632.
17. Newman P. Interview with Alain Enthoven: is there convergence between Britain and the United States in the organization of health services? *BMJ*. 1995;310:1652-1655.
18. Greenfield S, Nelson EC, Zubkoff M, et al. Variation in resource utilization among medical specialists and systems of care: results from medical outcome study. *JAMA*. 1992;267:1624-1630.
19. Moor SH, Martin DP, Richardson WC. Does the primary care gatekeeper control the cost of health care? lessons from the SAFECO experience. *N Engl J Med*. 1983;309:1400-1408.
20. Taylor TR. Pity the poor gatekeeper. *BMJ*. 1989;299:1323-1325.
21. Clancy CM, Hillner BE. Physicians as gatekeepers: the impact of financial incentives. *Arch Intern Med*. 1989;149:917-920.
22. Kassirer JP. Access to specialty care. *N Engl J Med*. 1994;331:151-153.
23. Spiegel JS, Rubenstein LV, Scott B, Brook RH. Who is a primary physician? *N Engl J Med*. 1983;308:1208-1212.
24. Bertakis KD, Robbins JA. Gatekeeping in primary care: a comparison of internal medicine and family practice. *J Fam Med*. 1987;24:305-309.
25. Blendon RJ, Leitman E, Morrison I, Donelan K. Satisfaction with the health systems in ten nations. *Health Aff (Millwood)*. 1990;9:185-192.
26. Robin HR, Gamdek B, Rogers WH, et al. Patients' ratings of outpatient visits in different practice settings. *JAMA*. 1993;270:835-840.
27. Stein SR, Linn HW, Edelstein J, et al. Elderly patients, satisfaction with care under HMO versus private systems. *South Med J*. 1989;82:3-8.
28. Buetow SA. What do general practitioners and their patients want from general practice and are they receiving it? a framework. *Soc Sci Med*. 1995;40:21-23.
29. Calman M, Katsonyianngpovlous V, Ovcharov VK, et al. Major determinants of consumer satisfaction with primary care in different health systems. *J Fam Pract*. 1994;11:468-478.
30. Black F. What do patients expect in a general practice consultation? *Aust Fam Physician*. 1994;23:722-723.
31. Ware JE, Davis AR, Rubin HR. Patient assessments of their care. In: *The Quality of Medical Care: Information for Consumers*. Washington, DC: US Congress Office of Technology Assessment; 1988. OTA-H-386:251-247.
32. Backstrom CH, Hunk-Cesar G. *Sturvey Research*. 2nd ed. New York, NY: John Wiley & Sons Inc; 1981.
33. Ginsberg E. The restructuring of US health care. *Inquiry*. 1985;22:272-281.
34. Bishop CE, Wallack SS. National health expenditure limits: the case for a global budget process. *Millbank Q*. 1996;74:361-376.

# **Implementing QA Programs in Managed Care Health Plans: Factors Contributing to Success**

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# Implementing QA programs in managed care health plans: factors contributing to success

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## Abstract

**Purpose** – The purpose of this paper is to identify the factors that contribute to the success or failure of quality assurance programs implemented by Israeli managed care health plans.

**Design/methodology/approach** – An in-depth study of seven quality assurance programs was conducted, comparing successful with unsuccessful ones using the comparative “case study” method. Employing a semi-structured questionnaire, 42 program directors and professionals in the field were interviewed.

**Findings** – A number of factors associated with the programs’ success emerged. Those external to the program included: ongoing management support, resource allocation, information system support and perceived financial benefit for the organization. Internal factors included: leadership, perceived problem’s importance, laying the groundwork in the field, involving field staff in planning and implementation and staff motivation.

**Originality/value** – The study provides insights into ways to encourage the implementation of successful quality assurance programs in the special organizational context of managed care health plans. As the implementation relies heavily on data, one important precondition is the development of computerized information systems to facilitate ongoing data collection. It is also necessary from the planning stage to take into account organizational factors that affect success.

**Keywords** Quality assurance, Medical management, Israel, Health services

**Paper type** Research paper



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**Introduction**

The desire to provide high-quality medical services despite limited resources constitutes a major issue all over the world (Donabedian, 1989; Batchelor and Esmond, 1989). Improving care processes and outcomes has become a key public policy issue in many countries. Organizations that provide health services are seeking ways to provide more efficient and better quality treatment. Implementing quality assurance programs based on the principle of continuous quality improvement (CQI) is one strategy for achieving this goal (Ovretveit, 1997; Shortell *et al.*, 1995). Quality assurance (QA) programs are structured activities that comprise several stages:

- collecting data on clinical treatment or service process outcomes;
- analyzing data and determining means of improvement;
- implementing interventions designed to improve the situation; and
- repeated data collection to examine the intervention's effect (Donabedian, 1991).

Programs are designed to be implemented on a long-term basis and the periodic repeated data collection facilitates ongoing improvement by identifying weak areas and correcting them as necessary. These programs are expected to enhance quality and at the same time cut down costs by increasing treatment efficiency and effectiveness. Therefore, in a world of limited resources and steadily rising costs, healthcare organizations show increasing interest in implementing QA programs that are able to achieve both objectives. For this reason, implementing QA programs is a particularly valuable strategy for managed care organizations that are characterized by three basic features:

- (1) administrative supervision and regulating clinical decisions;
- (2) requiring that members receive their care from a registered provider; and
- (3) risk sharing between providers and the health plan (Hacker and Marmor, 1999).

In the past decade, managed care arrangements spread rapidly in many countries, mainly because of cost containment considerations. In 2000, an estimated 90 percent of the insured working population in the USA was insured through some type of managed care plan (Gabel *et al.* 2000). Consequently, many US physicians are affiliated with managed care organizations, either as salaried employees in structured-staff model health maintenance organizations (HMOs) or through looser contractual arrangements (e.g., preferred provider arrangements). Similar changes in employment terms are taking place in other countries and growing numbers of physicians are now working in some type of organizational setting rather than as independent practitioners; for example, GPs in UK Primary Care Trusts although self-employed, now practice within an organizational context (Pollock, 2001; Badrinath *et al.*, 2006) as do general practitioners (GPs) in New Zealand Primary Health Organizations (Ashton and Cumming, 2004). Moreover, a comparative analysis of structural developments in several European countries concluded that changes reflect the influence of US managed care theory and practices (Erdman and Wilson, 2001). Studies show that QA programs have not always been successfully introduced into organizations and have not always had the expected impact on care processes and outcomes (Wang *et al.* 2006; Huq and Martin, 2000; Badrick and Preston, 2001; Bradley *et al.* 2005; Benbassat and Taragin, 1998; Chambers *et al.*, 1995). Introducing QA programs into managed care

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health plans provide a special challenge given the physicians' ambivalent attitudes to practicing in these conditions. The literature indicates that physicians working in managed care settings are apprehensive of the consequences of managed care practices, voicing concerns that managed care will lower care quality while reducing income and autonomy. These concerns are related to observations that, in these settings, physicians sometimes have to subordinate their clinical judgment to managed care protocols and abide by regulations regarding pre-authorized prescriptions, referrals and diagnostic services. Indeed, a survey of physicians' perceptions of how managed care has affected them indicates that participation in managed care has had significant and largely negative effects on important medical practice aspects including physician-patient relationships, clinical decision making, work conditions and settings, and overall satisfaction (Warren *et al.*, 1999).

In Israel, universal coverage for all residents is provided through four competing health plans, which operate as managed care organizations. They exercise a range of administrative controls over physicians (such as pre-authorization and prescriptions monitoring), direct clinical decisions by disseminating clinical guidelines and other regulations, and allowing members to receive care only from a specified list of providers. The Israeli case thus offers an opportunity to examine factors affecting successful QA program implementation in a national managed care system (Gross and Harrison, 2001). A review of the literature reveals that there has been little research into the factors that affect QA program success in managed care organizations. Studies of other types of health organizations identified various factors affecting successful implementation of different types of quality improvement programs. Most studies have been conducted in hospital settings and only a few in community health services. Examples include studies on QA programs in hospitals (Klazinga, 1994; Eldar and Ronen, 1995), TQM programs (Shortell *et al.*, 1995; Warwood and Antony, 2003; Badrick and Preston, 2001) and clinical audit studies (Johnston *et al.*, 2000), clinical governance (Campbell *et al.*, 2002), and other strategies (Baltic *et al.*, 2002; McGilloway *et al.*, 1999; Walshe and Freeman, 2002). Given managed care health plans' unique characteristics and the scarcity of QA program implementation studies in these settings; our goal was to identify factors that contribute to the success or failure of QA programs implemented by Israeli health plans. Better understanding of factors that contribute to the QA program success would contribute to the managed care health plans' ability to design more effective programs.

### **Method**

Our study was conducted using a qualitative method based on semi-structured in-depth interviews with key personnel. This approach provided in-depth information and insights about the study topic. In the first stage of our study we gathered data on all the quality improvement programs implemented by all four managed health care plans in Israel (the health plans) in order to learn about their overall strategy for quality improvement. Between June and November 2001, we interviewed 71 senior managers from all the health plans, most of them by telephone, using a semi-structured questionnaire; interviews lasted 60 to 90 minutes. Managers were from health plans' head offices (nursing, medicine, management, logistics, labs and imaging divisions) and we also interviewed either the general director or medical director of every district or both (Gross *et al.*, forthcoming). Seven people refused to be interviewed. The second stage included an in-depth study of seven programs involving all the characteristics of

a QA program. This stage was conducted using the comparative “case study” method, which is defined as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident” (Yin, 1984, p. 23) We chose this method since there is close reciprocity between the phenomenon studied (QA program implementation) and the organizational context in which it exists. The programs selected for in-depth analysis were identified together with health-plan officials who provided information about their perceived success. We chose programs perceived as successful and others that were not. The program’s success was defined by two parameters continuation over time and success attaining established goals as perceived by health plan officials. No attempt was made in this study to evaluate the programs’ success directly by gathering data on the results. In order to obtain a comprehensive understanding of factors affecting success, we interviewed program directors and professionals in the field who implemented them. During this stage, in the course of 2003, we interviewed 42 people, most of them by telephone, using a semi-structured questionnaire; interviews lasted between 60 and 90 minutes. The factors that influence the programs’ success and continuity were identified in two ways: by analyzing the ensemble of answers in the interview, through which we profiled successful and unsuccessful programs, and through direct questions in which the interviewees were asked for their opinion about what contributed to a program’s success or lack.

## Findings

### *Background*

Preliminary interviews revealed that health plans used a range of strategies to improve or maintain quality. The interviewees mentioned a wide spectrum of strategies for improvement including general activities where no attempt was made to measure or document their effect, programs with a one-time measurement or programs that were themselves conducted on a one-time basis, as well as long-term programs that included pre- and post-gathering and analysis of data and thus fit the definition of “quality assurance programs.” This analysis revealed that in the health plans’ overall quality improvement efforts, QA programs were not the main strategy for improving quality and that most of the programs at the health plans belonged to a range of other strategies (Gross *et al.*, forthcoming).

### *Identifying factors associated with QA program success or failure*

To understand which factors are associated with QA programs’ success or failure we compared successful and unsuccessful program characteristics. To reach a profound understanding of the factors that affect programs’ success, we chose to probe programs that differed in a range of aspects: the subjects they addressed; their scale; the sectors involved in them and those that implement them; the breadth of their goals; and the scale of the tasks they assign to those implementing them. The programs identified as successful included two programs that treat diabetes patients (programs 1 and 2); a program to treat stoma patients; and a program to prevent elderly peoples’ unnecessary hospitalization. Those identified as unsuccessful included a third diabetes program (program 3); a program targeting hypertension patients; and a program to reduce medical services’ over-utilization in the community. The programs are described briefly in the appendix. Listed below are the factors whose presence emerged in the interviews as playing an important role in a large proportion of the successful

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programs. Some were also found in unsuccessful programs, but, on the whole, they were mostly absent. Table I sets out the factors associated with successes that were found in every one of the programs. These can be classified in two types: external – i.e. those dependent on organizational resources, and internal – i.e. those depending on program staff resources.

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### **External factors associated with quality assurance program success**

#### *Managers ongoing support*

Managers' support emerged in the interviews as one of the most important factors in the program's success and its continuation. In the successful programs we examined, we found ongoing support from central or district managers, which was expressed in various ways:

- Message about the importance to the health plan of improving quality in general and about the managers' long-term commitment to the project. Additionally, support for a specific program was also expressed by conveying a message to the staff on all levels about the importance that managers attached to it (e.g., by management representative participation on the program steering committee, attending meetings, and their involvement in decision-making processes about the program).
- Allowing program staff to participate in conferences, seminars and other public events pertinent to the program; taking an interest in results of the program; and formally incorporating the program in the work plan.

A strong message from managers was found to be particularly important in a situation where program staff was constantly flooded with new assignments, programs and demands. In such a situation, staffers tended to give priority to programs that they felt were strongly supported by managers. In all the unsuccessful programs we examined, we noted there was, or had been, a problem with managers' support. For example, in the hypertension program, interviewees explicitly said that managers decided not to promote the program for the time being and considered it "dormant". The head office project managers did not allocate enough time to the program and promote it effectively and they understood that it was not particularly important to the health plan. At a certain stage, the project manager left his position and was not replaced, and consequently work in the field almost came to a standstill.

#### *Resources*

Another external factor affecting success is the amount of resources allocated to the program, including funding to produce materials, organize training days, develop information systems, etc., and time allocated for personnel to run the program. Generally the programs we examined (both successful and unsuccessful) did not greatly lack resources for training, organizing seminars, producing instruction materials for patients, etc. The main difficulty in this area was always the allocation of hours to staff running the program in the field and at the head office. In most cases, there was no significant allocation of workers to handle the additional load required to implement the program, which was generally added to the existing work, aggravating the problem of overload that burdened field and office staff. Surprisingly, we found that even though this factor was mentioned, it was not perceived to have a decisive

	External factors			Internal factors				
	Ongoing management support	Sufficient information-system support	Perceived financial benefit for organization	Leadership throughout the program	Perceived centrality of the problem	Preparing the field	Involving the field	Motivation (compensation)
<i>Successful programs</i>								
Diabetes 1	+	+	+	+	+	+	+	+
Diabetes 2	+	+	+	+	+	+	+	+
Hospitalization of elderly	+	+	+	+	+	+	+	+
Stoma	+	+	+	+	+	+	+	+
<i>Unsuccessful programs</i>								
Over-utilization	-	-	-	-	+	-	+	-
Diabetes 3	-	-	-	-	+	-	-	+
Hypertension	-	-	+	-	+	-	+	-

**Notes:** + factor present in the program; - factor absent from the program; + - factor partially present in the program

**Table I.** Factors associated with the success of the programs

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effect on the success or non-success of the programs we examined. Time shortage was a perpetual problem for health plan staff. In cases where it was clear to people that the programs were important to the health plan or to their superiors they managed to cope with additional assigned tasks in the time they had. Sometimes, however, the enormous workload resulted in uncompleted work in the way that those performing it themselves would have liked to do it. For example, one successful diabetes program element was to make periodic appointments for patients. Owing to work pressure, the appointments were not always as frequent as they should have been.

*Adequate information systems support*

A key QA program component, according to its definition, is monitoring based on regular data collection to follow-up the program's progress and results. The ability to monitor results is also important so as to give feedback to the field, to know where greater investment should be made, mobilize support for programs in the field and at management level. Results that indicate financial savings, greater client satisfaction, improved clinical data and so forth can bolster management support and enhance the motivation of those (implementing) and participating in the program. Information systems support is also important for producing data required for ongoing operations in the course of the program – for example, lists of patients who constitute a program's target population. In the programs we examined, some data were taken from existing administrative or clinical databases. Others were produced with tools built specially for the programs – for example a diabetes register. However, even when existing data sources were used, it was necessary to organize them and to produce special reports constructed in a convenient way for the people who are meant to use them to monitor or administer the work daily. Manual data collection was found to be slow and labor intensive, making it difficult for the program's managers to maintain it for any length of time.

Computerization is a relatively new area for health plans and one developed largely in recent years. In some cases we found that information systems were constructed in tandem with the programs and computerized tools were constantly being upgraded. Generally, most programs we examined were supported by information systems, albeit imperfect ones that were flawed. One of the successful diabetes programs started out mainly using manual tools; the computerized tools were developed in the course of time, consequently there were ongoing difficulties producing the desired reports at all user levels. In the hypertension program (which was unsuccessful) there were great problems with the computer system. It was hard to obtain reports on work conducted and there were problems that hampered statistical analysis of balanced blood pressure data, making it impossible to check whether there had been improvements, which was the program's key measure. Had it been possible to show such improvement, this could have helped muster support for the program in the field and at the head office. Another program, where the lack of information systems support was cited as a serious problem, was the over-utilization project; discontinued because it was not possible to produce lists of suitable new patients, which seriously held up the work. Furthermore, regarding examining program results, it was impossible to measure how much money had been saved and it was therefore hard to use this information to mobilize support for continuing the program.

*Perceived financial benefit for the organization*

The interviews revealed that one factor considered when deciding whether to launch or continue a program was economics. The belief in a program's potential medium- or long-term financial benefit added to the desire to invest in it. Quality assurance programs cost money, at least in the short term, but in most cases it was expected that in addition to improving quality, they would also save money in the long run. This was particularly true of the smaller programs we examined, those where savings were expected to be seen in a shorter time and sometimes this was one of the program's declared goals; for example, the stoma program and another to prevent hospitalization of the elderly, both were expected to save money. The latter was required to prove that it was saving money in order to obtain approval for additional social workers to implement the program on a wider scale. The program to prevent service over-utilization was unable to show a financial saving, which is evidently one of the reasons it was decided to discontinue it. In the large complex programs (for hypertension and diabetes), savings were expected in the longer term and it was much harder to measure financial effects. Although not immediately visible, most health plan officials believed that correct diabetes treatment could save money in the long term or even in the medium period, even though savings could not be demonstrated in the short term. Therefore, the financial consideration apparently was not the dominant one in this case, nor did it play a key role determining the program's fate. In contrast, however, the hypertension program had the potential to save money but nevertheless health planners decided not to promote it.

**Internal factors associated with quality assurance program success***Leadership*

Our interviews revealed that programs did not "run on their own" – someone had to promote them, monitor what happened and solve problems even after the initial assimilation stage had been completed successfully. This was found to be an important factor in all programs. Successful ones were characterized by strong, active and involved leadership that promoted the program, *inter alia*, mobilizing management support, motivating staff, adjusting the program to changing conditions in the field and making all those involved feel there was someone checking their work and paying attention to them. This kind of leadership was required both at the head office and locally, and was particularly true of large, complex, interdisciplinary projects. Leadership had to be able to motivate people and work with them. Two successful diabetes programs we examined had this kind of leadership. Managers were in constant contact with the field and did not let the subject slip from the agenda. This was also the case for the elderly patient hospitalization prevention project. The program to treat stoma patients was different in that it was chiefly in nurses' hands and was easier to implement. In this case, the program became integrated into routine work and responsibility for heading it had been transferred to the district offices. Moreover, in this case too, leadership (albeit local rather than national) was visibly important and program implementation quality in a particular district depended on nurses leading it. The hypertension program, which was fraught with difficulties, illustrates the importance of local leadership. One main problem was no active leadership. However, even in such a project where there was no strong central leadership, we found that in one of the districts the person responsible for implementation, promoted the program and it was indeed implemented. Conversely, in

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another district, the person in charge did not promote the program and consequently it was discontinued. In the two other discontinued projects, the people leading them quit their positions at a certain point and the programs were leaderless.

*Centrality of the problem as seen by those involved in the program*

Our interviews revealed that an important factor motivating participants and in the success of the program was the feeling of all those involved – from leaders to fieldworkers – that the problem they were addressing was paramount and there was a need for intervention. Topics for QA programs may be developed in the field pursuant to a problem encountered by caregivers in the course of their work or at head office. However, whatever the case, we found that there must be a sense that this is an important issue regarding the size of the population affected by the problem, its gravity and sometimes its financial implications. In the programs we examined, diabetes was perceived to be a major health problem that affected an extensive public and had far-reaching health and economic implications. Unnecessary hospitalization was also perceived as a serious problem for the elderly population, which has grave financial and health implications and is central to social work in the health services. The problem addressed by (the successful) stoma program staff is one that affects a relatively small number of patients and does not, on the whole, cause serious complications. Those treating patients believed the problem was important, but they did not rank it as a top nursing priority. In this case, what made the issue important did not derive from its scale and centrality, but from the contribution that the program could make to promote the professional sector addressing it. Senior nurses had an interest in promoting the nursing sector within the organization where (in most cases) nursing is an auxiliary medical profession. In the case of the stoma program nurses could have full control over the treatment and could thus make a unique contribution. The program had an element of empowerment, expanding nurses' authority and bolstering their independence over treatment; consequently this topic was perceived as a problem in which the nursing sector had a great interest. However, although the hypertension program and one of the diabetes programs also addressed major problems, they were not successful.

*Preparing the field for new programs*

Interviews showed that introducing new programs had to be accompanied by preparation in the field, which included and involved all relevant agencies, even those not directly connected to the project. The successful diabetes programs we examined, for example, were constructed gradually, in consultation with relevant sectors, building an infrastructure and making gradual progress to goals and objectives added every year. In the discontinued diabetes program, there were problems related to inadequate field staff preparation, which were disregarded and not put right in the program's course. For example, nurses had to invest a large part of their time making appointments for patients. The clinic managers, important figures in the health plans, were not involved in the program from the start but no support system was set up in the clinics. The result was that nurses' time investment was greater than planned or expected and exceeded that allocated. The situation was markedly different in the new successful diabetes program at the same health plan, where all staff were prepared and consequently the clinic secretaries were helping nurses to make appointments. Part of preparing the field consisted of introducing programs (particularly the large ones)

gradually. Interviewees noted that there are advantages to the process of systematic and gradual building when objectives are spread over time. Starting with something small and adding new issues and objectives every year is less threatening to field staff than presenting them with a large project in its entirety at the beginning. Special preparation was required when it was necessary for physicians to cooperate as secondary partners with other sectors. In a medical organization such as a health plan, the physicians are at the top of the hierarchy and we found that this fact needed to be taken into account when planning and constructing a program. When a program focused on a subject that was not in the physicians' purview or when they were willing to surrender it easily (as in the case of the stoma program), there was no problem. However, when the subject matter concerned them and their cooperation was required, it was a mistake to treat them as marginal partners. A problem of this nature arose in the service overuse program, which was implemented by nurses and social workers who required the physicians to provide patient information. Both nurses and social workers viewed physicians as having mainly technical and therefore minor program roles. This attitude caused some physicians not to cooperate with the program staff. Interviewees remarked that had there been preliminary work to prepare the physicians for the program, or had they been accorded a more central place, there would possibly have been more cooperation.

#### *Involving the field in designing programs*

Our study indicated that it was important for several reasons to involve field representatives in all project planning and implementation stages. Interviewees noted that such involvement gives people the sense of being active partners in the program and makes them feel that the program's success is their own achievement; it encourages them to mobilize fieldworker support; it provides an early opportunity to receive feedback as to how important the issue is to the people in the field (which does not necessarily coincide with the importance attributed at the head office). It makes it possible to obtain input from the field about what is feasible and practicable and thus to build a solution and tools that are acceptable in the field and are commensurate with its capabilities and limitations. The partnership between head office and the field staff was related to the program's size and complexity. Getting the field involved was generally done by inviting fieldworkers of various levels to sit on steering committees or other bodies that plan, construct and implement the programs. Including the field was also expressed by giving consideration to local initiatives and allowing local leaders the freedom to determine the way a program was implemented rather than dictating everything from above. In all the successful programs we examined, the field was included in all stages. One of the unsuccessful programs had only one team in the field and, in the case of the other two unsuccessful programs, the field was not sufficiently involved. In the case of the hypertension project, for example, we were told that fieldworkers had not been involved in constructing the treatment algorithm, which was subsequently discovered to be extremely difficult to use, something that a person who was meant to work with the algorithm regularly would have spotted during the construction phase. There was not enough field involvement in the unsuccessful diabetes program either – not all the nurses were drawn in while the program was being constructed and the clinic managers – who play a key role in administering the clinic's work – were not involved in the program's early stages and consequently did not cooperate in its implementation.

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### *Motivation*

Interviews showed that it was important for people in the field, those who implement the programs, to have a sense that the project was contributing something to them or to feel rewarded by it. Compensation for implementing quality programs at the health plans was not generally financial or in-kind; rather it consisted of symbolic acts such as a prize, a certificate, acknowledgement of an outstanding clinic and so forth, or by praising the employee, sending a letter of appreciation, or noting his or her contribution in other ways. All these motivated staff to implement the program on a long-term basis. On another level, QA programs can contribute to those working in them because they make their work easier, as we were told in connection with the diabetes program. Even though projects added to the workload, it was in the end easier to monitor and treat patients when there was a structured and well set out protocol. QA programs can also contribute to participants by strengthening employee status and broadening their powers, which is what happened to nurses in the diabetes and stoma programs, in which they had been given new referral powers for examinations, consultation and giving equipment to patients. Another contribution to participants mentioned in the interviews was the sense that work really was being done better, that patients were better cared for and happier and expressed satisfaction. Social workers in the (successful) program to prevent elderly hospitalizing, for example, received positive feedback and acknowledgement from their patients. The opportunity that QA programs gave made it a change from the usual work routine and was also mentioned as rewarding.

In the (unsuccessful) over-utilization program some interviewees reported low motivation, which derived from staff difficulties and from working with difficult patients, which did not yield many results. In contrast, in the case of one successful diabetes program, which also contended with difficult patients, most interviewees reported high motivation. This derived, *inter alia*, from attempts to give the participating nurses the sense of being special and that numerous seminars were arranged for them. Thus, motivation was high even though particularly difficult patients with whom it was hard and frustrating to work were included in the program. It was thus hard to achieve positive results. Interviewees from one (successful) program noted another factor that seemed to them important regarding motivation to continue the program. Especially in the case of successful programs, after participants had seen considerable success and improvement at first, the improvement rate slowed in the second stage. A motivating strategy, used to prevent things falling back, was to devise new challenges that stimulated new interest. One way of doing so was by periodically introducing new subjects and establishing new objectives, which was done in the case of the two successful diabetes programs. Another strategy used to boost field staff motivation was to have the support of someone who constituted a professional authority. The interviews revealed that it was important for field workers to have someone with whom to consult, guide them, confer authority and also encourage them to complete program tasks. In the successful diabetes programs, diabetes institute physicians became consultants to primary care doctors. In the (successful) program to prevent elderly hospitalization, the program director was also a professional authority with whom it was possible to consult. Conversely, in the case of the (unsuccessful) service over-utilization program, one of the interviewees told there was no support or guidance and she felt isolated.

**Discussion**

We attempted to identify the factors that contribute to quality assurance programs' success or failure in Israel' managed care organizations' health plans. Success was defined by two indices: program continuation time and success perceived by health plan officials in improving the goals established for the program. Analyzing successful program characteristics revealed that many factors contributed to success although they were not all equally important. The main finding in this context was that no one factor could be singled out to explain the success or failure. Success depended on the presence of several characteristics concurrently but it was impossible to indicate any particular factor that had a definitive effect on success or failure. Our findings contribute to existing literature in this field, as we have not found previous reports of a similar observation. Our case analysis showed that success was the outcome of the presence of several factors, while failure was the outcome of the absence of a large number of them. We found two factors present in all four successful programs, which were absent from all three unsuccessful ones that preparing field staff and adequate information systems support were factors also found in the successful programs and missing from the unsuccessful ones. However, it emerged from the interviews that their contribution to the programs' success was perceived to be less central. We believe them to be particularly important for successful QA program implementation. The first factor was long-term management support and the other was strong and effective leadership to administer the program and continue promoting it after the initial introduction period had passed.

The effect of long-term management support and leadership is documented extensively in the literature (Cohen *et al.*, 2003; Motwani *et al.*, 1999; Warwood and Antony, 2003; Walshe and Freeman, 2002). Our study's contribution is to describe manifestations in the specific case of Israeli managed care health plans. It emerged from the interviews that important aspects of long-term management support in this context were conveying to the field the message that the subject is important. Conditions that make it possible for the program actually to happen (e.g., resources, staffing) were provided. Similarly, the important aspects of program leadership in this context were: identifying and solving problems and long-term coping with barriers during implementation as well as fostering motivation among the program implementers. The central role of these factors may be linked to the fact that the health plans operate as managed care organizations, which are bureaucratic, hierarchical organizations. In such organizations, manager's role and leadership is especially significant. Comparing factors present in the successful programs and in the unsuccessful ones highlights the methodological importance of study design that observes not only cases that have succeeded (as in the "Learning from Success" tradition – see Rosenfeld (1997)), but also cases that have not. Indeed, we found characteristics in successful QA programs present in unsuccessful ones. In order to understand which are exclusive to the successful programs, therefore, it is important to examine the unsuccessful ones as well, to ascertain that these factors are missing. An examination of the successful programs only, could produce a misleading picture inferring that every factor found in all successful programs is linked to their success.

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**Insights for implementing QA programs in managed care organizations**

Many authors note how local conditions under which QA programs are implemented influence their success (Ovretveit, 1997; Ovretveit and Gustafson, 2002; Counter and Meurer, 2001). Therefore, we cannot use our managed care analysis to generalize about similar organizations elsewhere. Nevertheless, our study provides insights into ways of encouraging successful QA program implementation in the special organizational context of managed care health plans. Our findings suggest that this activity can be encouraged by developing computerized information systems, which enable staff to constantly monitor key quality indices in their area of activity and thus facilitate QA program implementation that rely heavily on data. Moreover, permanent monitoring systems will make it possible to follow outcomes over time and resume programs that have been discontinued if needed (i.e. if the monitoring shows a decline in quality indicators). When information is computerized in this way, the cost of implementing a QA program is lower for the health plan since there is no need for a special investment in data collection. This financial consideration is especially important in managed care plans who give high priority to cost benefit considerations. Another insight from this study is that in order to implement a successful program, it is not enough to design one that responds professionally to deficiencies identified in the quality of care. It is necessary, right from the planning stage, to take into account organizational factors that affect success – for example to ascertain that managers had a long-term commitment to the program; to select appropriate and committed leadership or a leading team and allow time for the job; to involve and include field staff in all planning stages; and to support information systems. This feature is important in managed care health plans that operate as structured organizations. Our findings also suggest that planning and implementing a QA program constitute a complex activity that demands a commitment from the implementers and a time investment.

It seems that in order to encourage activities of this type, it is important to have the appropriate infrastructure at the head office or district office level by, for example, appointing an official responsible for implementing the program whose job is to initiate activities. They need help put plans into effect and to monitor success. Finally, it seems important in future studies to continue to examine QA program implementation in managed care organizations operating in different health systems. This enables the researcher and practitioner community to better understand conditions necessary for improving managed care organization quality. In light of concerns associated with these organizations, this type of accumulated knowledge may serve the dual purpose of helping to constrain budgets and improve care for the benefit of the insured public and the health system as a whole.

**References**

- Ashton, T. and Cumming, J. (2004), "Primary health organizations: establishments", *Bertelsman Stiftung Health Policy Monitor, Survey*, Vol. 3, available at: [www.healthpolicymonitor.org](http://www.healthpolicymonitor.org)
- Badrick, T. and Preston, A. (2001), "Influences on the implementation of TQM in health care organizations; professional bureaucracies, ownership and complexity", *Australian Health Review*, Vol. 24 No. 1, pp. 166-75.
- Badrinath, P., Currel, R.A. and Bradley, P.M. (2006), "Characteristics of primary care trusts in financial deficit and surplus – a comparative study in the English NHS", *BMC Health Services Research*, Vol. 6, pp. 64-73.

- Baltic, T.E., Whedon, M.B., Ahles, T.A. and Fanciullo, G. (2002), "Improving pain relief in a rural cancer center", *Cancer Practice*, Vol. 10, suppl. 1, pp. s39-s44.
- Batchelor, G.J. and Esmond, T. (1989), "Maintaining high quality patient care while controlling costs", *Healthcare Financial Management*, Vol. 3 No. 2, pp. 21-30.
- Benbassat, J. and Taragin, M. (1998), "What is adequate health care and how can quality of care be improved?", *International Journal of Health Care Quality Assurance*, Vol. 11 No. 2, pp. 58-64.
- Bradley, E.H., Herrin, J., Matterna, J.A., Holmboe, E.S., Wang, Y., Frederick, P., Roumanis, S.A., Radford, S.A., Radford, M.J. and Krumholz, H.M. (2005), "Quality improvement efforts and hospital performance: rates of beta-blocker prescription after acute myocardial infarction", *Medical Care*, Vol. 43 No. 3, pp. 282-92.
- Campbell, S.M., Sheaff, R., Sibbald, B., Marshall, M.N., Pickard, S., Gask, L., Halliwell, S., Rogers, A. and Roland, M.O. (2002), "Implementing clinical governance in English primary care groups/trusts: reconciling quality improvement and quality assurance", *Quality and Safety in Health Care*, Vol. 11, pp. 9-14.
- Chambers, R., Bowyer, S. and Campbell, I. (1995), "Audit activity and quality of completed audit projects in primary care in Staffordshire", *Quality in Health Care*, Vol. 4, pp. 178-93.
- Cohen, M.N., Eustis, M.A. and Gribbins, R.E. (2003), "Changing the culture of patient safety: leadership's role in health care quality improvement", *Joint Commission Journal on Quality and Safety*, Vol. 29 No. 7, pp. 329-35.
- Counter, M.A. and Meurer, S. (2001), "Issues in the assessment of continuous quality improvement implementation in health care organizations", *International Journal for Quality in Health Care*, Vol. 13 No. 3, pp. 197-207.
- Donabedian, A. (1989), "Institutional and professional responsibilities in quality assurance", *Quality Assurance in Health Care*, Vol. 1 No. 1, p. 3.
- Donabedian, A. (1991), "Reflections on the effectiveness of quality assurance", in Palmer, R.H., Donabedian, A. and Povar, G.J. (Eds), *Striving for Quality in Health Care: An Inquiry into Policy and Practice*, Health Administration Press, Ann Arbor, MI.
- Eldar, R. and Ronen, R. (1995), "Implementation and evaluation of a quality assurance programme", *International Journal of Health Care Quality Assurance*, Vol. 8 No. 1, pp. 28-32.
- Erdman, Y. and Wilson, R. (2001), "Managed care: a view from Europe", *Annual Review of Public Health*, Vol. 22, pp. 273-91.
- Gabel, J., Levitt, L., Pickreign, J., Whitmore, H., Holve, E., Hawkins, S. and Miller, N. (2000), "Job-based health insurance in 2000: premiums rise sharply while coverage grows", *Health Affairs*, Vol. 19 No. 5, pp. 144-51.
- Gross, R. and Harrison, M. (2001), "Implementing managed competition in Israel", *Social Science and Medicine*, Vol. 52 No. 8, pp. 1219-31.
- Gross, R., Ashkenazi, Y., Tabenkin, H., Porath, A. and Aviram, A. (forthcoming), "The role of quality assurance programs as a strategy for improving quality in Israel's health plans", *Social Security*.
- Hacker, J.S. and Marmor, T.R. (1999), "The misleading language of managed care", *Journal of Health Politics Policy and Law*, Vol. 24 No. 5, pp. 1033-43, available at: [www.ncca.org/Programs/HEDIS/](http://www.ncca.org/Programs/HEDIS/)
- Huq, Z. and Martin, T.N. (2000), "Workforce cultural factors in TQM/CQI implementation in hospitals", *Health Care Management Review*, Vol. 25 No. 3, pp. 80-93.

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21,3**322**

- Johnston, G., Crombie, I.K., Alder, E.M., Davies, H.T.O. and Millard, A. (2000), "Reviewing audit: barriers and facilitating factors for effective clinical audit", *Quality Health Care*, Vol. 9 No. 1, pp. 23-36.
- Klazinga, N. (1994), "Concerted action program on quality assurance in hospitals 1990-1993 (COMAC/HSR/QA) global results of the evaluation", *International Journal for Quality in Health Care*, Vol. 6 No. 3, pp. 219-30.
- McGilloway, S., Donnelly, M., Mangan, B. and McLelland, R. (1999), "Quality assessment and improvement in mental health services: a qualitative study", *Journal of Mental Health UK*, Vol. 8 No. 5, pp. 489-98.
- Motwani, J., Klein, D. and Navitskas, S. (1999), "Striving toward continuous quality improvement: a case study of Saint Mary's Hospital", *The Health Care Manager*, Vol. 19 No. 2, pp. 33-40.
- Ovretveit, J. (1997), "Learning from quality improvement in Europe and beyond", *Journal of the Joint Commission for Accreditation of Healthcare Organizations*, Vol. 23 No. 1, pp. 7-22.
- Ovretveit, J. and Gustafson, D. (2002), "Evaluation of quality improvement programmes", *Quality and Safety in Health Care*, Vol. 11, pp. 270-5.
- Pollock, A.M. (2001), "Will primary care trusts lead to US-style health care?", *British Medical Journal*, Vol. 322 No. 7292, pp. 964-7.
- Rosenfeld, J.M. (1997), *Learning from Success – How to Forge User-friendly Social Work*, JDC-Brookdale Institute Research Report, RR-304-97, JDC-Brookdale Institute, Jerusalem.
- Shortell, S.M., O'Brien, J.L., Carman, J.M., Foster, R.W., Hughs, E.F.X., Boerstler, H. and O'Conner, E.J. (1995), "Assessing the impact of continuous quality improvement/total quality management: concept versus implementation", *Health Services Research*, Vol. 30 No. 2, pp. 377-401.
- Walshe, K. and Freeman, T. (2002), "Effectiveness of quality improvement: learning from evaluations", *Quality and Safety in Health Care*, Vol. 11, pp. 85-7.
- Wang, M.C., Hyun, J.K., Harrison, M., Shortell, S.M. and Fraser, I. (2006), "Redesigning health systems for quality: lessons from emerging practices", *Joint Commission Journal on Quality and Safety*, Vol. 32 No. 11, pp. 599-611.
- Warren, M.G., Wietz, R. and Kulis, S. (1999), "The impact of managed care on physicians", *Health Care Management Review*, Vol. 24 No. 2, pp. 44-56.
- Warwood, S. and Antony, J. (2003), "A simple, semi-prescriptive self assessment model for TQM", *Quality Assurance*, Vol. 10 No. 2, pp. 67-81.
- Yin, R. (1984), *Case Study Research*, Sage Publications, Beverly Hills, CA.

**Further reading**

- Fooks, C., Rachlis, M. and Kushner, C. (1990), "Concepts of quality of care: national survey of five self-regulating health professions in Canada", *Quality Assurance in Health Care*, Vol. 2 No. 1, pp. 89-109.
- Walshe, K. (1995), "The traits of success in clinical audit", in Walshe, K. (Ed.), *Evaluating Clinical Audit: Past Lessons, Future Directions*, Royal Society of Medicine Press, London.
- Walshe, K. and Buttery, Y. (1995), "Measuring the impact of audit and quality improvement programs", *Journal of the Association for Quality in Health Care*, Vol. 2 No. 4, pp. 138-47.

**Appendix. Programs selected for the case studies***Diabetes 1 program (successful)*

Established in 1996, this is the longest-running quality assurance program at one of Israel's health plans. Its goals are to enhance the identification and monitoring of diabetes patients, the quality of treatment, and the stability of the patients' condition. It is a nationwide program implemented by the Medical Division and conducted by primary physicians, nurses, dieticians, health educators, and diabetes specialists; most of the work is done by nurses and physicians at primary care clinics. Structured processes for monitoring diabetes patients and a monitoring and treatment support system have been developed through the program. The project has set itself measurable objectives and it is already possible at this stage to see an improvement in identifying, monitoring, and stabilizing patients.

*Diabetes 2 program (successful)*

This program has been implemented by another health plan since 1999. Its goals are to enhance the knowledge and performance of the medical staff, the patients' knowledge, the diagnosis and treatment of diabetes patients, and patient management at diabetes institutes. It is a nationwide program implemented by the Medical Division's Community Health Department. There is multidisciplinary cooperation among those conducting the program, including primary physicians, nurses, social workers, dieticians, health promoters, and diabetes specialists. Reorganizing patient care is at the heart of the program: family physicians are the main treatment providers while the diabetes institutes have become district advisory centers responsible for treating all patients in the district. The program has measurable objectives that are revised every year. An improvement can be seen at almost every measurement.

*Stoma program (successful)*

A stoma is an opening in the abdomen that is constructed surgically in order to drain waste. The opening may be temporary or permanent. The program has been implemented since 2000. Its goals are to improve the care of stoma patients, to reduce the costs of equipment, and to empower the nurses caring for stoma patients. It is a nationwide program implemented by the Nursing Division and conducted by nurses, who have been appointed as care directors and have been authorized to prescribe stoma equipment (which previously only physicians could do). In addition, steps have been taken to improve communication with the hospitals and to build an orderly process of discharge into the community. Interviews with patients at the end of the first year revealed a high degree of satisfaction and an improvement in their ability to cope with the situation. In addition, there has been a decline in the amount of equipment used by the patients.

*Program to reduce hospitalization of the elderly (successful)*

The program was launched in 2000 in response to data indicating that in some cases, psycho-social problems rather than medical problems might be the cause for frequent hospital admissions of elderly patients. Its goals are to improve the quality of life of the elderly persons and to reduce hospital days and costs. It was first implemented in one district and was expanded two years later into a small-scale, nationwide program. It is administered by the Welfare Service of the Medical Division and is conducted by social workers with the support of an administrative physician. Program staff identify persons over the age of 75 who have been admitted to hospital three or more times in the previous six months and, if they meet the project's criteria, they start a process of psycho-social treatment that takes the patients' problems in their entirety into consideration. There has been a measurable reduction in the number of hospital days. Staff members can sense an improvement in the quality of life and satisfaction indices, but they have not yet succeeded in measuring these results.

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*Program to reduce overuse of medical services (unsuccessful)*

The program was implemented for just over two years (from late 2000 to early 2003). It was launched because it was thought that, in certain cases, psycho-social problems rather than medical problems might be the reason why patients were frequently seeking treatment and taking large quantities of medication and that these problems should be addressed. The goals were to improve the patients' quality of life and the quality of treatment and to cut costs by reducing visits to specialists and the use of medication. The program was implemented as a pilot in one district of the health plan. It was administered by the district social worker and staffed by a nurse and social worker supported by a doctor. The staff was meant to identify patients meeting the program criteria and develop an individual treatment program responding to their psycho-social needs including guidance about correct use of medical services. Throughout the duration of the program there were problems in gathering data and measuring the results. The implementers had the feeling that there was an improvement in the patients' satisfaction level and a decline in the number of medical appointments, but these feelings could not be corroborated with data.

*Hypertension program (unsuccessful)*

The program has existed since 1998. Its goal is to improve identification, monitoring, and treatment of hypertension patients and the stabilization of their condition. The program is implemented nationwide by the Medical Division. There is multidisciplinary cooperation among those conducting the program include physicians and nurses at primary clinics, dieticians, and health promoters. The program has included the establishment of a structured monitoring process and the creation of a patient register. The program has not been discontinued, but it has run into numerous difficulties. After the first period of implementation, activity both in the field and on the administrative level declined, and in some districts came to a standstill. There were problems with the information system support and analyzing data difficulties. Consequently, there were no results for the main improvement measure – balanced blood pressure.

*Diabetes 3 program (unsuccessful)*

The program was implemented as a pilot until 2000. Its goals were to enhance the patients' compliance with treatment, improve treatment and results, and to develop a model for nurses as case managers. The program operated in one branch of the health plan in each district and was implemented by the Medical Division Community Health Department. The program was based chiefly on the work of nurses together with social workers and dieticians. The nurses were meant to invite patients who met the program criteria to a series of structured-content meetings, to give them guidance and refer them for examinations and to various caregivers. The staff was also supposed to provide group counseling sessions. The program had positive results in only some clinics but not on the scale expected.

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# **Factors Affecting Primary Care Physicians' Perceptions of Health System Reform in Israel: Professional Autonomy versus Organizational Affiliation**

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## Factors affecting primary care physicians' perceptions of health system reform in Israel: Professional autonomy versus organizational affiliation

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### Abstract

This paper examines primary care physicians' perceptions of a National Health Insurance Law that introduced managed competition into Israel's health care system, and the factors affecting their perceptions. Between April and July 1997, we conducted a mail survey of primary care physicians employed by Israel's four health plans (which are managed care organizations). Eight hundred questionnaires were returned, representing a response rate of 86%. The findings indicate that, overall most physicians support the components of the National Health Insurance Law with statistically significant differences among physicians by health plan. Multivariate analysis revealed that, contrary to theoretical expectations, a perceived decrease in professional autonomy and in the status of the profession following reform did not significantly affect attitudes toward national health insurance. These findings highlight the need for additional empirical studies to further examine theoretical contentions about the implications of infringing on the professional autonomy and the dominant status of physicians. The principal and most interesting finding of this study was the independent effect of health plan affiliation on physicians' attitudes toward each of the five components of the National Health Insurance Law, after controlling for background characteristics, for the reform's perceived effect on the physicians' autonomy and status in the health plan, and for the reform's perceived effect on the level of health plan services and the health plan's financial situation. We found that physicians' perceptions tended to conform to the formal position of their health plan, suggesting the need to analyze the attitudes of physicians in their organizational context, rather than treating them as members of a uniform professional community.

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*Keywords:* Israel; Health care reform; Primary care physicians; Attitudes; Autonomy; Organizational affiliation

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### Introduction

Health care reform in Israel, implemented in January 1995 with the enactment of the National

Health Insurance (NHI) Law, created a regulated market that embodies many of the principles of managed competition outlined by Enthoven (1993). It has had far reaching implications for the work environment of the primary care physicians employed by the health plans.

Since implementation of the NHI Law, the health plans (which are managed care organizations) have taken administrative steps to improve

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their efficiency and restrain their expenditures (Gross, 2003; Gross & Harrison, 2001). These have included cost-containment programs affecting the practice patterns of primary care physicians, who are the health plans' principal work force and the first point of entry to the health system. For example, the health plans have issued guidelines for the care of chronic diseases (such as diabetes and hypertension) and administrative regulations defining criteria for expensive procedures (e.g., referral to an MRI or CT Scan), and have even required the pre-authorization of a senior physician for the prescription of expensive medications or tests (e.g., diagnosis of sleep disorders, specific fertility tests) or for elective surgery. They monitor physicians' prescription-writing, distribute comparative reports on the use of expensive medications, and summon physicians to explain their decisions (Gross, 1999).

These measures impinge upon physicians' professional autonomy and undermine the status of the medical profession within the health plans. A question therefore arises as to physicians' attitudes toward the reform that led to these changes.

Autonomy, defined as the legitimate control that an occupation exercises over the organization and the terms of its work, is a central value of the medical profession (Marjoribanks & Lewis, 2003). Autonomy is a multi-component concept, which refers to freedom at the micro-, mezzo- and macro-levels. Micro-work freedoms include control over diagnosis and treatment, over evaluation of the appropriateness of care, and over the nature and volume of medical tasks, as well as contractual independence. Mezzo-work freedoms refer to relations between the medical profession and the state, and the macro-level refers to acceptance of the dominance of the "biomedical model" which depicts ill-health as an individual pathology (Harrison & Ahmad, 2000; Marjoribanks & Lewis, 2003; Schultz & Harrison, 1986).

One of the main claims made in the literature is that physicians have a strong professional identity (Shuval, 2000; Sullivan, 2000) and value their professional autonomy (Schultz & Harrison, 1986; Schultz & Schultz, 1988), and thus will try to preserve their autonomy and professional control and oppose any reform that threatens to impinge upon these (Hunter, 1996; Marjoribanks & Lewis, 2003).

We would note that the medical profession is not uniform, comprising of two strata: the corporate elite of organized medicine, which negotiates with

government and insurers (and manages the mezzo-level of autonomy), and frontline medical practitioners. The latter are the rank and file of physicians who treat patients, and who are directly affected by changes at the micro-level of autonomy (Harrison & Ahmad, 2000; Lewis, 2002). Reforms in the health care system may affect the two groups differently. New policies agreed to by the elite may strengthen the profession's authority and hence their power, at the same time diminishing the autonomy of frontline practitioners. It is therefore important to distinguish between these two groups when analyzing the medical profession's perception of and attitudes toward reform (Lewis, 2002).

The status of the medical profession in an organization such as a health plan is also important to physicians, and a reform compromising it may lead to opposition. Friedson (1985) argues that despite the bureaucratization of the medical profession, and despite changes in the environment in which physicians practice, the medical profession has succeeded in retaining dominance over other professions in the health system (including managers)—which appears to remain, even when the autonomy of an individual physician is threatened. The concepts of clinical autonomy and the dominance of the profession are related. Restricted autonomy directly affects the day-to-day practice of frontline physicians, while a decrease in the status of the profession has an indirect affect on the individual physician in the longer term (Harrison & Ahmad, 2000). Therefore, we might expect frontline physicians to also oppose reform that is perceived as threatening to the dominance of their profession.

To date, we have found no studies that have empirically examined the degree to which physicians' perceptions of health system reform are affected by their perception of the reform's effect on their autonomy or on the status of their profession.<sup>1</sup> Previous studies have reported physicians' attitudes toward reforms conducted in the United States, Canada, Germany (Blendon et al., 1994), Great Britain (Goldacre, Lambert, & Parkhouse, 1998), Australia (Bailie et al., 1998), and Sweden (Quaye, 1997). Unlike these studies, which described attitudes toward reform, our study

<sup>1</sup>We would note that Marjoribanks and Lewis's (2003) important study was based on an analysis of documents and articles written by physicians on reforms and attitudes toward reform. However, it did not include an empirical analysis and therefore could not control for intervention variables.

attempted to understand the factors that affect the support of or opposition to reform—and in this it is unique.

The objective of this study was to examine the extent to which Israeli frontline physicians' (hereafter, "physicians") attitudes toward NHI reform have been affected by their perception of the effect of the reform on their professional autonomy and on the status of their profession in their health plan. Our hypothesis was that the probability of opposing NHI reform would be greater among those physicians who perceived that the reform had restricted their autonomy, and among those physicians who perceived deterioration in the status of the medical profession following reform.

These hypotheses were tested empirically using data gathered in a survey of primary care physicians conducted two years after implementation of the NHI reform. The analysis therefore was of short-term attitudes toward the NHI reform, at a time when the change was still felt strongly (and it was easy for physicians to remember and compare the changed situation to that prior to reform). Reaction to change is conceived as being a staged process, during which feelings and attitudes are expected to change over time; the final stage of this process involves the individual's acceptance of new realities and adaptation to them (Gabel & Oster, 1998). Therefore, measurement during the early stages of reform was best suited to capturing the effect of perceived restrictions on autonomy or the perceived deterioration of the medical profession on physicians' attitudes, before they had accepted and adapted to the new situation.

### **Background: the NHI reform**

The NHI Law enacted in 1995 regulated the previously unregulated competition among Israel's four health plans. In line with the managed competition model (Enthoven, 1993), the law stipulates mandatory, universal coverage, rather than voluntary insurance; eligibility for a uniform benefits package rather than a benefits package determined by each health plan; centralized collection of a health tax and its allocation to the health plans according to a capitation formula based on the number and ages of a health plan's members, rather than the independent collection by each health plan of a membership premium based on income level; a ban on rejection of applicants for health plan membership because of their health

status, age, or other factors (a practice maintained by some of the health plans in the past); and freedom of transfer among health plans for all citizens, regardless of their health status, age, or organizational affiliation. In addition, the NHI Law includes measures for financial restraint, which are not part of the original managed competition model. These include a rigid, fixed budget for the health system with an updating mechanism controlled by the Ministry of Finance and the Ministry of Health, and close monitoring of the health plans' financial operations by these ministries. However, two important principles of the managed competition model were not incorporated into the NHI law: dissemination of information on quality by a central agency and price competition among health plans (Gross, Rosen, & Shirom, 1999).

Compulsory health insurance is provided to all residents through a health plan of their choice. The four health plans operate as managed care organizations; beneficiaries are required to use a select network of services, with referral rules and administrative regulations governing choice options. Services are provided at the health plans' own facilities, or through contracted providers.

The effect of the NHI Law on the health plans was not uniform, and is presented in Table 1. Overall, allocation of resources according to a capitation formula increased Clalit's revenue and consequently Clalit increased its per capita expenditure, with a marked rise in patient satisfaction. Conversely, Maccabi and Meuhedet, whose patient populations are relatively young, lost revenue and had to decrease their expenditures (Gross et al., 1999).

About 5000 primary care physicians are employed by Israel's health plans (Pilpel, Shemesh, Sematnikov, & Dor, 2000). The model of bureaucratic employment is the most prevalent in Israel. About 60% of primary care physicians are salaried, 22% work as independent employees contracting with health plans, and 17% are both salaried and independent employees (see Appendix A). Fixed scales that are subject to periodic negotiation with employers determine their wages. Despite pronounced professionalism in matters of medical practice, Israel's physicians are characterized by a strong measure of proletarianism with regard to income, and are frequently discontent with their income and initiate strikes (Shuval, 1992; Shuval & Anson, 2000).

Nearly all Israeli physicians are members of the Israel Medical Association, which operates as both

Table 1  
Comparison between health plans before and after the National Health Insurance Law

	Clalit	Maccabi	Meuhedet	Leumit
Percent population covered <sup>a</sup>				
1994 (%)	63	19	9	9
1996 (%)	60	20	10	10
Percent over 65 <sup>a</sup>				
1994 (%)	13	6	5	7
1996 (%)	13	5	4	7
Change in revenue per standardized capita 1994–1995 <sup>b</sup> (%)	+11	–7	–14	+7
Change in expenditure per standardized capita 1994–1995 <sup>c</sup> (%)	+1.3	–6.5	–3.7	–3.8
Overall satisfaction with health plan (% satisfied or very satisfied) <sup>c</sup>	*			
1995 (%)	80	91	91	85
1997 (%)	90	95	94	91
Supplemental insurance ownership <sup>c</sup>	*			*
1995 (%)	16	80	65	50
1997 (%)	22	74	59	33

\*  $p < 0.05$ ,  $\chi^2$  test of differences between years.

<sup>a</sup>Source: Bendlack (1998).

<sup>b</sup>Source: Rosen, Ivancovsky, and Nevo (1998).

<sup>c</sup>Source: Gross (2004).

a professional association and as the coordinating body in collective bargaining for its member unions. The Israeli medical profession is a powerful actor in the health system, and elite members of the profession exercise considerable influence on national policies regarding professional training, licensing, and care standards, as well as on health plan policies that affect their jobs.

## Methods

### Study design

The survey was conducted between April and July 1997. The physicians were asked to respond to an anonymous, structured, pre-tested, self-administered, mailed questionnaire.

### Study population: sampling and response rate

The study population included all community-based primary care physicians who were employed by Israel's four health plans. A representative national sample of 990 physicians was drawn from the health plans' lists, after stratifying by health plan and specialty. Fifty-six physicians did not meet the inclusion criteria (i.e., did not practice general

medicine, or were not working). Of the remaining 934 physicians, 800 completed the questionnaire, for a response rate of 86%. Reasons for non-response were refusal (6%), the questionnaire's loss in the mail (6%), or inability to establish contact (2%). Each physician was assigned a weight based on his or her probability of being sampled. Characteristics of the physicians in the study are presented in Appendix A. There was high concordance between physicians in the sample and the national data set in gender, age and medical school country. A higher proportion of physicians in the national data set than in the sample were generalists. Apparently, physicians in the survey either over-reported their specialty status or received a specialist certification abroad which was not acknowledged in Israel.

### Research questions and variables

This study addressed two research questions: (a) What were physicians' attitudes toward NHI reform? and (b) What factors affected physicians' attitudes?

The dependent variables were attitudes toward implementation of each of the five main components of the NHI Law, rated on a five-point scale:

very desirable, desirable, somewhat desirable, not so desirable and undesirable.

The following independent variables were examined:

1. *Background variables*: (a) demographic characteristics: age and gender; (b) training: specialty and country of graduation from medical school; (c) health plan affiliation<sup>2</sup> (see Appendix A).

2. *Perceived changes in the health plan during the past two years* (since implementation of the NHI Law). The physicians were asked to rank the level of their health plan's services and its level of financial viability on a five-point scale: much less than in the past, less than in the past, just like in the past, more than in the past, much more than in the past. Each of the two questions was entered separately into the multivariate analysis.

3. *Perceived changes in daily work during the past two years* (since implementation of the law). Four measures of daily work were constructed: (a) professional autonomy (including a measure of administrative supervision and a measure of the physician's control of his or her work); (b) the status of physicians in the health plan; (c) the physicians' work load; and (d) the physicians' salary and conditions. For each of the items included in each measure, the physicians were asked to rank their situation at present, compared to their situation in the past, using a five-point scale: much more than in the past, more than in the past, just like in the past, less than in the past, much less than in the past (see Appendix B).

### Analysis

The data were analyzed using SPSS (Statistical Package for the Social Sciences, SPSS Inc., Chicago IL). Bivariate analysis was performed using overall  $\chi^2$  tests. Multivariate analysis was performed using logistic multivariate regression when the dependent variable was defined dichotomously, and Regression with Optimal Scaling (CATREG) when the dependent variable was measured on a five-point scale.

### Results

Most of the physicians responded that the five main components of the NHI Law were very

<sup>2</sup>The type of contract (e.g., salaried, independent) is closely related to health plan affiliation and therefore was not included in the multivariate analysis.

desirable or desirable, though there were statistically significant differences in the attitudes of physicians affiliated with different health plans (Table 2).

As depicted in Table 3, in total, high rates of physicians (between 42% in item 1c and 76% in item 1d) perceived a restriction of professional autonomy since implementation of the NHI Law, as measured by the items relating to administrative supervision of their work (1a–1e). Analysis by health plan revealed wider variation: between 33% (item 1c for Meuchedet) and 79% (in item 1d for Clalit and Leumit) reported having less autonomy in these items.

Lower rates (29% of all physicians) perceived that health plan management was constricting their medical discretion more than before (item 1f).

In total, most physicians perceived no change in items related to their control of their work, although between 15% (in item 2a) and 21% (in item 2c) of them reported having less autonomy regarding these items. Analysis by health plan revealed wider variation: between 9% in item 2d in Meuchedet and 24% in item 2c in Clalit reported having less autonomy in specific items.

Similarly, in total, most physicians did not perceive a change in their status in the health plan (Table 4), although between 18% (item a) and 28% (item b) of them reported a deterioration in their status. Analysis by health plan revealed wider variation: between 9.6% in item a in Meuchedet and 31.8% in item b in Leumit reported deterioration in their status in specific items.

Using multivariate analysis we examined factors affecting physicians' attitudes toward the NHI Law (Table 5). Models 1–5 indicate that health plan affiliation had an independent effect on physicians' attitudes toward most components of the law: physicians in Maccabi, Meuchedet, and Leumit had a less positive attitude than did physicians in Clalit toward the uniform basket of services (model 2); the requirement that the health plans accept all applicants (model 3); and the allocation of funds according to a capitation formula (model 4). Physicians in Maccabi and Meuchedet had a more positive attitude than did physicians in Clalit and Leumit toward allowing the health plans to market supplemental insurance (model 5).

Physicians with higher scores on the measure "control over work" had a more positive attitude toward one component of the reform (supplemental insurance, model 5). Other variables related to autonomy did not have an independent effect on

Table 2  
Physicians' attitudes toward components of the National Health Insurance Law, by health plan<sup>a</sup> (in %; *n* = 800)

	Total	Clalit	Maccabi	Meuhedet	Leumit
Freedom to transfer among health plans (n.s.)					
Not at all/minimally desirable	12.3	12.5	9.9	9.6	16.9
Somewhat desirable	25.3	25.9	21.8	23.1	29.0
Desirable	37.2	36.9	38.0	38.5	36.3
Very desirable	25.2	24.7	30.3	28.8	17.7
Allow health plans to market supplemental insurance ( <i>p</i> < 0.05)					
Not at all/minimally desirable	17.1	17.5	17.9	13.3	18.0
Somewhat desirable	24.3	24.8	22.9	17.1	30.3
Desirable	38.2	40.5	33.6	40.0	34.4
Very desirable	20.5	17.2	25.7	29.5	17.2
Uniform benefits package ( <i>p</i> < 0.001)					
Not at all/minimally desirable	22.2	13.9	38.3	32.3	23.2
Somewhat desirable	12.7	10.4	15.6	14.1	16.0
Desirable	25.4	25.0	24.1	30.3	24.0
Very desirable	39.7	50.7	22.0	23.2	36.8
Require health plans to accept every applicant ( <i>p</i> < 0.001)					
Not at all/minimally desirable	15.8	10.3	20.4	24.3	21.4
Somewhat desirable	12.6	7.9	18.3	14.6	19.8
Desirable	29.0	24.9	35.2	35.0	30.2
Very desirable	42.6	56.9	26.1	26.2	28.6
Distribute funds to health plans by number and ages of members ( <i>p</i> < 0.001)					
Not at all/minimally desirable	14.4	2.3	27.1	30.3	27.3
Somewhat desirable	10.5	8.0	17.3	8.1	13.2
Desirable	28.2	26.1	27.1	35.4	30.6
Very desirable	47.7	63.6	28.6	26.3	28.9

<sup>a</sup>Level of significance refers to the results of a  $\chi^2$  test of differences among health plans.

attitudes toward reform. More positive attitudes toward components of the NHI Law were reported by physicians over age 56 (in models 2–4), and less positive attitudes were reported by physicians who had completed medical school in the former Soviet Union (in models 1, 3, and 4), or who perceived a deterioration in their health plan's services (in models 2 and 4).

## Discussion

Reform of the health system, like intra-organizational change, can encounter opposition from employees who fear the uncertainty and loss of security that accompany change, as well as a loss of status and income (Lawler, 1986; Patti, 1974). Opposition may also arise from mistrust of the initiators of change, differences of opinion regarding the goals of change, or mistrust of the program of change and its chances of success (Zaltman, Duncan, & Holbek, 1973).

Studies of physicians' responses to change have found that their opposition to it is largely related to their fear of infringement on their professional autonomy (Hillman, 1987; Majoribanks & Lewis, 2003; Pollit et al., 1988; Reagan, 1973). However, this study is the first to empirically measure the effect of perceived infringement on autonomy, controlling for other factors that may affect the perception of reform.

This study reveals that following the NHI Law, high rates of physicians in all the health plans reported that their autonomy had been restricted, as reflected in increased administrative supervision of their work (e.g., quality of care, referrals, prescriptions). Much lower rates of physicians reported restriction of their autonomy related to control over their work, and most physicians did not perceive changes in the status of their profession, referred to also as the "dominance of the medical profession" (Friedson, 1985).

In order to examine the effect of perceived restriction of autonomy and perceived deterioration

Table 3

Physicians' perceived changes in dimensions of autonomy following the National Health Insurance Law, by health plan<sup>a</sup> (in %, *n* = 800)

Professional autonomy	Total	Clalit	Maccabi	Meuhedet	Leumit
<b>1. Administrative restrictions</b>					
<b>(a) Supervision of quality of medical care</b>					
More/much more than in the past	47.3	48.6	45.9	38.2	52.2
Same as in the past	48.7	46.4	51.1	60.8	43.5
Less/much less than in the past	4.0	5.0	3.0	1.0	4.3
<b>(b) Supervision of referrals outside health plan facilities</b>					
More/much more than in the past	72.4	73.0	69.9	70.8	73.9
Same as in the past	25.3	24.5	27.1	29.2	22.6
Less/much less than in the past	2.4	2.5	3.0	0.0	3.5
<b>(c) Supervision of referrals in health plan facilities</b>					
More/much more than in the past	42.2	43.3	40.6	33.4	47.7
Same as in the past	53.4	52.1	54.9	63.5	47.8
Less/much less than in the past	4.3	4.5	4.5	3.1	4.4
<b>(d) Supervision of prescriptions for expensive medications</b>					
More/much more than in the past	76.3	79.2	68.6	71.5	79
Same as in the past	20.7	17.3	29.1	27.4	17.2
Less/much less than in the past	3.0	3.5	2.2	11.0	3.4
<b>(e) Supervision of the use of laboratory tests (<i>p</i> &lt; 0.01)</b>					
More/much more than in the past	46.1	43.8	38.7	44.4	64.6
Same as in the past	50.6	52.1	58.3	51.5	35.4
Less/much less than in the past	3.2	4.0	3.0	4.1	0.0
<b>(f) Health plan management constricts medical discretion</b>					
More/much more than in the past	28.9	29.8	24.0	25.0	35.1
Same as in the past	63.9	62.6	70.7	69.8	55.3
Less/much less than in the past	7.2	7.6	5.3	5.2	9.6
<b>2. Physician's control of his/her work</b>					
<b>(a) Autonomy to treat patients as you want (<i>p</i> &lt; 0.01)</b>					
More/much more than in the past	28.8	32.7	17.6	28.9	28.1
Same as in the past	56.7	55.1	66.2	57.7	50.0
Less/much less than in the past	14.5	12.2	16.2	13.4	21.9
<b>(b) Ability to influence number of patients seen per day (<i>p</i> &lt; 0.01)</b>					
More/much more than in the past	16.8	20.5	11.9	11.3	13.5
Same as in the past	64.0	57.9	73.3	71.1	68.5
Less/much less than in the past	19.3	21.5	14.8	17.5	18.0
<b>(c) Ability to influence type and composition of patient list (<i>p</i> &lt; 0.01)</b>					
More/much more than in the past	9.3	8.4	4.5	10.3	17.1
Same as in the past	69.9	67.9	79.7	67.0	67.6
Less/much less than in the past	20.9	23.6	15.8	22.7	15.3
<b>(d) Ability to influence treatment by paramedical staff (nurses, dietician, physiotherapists, etc.) (<i>p</i> &lt; 0.0001)</b>					
More/much more than in the past	23.3	21.7	13.1	22.7	40.3
Same as in the past	60.6	61.4	66.4	68.0	44.7
Less/much less than in the past	16.2	16.9	20.1	9.3	14.9

<sup>a</sup>Level of significance refers to the results of a  $\chi^2$  test of differences among health plans.

in professional status in the health plan on negative perceptions of the reform, we conducted a multivariate analysis, controlling for the physicians' background variables as well as for perceived changes in the health plan, and in physicians' work load, salary, and employment conditions. Contrary to expectations, a perceived increase in "administrative restrictions" and a perceived decrease in "professional status in the health plan" did not have

an independent effect on the physicians' attitudes toward any of the components of reform. A perceived decrease in "control of work" had an independent positive effect only on attitudes toward supplemental insurance.

The principal and most interesting finding of this study, however, concerned the effect of health plan affiliation on the physicians' attitudes toward reform. Although most physicians supported the NHI

Table 4  
Perceived changes in physicians' status in their health plan following the National Health Insurance Law, by health plan<sup>a</sup> (in %; n = 800)

	Total	Clalit	Maccabi	Meuhedet	Leumit
(a) Management's appreciation of your work ( <i>p</i> < 0.001)					
Less/much less than in the past	18.2	20.7	16.4	9.6	19.1
Same as in the past	59.4	60.5	68.0	67.0	39.1
More/much more than in the past	18.8	16.1	11.7	19.1	36.4
(b) Ability to influence administrative decisions in health plan ( <i>p</i> < 0.01)					
Less/much less than in the past	28.0	28.9	24.8	24.0	31.8
Same as in the past	59.1	55.9	64.3	74.0	51.8
More/much more than in the past	12.8	15.2	10.8	2.1	16.3
(c) Medical sector's ability to influence medical policy ( <i>p</i> < 0.002)					
Less/much less than in the past	19.3	16.9	31.1	18.3	15.4
Same as in the past	54.4	54.5	47.3	68.8	50.4
More/much more than in the past	26.2	28.6	21.8	12.9	34.2

<sup>a</sup>Level of significance refers to the results of a  $\chi^2$  test of differences among health plans.

Table 5  
Factors affecting attitudes toward components of the National Health Insurance Law (multivariate CATREG analysis), n = 800

Independent variables	Model 1 supports freedom of transfer among health plans (b coefficients)	Model 2 supports uniform benefits package (b coefficients)	Model 3 supports requiring health plans to accept all applicants (b coefficients)	Model 4 supports distributing funds to health plans by number and ages of members (b coefficients)	Model 5 supports allowing health plans to market supplemental insurance (b coefficients)
<i>Background</i>					
Age 56+	0.22	0.52*	0.5*	0.4*	0.07
Man	0.17	-0.07	-0.03	0.04	-0.07
Finished medical school in former USSR, eastern Europe	-0.26*	-0.24	-0.52*	-0.26*	-0.10
Specialist in family medicine	0.12	-0.28	0.02	-0.08	-0.07
Pediatrician	0.20	-0.19	0.18	-0.03	0.04
Internist	0.40*	-0.26	0.02	0.04	-0.001
Works in Leumit	-0.19	-0.46*	-0.7*	-0.96*	-0.19
Works in Maccabi	0.18	-0.93*	-0.7*	-1.00*	0.35*
Works in Meuhedet	0.23	-0.90*	-0.7*	-0.92*	0.50*
Deterioration in level of service since 1995	-0.22	-0.8*	-0.31	-0.50*	-0.18
Financial difficulties since 1995	-0.04	-0.02	-0.04	-0.14	0.06
Administrative supervision	-0.05	0.04	-0.07	-0.10	0.17
Physician's control of work	-0.14	-0.1	-0.22	0.00	0.28*
Status in the Health plan	0.09	0.21	0.10	0.04	-0.06
Work load	-0.10	0.07	-0.12	0.16	-0.02
Salary and benefits	0.06	-0.03	0.14	0.08	0.14
R <sup>2</sup>	0.09	0.16	0.15	0.24	0.06

\**p* < 0.05.

Law's principal components, rates of support varied significantly between physicians affiliated with the different health plans.

Specifically, we found that affiliation with Maccabi, Meuhedet, or Leumit was correlated with a negative attitude toward the uniform benefits

package, acceptance of all applicants for membership, and allocation of funds according to a capitation formula. Affiliation with Maccabi or Meuhedet, both of which had a larger proportion of members who had purchased supplemental health insurance than Clalit or Leumit (Gross &

Brammli-Greenberg, 2004), was found to be correlated with a positive attitude toward allowing the health plans to market supplemental insurance.

Interestingly, the attitudes expressed by the physicians toward the reform reflected the official position of their respective health plans at that time (Gross, 2003). One explanation for the effect of health plan affiliation on physicians' attitudes toward the law and its components was the different effect the law had on each of the health plans. For example, following the reform the new arrangement for allocation of money to the health plans increased Clalit's funds and decreased those of Maccabi and Meuhedet. It is therefore not surprising that these health plans, and the physicians affiliated with them, opposed this component of the NHI Law.

Nevertheless, the law's actual effect on the health plans is not sufficient to explain the correlation we found between health plan affiliation and physicians' attitudes. Multivariate analysis revealed that health plan affiliation had an independent effect on attitudes even after controlling for variables that measured the perceived effect of the law on a health plan's level of service and financial viability, perceived change in autonomy and other aspects of their daily work, as well as perceived changes in physicians' status in their health plan.

The independent effect of health plan affiliation in the multivariate analysis suggests that physicians advocated the position of the organization for which they worked, even if they did not feel they had been personally harmed by implementation of the reform, and even if they did not feel that the reform had damaged their health plan's financial situation or level of services.

A possible explanation for this notable finding is that the physicians were influenced by the official position of their health plan's administration, as espoused at intra-organizational meetings and communiqués and as clearly reported in the media. To illustrate,<sup>3</sup> Clalit's 1993 strategic plan comprised at the beginning of the NHI legislation process and disseminated widely within the health plan, explicitly supported NHI legislation; it was perceived as a solution to Clalit's financial problems. This perception was frequently voiced in newspaper interviews by the health plan's top management ("No doubt a National Health Insurance Law will bring additional funds to Clalit", Director-General, Telegraph,

12.5.94); at national conferences; and in the parliament committee that prepared the legislation. In contrast, officials of Maccabi and Meuhedet publicly expressed their opposition to NHI legislation, claiming it was a political act to assist Clalit at their expense by shifting funds that their members paid. They vehemently opposed the proposed capitation formula perceived as an unjust method for allocation of funds among the health plans, and advocated for restoring the former method of salary-based independent collection by each health plan.

The most intense debate over national health insurance was waged between Clalit and the other health plans in 1996, one year after passage of the law (and some months prior to this study). At that time, Maccabi led a much-publicized campaign against the NHI Law. The main arguments were that "the citizen pays more and gets less than before"; the government had "nationalized" the health plans; the reformed health system had already accrued a huge deficit of one billion NIS. Although the two smaller health plans were less active in this campaign, they nevertheless expressed similar arguments. In response, Clalit prepared a position paper that emphasized the advantages and achievements of the NHI Law. The documents prepared by the health plans were widely disseminated, both internally to physicians and other staff and externally to politicians and senior government officials with wide media coverage.

Thus, both immediately prior to and following the 1995 legislation, physicians were continuously exposed to their health plan's official position. It is therefore plausible that, in forming their attitudes about NHI, physicians assimilated the position of their health plan's administration. If this was indeed the case, their attitudes may be seen to reflect their internalization of, and identification with, their organization's position.

This explanation corroborates theories of the effect of organizational culture, defined as: "...shared meaning, shared understanding and shared sense making are all different ways of describing culture. In talking about culture we are really talking about a process of reality construction that allows people to see and understand particular events, actions, objects, utterances, or situations in distinctive ways. These patterns of understanding also provide a basis for making one's own behavior sensible and meaningful" (Morgan, 1986, p. 128). According to this approach, sharing an organizational culture would explain the similar attitudes

<sup>3</sup>The following illustrations are based on the first author's doctoral dissertation (Gross, 1999).

toward components of the law of physicians affiliated with the same organization.

Schein (1990) proposed that organizational culture exists on three levels: the first is that of artifacts (e.g. ceremonies, rituals, stories and myths that characterize an organization). The second level is that of values, which reflect an organization's underlying beliefs. They are formally articulated in mission statements, annual reports, and communications from the organization's leaders. The third level is that of basic assumptions and premises, which are generally invisible to the members of the organization (Rondeau & Wagar, 1998).

Using this terminology, our analysis of physicians' attitudes toward the NHI reform may be said to have examined the cultural level of "values"—that is, physicians' beliefs about the desirability of the NHI Law's main components—as manifested in formal communications from senior management.

Political approaches to organizational culture acknowledge diversity, and hold that organizational culture is the product of interactions between sub-groups or interest groups with distinct and possibly dissimilar values and beliefs (Lucas, 1987). The political approach to culture would seem to indicate that differences among organizations lie in the strength of their culture, and in the degree of consensus among their members regarding values, beliefs and assumptions (Nystrom, 1993). The concept of cultural differentiation in an organization is related to this approach, and posits the existence of sub-cultures within an organization (as opposed to only one culture), which may adhere to some elements of the dominant culture's values, beliefs and assumptions, but may also oppose them (Rondeau & Wagar, 1998). Indeed, our findings indicate that not all physicians affiliated with the same health plan expressed uniform attitudes; some physicians supported the law even in health plans that opposed it, and vice versa.

The degree of cultural differentiation in an organization as complex as a health service provider may be expected to be high, given that such providers have many sub-units with different needs and objectives. In the case of health service organizations the main distinctions are among physicians, other health professionals, and administrators (Rondeau & Wagar, 1998). Although sub-groups of professionals from different sectors may coalesce because the professionals share similar goals or interests (Lucas, 1987), physicians are perceived as a distinct sub-group because of their

strong socialization to a unique value system, which sets them apart from other health care providers (Rondeau & Wagar, 1998). Thus, in this study, we referred to all physicians in a health plan as part of the same organizational sub-group, defined on the basis of professional identity.

#### *Theoretical implications and directions for future research*

The findings of this study point to a need for additional empirical studies to further examine the contentions of theories about the value of professional autonomy to physicians and the implications of infringing on that autonomy. Similarly, empirical data are needed to examine the implications of infringing on the dominance of the medical profession, given the scarcity of empirical research testing these theories.

This study raises a significant question as to the theoretical claim that professional autonomy and the dominance of the medical profession exercise an intensive motivating force on physicians' behavior, given that physicians' attitudes toward reform appear to be affected more by the attitude of the organization for which they work than by their perception of any impediment to their autonomy, or by their perception of an impediment to the dominance of their profession.

It may be worthwhile to examine whether this is a general phenomenon or one unique to physicians in Israel. Historically, Israeli primary care physicians have worked in health plans that are bureaucratic organizations, founded on the principles of managed care. Also, Israeli primary care physicians usually have a long-standing affiliation with one of the health plans. This employment arrangement may account for their feeling part of an organization, rather than members of a professional community that is broader than their specific current employment site. Their commitment to their employing organization may be augmented by external conditions, particularly the surplus of physicians that characterizes Israel's medical work force (4.72 physicians per 1000 population in 1997), and which may engender job insecurity (Ministry of Health, 1998).

In systems in which there is no surplus of physicians, those who are privately employed or who have short-term contracts with a health plan may not be as affected by the culture of the organization that employs them. They may feel less dependent on it, less committed to it, and consequently identify less with its formal positions.

In addition, the dominant effect of organizational culture in the case we studied may be related to the period during which data were collected—that is, two years after the beginning of significant reform of Israel's health system. During this period, the health plans intensively expressed their opinions of the reform, perhaps in an attempt to influence policy makers to change legislation and thereby better their position. Given the consequent broad media coverage of the health plans' reactions to the reform, and the relatively small size of the country, physicians could not help but be made aware of the health plans' positions, and perhaps be influenced by them. In subsequent years, the furor died down; today, health plan managements accept the reform as a fait accompli, and no longer vociferously debate its advantages and disadvantages in the media.

In summary, this study was unique in highlighting the effect of organizational affiliation on physicians' attitudes toward reform. Its claim that physicians' attitudes are influenced by the attitude expressed by the organization for which they work (regardless of the effect on their autonomy, professional status and daily work) highlights the importance of analyzing physicians' attitudes in their organizational context, rather than treating physicians as members of a uniform professional community with one general orientation.

To this end, future research could benefit from a comprehensive approach, which would be guided by a conceptual model that takes into account both the professional influences of status and autonomy cited in the theoretical literature, and the effects of organizational influences found by this study. Our analysis indicates several parameters of such a model

that should be examined in greater depth. These include the influence of organizational culture on physicians working in different environments or organizational settings (e.g., managed care versus independent practitioners) and with diverse employment arrangements, as well as on sub-groups of other professionals and on elite versus frontline physicians. It might also be worthwhile to examine the influences of organizational culture at early as opposed to later stages of reform processes, taking into account the degree to which formal organizational positions and attitudes receive media exposure at each stage. Finally, a comprehensive conceptual model should also include delineation of the processes that lead physicians to identify with the organization for and in which they work and to adopt its official positions, as was the case in Israel following NHI reform.

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#### Appendix A

Background characteristics of the physicians in the study and national data are listed in [Table A1](#).

Table A1

Characteristic	Sample data		National data <sup>a</sup>
	Number of respondents	Percentage	Percentage
Health plan	788		
Clalit		52.5	55.0
Maccabi		18.3	
Leumit		13.2	
Meuhedet		16.0	
Employment conditions	793		Not available
Salaried		60.9	
Independent		21.7	
Salaried and independent		17.4	
Gender	800		
Men		60.0	57.0
Women		40.0	43.0

Table A1 (continued)

Age	781		
Up to 44		48.2	44.0
45–55		34.3	56.0 <sup>b</sup>
56 and over		17.4	
Specialization	800		
General medicine		40.7	56.0 <sup>c</sup>
Family medicine		18.5	13.0
Pediatrics		21.5	18.0
Internal/other		19.3	13.0
Clinic setting	785		Not available
Large city		54.8	
Small city		21.6	
Mixed (urban/rural)		10.4	
Rural		13.1	
Where medical school was completed	781		
Israel		24.3	27.0
Western Europe or North America		20.0	23.0
Eastern Europe or former Soviet Union		48.3	46.0
Asia, Africa, Australia, South America, other		7.3	4.0 <sup>d</sup>

<sup>a</sup>Source: Data from the Ministry of Health survey of all (4998) primary care physicians employed by the four health plans in December 1998 (Pilpel et al., 2000).

<sup>b</sup>Category includes all physicians aged 45+.

<sup>c</sup>Specialization statuses were taken from the Ministry of Health’s list of registered physicians.

<sup>d</sup>Includes only Asia–Africa.

Table B1

Measure	Item	Reliability (Cronbach’s $\alpha$ )
1. Professional autonomy regarding “administrative restrictions” (high score represents more restriction after the law)	Management’s supervision of the quality of medical care, referral to outside agents and health plan facilities, prescriptions for expensive medications, and the use of laboratory tests; management’s restrictions of medical discretion.	0.8
2. Professional autonomy regarding “physician’s control over his/her work” (high score represents more control after the law)	The autonomy to treat patients as you see fit, and ability to influence the number of patients you see in a day, the type and composition of patients on your list, and the treatment of paramedical agents.	0.67
3. “Status in the health plan” (high score represents higher status after the law)	Management’s appreciation of the physician’s work; the physician’s ability to influence administrative decisions in the health plan; the medical sector of the health plan’s ability to influence the physician’s medical treatment policy.	0.68
4. “Work load” (high score represents greater work load after the law)	The number of severe and chronic patients in the physician’s care; the physician’s clinical work load (seeing patients); the physician’s administrative work load (quantity of administrative duties); the degree to which the physician’s patients are demanding.	0.64
5. “Salary and conditions” (high score represents better salary and conditions after the law)	A single question asking physicians to rate change in their “salary level and benefits”.	Not relevant

**Appendix B. Measures of perceived changes in physicians’ daily work, following NHI**

The physicians were asked about changes in their daily work following implementation of the NHI

Law. They were asked to respond according to a scale of 1–5 regarding the presence of each item: 1 = much less than in the past, 2 = less than in the past, 3 = just like in the past, 4 = more than in the past, 5 = much more than in the past. The measure

was constructed as an average of the scores assigned to the items comprising each measure.

The items were built following a qualitative pilot study that identified specific areas expected to be affected by implementation of the NHI Law. Conceptually, the measures of professional autonomy correspond to the “clinical work freedoms— which are part of the micro-work freedoms” in the conceptual model of autonomy presented by Marjoribanks and Lewis (2003).

The items that comprise each measure, and their reliability, are specified in Table B1.

## References

- Baillie, R., Sibthorpe, B., Douglas, B., et al. (1998). Mixed feelings: Satisfaction and disillusionment among Australian GPs. *Journal of Family Practice*, 15, 58–66.
- Bendlack, J. (1998). Rates of membership in Israeli Health Plans 1994–1996. National Insurance Institute, Jerusalem.
- Blendon, R. J., Kohul, A., Benson, J. M., et al. (1994). Health system reform: Physicians' views on the critical choices. *Journal of the American Medical Association*, 272, 1546–1550.
- Enthoven, A. (1993). The history and principles of managed competition. *Health Affairs*, 12, 24–48.
- Friedson, E. (1985). The reorganization of the medical profession. *Medical Care Review*, 42, 11–35.
- Gabel, S., & Oster, G. D. (1998). Mental health providers confronting organizational change: Process, problems and strategies. *Psychiatry*, 61, 302–316.
- Goldacre, M. J., Lambert, T. W., & Parkhouse, J. (1998). Views of doctors in the United Kingdom about their own professional position and the national health service reforms. *Journal of Public Health Medicine*, 20, 86–92.
- Gross, R. (1999). *Organizational adaptation to a changing environment: Israeli sick funds' strategies in response to implementation of the National Health Insurance Law*. Ph.D. dissertation, Bar-Ilan University (in Hebrew).
- Gross, R. (2003). Implementing health care reform in Israel: Organizational response to perceived incentives. *Journal of Health Politics Policy and Law*, 28(4), 659–692.
- Gross, R. (2004). A consumer-based tool for evaluating the quality of health services in the Israeli health care system following reform. *Health Policy*, 68, 143–158.
- Gross, R., & Brammli-Greenberg, S. (2004). Evaluating the effect of regulatory prohibitions against risk selection by health status on supplemental insurance ownership in Israel. *Social Science & Medicine*, 54, 1609–1622.
- Gross, R., & Harrison, M. (2001). Implementing managed competition in Israel. *Social Science & Medicine*, 52(8), 1219–1231.
- Gross, R., Rosen, B., & Shirom, A. (1999). The health care system in Israel following the implementation of the National Health Insurance law. *Social Security*, 54, 11–34 (in Hebrew).
- Harrison, S., & Ahmad, W. I. U. (2000). Medical Autonomy and the UK state 1975 to 2025. *Sociology*, 34(1), 129–146.
- Hillman, A. L. (1987). Financial incentives for physicians in HMOs: Is there a conflict of interest? *New England Journal of Medicine*, 317, 1743–1748.
- Hunter, D. (1996). The changing roles of health care personnel in health and health care management. *Social Science & Medicine*, 43, 799–808.
- Lawler, E. (1986). *High involvement management*. San Francisco: Jossey-Bass.
- Lewis, J. (2002). Policy and profession: Elite perspectives on redefining general practice in Australia and England. *Journal of Health Services Research & Policy*, 7(S1), 8–13.
- Lucas, R. (1987). Political-cultural analysis of organizations. *Academy of Management Review*, 12(1), 144–156.
- Marjoribanks, T., & Lewis, J. M. (2003). Reform and autonomy: Perceptions of the Australian general practice community. *Social Science & Medicine*, 56, 2229–2239.
- Ministry of Health. (1998). *Health in Israel: Selected data*. Jerusalem: Ministry of Health (in Hebrew).
- Morgan, G. (1986). *Images of organization*. London: Sage Publications.
- Nystrom, P. C. (1993). Organizational cultures, strategies, and commitments in health care organizations. *Health Care Management Review*, 18(1), 43–49.
- Patti, R. J. (1974). Organizational resistance and change: The view below. *Social Service Review*, 48, 371–372.
- Pilpel, D., Shemesh, A., Sematnikov, E., & Dor, M. (2000). *The primary care physician in Israel*. Jerusalem: Ministry of Health (in Hebrew).
- Pollit, C., Harrison, S., Hunter, D., et al. (1988). The reluctant managers: Clinicians and budgets in the NHS. *Financial Accounting and Management*, 4, 213.
- Quaye, R. K. (1997). Swedish physicians' perspectives on the introduction of the Stockholm model. *Journal of Management and Medicine*, 11, 246–255.
- Reagan, M. D. (1973). Physicians as gatekeepers: A complex challenge. *New England Journal of Medicine*, 317, 1731–1734.
- Rondeau, K. V., & Wagar, T. H. (1998). Hospital chief executive officer perceptions of organizational culture and performance. *Hospital Topics*, 76(2), 14–21.
- Rosen, B., Ivanovsky, M., & Nevo, Y. (1998). *Changes in the sick fund economy: Sick fund revenues before and after the introduction of national health insurance*. Research report RR-317-98. Jerusalem: Myers-JDC-Brookdale Institute (in Hebrew).
- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45, 109–119.
- Schultz, R., & Harrison, S. (1986). Physician autonomy in the Federal Republic of Germany, Great Britain and the United States. *International Journal of Health Planning and Management*, 2, 335–355.
- Schultz, R., & Schultz, C. (1988). Management practices, physician autonomy, and satisfaction. Evidence from mental health institutions in the Federal Republic of Germany. *Medical Care*, 26(8), 750–763.
- Shuval, J. T. (1992). *Social dimensions of health: The Israeli experience*. Westport, CT: Praeger Publishers.
- Shuval, J. T. (2000). The reconstruction of professional identity among immigrant physicians in three societies. *Journal of Immigrant Health*, 2(4), 191–202.
- Shuval, J. T., & Anson, O. (2000). *Social structure and health in Israel*. Jerusalem: Magnes Press (in Hebrew).
- Sullivan, W. M. (2000). Medicine under threat: Professionalism and professional identity. *Canadian Medical Association Journal*, 162(5), 673–675.
- Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations*. New York: Wiley.



## Afterword

*Gary Freed*

I got to know Revital through my work as a member, and then as Chair, of the Myers-JDC-Brookdale Institute's health advisory committee. Throughout our association and the friendship that developed, Revital always impressed me with her dual passion for methodological rigor and the desire to accomplish meaningful work. One of the main reasons we developed such a strong professional bond was our mutual belief in both the importance of the quality of work that was to be accomplished and the essential need for that work to be meaningful to policymakers and the public.

The articles in this section provide several important lessons for the international research and health policy communities. In the manuscript *Patients' views of direct access to specialists*, Revital and her co-authors make the implicitly important point that the perspective of patients actually matter in health care decision making at . Similarly, in *Who needs a gatekeeper? Patients' views of the role of the primary care physician*, Revital makes the point that policymakers must also listen to the patients in the health care systems they construct. So often the opinions of patients and their families are left out of the discussions regarding the content and structure of health care delivery systems. Understanding and valuing patient perspectives on how they can best access components of their health care system is an important universal concept that transcends the unique features of health care delivery in different nations. However, these manuscripts also have very specific applicability to those nations either currently utilizing or considering the development of a "gatekeeper" model for primary and secondary care in the outpatient arena. The sensitivity to the importance of both the emotional as well as the physical interaction patients have with their health systems is a clear example of the compassion Revital brought to her work.

The messages contained in *Factors affecting primary care physicians' perceptions of health system reform in Israel: Professional autonomy versus*

*organizational affiliation* highlighted the important nuance of examining physician attitudes within their professional organization context (i.e., their employer or health plan setting) rather than only as part of a homogeneous professional community. Although many researchers around the world conduct surveys of physicians to try to understand the influences on their behavior, Revital and her colleagues demonstrate in this paper the novel concept that physicians may be more affected by professional affiliations that previously believed. Whether certain physicians joined health plans that most aligned with their existing beliefs, or whether the beliefs of those physicians were shaped by their health plan affiliation is unknown. Future research, as called for in the paper, will help to make this important determination.

Finally, in *Implementing QA programs in managed care health plans: factors contributing to success* Revital addresses an arena of growing importance to the international health care community, that of quality assurance in the delivery of care. This study provides an evaluation of the factors that are associated with specific quality assurance programs. Findings from this study can be used across the globe by those seeking to improve the quality of patient care and who struggle to effectively and successfully implement efforts to improve care.

I greatly valued Revital as a colleague and a friend. Her warmth and drive were infectious. She could see the potential impact of research ideas and kept her eyes clearly focused on the goal of influencing policy decisions through her work. She wanted to make Israel and the entire world a better place. She is greatly missed. Her work must carry on.

**Part III:**

# **The Health of Women**



## Introduction

*Rachel Adatto*

It is difficult to imagine the promotion of women's health in Israel without the profound involvement of Revital.

When the subject of women's health was broached some 15 years ago by then Minister of Health, Tzachi Hanegbi, the first question always asked at the time was: "Why isn't women's health the same as gynecology?"

Fifteen years is not a long time to change public opinion and root a new topic in the medical establishment. Looking back, I have no doubt that one may talk today in terms of a successful development. The promotion of women's health in Israel evolved from a concept into a household word.

One evident sign of the change is that a number of medical and nursing schools now allocate in their curriculums special hours for the teaching of women's health. It is also taught in courses of further training for family physicians. Conferences dealing with many aspects of women's health address diverse audiences from both the health system and the public at large. Dozens of academic articles have been written on the subject in recent years. Taken all together, the above led to a conceptual change, and the recognition that women's health is different from men's health has filtered into public consciousness. There is no doubt that Revital played a key role in this change.

My connection with Revital began early on in the process when I was appointed to advance the topic within the Ministry of Health. One of the first important actions was to organize an international conference with the participation of the health ministers of Israel and of the U.S. This served as a platform of exposure for several discrete aspects of women's health in Israel in comparison with the rest of the world. A paper presented by Revital was one of the centerpieces of that conference.

As a direct outcome of the conference, a National Council on Women's Health was established, serving as an advisory forum to the Minister of

Health insofar as concerns the promotion of the topic in Israel. Revital was appointed to the council from the first and her contribution proved invaluable. The council dealt with numerous areas, including the major topic of violence against women. Revital, in collaboration with other council members, composed a document on the topic, which was adopted in full by the Director General of the Ministry of Health. The document, which became a management circular, deals with the identification of victims of violence against women by personnel in the health system.

Another important result of the conference was the ISHA (Women's Health) Project established in cooperation with the Cleveland Jewish community, the Jewish Agency for Israel, and the Myers-JDC-Brookdale Institute. The program crosses organizations and national boundaries, bringing together and training physicians in primary care, academic medical leaders, and women's health activists to significantly further women's health in Israel. Revital played a major role in evaluating the project (Elroy, Gross, Ashkenazi & Rosen 2008), with the goal of examining the implementation process and the level of satisfaction with it.

In preparing to write this introduction, I came across dozens of articles in which Revital had a hand, whether as sole author or co-author. Their common denominator of course was the topic of health and wellbeing, with a substantial proportion concerning research on women's health. Many of the studies were pioneering in their areas per se, such as the collection of data on women's health in different sectors in Israel, for instance, the ultra-orthodox and Bedouin.

I would like to cite several examples, starting with the comprehensive study on women's health and wellbeing in Israel (Gross & Brammli-Greenberg, 2000). Here, for the first time, data were collected on the experience of women in the health system. A special chapter was devoted to visits to gynecologists and women's preferences on being treated by male or female physicians, allowing for age and sector.

In a similar survey, Revital examined whether the sex of the treating physician impacted on patient responsiveness following the growth in the number of

female physicians into the medical system as a whole, and into primary care in particular. The comprehensive study, reported in *The association of gender concordance and primary care physicians' perceptions of their patients*, and included in this volume, compared the situations in Israel and New Zealand.

One comprehensive, interesting study, reported in *The association between inquiry about emotional distress and women's satisfaction with their family physician: Findings from a national survey*, examined mental distress among the adult population. It characterized women reporting mental distress and examined the scope of activities aimed at identifying the distress by primary-care physicians. Among other things, it found a considerable rate of untreated mental distress among women from more vulnerable populations (the elderly, new immigrants, and Arab women).

These are but a handful of studies from the abundance of topics and studies dealt with by Revital. Her untimely passing was a loss not only to friends and family but to the health system of the State of Israel. Her diverse, important studies greatly contributed to the understanding of developments in the public health system.

May she rest in peace.

## Footnotes

Elroy, I., Gross, R. Ashkenazi, Y., Rosen, B. (2008). *Project for the Advancement of Women's Health in Israel (ISHA) – Evaluation of the Program to Develop Women's Lay Leadership: Summary Report*. RR-513-08. Myers-JDC-Brookdale Institute, Jerusalem.

Gross, R. Brammli-Greenberg, S. (2000). *The Health and Welfare of Women in Israel: Findings from a National Survey*. RR-361-00. Myers-JDC-Brookdale Institute, Jerusalem.



# **Self-rated Health Status and Health Care Utilization among Immigrant and Non-immigrant Israeli Jewish Women**

Revital Gross, Shuli Brammli-Greenberg,  
Larissa Remennick

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# Self-Rated Health Status and Health Care Utilization Among Immigrant and Non-Immigrant Israeli Jewish Women

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Larissa Remennick, PhD

**ABSTRACT.** *Introduction:* Since 1989, Israel has absorbed over 700,000 Jewish immigrants from the former Soviet Union, among them about 375,000 women. Immigrants are known to have greater and/or different health needs than non-immigrant residents, and to face unique barriers to receiving care. However, research addressing the specific health problems of these immigrant women has been scarce.

*Objectives:* To compare self-reported health status and health care utilization patterns among immigrant and non-immigrant Israeli Jewish women; and to explore ways to overcome existing barriers to their care.

*Methods:* A telephone survey was conducted in September and October 1998 among a random national sample of women age 22 and over, using a standard questionnaire. In all, 849 interviews were completed,

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with a response rate of 84%. In this article we present comparative data from a sub-set that included 760 immigrant respondents from the former Soviet Union and non-immigrant Jewish respondents.

*Results:* A greater proportion of immigrant versus non-immigrant women reported poor perceived health status (17% vs. 4%), chronic disease (61% vs. 38%), disability (31% vs. 18%) and depressive mood symptoms (52% vs. 38%). Lower rates of immigrant women visited a gynecologist regularly (57% vs. 83%) and were satisfied with their primary care physician. Lower rates of immigrants reported discussing health promotion issues such as smoking, diet, physical activity, HRT, and calcium intake with their physician. The article concludes with a discussion of the implications of the findings for designing services that will effectively promote immigrant women's health, both in Israel and elsewhere. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <<http://www.HaworthPress.com>> © 2001 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** Women's health, immigration, primary care

## INTRODUCTION

In multicultural societies, health risks, behavior, and the use of health care services vary among women from different ethno-religious groups. These differences reflect socio-economic status, and social and cultural factors that are related to origin and specific life events, such as immigration. Women who belong to different groups may have different health needs, and confront different barriers to care (Ferran, Tracy, Gany and Kramer, 1999). If we wish to promote women's health effectively, these differences need to be known and taken into account when designing services.

Since 1989, Israel—which has a population of 6.04 million citizens—has absorbed over 700,000 Jewish immigrants from the former Soviet Union, among them about 375,000 women (Central Bureau of Statistics, 1999). Immigration is a stressful life event; in Israel as in other countries, it has been found to be associated with an increased incidence of acute conditions, mental distress, depression and psychiatric morbidity, and poorer mental health (Creed, 1987; Shuval, 1992; Anson et al., 1996; Zilber and Lerner, 1996).

Previous epidemiological and public health studies assessing the

health status of immigrants from the former Soviet Union have found that immigrants have higher levels of morbidity and mortality from heart and cerebrovascular diseases, many types of cancer, and other common chronic diseases (Rennert, 1994; Nirel et al., 1998). Immigrants also have higher levels of mental distress than do non-immigrant Israelis (Levav et al., 1990; Lerner and Zilber, 1991; Zilber and Lerner, 1996), as well as inferior self-rated physical and psychological well-being, poorer family functioning, and more limited social interactions (Anson et al., 1996). Immigrants also tend to report having difficulty gaining access to certain services (e.g., emergency care and dental treatment), and being less satisfied with their medical care in general (Remennick and Ottenstein, 1998; Nirel et al., 1998).

However, previous studies have typically ignored gender differences in health and illness. Moreover, in the international literature on both immigration and public health, issues of immigrant women's health have not received sufficient attention (Anderson, 1987; Remennick, 1999a, 1999b). Research conducted in Israel on the health problems unique to immigrant women from the former Soviet Union has been scarce, although some studies have focused on specific health issues of Russian-speaking Israeli women, such as family planning (Remennick et al., 1995), breast cancer awareness and early detection among middle-aged women (Remennick, 1999a), caregiving roles, and preventive practices (Remennick, 1999b). Furthermore, studies conducted in Israel and elsewhere have not compared immigrant women's health to that of non-immigrant women (Anderson, 1987). The ability to interpret their findings is therefore limited, as we do not know whether the problems they have identified are unique to immigrant women or apply to other women, as well.

Our study focuses on women immigrants from the former Soviet Union who have been in Israel for ten years or less (i.e., who immigrated between 1989 and 1998), and compares them to other Israeli Jewish women. This latter group comprises Jewish women born in Israel, and women who immigrated to Israel more than ten years ago, from the former Soviet Union and other countries (hereafter, "non-immigrants").

The objectives of the current study were (a) to compare self-reported health status and health care utilization patterns among immigrant women from the former Soviet Union and non-immigrant Israeli Jewish women; and (b) to discuss policy implications for overcoming existing barriers to care between these two groups of women.

The contribution of the current study lies in its providing a broad overview of the health status, utilization of preventive and routine ser-

vices, and evaluation of physician care of immigrant women in a country that provides universal health coverage, and hence has no financial barriers to care. The study also facilitates comparison with non-immigrant women, providing a perspective for understanding immigrants' unique experiences with the health system.

### *The Israeli Health Care System*

Israel is unique in having an "open door" policy to immigration rooted in the Law of Return, which states that every Jew has the right to immigrate to and settle in Israel. This formal policy accepts virtually all Jewish immigrants, regardless of pragmatic considerations such as economic status, job availability or physical health (Shuval, 1992). Immigration to Israel, which began in the late 19th century and continues at varying rates to this day, is a decisive factor in the country's population growth.

Another important factor is that of universal health coverage. Since January 1995, when the National Health Insurance Law went into effect, health care has been a universal entitlement for all residents of Israel. The law instituted a progressive health tax and there is minimal or no patient cost sharing for services (except medications). Consequently, there are almost no financial barriers to care.

Health care is provided to all residents through a sick fund of their choice. Sick funds operate on the principle of managed care, and deliver services based on a uniform benefits package stipulated by the law. Sick fund services include primary, secondary, and tertiary care, as well as preventive care (such as mammograms for women over age 50). Services are provided at the sick funds' own facilities, or through contracted providers. Four sick funds operate in Israel: Clalit, the largest among them, insures about 60% of the population; Maccabi insures about 20% of the population; and Meuhedet and Leumit insure 10% of the population each. All of the sick funds allow their members to choose a primary care physician, and to change physicians if dissatisfied.

## **METHODS**

The study population included all women over age 22 who are permanent residents of Israel. A random representative sample of households was drawn using the national computerized telephone listing of Bezeq, Israel's only domestic telephone company, with which over

95% of Israeli households are listed. For each listing sampled that met the eligibility criteria, one randomly chosen female resident was interviewed. The method for selecting a respondent within a household was based on random selection tables. The interviewer listed all female residents over age 22, from eldest to youngest, who resided in each household. For households in each size category (e.g., two females over age 22, three females over age 22, etc.) the interviewer used a selection table that listed random numbers according to the number of females over age 22 in the household. For example, females in households with two females over age 22 were selected from the two values in the table (i.e., 1, 2); females in households with three females over age 22 were selected from the three values in the table (i.e., 1, 2, 3), and so on. The interviewer used the relevant selection table to choose the respondent, and then used the next number on the table when encountering a household of the same size.

Of the 1,309 households initially sampled, 158 (12%) did not meet the eligibility criteria (i.e., they belonged to a business or institution, were fax-modems, or had no women residents over age 22). An additional 141 (10.8%) were inactive numbers (i.e., the line had been disconnected, or there was no answer at any hour of the day or night after an average of three calls per week for the duration of the field work). The final sample included 1,010 households in which a telephone interview could be conducted.

The interviews were conducted in September and October 1998. At the conclusion of the fieldwork, a total of 849 questionnaires had been completed, with a response rate of 84%: 9% refused, and 7% did not complete the interview for other reasons, such as language difficulties or medical or psychological problems. (If we include the inactive numbers in the base sample, the response rate is 74%.) Each respondent was given a weight that expressed the probability of her being included in the sample. The weight for each sampled respondent was calculated according to the following equation:

$$\frac{N_i}{n_i} * M_j * \frac{1}{T_j} = W_{ij}$$

$W_{ij}$  = the weight given sampled respondent  $j$  from area  $i$ ;  $N_i/n_i$  = the ratio between the number of telephones per population for each area code (02, 03, 04, etc.) and the number of telephones in the sample for each

area code (include failures and zero);  $M_j$  = the number of adults in the household;  $T_j$  = the number of telephone lines in the household.

Telephone interviews were conducted at the JDC-Brookdale Institute by specially-trained interviewers, using a structured questionnaire. The study questionnaire was developed by The Commonwealth Fund (Collins et al., 1999) and adapted for the Israeli health system. The questionnaire was translated into Hebrew, Arabic and Russian. Seventy-five percent of the respondents were interviewed in Hebrew, 15% in Russian and 10% in Arabic.

The questionnaire included a six-item scale for measuring depressive mood. The scale was created based on questions taken from the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977): I felt depressed; my sleep was restless; I enjoyed life; I had crying spells; I felt sad; I felt that people disliked me. Respondents were asked to state the frequency with which they felt any of the above during the previous week (most of the time, some of the time, rarely, never). Based on the responses to these items, a depressive mood index was constructed. Each woman received a score of between 0 and 18: a score of 0 was assigned to women who reported never experiencing any of the symptoms, and a score of 18 was assigned to women who reported experiencing all of the symptoms during the past week. (For the variable "I enjoyed life", the scale is inverted to adapt it to calculation of the summary index.) The summary index was collated into three categories: low—women whose score was between 0 and 2 on the summary index (35% of the women); moderate—women whose score was between 3 and 5 (27% of the women); and high—women whose score was higher than 6 (38% of the women).

In this article we present comparative data from a sub-set of the data including 760 women—161 immigrant women from the former Soviet Union, and 599 non-immigrant women (see definition, p. 55). The distribution of time since immigration was as follows: one-four years, 23%; five-seven years, 27%; and eight-ten years, 50%. (Because of the relatively small size of the sample of immigrants from the former Soviet Union, in the statistical analysis we did not differentiate between immigrants by time of arrival.)

We do not have data regarding their language proficiency. However, 131 of them chose to be interviewed in Russian, and only 31 of them chose to be interviewed in Hebrew, suggesting that most of them had poor command of Hebrew. Here, too, we did not differentiate in the statistical analysis between those interviewed in Russian and those interviewed in Hebrew, because of the relatively small sample size.

Arab respondents were excluded from this analysis, since they significantly differ from the Jewish population in epidemiological indicators (Ifrah 1999), health behavior, and service utilization (Farfel and Yuval, 1999), and therefore require separate consideration.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago IL). Bivariate analysis was performed using overall Chi Square tests. Multivariate analysis was performed using linear multivariate regression and logistic multivariate regression (when the dependent variable was defined dichotomously).

## **RESULTS**

### ***Demographic Data***

The main characteristics of the study population are presented in Table 1. Compared to non-immigrant women, a larger percentage of immigrant women are over age 65, have post-secondary education, are divorced or widowed, are unemployed or retired, and are in lower income quintiles. (Respondents were asked to report their monthly family income before income tax. They were then classified by income quintile (five groups), from the 20% with the lowest reported income to the 20% with the highest reported income.)

Similar differences were found for the general Israeli female population of immigrants versus non-immigrants (Central Bureau of Statistics, 1999).

### ***Self-Rated Health Status***

A larger proportion of immigrant women than non-immigrant women rated their health status as being poor and reported having a disability that inhibits their participation in the work force, studies, household chores or other activities. More immigrants stated that, during the past five years, a doctor had diagnosed them with at least one of eight chronic diseases (high blood pressure, heart condition, cancer, diabetes, anxiety or depression, osteoporosis, arthritis, obesity) (Table 1).

The multivariate analysis presented in Table 2 shows that the variable "immigrant" has an independent effect on self-reports of health status and chronic disease. However, the variable "immigrant" does not have an independent effect on self-reports of disability.

TABLE 1. Demographic Characteristics, Health Care Utilization, and Self-Rated Health Status of the Study Population (%) (n = 760)

		Immigrants	Non-immigrants
Age*	<44	44	54
	45-64	34	34
	65+	22	12
Education*	Secondary	7	20
	Secondary	57	55
	Post-Secondary	36	25
Marital status*	Married	69	70
	Divorced/Widowed	24	15
	Single	7	15
Employment status*	Working	51	64
	Not Working	49	36
Residence	Urban	43	47
	Rural	57	53
Income*	Low (first quintile)	12	13
	Moderate (2-3 quintile)	66	43
	High (4-5 quintile)	22	44
Has regular physician	Yes	77	82
	No	23	18
Visits Ob/Gyn regularly*	Yes	57	83
	No	43	17
Self-rated health status*	Poor	17	4
	Fair	48	20
	Good/Very Good	35	76
Disability*	Yes	31	18
	No	69	82
At least one chronic disease*	Yes	61	38
	No	39	62

\*P &lt; 0.01

### *Mental Health*

The findings indicate that immigrant women experienced symptoms of depression more often than did non-immigrant women. A statistically significant difference ( $P < 0.01$ ) was found for the following

TABLE 2. Poor Self-Rated Health Status, by Background Variables (Logistic Regression)

	Poor Health Status	Disability	At Least One Chronic Disease
	EXP(B) <sup>1</sup> (95%CI)	EXP(B) <sup>1</sup> (95%CI)	EXP(B) <sup>1</sup> (95%CI)
Age 65+	5.7* (2.6-12.8)	4.3* (2.5-7.4)	6.04* (3.1-11.7)
More than 13 years of education	1.4 (0.6-3.3)	0.76 (0.5-1.2)	0.75 (0.5-1.1)
Per capita household income	0.74* (0.6-0.9)	0.95 (0.9-1.0)	0.92* (0.9-1.0)
Immigrant	4.4* (2.0-9.1)	1.4 (0.9-2.2)	2.09* (1.4-3.2)
Member of Clalit	3.2* (1.4-8.7)	0.88 (0.5-1.4)	1.64* (1.1-2.5)
Member of Leumit	0.15 (0.01-1.9)	2.12* (1.1-4.1)	0.79 (0.4-1.5)
Lives in central Israel <sup>2</sup>	1.7 (0.8-3.4)	1.07 (0.7-1.6)	0.92 (0.6-1.3)

\*P &lt; 0.01

<sup>1</sup>Odds ratio = EXP(B)<sup>2</sup>The variable "lives in central Israel" includes Haifa, Jerusalem, Tel Aviv and the Dan Region.

items: "I felt depressed" (43% of the immigrant women versus 29.5% of the non-immigrant women); "I had crying spells" (28% versus 11%); and "I felt that people disliked me (11.3% versus 7.6%). Similarly, smaller percentages of immigrant women reported enjoying life (40%, compared to 79% of the non-immigrant women). Consequently, a higher proportion of the immigrants were rated as having a high level of depressive mood according to the index (51.9% versus 34.4%).

Multivariate analysis reveals that these differences persist after controlling for the background variables (Table 3).

### *Regular Physician*

Similar proportions of immigrant and non-immigrant women reported having a regular primary care physician. However, a smaller

TABLE 3. Depressive Mood Index, by Background Variables (Linear Regression)

	Depressive Mood Index	
	B (95% CI)	Standard Error
Age*	0.4 (0.03,0.8)	0.2
Per capita household income*	-0.19 (-0.3,-0.06)	0.06
Immigrant*	1.13 (0.3,1.9)	0.4
Member of Maccabi	0.5 (-0.4,1.4)	0.5
Member of Meuhedet	0.17 (-0.9,1.3)	0.6
Member of Leumit	0.62 (-0.5,1.8)	0.6
Has at least one chronic disease*	1.25 (0.5,2.0)	0.4
Caregiving-disabled parent	0.35 (-0.7,1.4)	0.55
Caregiving-disabled relative (not parent)*	2.5 (1.0,3.9)	0.7
Lives in central Israel	0.4 (-0.3,1.1)	0.35

\*P < 0.01  
R<sup>2</sup> = 0.12

proportion of immigrant women reported visiting a gynecologist regularly (Table 1).

Differences regarding gynecological visits remain after controlling for background variables in a regression analysis (Table 4).

### *Evaluation of Physician Care*

A statistically significant smaller percentage ( $P < 0.05$ ) of immigrant women rated physicians “very highly” in most aspects of physician care: treats me with respect (60.8% versus 66.4% of the non-immigrant women), provides good medical care overall (46.3% versus 50.5%), spends enough time with me (47.6% versus 49.4%). Accordingly, larger numbers of immigrant women rated physicians as being “fair/poor” in these respects. Regarding other aspects of quality of physician care (listens to me, answers my questions, really cares about me), differences between the two groups were found but were not statistically significant.

### *Counseling on Health Behaviors*

The respondents were asked if during the past year any physician had spoken to them about each of several health behaviors, either on the

TABLE 4. Does Not Visit a Gynecologist, by Background Variables (Logistic Regression)

Variable	Dependent Variable "Does Not Visit a Gynecologist"
	EXP(B) <sup>1</sup> (95%CI)
Age 55 and over*	3.7 (2.3-6.0)
Per capita household income	0.94 (0.9-1.0)
Less than 12 years of education	1.03 (0.5-2.0)
Immigrant*	2.7 (1.6-4.3)
Member of Clalit	0.95 (0.6-1.5)
Poor health status*	2.6 (1.2-5.4)
Lives in central Israel	1.4 (0.9-2.1)

<sup>1</sup>Odds ratio = EXP(B)

\*P < 0.05

physician's or the woman's initiative. A significantly smaller percentage ( $P < 0.01$ ) of immigrant women reported that a physician had talked to them about each of the following topics: weight (19% of the immigrant women versus 29% of the non-immigrant women), exercise (14% versus 26%), calcium intake (13% versus 21%), and hormone replacement therapy (10% versus 29%). Smoking was the only topic in which differences were not statistically significant (7% versus 13%). Multivariate analysis reveals that, except for smoking, the variable "immigrant" has an independent negative effect on counseling (Table 5).

## DISCUSSION

Like earlier studies of immigrants which did not focus on women (Nirel et al., 1998; Remennick and Ottenstein, 1998; Zilberg and Lerner, 1996), this study found poorer health and mental health status among immigrant than among non-immigrant women. Multivariate analysis revealed that immigrant status exerts an independent effect on chronic disease, perceived health status and mental health after controlling for age, socio-economic status, sick fund affiliation and place of residence. Therefore, the greater prevalence of illness among immigrant women only partly reflects their different socio-economic status, compared to non-immigrant women.

While poor health status may be attributed to the crisis of immigra-

TABLE 5. Physician Counseling on Health Behaviors in the Last Year, by Background Variables (Logistic Regressions)

	Smoking	Weight	Exercise	Calcium	HRT (for women age 40+)
	EXP(B) (95%CI)	EXP(B) (95%CI)	EXP(B) (95%CI)	EXP(B) (95%CI)	EXP(B) (95%CI)
Age 65+	0.26* (0.1-1.0)	1.5 (0.8-2.7)	2.2* (1.2-4.0)	2.4* (1.3-4.5)	0.95 (0.5-1.9)
Per capita household income	1.1 (1.0-1.2)	1.0 (0.9-1.1)	1.0 (0.9-1.1)	0.98 (0.9-1.1)	1.02 (0.9-1.1)
More than 13 years of education	0.8 (0.4-1.6)	1.2 (0.8-1.8)	0.9 (0.6-1.5)	1.0 (0.6-1.7)	2.2* (1.2-4.3)
Immigrant	0.6 (0.3-1.3)	0.5* (0.3-0.8)	0.5* (0.3-0.8)	0.4* (0.2-0.8)	0.3* (0.1-0.6)
Member of Clalit	0.8 (0.9-1.4)	0.8 (0.5-1.1)	0.8 (0.5-1.2)	1.1 (0.7-1.7)	1.4 (0.8-2.6)
Poor health status	2.5* (0.9-7.3)	1.5 (0.7-3.2)	0.9 (0.4-2.1)	1.1 (0.5-2.5)	0.8 (0.3-2.2)
Lives in Central Israel	0.9 (0.5-1.6)	0.8 (0.6-1.2)	1.0 (0.6-1.5)	0.8 (0.5-1.3)	1.2 (0.7-2.1)

Odds Ratio = EXP(B)

\*P &lt; 0.01

tion, it also reflects the immigrants' cumulative exposure to lifestyle and environmental hazards in the former Soviet Union, including unbalanced diet and obesity, smoking, workplace hazards, and air and water pollution. The relatively poor health status of immigrants is also related to Israel's "open door" policy of immigration, which may lead to adverse selection—that is, it may be the less healthy who choose to immigrate to Israel. The so-called "healthy immigrant" effect found in countries that directly or indirectly screen potential immigrants by health (Guendelman and Abrams, 1994; Guendelman and English, 1995) has not been found in Israel. However, it should be noted that the "healthy immigrant" effect is far from universal; indications of poor health and under-utilization of health resources by immigrant women

have also been reported in other immigration-based countries (Anderson, 1987; Anderson et al., 1991; Gabaccia, 1994).

Despite finding a greater need for health care services, we also found that immigrant women have lower utilization rates of gynecological visits (representing routine services) and health education. Since Israel offers universal health coverage to all residents, with minimal or no patient cost sharing for services (except medications), there are almost no financial barriers to care. Therefore, lower utilization rates are probably due to barriers typical of immigrant populations, such as poor command of the new language, which inhibits the ability to communicate effectively with health care providers; different expectations from the health care system; different concepts of health and illness; and different help-seeking behaviors (Ferran, Tracy, Gany and Kramer, 1999). They may also be due to barriers arising from the structure of the health system, in which health care is provided based on the principles of managed care. New immigrants may find it difficult to navigate this system and to receive all of the services to which they are entitled. Furthermore, sick funds do not employ personnel who are specially trained to be sensitive to and to meet immigrants' needs.

Other barriers that may explain the findings may arise from cultural attitudes. For example, the low rates of gynecological visits found by this study may be attributed to the tendency of most immigrant women from the former Soviet Union to visit a gynecologist mainly when they have symptoms (Remmenick, 1999a). Similarly, the lower rates of counseling on health behaviors among these women may be related to their passive attitude toward prevention, as found in a previous study of preventive behaviors connected to cancer. That study found that immigrant women tended to place the locus of responsibility for personal health outside themselves, because it had been placed on the medical system in the former Soviet Union (Remmenick, 1999a).

Linguistic and cultural barriers, compounded by time pressures, may also impede physicians from counseling immigrants. (The average length of consultation in Israel is ten minutes; Gross et al. 1994.) Although primary care physicians in Israel acknowledge that counseling on health behaviors is part of their professional role (Tabenkin et al., 1999), in practice, the majority of them do not routinely counsel their patients on health behaviors (Weitzman et al., 1998).

Most immigrant women reported having a regular general practitioner (GP), at rates similar to those of non-immigrant women; this reflects the sick funds' policy of assigning a regular GP to all members. However, we found that immigrant women rated the quality of their GP's

care, as reflected in the length of consultation, and the physician's medical skills and inter-personal relations, less favorably than did non-immigrant women. This may reflect their different expectations of care, based on their experiences in the former Soviet Union (Kinderman et al., 1995; Bernstein and Shuval, 1994). For example, Israeli physicians tend to focus on the specific problem presented by a patient, while physicians in the former Soviet Union tended to practice a more holistic approach to treatment (Remennick and Ottenstein, 1998).

It is interesting to note that sick fund affiliation does not affect the women's utilization of services or assessment of quality of physician care. This may reflect the universal entitlement to a uniform basket of services, inaugurated with the enactment of a National Health Insurance Law in 1995. This law has in effect created a regulated, managed-care system with restricted competition. This system gives the sick funds an incentive to compete over aspects of service (access, availability), rather than over quality of medical care, including physician care (Gross and Harrison, 2001).

### *Policy Implications*

The findings of this study have several implications for designing services for immigrants. Given that immigrants to Israel do not face financial or legal barriers to care, social barriers related to health beliefs, culture and language receive greater weight. Health care organizations should therefore enhance physicians' awareness of the physical and mental health problems of immigrants, and train them to spend more time with immigrant patients and to take cultural differences into account when treating them. For example, as GPs tend to under-diagnose depression in primary care patients (especially women), leading to deficient or inconsistent treatment (Ginther, 1998; Higgins, 1994), they should be made aware of the high rates of depressive mood symptoms among immigrant women. To increase physician awareness and provide physicians with standard (linguistically and culturally adapted) diagnostic tools, continuing medical education forums might devote special sessions to the unique needs of immigrant women.

Our findings concerning gynecological visits imply that the sick funds should educate immigrant women about the necessity of regular visits to the gynecologist. As the initiative of the primary care physician has been shown to be a crucial factor in the utilization of preventive services (such as mammograms—Champion and Miller, 1996), GPs should

be encouraged to take responsibility for referring women to a gynecologist for routine examination.

Health education and prevention is important to reducing the risk of illness, injury and disability. Transmitting information to patients is likely to affect their behavior and promote a healthier lifestyle. In light of the greater health needs of immigrant women, it is especially important that they be counseled on a healthy lifestyle. Physicians should therefore be encouraged to initiate discussions of health behaviors with immigrant women, in particular. Lastly, the relatively low rates of satisfaction with physicians' interpersonal care found by this study indicate a need to make physicians more responsive to the needs of immigrant women from the physician-patient interaction.

In addition to having implications for physician education, the findings of this study imply a need to inform and empower the immigrant women themselves. Informal support groups organized by immigrant associations, women's organizations, sick funds or social services might be an effective means of improving the immigrants' sense of well-being and ability to cope with the hardships of both immigration and ill health. They may also be a means of informing and empowering women to initiate discussions with their physician about health behaviors and other issues. Through such groups, women can learn to benefit from their encounter with a physician by openly presenting their needs and being assertive about receiving in-depth treatment of their condition, whether somatic or psychological, since better diagnosis and care enhance well-being. However, the benefit of such activities has yet to be recognized by women's health advocates, welfare agencies, or sick funds.

### **CONCLUSION**

Issues of immigrant women's health are relatively new on the public health agenda, and research in this area has been sparse, perhaps due to the scarcity of an interdisciplinary approach and the cross-cultural skills it requires.

Like other, earlier studies conducted in immigration-based countries (such as Australia, Canada and Israel), this study identifies the specific health needs of immigrant women that are only partly met by the health system of the host country. Needs are especially prominent in mental health, preventive care and health behavior education. The situation in Israel illustrates that even when immigrants have full access to all types and levels of medical care, its utilization is hampered by cultural barriers.

ers and poor communication between providers and users. To effectively promote the health of immigrant women, these barriers must be overcome through efforts to educate both parties in the clinical encounter.

## REFERENCES

- Anderson, J.M. 1987. Migration and health: Perspectives on immigrant women. *Sociology of Health and Illness* 9(4):410-438.
- Anderson, J.M., C. Blue, and A. Lau. 1991. Women's perspectives on chronic illness: Ethnicity, ideology and restructuring of life. *Social Science and Medicine* 33(2): 101-113.
- Anson, O., D. Pilpel, and V. Rolnik. 1996. Physical and psychological well-being among immigrant referrals to colonoscopy. *Social Science and Medicine* 43(9): 1309-1316.
- Bernstein, J.H., and J.T. Shuval. 1994. Emigrant physicians evaluate the health care system of the former Soviet Union. *Medical Care* 32(2):141-149.
- Central Bureau of Statistics. 1999. *Statistical Abstract of Israel*. Jerusalem: Hemed Press.
- Champion, V., and A.M. Miller. 1996. Recent mammography in women aged 35 and older: Predisposing variables. *Health Care for Women International* 17:233-245.
- Collins, K.S., C. Schoen, S. Joseph, L. Duchonn, E. Simantov, and M. Yellowitz. 1999. *Health concerns across a woman's lifespan: The Commonwealth Fund 1998 survey of women's health*. New York: The Commonwealth Fund.
- Creed, F. 1987. Immigrant Stress. *Stress Medicine* 3:185-192.
- Farfel, M., and D. Yuval. 1999. *Arabs' and Jews' perceptions and use of the health system two and a half years after implementation of the National Health Insurance Law*. Jerusalem: JDC-Brookdale Institute.
- Ferran, E., L.C. Tracy, F.M. Gany, and E.J. Kramer. 1999. Culture and multicultural competence. In *Immigrant women's health, problems and solutions*, ed. E.J. Kramer, L.C. Tracy, and S.I. Ivey. San Francisco: Jossey-Bass Publishers.
- Gabaccia, D. 1994. *From the other side: Women, gender and immigrant life in the US*. Bloomington: Indiana University Press.
- Ginther, C. 1998. A look at women and depression. *Psychiatric Times* 63.
- Gross, R., and M. Harrison. 2001. Implementing managed competition in Israel. *Social Science and Medicine* 52:1219-1231.
- Gross, R., D. Yuval, Y. Japhe, and W. Boerma. 1994. *The role of the primary care physician in Israel*. Jerusalem: JDC-Brookdale Institute.
- Guendelman, S., and B. Abrams. 1994. Dietary, alcohol and tobacco intake among Mexican-American women of childbearing age: Results from HHANES data. *American Journal of Health Promotion* 8(5):363-372.
- Guendelman, S., and P. English. 1995. Effect of US residence on birth outcomes among Mexican immigrants: An exploratory study. *American Journal of Epidemiology* 142(9 Supplement):s30-s38.

- Higgins, E. 1994. A review of unrecognized mental illness in primary care. *Archives of Family Medicine* 3:908-917.
- Ifrah, A. 1999. *Women's health in Israel—A data book*. Jerusalem: Ministry of Health, Hadassah-Israel and Tel HaShomer: Israel Center for Disease Control.
- Kaplan, H., and J.E. Ware. 1999. The patient's role in health care and quality assessment. In *Managing quality of care in a cost-focused environment*, ed. N. Goldfield and D.B. Nash. Tampa: Aspen Publications.
- Kinderman, A., Y. Brawer-Ostrovsky, and M.A. Weingarten. 1995. Medical cultures in collision: Primary care of Soviet immigrants in Israel. *European Journal of General Practice* 1:67-70.
- Levav, I., R. Kohn, J.S. Flaherty, Y. Lerner, and E. Aisenberg. 1990. Mental health attitudes and practices of Soviet immigrants. *Israel Journal of Psychiatry and Related Sciences* 27(3):131-141.
- Lerner, Y., and N. Zilber. 1991. Psychological distress and help seeking behavior among Soviet immigrants. Paper presented at the National Conference on Soviet Refugee Health and Mental Health. Chicago, USA.
- Nirel, N., B. Rosen, R. Gross, A. Berg, D. Yuval, and M. Ivancovsky. 1998. Immigrants from the former Soviet Union in the health system: Selected findings from national surveys. *Social Security* 51:96-115. (Hebrew)
- Radloff, L.S. 1977. The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement* 1:385-401.
- Remennick, L.I. 1999a. Preventive behavior among recent immigrants: Russian speaking women and cancer screening in Israel. *Social Science and Medicine* 48:1669-1684.
- Remennick, L.I. 1999b. Women of the 'sandwich' generation and multiple roles: The case of Russian immigrants of the 1990s in Israel. *Sex Roles* 40(5/6):347-378.
- Remennick, L.I., and N. Ottenstein. 1998. Reaction of new Soviet immigrants to primary health care services in Israel. *International Journal of Health Services* 28(3):555-574.
- Remennick L.I., D. Amir, Y. Elimelech, and Y. Novikov. 1995. Family Planning Practices and Attitudes among Former Soviet New Immigrant Women in Israel. *Social Science and Medicine* 41(4): 569-577.
- Rennert, G. 1994. Implications of Russian immigration on mortality patterns in Israel. *International Journal of Epidemiology* 23(4):751-56.
- Shuval, T.J. 1992. *Social dimensions of health*. Westport, Connecticut: Praeger Publishers.
- Tabenkin, H., R. Gross, S. Brammli-Greenberg, and S. Shrira. 1999. *The primary care physician as "gatekeeper": The perspectives of sick fund members, primary care physicians and policymakers*. Jerusalem: JDC-Brookdale Institute.
- Weitzman, S., R. Boehm, S. Carmel, H. Gofin, R. Gross, P. Shvartzman, and H. Tabenkin. 1998. *Reported performance of preventive medicine activities by primary care physicians and nurses: Results from a national survey*. Tel-HaShomer: National Institute for Health Policy and Health Services Research.
- Zilber, N., and Y. Lerner. 1996. Psychological distress among recent immigrants from the former Soviet Union to Israel: P.I. Correlates of level of distress. *Psychological Medicine* 26:493-501.



# **Health Counseling for Women in the Absence of Financial Barriers: Comparing Reported Counseling Rates of Women in the United States and Israel**

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# Health Counseling for Women in the Absence of Financial Barriers: Comparing Reported Counseling Rates of Women in the United States and Israel

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**ABSTRACT.** This study compares rates of health counseling for women in the United States and Israel and identifies factors affecting counseling rates, based on a weighted sample of 2,257 US and 848 Israeli women. In both countries, fewer than half of the women reported speaking with a physician about any of a set of preventive counseling topics (e.g., smoking, diet, exercise) during the year preceding the

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survey. However, US women reported significantly higher rates of health counseling than did Israeli women, even among specific risk groups (e.g., smokers). Multivariate analysis revealed that “country” had an independent effect after controlling for demographic factors. This paper highlights structural and functional barriers to counseling that persist in the Israeli system in the absence of financial barriers and discusses ways to overcome them. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2006 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** Women’s health, preventive care, primary care physicians, barriers

## INTRODUCTION

Health education and prevention are important areas of medical activity, which aim to reduce the risks of illness, injury, and disability. The World Health Organization has underlined the importance of these activities in achieving “Health for All 2000” (WHO, 1985); family practice textbooks include them as an integral part of the primary care physician’s role (McWhinney, 1999; Goroll & Mulley, 2000).

Given the difference in the structure and insurance coverage of the health systems in the United States and Israel, the purpose of this study was to compare the rates of health counseling regarding lifestyle issues (hereafter, health counseling) provided to women in both countries and to identify structural and functional factors related to the health system that may affect counseling rates. We would note that international comparisons impose known limitations. Due to cultural differences, survey questions may be understood differently by respondents in different countries, and this may affect the findings. In addition, health systems are different in many respects, making it difficult to isolate a particular element (e.g., health counseling) for comparison. Even so, the comparison between the United States and Israel health systems may highlight factors beyond financial barriers that may affect the provision of health counseling to women.

### *Background: Preventive Care in the United States and Israel*

Israel’s four health plans are managed care organizations that operate within a national health insurance system, which provides universal

access and a mandatory benefits package, and prohibits financial barriers to all types of care, including preventive care and health counseling. Prospective funding and a long-term relationship with members<sup>1</sup> give Israel's health plans a marked economic incentive to engage in preventive health strategies so as to save future costs. This was also found in health maintenance organizations (HMOs) in the United States, compared with other types of health insurance (Balkrishnan et al., 2002; Weisman & Henderson, 2001). However, although guidelines on preventive care and health counseling are distributed to Israeli physicians, performance of these activities is neither monitored regularly nor publicized.

In the United States, high rates of women are uninsured (Klein, Glied & Ferry, 2005); this constitutes a financial barrier to care, which would be expected to limit overall health counseling rates in the population. For the insured, US task forces have disseminated recommendations for preventive care and counseling (United States Preventive Services Task Force, 1996). The performance of these procedures is regularly monitored by the quality indicators in the Health Plan Employer Data and Information Set (HEDIS) (National Committee for Quality Assurance, 1999), and is publicized particularly to employers. This is expected to create an incentive to perform these activities, in part to promote marketing efforts of insurance companies and HMOs.

## **METHODS**

### ***Target Population and Sampling***

The study was conducted in Israel and the United States, and the target population was comprised of all the adult women in both countries.

The US study sample included 2,850 women of age 18 years or older, who were sampled using Random Digit Dialing (RDD). Stratification was based on geographic region and type of residence<sup>2</sup> and randomization was achieved by two last digits being randomly selected. At the household level, initial contacts were asked about the number of adults in the household. All eligible members of the household were listed<sup>3</sup> and the respondent was selected based on a random digit generated by the interviewing program (Commonwealth Fund, 1998). The sampling frame included almost all telephone households in the United States.<sup>4</sup> The samples were drawn on the basis of the US Census Bureau's adult population figures for each state and updated by annual inter-censal estimates with sample locations selected biennially to reflect changes in

the country's demographic profile. The sample included oversampling of African-American (429), Hispanic (404), and Asian-American women (400).<sup>5</sup> The participation rate for the cross-sectional sample was 55%. The US survey responses were weighted by age, race, education, insurance status, and geographic region to reflect the demographic characteristics of the US population, based on the US Current Population Survey. The weighted number of cases in the analysis was 2,257 (Falik & Scott Collins, 2001).

In Israel, a random representative sample of households was drawn using the national computerized telephone listing of Bezeq, Israel's only domestic telephone company. For each listing sampled that met the eligibility criteria, one randomly chosen female resident was interviewed. Of the 1,309 households initially sampled, 158 (12%) did not meet the eligibility criteria (i.e., they belonged to a business or institution, had fax-modems, or had no women residents over age 22). An additional 141 (10.8%) were inactive numbers.<sup>6</sup> The final sample included 1,010 households in which a telephone interview could be conducted. At the conclusion of the fieldwork, a total of 849 questionnaires had been completed, with a response rate of 84%; while 9% refused, 7% did not complete the interview for other reasons, such as language difficulties or medical or psychological problems. Each respondent was given a weight that expressed the probability of her being included in the sample.

### *Questionnaire and Data Collection*

In both countries, the data were collected using a similar questionnaire, developed and validated by The Commonwealth Fund (Collins, Schoen et al., 1999). It included a section on background variables, as well as on health counseling.<sup>7</sup> All women were asked: "During the past year did a physician talk to you about smoking, diet and weight, exercise, use of alcohol and drugs, safety and violence at home, sexually transmitted diseases, and the importance of calcium intake." Women over age 40 were also asked whether a physician had discussed hormone replacement therapy. Response categories for each item were—Yes and No.

In the United States, the interviews were conducted by Louis Harris & Associates, Inc., between May and November 1998, using a computer-assisted telephone interviewing system. Averaging 25 minutes, they were conducted in English, Spanish, Korean, Cantonese, Mandarin, and Vietnamese.

In Israel, the questionnaire was translated into Hebrew, Arabic, and Russian with slight adaptations in terms and context, and pre-tested. The questionnaire was translated back into English and checked by the Commonwealth Fund staff to assure the accuracy of the translation. The researchers and several Israeli experts on women's health judged the face validity of the questionnaire. Construct validity was established by bivariate analysis that confirmed expected associations between key variables. The interviews were conducted by the staff of the Myers-JDC-Brookdale Institute during September and October 1998 and averaged 10-15 minutes. Seventy-five percent of the respondents were interviewed in Hebrew, 15% in Russian and 10% in Arabic.

### *Statistical Analysis*

For the total sample in each country, sampling errors in populations of this size had, with 95% confidence, a maximum margin of plus or minus two percentage points for survey responses in the United States, and plus or minus three percentage points for responses in Israel. Bivariate comparisons between the two countries of proportions of women counseled for each item were conducted using Chi-square tests.

To control for sample differences between the countries, we pooled the data from both countries and conducted multivariate logistic regression analyses to assess the independent effect of "country," as well as of other covariates. We defined two dependent variables for this analysis. The first of these was "received counseling on at least one topic," out of a list of seven topics—smoking, diet and weight, exercise, use of alcohol and drugs, safety and violence at home, sexually transmitted diseases, and the importance of calcium intake. This variable was used in a multivariate analysis of the entire sample. The second of these was "received counseling on at least one topic, with HRT," that is, received counseling on any one of the above topics, including hormone replacement therapy (HRT). As this is relevant only for women over age 40, this variable was used only in a multivariate analysis of women aged 40 years and over in the sample.

The independent variables in the analysis included "country" as well as the covariates for which we controlled possible effects on counseling rates. The criterion for selecting covariates for inclusion in the multivariate modeling was a different distribution in the United States from that in Israel ( $p < 0.05$ ). These covariates included: age, marital status, work status, education, and income, as well as the number of physician visits during the past year.

Logistic regression was used for the multivariate analysis to model the dichotomous outcome (“did or did not receive counseling on at least one topic during the past year”). We chose a dichotomous definition to accentuate differences in physician behavior and to differentiate between those who counseled patients about lifestyle choices (at least to some extent), and those who did not.

To account for the stratification clustering and weighting of the US data, the statistical analyses and all tests for statistical significance were performed using Software for Statistical Analysis of Survey Data (Stata, 1999), as recommended by the Commonwealth Fund (Falik & Scott Collins, 2001).

## **RESULTS**

Statistically, significantly ( $p < 0.05$ ) higher proportions of US women were of age 65 years or over, worked full time, and earned above-average income, while higher proportions of Israeli women had health insurance, were married, and reported having problems meeting their basic material needs (Table 1). Statistically, significantly ( $p < 0.05$ ) higher proportions of US women reported excellent and very good health status, while higher proportions of Israeli women reported disability that limited their activity. Higher proportions of US women had at least one of seven chronic conditions and reported more visits to physicians during the past year than did Israeli women (Table 2).

### ***Health Counseling***

Women were asked if a physician had discussed any of a set of health-related topics with them during the year preceding the survey. The rate of counseling on all items was considerably lower in Israel than in the United States ( $p < 0.05$ ). The rates of receipt of counseling on at least one topic were higher in the United States than in Israel both for all women, and for women aged 40 years and over (including HRT) (Table 3).

Multivariate logistic regression analyses (Table 4) revealed that, after controlling for demographic differences and number of visits to a physician, “residing in the US” had a statistically significant independent effect on the likelihood of being counseled on at least one topic (OR = 4.8 in the model including all women, and OR = 4.35 in the model including women aged 40 years and over). In addition, having more physician visits had a positive effect on the receipt of counseling

TABLE 1. Demographic Characteristics of Women in the United States and Israel (%)

	United States (N = 2,257)	Israel (N = 848)
Age in years *	N = 2,251	N = 842
18-44	54	54
45-64	28	33
65+	18	12
Marital status*	N = 2,251	N = 848
Married	56	69
Divorced/widowed/separated	25	16
Single	19	14
Has children <18 years of age	N = 904	N = 138
	40	48
Currently caring for a sick/disabled relative	N = 215	N = 138
	10	15
Work status*	N = 2,255	N = 844
Working Full-time	43	35
Part-time/self-employed	16	24
Not working	41	42
Education*	N = 2,256	N = 843
Less than high school	19	23
High school or some college	60	52
College or more	21	25
Income <sup>a</sup>	N = 2,115	N = 775
Average or below	55	60
Above average	45	40
Problem paying for basics*	N = 2,249	N = 833
A lot or some	27	56
Little or none	72	42
Insurance coverage*	N = 1,922	N = 848
Insured	85	100

Note: Income was not reported by 7% of the US and 8% of the Israeli women.

<sup>a</sup>In each country, the sample was divided into two income groups, relative to the median household income of the country, the average income, and below- and above-average income.

\*  $p < 0.05$  for differences between the US and Israel, Chi-square test.

Source: Authors' analysis of the 1998 Commonwealth Fund *United States and Israel Women's Health Surveys*.

TABLE 2. Health Status and Health Care Use Reported by Women in the United States and Israel (%)

	United States N = 2,257	Israel N = 848
<b>Health status</b>		
Self-rated health*	N = 2,250	N = 837
Excellent	18	10
Very good	34	28
Good	30	28
Fair or poor	17	32
Has disability that limits activity*	N = 385	N = 176
	17	21
<b>Health risks</b>		
Smoking*	N = 511	N = 152
	23	18
Ever been victim of domestic violence*	N = 718	N = 97
	32	11
<b>Physician diagnosis in past 5 years</b>		
High blood pressure*	N = 533	N = 168
	24	20
Heart attack or heart disease	N = 154	N = 67
	7	8
Cancer (other than skin cancer)	N = 74	N = 20
	4	2
Diabetes	N = 161	N = 59
	7	7
Osteoporosis	N = 141	N = 75
	6	9
Arthritis*	N = 551	N = 100
	24	12
Obesity	N = 275	N = 99
	12	12
One of 7 chronic conditions*	N = 1,057	N = 334
	47	39
<b>Depressive symptoms</b>		
	N = 2,256	N = 816
Low	28	33
Moderate	32	26
High	39	37
Number of visits to physician in past year (average)#	N = 2,257	N = 848
	8.9	4.8

\* p &lt; 0.05 for difference between the United States and Israel, Chi-square test.

# p &lt; 0.05 for difference between the United States and Israel, t-test.

TABLE 3. Physician Counseling of Women in the United States and Israel (Percentages of Counseling and 95% Confidence Intervals)

Physician Discussed During the Past Year	United States Counseling N = 2,257			Israel Counseling N = 848		
	n	%	95% CI	n	%	95% CI
Smoking*	665	29	(28-32)	100	12	(9-14)
Diet and weight*	1,040	46	(44-48)	232	27	(24-30)
Exercise*	1,107	49	(47-51)	188	22	(19-25)
Use of alcohol and drugs*	514	23	(21-24)	23	3	(2-4)
Safety and violence at home*	180	8	(7-9)	17	2	(1-3)
Sexually transmitted diseases*	357	16	(14-17)	23	3	(2-4)
Importance of calcium intake*	915	40	(38-43)	150	18	(15-20)
Hormone replacement (age 40+)*	449	35	(32-37)	111	23	(19-27)
Received any counseling (without HRT, all women)	1,675	74	(72-76)	371	44	(40-47)
Received any counseling (including HRT, 40+)	1,022	80	(78-82)	255	52	(48-56)

\* $p < 0.05$  for difference between the United States and Israel, Chi-square test.

Source: Authors' analysis of the 1998 Commonwealth Fund *United States and Israel Women's Health Surveys*.

on at least one topic in both models. "Being disabled" had a positive effect on the receipt of counseling on at least one topic in the model including all women.

### ***Counseling of Women with Identified Risk***

Based on the women's self-reports, we identified women with special health risks (Table 2). The proportion of women counseled was significantly higher in the United States than in Israel ( $p < 0.05$ ) for counseling smokers about smoking, counseling women with osteoporosis about calcium intake, and counseling women diagnosed with hypertension, heart conditions, diabetes or obesity about exercise (Table 5). No difference was found in the proportion of US and Israeli women who were overweight and who were counseled about diet; the difference in counseling proportions about safety for women experiencing domestic violence was not statistically significant.

TABLE 4. Adjusted Odds Ratios and 95% Confidence Intervals of Variables Associated with Receipt of Any Counseling by a Physician During the Past Year, in the United States

	Any Counseling (Without HRT, All Women)		Any Counseling (Including HRT, Women 40+)	
	N = 3,638		N = 2,099	
	Odds Ratio	95% Confidence Interval	Odds Ratio	95% Confidence Interval
Country: US	4.83*	(3.88-6.02)	4.35*	(3.26-5.80)
Fair/poor health	1.07	(0.82-1.39)	0.91	(0.64-1.28)
Disability	1.53*	(1.14-2.05)	1.29	(0.90-1.87)
Income median or below	0.99	(0.99-1.00)	0.99	(0.99-1.00)
Age (continuous)	1.00	(0.99-1.00)	1.01	(1.00-1.03)
Education less than secondary	1.04	(0.92-1.18)	1.02	(0.86-1.20)
Secondary/post-secondary	0.96	(0.85-1.09)	0.98	(0.83-1.16)
Married	1.00	(0.99-1.00)	1.00	(0.99-1.00)
Working	0.98	(0.81-1.18)	1.23	(0.97-1.72)
Number of physician visits in past year (continuous)	1.05*	(1.03-1.08)	1.05*	(1.02-1.08)
Wald $\chi^2$ measure for model fit, and overall model significance	220.03	P < 0.000	147.95	P < 0.000

\*p < 0.01 for difference between the United States and Israel.

Odds ratios for the variable “residing in the US” were calculated for these risk groups (excluding victims of domestic violence)<sup>8</sup> using logistic regression analysis to adjust for covariates (Table 5). “Residing in the US” had a statistically significant independent effect on the likelihood of smokers to receive counseling on smoking (OR = 5.29), on the likelihood of women diagnosed with osteoporosis to receive counseling on calcium intake (OR = 2.61), and on the likelihood of women diagnosed with hypertension, heart condition, diabetes, or obesity to receive counseling on exercise (OR = 3.76).

TABLE 5. Self-Reports of Women at Risk for Specific Problems of Physician Counseling in the United States and Israel (Counseling Rates; Adjusted Odds Ratios; 95% Confidence Intervals)

	United States Proportion Counseled (95% CI)	Israel Proportion Counseled (95% CI)	Adjusted Odds Ratio of the Variable “Resides in the US” <sup>c</sup> (95% CI)	Wald $\chi^2$ Measure for Model Fit and Overall Model Significance
Counseling on smoking of women who smoke <sup>a</sup>	N = 511 0.69 <sup>a</sup> (0.64-0.73) <sup>b</sup>	N = 151 0.35 <sup>a</sup> (0.27-0.45) <sup>b</sup>	N = 648 5.29** (3.17-8.82)	56.64 P < 0.000
Counseling on diet of women diagnosed as obese	N = 275 0.74 <sup>a</sup> (0.69-0.79) <sup>b</sup>	N = 99 0.75 <sup>a</sup> (0.64-0.84) <sup>b</sup>	N = 442 0.94 (0.49-1.79)	37.73 P < 0.000
Counseling on calcium intake of women diagnosed with osteoporosis <sup>a</sup>	N = 141 0.67 <sup>a</sup> (0.59-0.75) <sup>b</sup>	N = 75 0.38 <sup>a</sup> (0.26-0.52) <sup>b</sup>	N = 234 2.61** (1.20-5.66)	21.02 P < 0.021
Counseling on safety of women reporting experiencing domestic violence <sup>d</sup>	N = 719 0.09 <sup>a</sup> (0.07-0.09) <sup>b</sup>	N = 96 0.032 <sup>a</sup> (0.01-0.08) <sup>b</sup>		
Counseling on exercise of women diagnosed with hypertension, heart condition, diabetes, or obesity <sup>a</sup>	N = 780 0.67 <sup>a</sup> (0.61-0.68) <sup>b</sup>	N = 265 0.36 <sup>a</sup> (0.29-0.42) <sup>b</sup>	N = 1,194 3.76** (2.63-5.37)	65.24 P < 0.000

<sup>a</sup>Women in each category who received counseling.

<sup>b</sup>95% confidence interval.

<sup>c</sup>Based on multivariate logistic regression models adjusting for covariates: fair/poor health, disability, low income, age, education, married, working, number of physician visits in past year.

<sup>d</sup>The subgroup was too small to conduct a multivariate analysis.

\* p < 0.05 for difference between the United States and Israel, Chi-square test.

\*\* p < 0.001 for difference between the United States and Israel in the logistic regression analysis.

## DISCUSSION

The proportions of women who reported receiving counseling about lifestyle behaviors were higher in the United States than in Israel for almost all items included in the questionnaire. The differences persisted in most items after adjusting for covariates using multivariate logistic regression analysis, indicating that women in Israel who shared similar risks received less counseling than women in the United States.

These differences are surprising, given the high rates of non-insurance among US women (about 15%),<sup>9</sup> and the well-documented effect of non-insurance on service utilization (Hsia et al., 2000; Davidoff et al., 2000). Moreover, in Israel, no financial barriers exist to receiving care, and the mandatory benefits package includes health counseling.

The data collected in this study does not provide a clear explanation for these differences which may be related both to differences in women's help-seeking behaviors and physicians' practice patterns. Regarding women's help-seeking behavior, Israeli women may be less aware of their ability to affect the type of care they receive or to initiate counseling and consequently may receive less counseling. This may be related to the longer tradition of the women's health movement in the United States, compared with Israel (Hoffman & Avgar, 1998). Furthermore, patient empowerment, consumerism, and advocacy are more developed in the United States than in Israel (Hoffman & Avgar, 1998), and demand for information and counseling affects physician performance (Roter, Stashefsky-Margalit, & Rudd, 2001; McClaran, Kaufman, & Toombs, 2001).

In both the United States and Israel, high rates of counseling were provided to overweight women. This may reflect women's awareness of this condition, which may affect their help-seeking behavior and lead them to initiate counseling. On the other hand, in both countries, the proportions counseled on domestic violence were strikingly low; this may reflect the tendency to keep this problem a secret (Martins et al., 1992). However, further study is needed of women's expectations and behaviors during consultation with a physician to corroborate this hypothesis.

Another explanation may be related to physicians' practice patterns. Our findings suggest that in both countries, physicians have a cure-oriented approach, providing counseling mainly as part of the routine treatment of women who already have a problem (e.g., smoking, osteoporosis, obesity). However, physicians in the United States may be more aware than those in Israel of the preventive role of health counseling and of the importance of a healthy lifestyle. A large observational study of US family physicians found that 90% of patient visits involved some kind of patient education or health habits advice (Stange et al., 2000). Conversely, an Israeli study showed low rates of preventive activities of any kind (Weitzman et al., 1998). This may be due to a lack of time, as the average consultation length in primary care is ten minutes in Israel (Gross et al., 1999), compared with 18.1 minutes in the United States (Balkrishnan et al., 2002).

In Israel, many women of reproductive age regularly visit a gynecologist (Gross & Brammli-Greenberg, 2000). It should be noted, however, that in Israel, gynecologists do not consider themselves to be primary care providers, and therefore do not counsel on lifestyle issues. Conversely, in the United States, gynecologists *do* provide primary care (Bindman & Majeed, 2003), including lifestyle counseling (Hoffman & Avgar, 1998). One way of increasing the rates of lifestyle counseling in Israel, then, would be to increase this activity among Israeli gynecologists, through either education or incentives.

In the United States, nurses play an extensive role in primary health care provision (as nurse practitioners), and perform many of the routine actions performed by physicians in Israel. US physicians may thus have more time to spend with their patients, during which they can provide lifestyle counseling. In Israel, a shortage of nurses in community clinics has limited their role to “traditional” nursing tasks (e.g., drawing blood, bandaging injuries, visiting home-bound patients), precluding them from assuming tasks that might reduce the burden on physicians and free them to engage in lifestyle counseling.

The United States has an established model of women’s health care (developed during the past 25 years), which emphasizes comprehensive primary care, including in-depth risk assessment, early detection and screening, and lifestyle education and counseling (Hoffman & Avgar, 1998). In comparison, Israel’s medical schools do not offer comprehensive courses on women’s health; to date, the field has yet to be acknowledged as a distinct specialization.

This study had several limitations, which should be noted. First, the data were collected as part of a broader study of women’s health and welfare; consequently, the scope of questions on health counseling was limited. Second, the study was based on self-reports of women regarding their health and health care experiences, which may not be accurate. Women may wish to conceal illnesses, which may be perceived as stigmatic. They may also report inaccurately on physician visits and preventive counseling due to possible recall bias when reporting on the past year (Sciamanna *et al.*, 2004; Ward & Sanson-Fisher, 1997). The design of this study did not include validation of patient reports by observations or by staff (physician or nurse) reports. Although concerns regarding accuracy exist, self-reports on these issues are commonly used and regarded as trustworthy (Kaplan & Ware, 1989). Moreover, the main purpose of the paper was to compare counseling rates in the United States and Israel; although the point estimates may not be accurate, we have no reason to believe that the comparison is biased (i.e., even if

women in both countries under- or over-reported, we have no reason to believe that systematic bias existed by country).

### CONCLUSION

Reports by women reveal that in both countries, physicians miss opportunities to educate and counsel them, especially on issues that are sensitive, such as domestic violence. However, increasingly, health counseling is being addressed in the United States through systemic changes in the organization of care, such as use of the Internet and other information technologies (Fotheringham et al., 2000; Rimmer & Glassman, 1998; Prochaska et al., 2000), patient-centered counseling techniques to empower women (Kettunen et al., 2001; Miura et al., 2004), structured tools for physicians to enhance counseling (Olson et al., 2005), and transferring responsibility for counseling to nurses (Lin et al., 2004), and lay women trained as lay health educators (Eng & Young, 1992; Brownstein et al., 1992). These strategies may have improved counseling rates where practiced.

It appears that Israeli women are at particular risk, in spite of the universal coverage and better access to medical care in Israel. Comparison with the United States has revealed several possible structural and functional constraints to counseling, including lower awareness among both physicians and women, specific features of the system, such as the short time allocated for primary care consultations in Israeli health plans, gynecologists not being primary care providers, and hence not counseling women on lifestyle issues, and the limited role of community nurses.

To increase health counseling in Israel, policy-makers should consider addressing these structural constraints—in part by increasing physicians' working hours or reducing their workload, to enable them to spend more time with patients and provide health counseling; and extending the role of nurses and lay health advisors in providing health counseling. Another strategy would be to change the syllabus in medical schools and family medicine residencies to incorporate lifestyle counseling. Yet another strategy would be to establish explicit job definitions that include preventive medicine and health counseling, both for primary care physicians (Wonca, 1991) and gynecologists. These activities could be markedly enhanced if health care organizations were to monitor physicians' performance, define standards, and provide comparative feedback to physicians on their performance (Kief et al., 2005).

In conclusion, the comparison between the two countries has served to highlight structural and functional factors other than financial barriers, which may have an important effect on health counseling for women. The analysis has also identified possible strategies for overcoming these structural barriers, so as to increase health-counseling rates in Israel, and perhaps in other countries where similar barriers may exist.

## NOTES

1. Less than 1% of all health plan members change their health plan affiliation each year (even though they are legally allowed to do so).

2. The national sample was stratified by geographic region and by metropolitan versus non-metropolitan residence, with two last digits being randomly selected. Within each stratum, the selection of the primary sampling unit was achieved through multistage, un-clustered sampling. Each primary sampling unit yielded one interview. First states, then counties, then minor civil divisions were selected, with probability of selection proportionate to the US Census Bureau estimates of the population. Telephone numbers were generated in proportion to the number of households served by each telephone exchange. Because the final two digits of each RDD sample record were assigned randomly, both listed and unlisted households were included in RDD sample.

3. For the cross-section sample of adults, all adults of age 18 and over were eligible. For over-samples of women and minority women and men, the eligibility criteria were based on gender and ethnicity in addition to age.

4. However, people living in Alaska and Hawaii are not represented, nor are those in prisons, hospitals, military bases, religious or educational institutions unless such individuals have their own outside telephone line.

5. Over-sampling was achieved by random-digit screening of respondents using demographic questions that included race and ethnicity. For the Asian minority over-sample, Harris & Associates Inc. used surname lists purchased from agencies specializing in providing minority samples.

6. The line had been disconnected, or there was no answer at any hour of the day or night (after an average of three calls per week for the duration of the field work).

7. For a description of the topics included in the questionnaire, see Falik & Scott Collins, 2001.

8. Given the small number of women counseled in Israel ( $n = 17$ ), multivariate analysis could not be conducted on this risk group.

9. Among women under 63, 8% are permanently uninsured and 22% lack insurance at some point during the course of a year (Klein, Glied and Ferry, 2005). All elderly women are insured under the Medicare Act.

## REFERENCES

- Balkrishnan R., Hall, M. A., Mehrabi, D. et al. (2002). Capitation payments, length of visit and preventive services: Evidence from a national sample of outpatient physicians. *The American Journal of Managed Care*, 8, 332-340.
- Bindman, A. B., & Majeed, A. (2003). Organization of primary care in the United States. *British Medical Journal*, 326, 631-634.
- Brownstein, J. N., Cheal, N., Ackerman, S. P., Bassford, T. L., & Campos-Outcalt, D. (1992). Breast and cervical cancer screening in minority populations: A model for using lay health educators. *Journal of Cancer Education*, 7, 321-326.
- Commonwealth Fund. Women's Health Questionnaire, (1998). [http://www.cmwf.org/usr\\_doc/mens\\_womens\\_1998\\_questionnaire.pdf](http://www.cmwf.org/usr_doc/mens_womens_1998_questionnaire.pdf)
- Crabtree, B. F., Miller, W. L., Aita, V. A., Focke, S. A., & Stange, K. C. (1998). Primary care practice organization and preventive services delivery: A qualitative analysis. *Journal of Family Practice*, 46(5), 403-409.
- Davidoff, A. J., Garrett, A. B., Macuc, D. M., Schirmer, M. (2000). Medicaid-eligible children who don't enroll: Health status, access to care, and implications for Medicaid enrollment. *Inquiry*, 37(2), 203-218.
- Eng, E., & Young, R. (1992). Lay health advisors as community change agents. *Community Health*, 15, 24-40.
- Falik, M. M., & Collins, K. S. (1996). *Women's Health: The Commonwealth Fund Survey*. Baltimore: The Johns Hopkins University Press.
- Falik, M. M., & Collins, K. S. (2001). Women's voices, women's experiences – taking time to listen. *Women's Health Issues*, 11(3), 143-147.
- Fotheringham, M. J., Oies, D., Leslie, E., & Owen, N. (2000). Interactive health communication in preventive medicine: Internet-based strategies in teaching and research. *American Journal of Preventive Medicine*, 19(2), 113-120.
- Goroll, A. H., & Mulley, A. G. (2000). *Primary Care Medicine, 4th edition*. Philadelphia: J.B. Lippincott.
- Gross, R., Greenstein, M., Brammli-Greenberg, S., Tabenkin, H., & Harrison, M. (1999). Primary care physicians in Israel 1997: Characteristics and changes in an era of reform. *Social Security*, 54, 169-190.28. (Hebrew)
- Gross, R., & Brammli-Greenberg, S. (2000). The health and welfare of women in Israel: Findings from a national survey. Jerusalem: JDC-Brookdale Institute research report RR-361-00. (Hebrew)
- Hoffman, E., & Avgar, A. (1998). Women's health in Israel and the United States: A cross-cultural perspective. *Journal of Gender-Specific Medicine* 1(2) [www.mmhc.com/jgsm/archives](http://www.mmhc.com/jgsm/archives)
- Hsia, J., Kemper, E., Kiefe, C., Zapka, J., Pettinger, M., Bowen, D., Limacher, M., Lillington, L., & Mason, E. (2000). The importance of health insurance as a determinant of cancer screening: Evidence from the women's health initiative. *Preventive Medicine*, 31(3), 261-270.
- Kaplan, S. H., & Ware, J. E. (1989). The patient's role in health care and quality assessment. In Goldfield, N., & Nash, D.B. *Providing Quality Care: The Challenge to Clinicians*, pp. 25-69. Philadelphia, Pennsylvania: American College of Physicians.

- Kettunen, T., Poskiparta, M., & Liimatainen, L. (2001). Empowering counseling—a case study: Nurse patient encounter in a hospital. *Health Education Research, 16*(2), 227-238.
- Kiefe, C. I., Allison, J. J., Williams, O. D. et al. (2005). Improving quality improvement using achievable benchmarks for physician feedback: A randomized control trial. *JAMA, 285*(2), 2871-2879.
- Klein, K., Glied, S., & Ferry, D. (2005). Entrances and exit: Health insurance churning 1998-2000. The Commonwealth Fund Issue Brief, September 2005.
- Lin, S. X., Gebbie, K. M., Fullilove, R. E., & Arons, R. R. (2004). Do nurse practitioners make a difference in provision of health counseling in hospital outpatient departments? *Journal of the American Academic Nurse Practitioner 16*(10), 426-466.
- Martins, R., Holzapfel, S., & Baker P. (1992). Wife abuse: Are we detecting it? *Journal of Women's Health, 1*, 77-80.
- McClaran, J., Kaufman, D., & Toombs, M. (2001). From death and disability to patient empowerment: An inter-professional partnership to achieve cardiovascular health in Canada. *Canadian Journal of Public Health, 92*(4), 13-19.
- McWhinney, I. R. (1989). *A Textbook of Family Medicine*. New York: Oxford University Press.
- Miura, S., Yamaguchi, Y., Urata, H. et al. (2004). Efficacy of a multi-component program (patient-centered assessment and counseling for exercise plus nutrition (PACE Japan) for life-style modification in patients with essential hypertension. *Hypertension Research, 27*, 859-864.
- National Committee for Quality Assurance. (1999). *State of Managed Care Quality Report* [www.ncqa.org/pages/communications/news/somcqrel.html](http://www.ncqa.org/pages/communications/news/somcqrel.html)
- Olson, A. L., Gaffney, C. A., Hedberg, V. A. et al. (2005). The healthy teen project: Tools to enhance adolescent health counseling. *Annals of Family Medicine, 3*, s63-s65.
- Prochaska, J. J., Zabinski, M. F., Calfas, K. J., Sallis, J. F., & Patrick, K. (2000). Pace+: Interactive communication technology for behavior change in clinical settings. *American Journal of Preventive Medicine, 19*(2), 127-131.
- Rimmer, B. K., & Glassman, B. (1998). Tailoring communications for primary care settings. *Methods of Information in Medicine, 37*(2), 171-177.
- Roter, D. L., Stashefsky-Margalit, R., & Rudd, R. (2001). Current perspectives on patient education in the U.S. *Patient Education and Counseling, 44*(1), 79-86.
- Sciamanna, C. N., Goldstein, M. G., Marcus, B. H., Lawrence, K., Pinto B. M. (2004). Accuracy of recall of exercise counseling among primary care patients. *Preventive Medicine, 39*(6), 1063-1067.
- Stange, K. C., Flocke, S. A., Goodwin, M. A., Kelly, R. B., & Zyzanski, S. J. (2000). Direct observation of rates of preventive service delivery in community family practice. *Preventive Medicine, 31*, 167-176.
- United States Preventive Services Task Force. (1996). *Guide to Clinical Preventive Service, An Assessment of the Effectiveness of 169 Interventions. 2nd edition*. Baltimore: Williams and Wilkins.
- Ward, J., & Sanson-Fisher, R. (1997). Accuracy of women's recall of opportunistic recruitment for cervical cancer screening in general practice. *Australia New Zealand Journal of Public Health, 21*(3), 335-336.

- Weisman, C. S., & Henderson, J. T. (2001). Managed care and women's health: Access, preventive services, and satisfaction. *Women's Health Issues, 11*(3), 201-215.
- Weitzman, S., Boehm, R., Carmel, S., Gofin, H., Gross, R., Shvartzman, P., & Tabenkin, H. (1998). *Reported Performance of Preventive Medicine Activities by Primary Care Physicians and Nurses: Results from a National Survey in Israel*. Tel-Hashomer: The National Institute for Health Policy and Health Services Research. (Hebrew)
- Wonca. (1991). *The Role of the General Practitioner/Family Physician in Health Care Systems: A Statement from the World Organization of the National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians*. Melbourne, Australia: Wonca.
- World Health Organization. (1985). *Health for All, 2000*. Geneva, WHO.

# **The Healthcare Experiences of Arab Israeli Women in a Reformed Healthcare System**

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## The healthcare experiences of Arab Israeli women in a reformed healthcare system

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### Abstract

Arab Israeli women are subject to unique social stresses deriving from their status as part of an ethno-political minority and from their position as women in a patriarchal community. Collectively, their health profiles rate poorly in comparison to Jewish Israeli women or to women in the vast majority of developed countries. *Objectives:* To examine the experiences of Arab Israeli women in the contemporary Israeli healthcare system, following implementation of the National Health Insurance Law (NHIL). *Methods:* The study combined quantitative and qualitative research methodologies. A telephone survey utilizing a structured questionnaire was conducted during August–September 1998 among a random national sample of 849 women, with a response rate of 83%. Between the months of January and July of 2000, qualitative data was attained via participant-observation, long and short semi-structured interviews, and focus groups in one large Muslim Arab Israeli village. *Findings:* Arab Israeli women in the national survey reported poorer self-assessed health, lower rates of care by a woman primary care physician, lower satisfaction ratings for primary care physicians and more frequently foregoing medical care than did native or immigrant Jewish Israeli women. Three major factors contributing to Arab Israeli women's healthcare experiences were elucidated by the qualitative study: (1) the threat of physical and social exposure (2) difficulties in communicating with male physicians and (3) the stifling effect of family politics and surveillance on healthcare. *Discussion:* We discuss our findings in relation to structural changes associated with the recent reform of the Israeli health care system. We conclude by suggesting policy measures for better adapting primary care services to the needs of Arab Israeli women, and note the relevance to other systems that aim to provide service to cultural and ethno-political minorities, in which healthcare delivery is shaped by unique local circumstances.

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*Keywords:* Women's health; Health care reform, Arabs; Israel; Primary care; Empowerment

### 1. Introduction

Palestinian-Arab Israeli (hereafter, Arab Israeli) women are a minority within a minority<sup>3</sup> [1] and are subject to unique stresses that derive from their

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<sup>3</sup> The Arab Israeli minority represents nearly 17% of Israel's 6.04 million citizens (Ghanem, 2000; CBS, 2000).

status as members of an ethno-political minority [1–3], as well as from their position as women in a conservatively patriarchal community<sup>4</sup> [4,5]. Restrictions of geography, economy, and politics have shaped the healthcare of Arab Israeli citizens as a group [6–8]; yet, to the best of our knowledge, our study is the first to look closely at the forces behind the healthcare experiences of Arab Israeli women, in particular.<sup>5</sup>

In 2001, the life expectancy for an Arab Israeli woman was 77.8 years, nearly 4 years less than that for a Jewish Israeli woman. Data compiled in 1996 reveals that age-adjusted heart disease mortality was 42% higher for Arab women than for Jewish women. Similarly, age-adjusted mortality from infectious disease and diabetes were over 100 and 30% higher, respectively, for Arab versus Jewish women in that year [9]. As documented by the WHO in 1990, the life expectancy of Arab Israeli women ranked 24th out of 29 groups of women living in developed countries [10]. A study conducted by Azaiza and Brodsky, in 2003, found that the percentage of elderly Arab women in need of assistance with activities of daily living was more than twice as high as that of Jewish elderly women (39 and 17%, respectively) [11].

How can we improve the health of communities, such as the one we describe here, which are under-represented among the echelon of policy makers, or even policy advocates? Policy planners, we believe, would benefit from an appreciation of healthcare experiences, from the patient's perspective [12]. By providing an account of the experiences of Arab Israeli women within the Israeli health care system, we aim to advance the case for sensitivity to the

under-appreciated cultural and social forces shaping how health care is actually delivered.

## 2. Background

### 2.1. *The impact of the National Health Insurance Law upon the Arab Israeli community and the emergence of independent clinics*

By redefining financial incentives for health providers, the 1995 National Health Insurance Law (NHIL) had a pronounced effect upon the institutions of healthcare in the Arab Israeli community. Prior to the NHIL, the algorithm determining sickfunds<sup>6</sup> insurance compensation was based solely upon the total income of an insured family, regardless of its size. Sickfunds were thus encouraged to recruit Jewish families, whose average size was 3.4 persons, over Arab families, whose average size was 5.4 persons [13]. This disparity was further amplified by a gap in average income, with Arab employed persons earning approximately 60% of the average earnings of employed Jews [13]. The relatively low percentage of Arabs insured (88% versus nearly 100% of Israeli Jews) contributed further to the lack of healthcare resources in this community.<sup>7</sup>

The NHIL stipulated that revenues from the national health tax be collected by the National Insurance Institute (Israel's social security administration), then allocated to respective sickfunds, according to a risk-adjusted capitation formula that considered only the number of insured members and their age distribution. The incentive thus shifted to insure large families, regardless of their income level [14].

In addition, the NHIL guaranteed universal health coverage for all Israeli residents, via any one of four, not-for-profit sickfunds (Clalit, Maccabi, Meuhedet, and Leumit). The resulting competition to enlist patients in the heretofore untapped and underserved Arab Israeli population played out via service marketing and recruiting the endorsements of clan leaders on behalf of one or another sickfund [14]. The impact upon healthcare services was widespread; within 2 years

<sup>4</sup> Stress-associated problems within the Arab-Israeli population, as documented by Savaya [4] include: drug abuse, high school dropout rates and student delinquency. Furthermore, the quality and quantity of educational as well as social services provided to the Arab community consistently falls below those offered within the Jewish population (Lewin-Epstein and Semyonov 1992; Smooha, 1989, 1992; Ben-Ari and Pines [2]).

<sup>5</sup> Our search history included the following databases, under the following keywords: 1. Expanded Academic ASAP (info track) kw: Arab and Women; 2. First search (including PAIS and WorldCat) kw: Arab and Women; World Wide Political Science Abstracts kw: Arab and Women; 3. Science Direct kw: Arab and Women; 4. Medline 1990–2003 kw: Arab and Women; 5. Current Contents kw: Arab and Women.

<sup>6</sup> Sickfunds (see Appendix C) in the Israeli healthcare system are equivalent to HMO's.

<sup>7</sup> For historical underpinnings of the discrepancy in proportion of insured, see Appendix C.

of the law's passage, the percentage of Arab Israeli patients who reported having a regular physician increased from 63 to 99% while expenditures for private physicians decreased by over two-thirds [15].

New financial incentives and the rapid expansion of the insured population heralded the emergence of a new type of clinic. Under the independent clinic model, a physician is contracted exclusively by a sick-fund and is reimbursed commensurate with the number of patients in his registry. In contrast to the "central," or "public" clinic model—heretofore the mainstay in Arab Israeli medical care—the Independent physician establishes, manages and maintains his own clinic and clientele.

Independent clinics represent the convergence of a number of historical processes, discussed in Appendix C. The immediate predecessor was a loose network of unaffiliated private clinics which had been established over the course of 20 years by men who, upon returning from European medical schools, practiced from within their own homes, or neighboring ones. The independent clinic model allowed Clalit sickfund—which historically enjoyed a near absolute monopoly over healthcare in the Arab Israeli sector—to tap into this network, thus rapidly and exclusively recruiting a large number of physicians with minimal investment of capital and maximal financial agility. Independent physicians could themselves appeal to their respective families and clan leaders to secure their patient base and monthly remuneration.

## 2.2. Arab women in Israeli society

Expanded educational and employment opportunities have accelerated the integration of Arab Israeli women into broader Israeli society [16–18]. Between 1970 and 2000, the proportion of Arab Israeli women attending school for 8 or more years increased six-fold, from 9 to 59%, while the proportion of Arab Israeli men who achieved the same educational status rose from 21 to 70%. This was due in large measure to educational initiatives such as the 1950 Compulsory Education Act, which mandated that all children attend school throughout the 11th grade. Women comprised one-third of all Arab Israeli high school students by 1975, and over 45% by 2000 [13].

The trend in higher education has been similar, with a doubling of Arab Israeli women matriculating at

Haifa University between the years 1969 and 1984, while the enrollment of Arab Israeli men increased by only 25%. By 1995, women comprised over half of all Arab Israeli students enrolled at this institution [19].

The 1966 dismantlement of a burdensome military jurisdiction, under which most Arab Israelis had been heretofore subjected, served to facilitate Israeli Arab women's entrance into the workforce. Between 1965 and 1984, the percentage of Arab Israeli women engaged in the Israeli workforce increased fivefold [20]. Moreover, many of these women made headway into fields with a high public profile: in 1984, 46.1% of Arab Israeli women in the work force were employed in social and public services; many served their home communities<sup>8</sup> [21].

The experiences of Arab Israeli women contrast starkly with those of Arab Israeli men, for whom the establishment of Israel has been associated with an unambiguous loss of status, power, and honor [22]. The increasing social status and power, attained and exercised by Arab women in the broader Israeli society, has challenged traditional gender relations in the Arab Israeli village [23–26]. The 'modernization' of Arab Israeli women has been linked to an increased tendency toward divorce [27] and an increase in the authoritative restriction of women's social freedom [22,28,29]. The broadening incorporation of Arab women into Israeli society, in context of the larger Israel Arab political conflict, represents a destabilizing stressor for Arab Israeli men [30], not only because it disrupts the order of village life, but also because it is an affront to an essential sense of honor [22].

## 3. Methods

### 3.1. The quantitative study

The quantitative study was conducted by the JDC-Brookdale Institute.

#### 3.1.1. Study population

The study population included women over age 22, who are permanent residents of Israel. A random

<sup>8</sup> However, in 2000, only 15% of Arab Israeli women were in the work force, compared to 60% of Arab Israeli men and 53% of Jewish women [13].

representative national sample of households was drawn using the national computerized telephone listing of Israel's only telephone company updated for 1998, with which over 95% of all households in Israel are listed. For each listing sampled, one randomly chosen woman was interviewed, using random selection tables.

Of the 1309 households initially sampled, 158 (12%) did not meet the eligibility criteria (i.e., they belonged to a business or institution, were fax-modems, or had no women residents over age 22). An additional 141 (10.8%) of the telephone numbers were inactive. The final sample included 1010 households. The interviews were conducted in September and October of 1998. At the conclusion of the fieldwork, a total of 849 women had completed the questionnaires, for a response rate of 84%: 9% had refused, and 7% had not completed the interview for other reasons (e.g., the woman reported being unable to converse in either Hebrew, Arabic, Russian or English; the woman or a family member reported a disabling medical or cognitive condition). Each respondent was given a weight that expressed the probability of her being included in the sample (for more details see [31]).

The telephone interviews were conducted at the JDC-Brookdale Institute by specially trained interviewers, using a structured questionnaire that was developed by The Commonwealth Fund [32] and adapted for the Israeli health system. The questionnaire was translated into Hebrew, Arabic, and Russian. Seventy-five percent of the respondents were interviewed in Hebrew (636 women), 15% in Russian (127), and 10% in Arabic (85).<sup>9</sup>

### 3.1.2. Data analysis

The data were analyzed using the Statistical Package for the Social Sciences software (SPSS Inc., Chicago, Ill). Bivariate analysis was performed using overall chi square tests. Multivariate analysis was performed using linear multivariate regression and logistic multivariate regression (when the dependent variable was defined dichotomously). In the analysis, we differentiated between two distinct sub-groups of the Jewish population: 599 non-immigrant or "veteran" Israelis and 161 recent immigrants from

the former Soviet Union. Recent immigrants included women who had been in Israel for 10 years or less at the time of the study (i.e., immigrated between 1989 and 1998). They were identified by their response to two questions included in the questionnaire about the year they came to Israel and the country they came from (see [33]).

### 3.2. The qualitative study

The qualitative study was conducted between January and July of 2000, during which time the first author lived with a host family in a Muslim Arab village, under the auspices of the Hart Fellowship Program (Duke University). The research setting is described in Appendix B. Fieldwork activities included in-depth interviews, focus groups and participant observations. The in-depth interviews with women were semi-structured<sup>10</sup> and were carried out with the help of a female social worker employed in the local welfare office. Interviews addressed a spectrum of health issues and scenarios, focusing on the experiences and feelings of women in clinic visits and with their primary care physician in particular. Eighty women were interviewed in total, all of who were older than 17 years. Interviews lasted between 30 and 60 min.

Women were interviewed in a number of settings (e.g., clinics, welfare office, high school, community center, market place, wedding hall, home), in order to engage women from different socio-economic and family backgrounds. In-depth interviews were also conducted with all six of the nurses in the village, to better understand their personal and professional relationships with the women patients.

The first author (E.E.) conducted most interviews. A Muslim woman social worker (M.N.) conducted 10 in-depth interviews with patients, in Arabic. These were intended to ensure that key information was not being missed or censored, when interviews were conducted by a Jewish man (as opposed to a Muslim woman). We found no major discrepancies in the data yielded by these two sets of interviews and we believe this is due to E.E.'s being a young, American-Jewish

<sup>9</sup> All of the Arab women (identified by their family names and address) were interviewed in Arabic.

<sup>10</sup> A questionnaire guideline was developed during through an iterative process of pilot interviews, reflection, and consultation with key informants.

researcher, who interviewed the women in public places, or in their homes with others present. Furthermore, he was introduced and endorsed by M.N., his host family, or the village nurses. E.E. was thus perceived in a way that facilitated candid communication during the interviews.

Interviews were conducted with 13 physicians who practice in the village. These interviews were unstructured and tailored to address particular questions regarding the care of women patients. The physicians were asked, for example, to characterize their communication with their patients in general, and with their women patients, in particular. These issues were explored further through questions such as, “What governs your communication, and comfort level, with women patients?” and “Is there something you would like to see change?” Participant observations of medical consultations as well as of everyday village life enriched the depth of the analysis.

Analysis of the qualitative data included identification of salient themes involving how women patients and their physicians relate to one another. A family physician from a neighboring village, an Arab woman psychologist and a professor of sociology at Haifa University served as consultants throughout the course of the study.

## 4. Findings

### 4.1. The women's health survey

#### 4.1.1. Demographic data

The study population is characterized in Table 1. Compared to Jewish women, a smaller percentage of Arab women are over the age of 65, have post-secondary education, are working, and are in a high-income quintile. Regarding health-related variables (self-rated health status,<sup>11</sup> chronic illness, and disability)<sup>12</sup> Arab women reported slightly worse

health status than veteran Jewish women, but better health status than immigrant Jewish women.

#### 4.1.2. Physician care

Similar percentages of Arab Israeli and Jewish women reported having a regular primary care physician. However, a much smaller percentage of Arab Israeli women had a woman primary care physician, while a much larger percentage had a woman ob/gyn. Relative to veteran Jewish women, but not immigrant Jewish women, a smaller percentage of Arab Israeli women reported visiting their ob/gyn regularly (see Table 2).

Multivariate analysis revealed that the variable “Arab Israeli origin” had a statistically significant positive effect on “not visiting an ob/gyn regularly” (Table 3). Age over 55, low education, recent immigrant and low self-rating of health had a significant effect as well.

#### 4.1.3. Rating regular physician care

The women were asked to rate their regular physician's care, with regard to key questions, on a scale of 1–4 (to a small extent, medium extent, high extent and very high extent). Arab Israeli women's ratings were significantly lower than those of Jewish women in all aspects examined: adequacy of time spent with patient, responsiveness to patient questions, attendance to patient understanding, respectfulness and courtesy of physician as well as overall rating of the physician's care. Larger proportions of Arab Israeli women reported feeling embarrassed discussing personal problems with their physician (Table 2). Multivariate analysis revealed that, of nine key variables tested, only “Arab Israeli origin” had a statistically significant negative effect on the overall rating of primary care physicians' care (Table 4).

#### 4.1.4. Access to care

Relative to Jewish women, Arab Israeli women were more likely to report encountering difficulty getting care when needed, as well as foregoing care, specialist visits, and the filling of prescriptions (Table 2). Multivariate analysis confirmed that “Arab Israeli origin” had an independent positive effect on foregoing medical care and foregoing specialist visits (Table 5).

<sup>11</sup> This term refers to self-appraisal of health, in response to the question “How do you rate your current health status: excellent, very good, good, fair poor”.

<sup>12</sup> Women were asked to report if in the past five years a doctor had diagnosed them with at least one of eight chronic diseases: hypertension, heart condition, cancer, diabetes, anxiety or depression, osteoporosis, arthritis, obesity. Women were also asked to report whether they had a disability that inhibits their

participation in the work force, studies, household chores or other activities.

Table 1  
Demographic and health-related background characteristics, by origin (%) ( $n = 849$ )

		Arab Israeli	Jews	
			Veterans	Immigrants
Age <sup>a</sup>	<44	73	54	44
	45–64	22	34	34
	65+	5	12	22
Education <sup>a</sup>	<Secondary	73	20	7
	Secondary	23	55	57
	Post-secondary	4	25	36
Employment status <sup>a</sup>	Working	23	64	51
	Not working	77	36	49
Income quintile <sup>a</sup>	Low (1)	64	13	12
	Moderate (2–3)	32	43	66
	High (4–5)	4	44	22
Marital status <sup>a</sup>	Married	71	70	69
	Div/wid	11	15	24
	Single	18	15	7
Self-rated health status <sup>a</sup>	Fair/poor	33	24	65
	Good/very good/excellent	67	76	35
Disability <sup>a</sup>	Yes	21	18	31
	No			
Chronic illness <sup>a,b</sup>	At least one <sup>2</sup>	41	38	61

<sup>a</sup>  $P < 0.01$ .

<sup>b</sup> From a list of eight conditions: high blood pressure, heart condition, cancer, diabetes, anxiety or depression, osteoporosis, arthritis, obesity (see footnote 11).

## 4.2. Fieldwork

The qualitative study provided insight into the data collected by the quantitative study. Three salient issues emerged from the fieldwork including: (1) the vulnerability associated with physical as well as social exposure in the medical consultation (2) difficulties in communicating with male physicians, and (3) the stifling influence of family and clan politics in the healthcare process.

### 4.2.1. The vulnerability of exposure

Women emphasized that they had to weigh the benefits of a medical consultation against feeling vulnerable when physically exposed.

I only go [to the doctor] when I really must. If I have to undress, I feel uncomfortable, especially if I'm just in a bra.

When I was developing [physically], I became very uneasy about going to see the doctor. Suddenly, you grow breasts and everything changes, but no one talks about it, or prepares you for how to deal with it.

Another source of anxiety stemmed from the social exposure involved in visiting a neighborhood health clinic.

My brother was thinking of proposing to a girl, but his friends discouraged him, saying that she had been seen going to the doctor frequently.

Everyone is afraid of being ostracized, but especially unmarried girls. If they're not married by the time they're 25, they're already too old. And where can they go?

Older women like to socialize in the waiting area. They like to meet there in the morning, just to talk.

Table 2  
Physician care, rating of primary care physician, and access to care, by origin (%) ( $n = 849$ )

	Arab Israeli	Jews	
		Veterans	Immigrants
<b>Physician care</b>			
Has regular physician <sup>a</sup>	90	82	77
Has a woman PCP <sup>a</sup>	8	51	65
Visits ob/gyn regularly <sup>a</sup>	64	83	57
Has a woman ob/gyn <sup>a</sup>	60	23	45
<b>Rating of PCP (very high)</b>			
Overall care <sup>a</sup>	28	51	46
Spends enough time with you <sup>a</sup>	20	49	48
Answers all your questions <sup>a</sup>	28	55	52
Makes sure you understand <sup>a</sup>	22	50	54
Treats you with dignity and respect <sup>a</sup>	44	66	61
Felt embarrassed discussing personal problems <sup>a</sup>	22	8	8
<b>Access</b>			
Did not get care when needed <sup>a</sup>	57	18	21
Did not see a specialist when needed <sup>a</sup>	41	12	11
Did not fill prescriptions due to cost <sup>a</sup>	29	14	15

<sup>a</sup>  $P < 0.001$ .

That makes it uncomfortable [to go to the clinic], if you actually have a problem.

#### 4.2.2. Communicating with male physicians

Interviews revealed that the medical consultation represented one of the few occasions on which a woman was alone with a man other than her husband,

Table 3  
Does not visit an ob/gyn regularly, by background variables (logistic regression)

Variable	Odds ratio	95% confidence interval
Age 55+ <sup>a</sup>	3.03	2.00–4.61
Less than 12 years of education <sup>a</sup>	1.79	1.11–2.89
Immigrant <sup>a</sup>	3.54	2.28–5.51
Arab Israeli <sup>a</sup>	2.84	1.55–5.23
Member of Clalit	0.82	0.56–1.22
Poor self-reported health status <sup>a</sup>	3.02	1.61–5.70
Lives in central Israel <sup>b</sup>	1.20	0.83–1.75

Source: [31].

<sup>a</sup>  $P < 0.05$ .

<sup>b</sup> Includes Haifa, Jerusalem, Tel Aviv, and Dan Region.

Table 4  
Very high rating of primary care physician's overall care, by background variables (logistic regression)

Variable	Odds ratio	95% confidence interval
Age 65+ <sup>a</sup>	1.95	1.05–3.64
Per capita household income	0.95	0.89–1.02
Less than 12 years of education	0.98	0.56–1.73
Immigrant	0.67	0.41–1.11
Arab Israeli <sup>a</sup>	0.19	0.09–0.39
Member of Clalit	0.88	0.59–1.32
Good/very good self-rated health status	1.24	0.78–1.99
At least one chronic condition	1.25	0.82–1.88
Lives in central Israel <sup>b</sup>	1.00	0.68–1.47

Source: [31].

<sup>a</sup>  $P < 0.05$ .

<sup>b</sup> Includes Haifa, Jerusalem, Tel Aviv, and Dan Region.

creating a space in which the quality of the consultation was sacrificed on behalf of maintaining a sense of social etiquette.

There are lots of problems—lots. The doctors just don't know. If he says she has no problems, it isn't true. He just doesn't ask, so he doesn't know what he's missing.

If I go to the doctor to talk about this, he'll just send me to have an EKG.

He [the doctor] hardly examines me; [he says] 'here is a pamphlet'.

Doctors are so worried about sexual harassment these days. They'll do a poor job rather than have a woman complain that they do too many physical exams. They think no one knows the difference between gossip and professionalism.

Physicians described their experiences with women patients from their own perspective.

I can talk with men about soccer, politics, and news in the village. But with women, they will ask, 'why is this man talking nonsense when I came to him because of a medical issue?' They see it as inappropriate.

Women refrain from initiating. She wants *me* to ask, especially if it's a female issue like [gynecology].

**Table 5**  
Access to care among women who reported needing care, by background variables (logistic regression—odds ratios)

	Foregoing medical care ( <i>n</i> = 628)	95% CI	Foregoing specialist visits ( <i>n</i> = 417)	95% CI	Foregoing filling prescriptions ( <i>n</i> = 599)	95% CI
Age 65+	0.56	0.23–1.37	0.32 <sup>a</sup>	0.12–0.84	0.49	0.19–1.27
Per capita household income	0.99	0.9–1.09	0.81 <sup>a</sup>	0.74–0.90	0.78 <sup>a</sup>	0.71–0.86
Immigrant	1.11	0.58–2.15	1.15	0.63–2.14	1.04	0.57–1.93
Arab Israeli	4.60 <sup>a</sup>	2.36–8.97	2.19 <sup>b</sup>	0.99–4.9	1.21	0.59–2.51
Member of Maccabi	0.43 <sup>a</sup>	0.21–0.89	0.54	0.27–1.07	0.79	0.42–1.48
Member of Leumit	0.57	0.25–1.36	0.44	0.18–1.14	0.42	0.15–1.18
Member of Meuchedet	0.60	0.25–1.47	0.44	0.18–1.08	0.75	0.33–1.69
Poor self-rated health status	2.14	0.96–4.83	1.67	0.74–3.76	1.09	0.46–2.59
Lives in central Israel <sup>c</sup>	0.98	0.6–1.62	1.40	0.84–2.36	1.95 <sup>a</sup>	1.20–3.20

Source: [31].

<sup>a</sup> *P* < 0.05.

<sup>b</sup> *P* = 0.057.

<sup>c</sup> Includes Haifa, Jerusalem, Tel Aviv, and Dan Region.

Women here are shy. Seventy percent of them won't tell you what the problem is; you have to guess. It's entirely different than working with Jewish women in Rambam [Hospital, in Haifa].

Even if they feel a lump [in their breast], they won't come to talk to me about it. I have to ask, and even then, only sometimes do they talk.

She sees me as a man, not just as a doctor. And in my own mind I know I am a man, even if I try to think of the situation as 'doctor-and-patient'.

They don't understand because they are always at home. Sometimes they don't even have a TV. They have many children, and don't have any time.

Women are very nervous. Sometimes they come with such banal issues. I see her and [then] she is calm. [Women think] 'the doctor checked them.' Sometimes we send them to have an EKG. Its like a [form of] treatment, the EKG.

Nurses, who are employed exclusively in the public central clinic, were closely attuned to the quality of communication between women patients and doctors. Women nurses in particular described their role as mediators and advisors in this regard.

They [the physicians] know more about the men, and we know more about the women.

We [the nurses] make the real diagnosis. Half an hour is all it takes.

Zayad is 17. She had been here five times with insomnia, not succeeding in school, and being upset in general. The doctor asked me to talk to her, to relieve her anxiety a little. After a few minutes, she told me that she had a boyfriend, and that he had touched her, but 'not inside'. She was just afraid she was pregnant. But she had no one to talk to.

#### 4.2.3. Family politics and surveillance

Married women had frequently switched to their husband's primary care physician, if that physician had not cared for them previously. Single women reported choosing their primary care physician based on local family politics. This had direct implications for their communication with the physician:

I was at the central clinic until I married. Then my husband's family pressured me into going to his doctor, who is from his family. I don't like it, because he doesn't know me and I don't trust him.

After the marriage, his family moved me to his doctor. Then I had an accident and he didn't want to send me out to referrals. I left him, but not before fighting with the family about it.

The neighborhood and clan-association of the independent clinic was cited as a major reason for being

unable to discuss matters such as sex, contraception and STD's with the physician:

This woman is pregnant and she can't stand the sight of her husband. But she can't say that to her doctor, who is her husband's uncle. So she comes to talk with us [the nurses].

I can't tell [the doctor] anything; he's family.

If there are small problems with the husband, [it's] better not to tell the doctor. Then he knows there are problems, and even if he doesn't tell anyone, still there is a difference when we see him around [the neighborhood], later. But if there were big problems, then I would tell him. Perhaps he would even intervene.

If a woman has a sexual problem, even if it's her husband's problem, how can she tell the doctor about it? Even if her husband gives permission, it is very difficult. The doctor here is always in the background; if I tell him something today, I can't just forget about it.

## 5. Discussion

Our results document the profound dissatisfaction experienced by Arab Israeli women with their healthcare. Relative to their Jewish counterparts, they are substantially more likely to feel disrespected and embarrassed during the medical consultation, and they are three times as likely to report having forgone medical care in a time of recognized need.<sup>13</sup> Our fieldwork illuminates these findings by elucidating sources of stress in the clinical encounter, such that involve the vulnerability of exposure, communication with male physicians and the coercion of family politics and surveillance.

As a large Muslim village in the lower Galilee region of Israel, our site of fieldwork is highly representative of Israel's Arab minority community. The majority of Israeli Arabs (75%) are Muslim and over 90% live in villages, more than 60% of which are lo-

cated in the Galilee [34]. In assessing how closely the village healthcare network represents that of the larger Arab Israeli community, there is a scarcity of national data to draw upon. Consistent with fieldwork findings, almost all (92%) of the Arab women in the national survey reported being under the care of a male PCP. A study conducted by Adler and Lotan, in 2002, found that 44% of Arabs were under the care of a physician from their own village [35], similar to the experience of many women interviewed. The prevalence of independent clinics in the Arab community has never been examined on a national level, however, in 1997, 44% of all Israeli primary physicians (Jewish and Arab) were employed in an Independent practice [36].

The role of the clan in organizing healthcare practice has never been described, yet in 2000, Ghanem writes that, "as traditional primitive institution [the clan] is still the potent basis of social structure of the Arabs in Israel." Ghanem continues: "The individual's situation, in the shadow of the functioning of the clan, is quite serious ... The most significant manifestation of this discrimination affects the condition of Arab women, who are subject to an extensive network of forces and function as a minority within the Arab minority."<sup>14</sup>

### 5.1. Social forces shaping the healthcare experience of Arab Israeli women

How do the healthcare experiences of Arab women reflect underlying social tensions of contemporary village life? In important respects, the tension reflected in and addressed by the present Arab Israel clinical model has its roots in the divergent experiences of Arab Israeli women and men, vis-à-vis the Israeli State. From the time of its inception under economic and political stress (see Appendix C), the movement to create a body of Arab Israeli physicians was guided by socially conservative priorities that valued safeguarding women's chastity over promoting their representation in medicine. Measures such as these brought about a healthcare system controlled almost exclusively by men.

<sup>13</sup> There are many factors which, no doubt, play into this finding, such as economic factors, which we do not claim to assess for.

<sup>14</sup> Ghanem notes that clan-affiliated lists account for fully 82% of local elections; and that local government is the "most important channel of sociopolitical development by the Arabs in Israel" (Ghanem, 2000, p. 138).

The male domination of healthcare is significant in a Muslim community with conservatively encoded gender boundaries. In facilitating the emergence of independent clinics, the NHIL has been implemented in such a way that serves to consolidate the power invested in the physician. One instructive use of that power is demonstrated by the fact that Independent physicians, in managing their practices, have uniformly opted to practice without nurses (the majority of whom are women, and all of which are more costly than secretaries).

The absence of nurses represents a crucial difference between the Central and independent clinical models. Another difference involves the shift of the clinical setting from a culturally neutral, public space to a domestic one. The domestic setting assigns the clinic a corresponding set of social norms, which we found to contribute to the women's sense of domestic subordination. In the words of one informant, "from the moment she is born, the woman is supposed to serve the man, first her father and brothers, and later her husband." Women attending independent clinics are in a position resembling that of the traditional village home, in which the husband or father enjoys nearly unchecked authority, and the woman's role is subservient to his. The residential location of dispersed independent clinics further positions healthcare experiences within the social context of village life and fosters a communal involvement in the healthcare process.

In prompting the rapid transformation of private and decentralized neighborhood clinics into a network of Clalit-affiliated "independent clinics," the NHIL permitted the clan novel and far-reaching authorities over the delivery of healthcare, and ultimately over the social surveillance of women. As Independent physicians—all of whom originate and reside in the village in which they practice—compete with one another for clientele, the clan will continue to serve as the main channel of recruitment and support. This development continues to undermine women's comfort in exposing the full range of bio-psycho-social issues that underlie the need for medical care. This holds true from the moment a woman has to choose a physician based upon family politics and up through the point when she chooses what to reveal, in the clinical consultation.

While the NHIL allowed for a greater investment of resources in the healthcare apparatus of Arab Israeli communities, the law has been implemented in socially patterned ways, which yield to powerful social forces. We see how the features developed in the wake of the NHIL have guided women to a place of decreased power and security in the healthcare experience. This climate, of decreased security and increased physical and social exposure, opens the door to an increased role for social surveillance of women by their physicians. Such heightened surveillance may serve to compensate Arab Israeli men for the personal sense of destabilization associated with the broadening involvement of Arab Israeli women into Israeli society [20,21,23,26].

### 5.2. Implications for health policy interventions

Our findings reveal a dynamic healthcare situation, in which there are signs of stress and of resistance. The very fact that we could elicit such clear grievances from our informants—both in the national study and the fieldwork—demonstrates awareness of the stresses women experience in the clinic. That women often insist on involving nurses from the central clinic, in their consultations with Independent doctors, represents a more compelling act of resistance to this system, as does the national survey data regarding degree of women's non-use of the clinic, even in times of recognized medical need.<sup>15</sup>

What can be done to help shape health care services in the Arab Israeli sector, in such a way as to improve the quality of healthcare for women? Reforms or regulations that encourage the employment of nurses in independent clinics, and that discourage the practice of enlisting patients via clan-affiliation would be beneficial, though difficult to implement because of expected resistance from physicians employed in this sector. However, if decision makers realize the benefits to the health care of women, such regulations could probably be negotiated.

For lasting changes, we can look to the education establishment. We believe that our findings support the employment of affirmative action for Arab students in Israeli medical schools. Through affirmative

<sup>15</sup> There are many factors which, no doubt, play into this finding, such as economic factors, which we do not claim to assess for.

action campaigns, the minority representation among medical students has been substantially expanded, in the United States [37]. Educating Israeli medical students—Jews and Arabs—on discrimination in healthcare, is another worthwhile investment [38].

A broader, more far-reaching educational initiative involves empowering Arab Israeli women to be more effective advocates and healthcare consumers.<sup>16</sup> By “empowerment,” [39] we mean a process that promotes an individual’s awareness of her place in the world as it relates to larger systems [40], facilitating an understanding of a problem’s underlying source and its solutions [41–44]. Community empowerment implies an interactive process whereby institutions and communities become transformed as the people shaping them become transformed. This model is highly relevant to our target community, and it is based on the teaching of Paulo Freire [45,46], who shared lessons from liberation movements in Chile, Brazil and throughout the world, where participatory education enabled people to name their problems, find solutions, and transform themselves in the process of confronting oppressive systems [47].

We propose the development of an empowerment initiative within the Arab Israeli women’s community. The closely-knit social structure of Arab Israeli villages, and particularly of Arab Israeli women, makes this a strong candidate community for such a program. Several studies have demonstrated successful implementation of community empowerment programs [45,48–50], based on the concepts of training local community leaders to serve as Lay Health Advisors (LHA). Nurses, whom many women already respect and rely upon for support, fit this role naturally<sup>17</sup> [51–53].

Our study of the healthcare experiences of Arab Israeli women in the reformed Israeli healthcare system bears important implications for policymakers elsewhere. The effective provision of healthcare for minorities is challenged by the limited exposure of policymakers to the cultural and social context shaping how healthcare is delivered to the patient. The

challenge is greater yet, since it is usually those with the least access to power, and the power to be heard, who experience the greatest barriers to healthcare. Engaging such communities requires a substantial commitment to be present, in the unique context in which people live, and to listen to their stories. Interventions that are engaged to the processes of empowerment and education build further upon the sources of community knowledge, support and strength of its social networks. Such programs have already demonstrated impressive yields and hold great promise for the future.

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### Appendix A

Staff in independent (physicians A–I) and central (physicians J–M) clinics

<sup>16</sup> For a comprehensive review of the literature on empowerment of women, see [39].

<sup>17</sup> As documented by Kar et al. [42], women-led empowerment programs will encounter familiar forces of resistance which, in fact, highlight the urgency of empowerment as a goal.

Physician	Number of patients	Place of medical studies	Year opened independent clinic/joined central clinic
A	736	Europe	1995
B	589	Europe	1998
C	2052	Europe	1996
D	291	Israel	1978
E	2124	Europe	1995
F <sup>a</sup>	938	Europe	1995
G <sup>a</sup>	938	Israel	1995
H	1469	Europe	1995
I	499	Europe	1997
J	1749	Europe	1990
K	1966	Europe	1982
L	805	Europe	1980
M	722	Europe	1996

<sup>a</sup> Drs. F and G are partners in one practice.

## Appendix B

### B.1. The research setting: village primary healthcare services

Fieldwork for the qualitative aspect of this study was conducted in a large Muslim village in the northern Galilee region of Israel.<sup>18</sup> Over 22,000 people live in the village, where five extended families or clans (*hama'il*, in Arabic) dominate a clan-based social network. The clans are paternal in social structure and patriarchal in the way that power and authority are administered. The largest of them includes over 3600 people.<sup>19</sup>

There are two distinct village healthcare settings: the central public clinic, and several independent

clinics. In effect, Clalit Health Services (hereafter Clalit) enjoys a monopoly in the village, insuring over 95% of its residents and exclusively contracting with the majority of family physicians, all of who are men. After the National Health Insurance Law (NHIL) went into effect in 1995, four independent Clalit clinics were established almost over-night. By 1998, another three had opened. Within several years, less than one-third of all residents of the village had remained enrolled in the central clinic, and the independent clinics had become the main forum for primary care. This process was tightly linked to the changes in incentives introduced by the NHIL, described above.

The central clinic and independent clinics differ in many respects, the most important of which involve their staff. Four of the 13 Clalit family physicians practice in the central village clinic, which was established in 1958. Three of the four physicians at that clinic are Christian Arabs who commute to work from surrounding towns (see Appendix A). The remaining nine Clalit-affiliated physicians practice at eight different independent clinics, all but one of which were established after 1995. All of the physicians in the independent clinics are Muslims, and natives of the village. Four of the five largest clans are represented among these Independent physicians. An initial survey of the patient registries of two independent clinics revealed that over 60% of one and almost half of the other's patient population stem from their immediate and extended family.<sup>20</sup> Eight independent clinics are dispersed throughout the village, according to geographic sub-divisions that correspond to family-clan regions.

Striking physical differences exist between the central and independent clinics. As noted, the central clinic is owned and maintained by Clalit. It is located in a pristine white building in the middle of the main village road, situated between two ramshackle groceries. It is designed and furnished according to uniform Clalit standards; the clinic walls are decorated with framed reproductions of Gauguin, Monet, and Van Gogh.

In contrast, the independent clinics are usually situated on the ground floor of a two- or three-story home, sometimes that of the physician himself.

<sup>18</sup> Our site of fieldwork provides an imperfect representation of Arab Israelis, as this village is almost entirely Muslim, while approximately 8% of Arab Israelis are Christian. Our village is also a large, socially progressive Arab Israeli village, while many Arab Israelis live in smaller, more conservative communities. Nevertheless, we believe that the social norms and clinical settings described are highly representative of those in other Arab Israeli communities.

<sup>19</sup> Originally a small village established by two families, the village absorbed an influx of refugees during the 1948 Arab Israeli war and doubled in size.

<sup>20</sup> This data was obtained by examination of patient registries in clinics by E.E.

They are furnished and decorated according to domestic aesthetic tradition (some more modestly than others). Framed verses from the Koran and painted renditions of mosques adorn the walls of all of the independent clinics in the village.

## Appendix C

### C.1. The development of Arab Israeli healthcare

Under the British Mandate (1923–1948), healthcare services for the Arab population of Palestine were scanty [8]. Mandatory services were contained within the realms of administrative (e.g., licensing) and preventative (e.g., immunization) activities. These were complemented by medical services provided by Jewish and Arab physicians (from Lebanon and other neighboring countries) and by private philanthropic missions, which operated on a local level.<sup>21</sup> The British withdrawal from Palestine in 1947, coupled with the expulsion and flight of the Arab elite during the first Israeli Arab war (1947–1948) and the resultant demarcation of Israel's national borders, abruptly curtailed the few healthcare services that had been available to Israeli Arabs until then [7,8].

Despite the existence of a well-organized pre-state and national Jewish healthcare infrastructure, the development of healthcare for Arabs in Israel remained relatively stagnant until the 1960s. This may be accounted for by the prevailing political reality, which was reflected in the policy of Israel's largest sick fund, Clalit. Clalit was predominant organ of Israeli healthcare during those years, insuring over 80% of the population. Clalit was created in 1914 by socialist Zionist physicians from Western Europe, who envisioned it as the healthcare branch of the Labor Union of Jewish Workers in Israel (the *Histadrut*, in Hebrew<sup>22</sup>) [54]. The Socialist-Zionist nature of

healthcare in those years had immediate ramifications for the care of Arabs in Israel. In a policy designed to protect the wages and employment of Jewish immigrants, the Histadrut did not accept Arab laborers until the mid 1960s. Consequentially, the Arab population was largely uninsured until that time [8].

Healthcare access for Arab Israelis rose steeply in the years after the 1967 Arab Israeli war [8]. A movement toward general integration into Israeli society and healthcare services, together with the emergence and enrichment of Arab Israeli medical resources, made this possible. These developments may in turn be attributed to the rapidly expanding economic [55] and political [56–60] mobility that Arab Israelis enjoyed during that period.

While the integration of Arab Israelis into the Israeli healthcare system expanded steadily,<sup>23</sup> it remained hindered, until 1995, by the algorithm of sickfunds' insurance compensation, as described above.

Increased incorporation of Arab Israelis into the national healthcare was accompanied by the rapid development of Arab Israeli medical resources. The first cadre of Arab Israeli physicians-in-training began their studies in the 1970s. Having competed unsuccessfully for seats at Israeli medical schools, the majority of these physicians attained their medical degrees abroad. For example, of the 402 Arab Israeli medical students in 1985, over 85% were studying in Europe [62]—often in countries of the Soviet Bloc—while being supported by scholarships of the Israeli Communist Party [7].<sup>24</sup>

Almost all of these physicians were men.<sup>25</sup> Several reasons may account for this. Firstly, the concept of sending one's daughter to a foreign land without

more than three-quarters of all insured Israeli citizens. Its resources and hospitals surpassed even those of the Israeli Ministry of Health [8].

<sup>23</sup> By 1967, 35% of Arab Israelis were insured by Clalit; by 1984, 70% of were insured. Clalit maintained an impressive monopoly in the Arab sector, accounting for coverage of 92% of all non-Jewish Israelis [8] and its representation in Arab Israeli villages grew steadily, from 32 clinics in 1964 to 94 in 1984.

<sup>24</sup> This party comprised mainly Arab members and, according to Shuval [62], represented an outlet for political protest.

<sup>25</sup> In 2000, only seven of the 109 (Christian and Muslim) Arab family physicians in the southwestern Galilee region were women. For comparison's sake, more than 40% of Israeli Jewish family physicians are women (personal communication with all GSF administrators in this region, 2000).

<sup>21</sup> Three additional pre-state "sickfunds" were eventually established, but Clalit remained overwhelmingly predominant. By 1990, Clalit had grown to insure over 3.4 million people, representing more than three-quarters of all insured Israeli citizens. Its resources and hospitals surpassed even those of the Israeli Ministry of Health [8].

<sup>22</sup> Three additional pre-state "sickfunds" were eventually established, but Clalit remained overwhelmingly predominant. By 1990, Clalit had grown to insure over 3.4 million people, representing

supervision or chaperone was unpalatable to most Arab families. Financing her education was another factor: few families could muster the investment required for 8 years of education abroad with little hope of retrieving it, as once a woman was married, her acquired wealth would become the property of her husband's family, not her paternal one [63]. Furthermore, the time constraints of a physician's work were seen as being incompatible with those of motherhood.

Upon returning to their communities, these physicians raised the ratio of Arab physicians to residents, from 1:20,000 in 1970 to 20:20,000 in 1985 [61]. Yet very few of them were hired by Clalit or by the other sickfunds. As noted above, sickfunds had little economic motivation to attend to the Arab population. By extension, sickfunds were also disinterested in employing a large staff of Arab physicians, most of who could attract only an Arab clientele. Kept out of the sickfunds' employment pool, most Arab physicians practiced privately, serving the uninsured. Until 1995, in fact, proportionately half as many Arab as Jewish physicians practiced in public clinics [15]. Private Arab Israeli physicians were rendered powerless by Clalit, which maintained firm control over its resources; consequently, they could not easily refer patients to Clalit's clinics or hospitals for diagnostic work-ups or treatment [8]. This situation was rectified with the passage, in 1995, of the National Health Insurance Law.

## References

- [1] Ghanem A. The Palestinian-Arab minority in Israel, 1948–2000. Albany: State University of New York Press; 2001.
- [2] Ben-Ari A, Pines AM. The changing role of family in utilization of social support: views from Israeli Jewish and Arab students. *Families in Society: The Journal of Contemporary Human Services* 2002;83(1):93–102.
- [3] Savaya R. The under-use of psychological services by Israeli Arabs: an examination of the roles of negative attitudes and the use of alternative sources of help. *International Social Work* 1998;41(2):195–209.
- [4] Cohen O, Savaya R. 'Broken glass': the divorced woman in Muslim Arab society in Israel. *Family Process* 1997;36(3):225–45.
- [5] Lewin-Epstein N, Semyonov M. The Arab minority in Israel's economy. Boulder, Colorado: Westview Press; 1993.
- [6] Farfel M, Yuval D. Arabs' and Jews' perceptions and use of the health system two and a half years after implementation of the National Health Insurance Law. RR-351-99. Jerusalem: JDC-Brookdale Institute; 1999.
- [7] Shuval J, Anson O. Social structure and health in Israel. Jerusalem: Magnes Press (Hebrew); 2001.
- [8] Reiss N. The healthcare of the Arabs in Israel. Boulder, Colorado: Westview; 1991.
- [9] Ifrah A. Women's health in Israel 1999: a data book. Jerusalem: Israel Center for Disease Control, Gertner Institute, and The Israel Women's Network; 1999.
- [10] World Health Organization. World's women: the trends and statistics, 1970–1990. New York: United Nations Statistics Division; 1991.
- [11] Azaiza F, Brodsky J. The aging of Israel's Arab population: needs, existing responses, and dilemmas in the development of services for a society in transition. *Israel Medical Association Journal* 2003;5(5):383–6.
- [12] Anderson RT, Barbara AM, Weisman C, Scholle SH, Binko J, Schneider T, Freund K, Gwinner V. A qualitative analysis of women's satisfaction with primary care from a panel of focus groups in the National Centers of Excellence in Women's Health. *Journal of Women's Health & Gender Based Medicine* 2001;10(7):637–47.
- [13] Central Bureau of Statistics. Statistical Abstracts of Israel State of Israel; 2002.
- [14] Gross R, Harrison M. Implementing managed competition in Israel. *Social Science and Medicine* 2001;52:1219–31.
- [15] Farfel M, Rosen B, Berg A, Gross R. Arabs' and Jews' perceptions and use of the health system following implementation of the National Health Insurance Law: findings from a survey of the general population. RR-274-97. Jerusalem: JDC-Brookdale Institute; 1997.
- [16] Bader-Aref C. The Arab women in Israel at the dawn of the twenty-first century. In: Landau Y, Ghanem A, Hareven A, editors. *The Arab citizens of Israel at the dawn of the twenty-first century: New Middle East 37*. Jerusalem: Oriental Society and Sikkuy; 1995. p. 213–8.
- [17] Al-Haj M. Education, empowerment, and control: the case of the Arabs in Israel. Albany: State University of New York Press; 1995.
- [18] Abu Baker K. The impact of cross-cultural contact on status of Arab women in Israel. In: Safir MP, Mednick MT, Izraeli DN, Bernard J, editors. *Women's worlds*. New York: Praeger; 1985. p. 246–50.
- [19] Al-Haj M. Education among the Palestinian minority. Jerusalem: Magnes Press (Hebrew); 1996.
- [20] Mar'i M, Mar'i S. The role of women as change agents in Arab society in Israel. In: Swirsky B, Safir M, editors. *Calling the equality bluff*. New York: Teachers College Press; 1993. p. 213–21.
- [21] Semyonov M, Lewin-Epstein N, Brahm I. Changing labour force participation and occupational status: Arab women in the Israeli labour force. *Work, Employment and Society* 1999;13(1):117–31.
- [22] Hasso F. Modernity and gender in Arab accounts of the 1948 and 1967 defeats. *International Journal of Middle East Studies* 2000;32:491–510.

- [23] Moore D. Gender identities and social action: Arab and Jewish women in Israel. *Journal of Applied Behavioral Science* 1998;34:5–29.
- [24] Moore D. Gender identity, nationalism, and social action among Jewish and Arab women in Israel: redefining the social order? *Gender-Issues* 2000;18(2):3–28.
- [25] Al-Krenawi A, Graham JR. The cultural mediator: bridging the gap between a non-western community and professional social work practice. *British Journal of Social Work* 2001; 31(5):665–85.
- [26] Lewin-Epstein N, Semyonov M. Modernization and subordination: Arab women in the Israeli labor-force. *European Sociological Review* 1992;8(1):39–51.
- [27] Al-Krenawi A, Graham JR. Divorce among Muslim Arab women in Israel. *Journal of Divorce and Remarriage* 1998; 29(3–4):103–19.
- [28] Faqir F. Engendering democracy in the Arab world. *Third World Quarterly* 1997;18(1):165–74.
- [29] Nader L. Orientalism, occidentalism and the control of women. *Cultural Dynamics* 1989;2(3):323–55.
- [30] Shokeid M. Ethnic identity and the position of women among Arabs in an Israeli town. *Ethnic and Racial Studies* 1980;3(2):188–206.
- [31] Gross R, Brammli-Greenberg S. The health and welfare of women in Israel: findings from a national survey. RR-361-00. Jerusalem: JDC-Brookdale Institute (Hebrew); 2000.
- [32] Collins K. Developing patient satisfaction questionnaires. *Nursing Standard* 1999;14(11):37–8.
- [33] Gross R, Brammli-Greenberg S, Remennick L. Self-rated health status and health care utilization among immigrant and non-immigrant Israeli Jewish women. *Women and Health* 2001;34(3):53–69.
- [34] Ghanem, A. The Arabs in Israel in advance of the elections for the thirteenth Knesset. Surveys of the Arabs in Israel 8. Givat Haviva: Institute for Peace Research (Hebrew); 1992.
- [35] Adler V, Lotan M. The quality of health services for the Arab population in Israel—a survey of community clinic services. Research report for The National Institute of Health Services and Health Policy Research, Tel-Hashomer; 2002.
- [36] Gross R, Greenstein M, Brammli-Greenberg S, Tabenkin H, Harrison M. Primary care physicians in Israel 1997: characteristics and changes in an era of reform. *Social Security* 1999;54:169–90.
- [37] Eischbach RL, Hunt M. Part I: Behind every problem lies an opportunity: meeting the challenge of diversity in medical schools. *Journal of Women's Health & Gender-Based Medicine* 1999;8(10):1240–7.
- [38] Eischbach RL, Hunt M. Part II: Educating for diversity. *Journal of Women's Health & Gender-Based Medicine* 1999;8(10):1249–56.
- [39] Elroy I, Gross R. Lay leadership development in women's health: insights from the international literature. Jerusalem: JDC-Brookdale Institute [in press].
- [40] Frans DJ. A scale for measuring social worker empowerment. *Research on Social Work Practice* 1993;3(3):312–28.
- [41] Wallerstein N, Bernstein E. Empowerment education: Freire's ideas adapted to health education. *Health Education Quarterly* 1988;15(4):379–94.
- [42] Kar SB, Pascual CA, Chickering KL. Empowerment of women for health promotion: a meta-analysis. *Social Science & Medicine* 1999;49(11):1431–60.
- [43] Eisen A. Survey of neighborhood based, comprehensive community empowerment initiatives. *Health Education Quarterly* 1994;21(2):235–52.
- [44] Israel BA, Checkoway B, Schulz A, Zimmerman M. Health education and community empowerment: conceptualizing and measuring perceptions of individual. *Health Education Quarterly* 1994;21(2):149–69.
- [45] Freire P. *Education for critical consciousness*. New York: Continuum; 1993.
- [46] Freire P. *The politics of education: culture, power and liberation*. Trans. Donald Macedo. South Hadley: Bergin and Garvey; 1985.
- [47] Wallerstein N, Bernstein E. Health education and community empowerment: conceptualization and measuring perceptions of individual. *Health Education Quarterly* 1994;21(2):141–8.
- [48] Butterfoss FD, Goodman RM, Wandersman A. Community coalitions for prevention and health promotion: factors predicting satisfaction, participation, and planning. *Health Education Quarterly* 1996;23(1):65–79.
- [49] Laverack G, Labonte R. A planning framework for community empowerment goals within health promotion. *Health and Policy Planning* 2000;15(3):255–62.
- [50] Earp JAL, Viadro CI, Vincus AA, Altpeter M. Lay health advisors: a strategy for getting the word about breast cancer. *Health Education and Behavior* 1997;24(4):432–51.
- [51] Eng E, Smith J. Natural helping functions of lay health advisors in breast cancer education. *Breast Cancer Research and Treatment* 1995;35(1):23–9.
- [52] Eng E, Young R. Lay health advisors as community change agents. *Community Health* 1992;15:24–40.
- [53] Schulz AJ, Israel BA, Becker AB, Hollis RM. It's a 24-hour thing ... a living-for-each-other concept: identity, networks, and community in an urban village health worker project. *Health Education and Behavior* 1997;24(4):465–80.
- [54] Shvarts S. Health reform in Israel: some aspects of seventy years of struggle (1925–1995). *Social History of Medicine* 1998;11(1):72–88.
- [55] Tessler M, Grant AK. Israel's Arab citizens: the continuing struggle. *The Annals of the American Academy of Political and Social Science* 1998;555:97–113.
- [56] Al-Haj M, Rosenfeld H. The emergence of an indigenous political framework in Israel: the National Committee of Chairmen of Arab Local Authorities. *Asian and African Studies* 1989;24(2–3):75–115.
- [57] Al-Haj M. The changing strategies of mobilization among the Arabs in Israel: parliamentary politics, local politics, and national organization. In: Ben-Zadok E, editor. *Local communities and Israeli politics*. Albany: State University of New York Press; 1995.

- [58] Cohen R. Process of political organization and voting patterns of the Palestinian minority. M.A. thesis. Tel Aviv: Faculty of Humanities, Tel Aviv University (Hebrew); 1985.
- [59] Landau Y. The Arab Minority in Israel, 1967–1991: political aspects. Oxford: Clarendon Press; 1993.
- [60] Rouhana N, Ghanem A. The democratization of a traditional minority in an ethnic democracy: the Palestinians in Israel. In: Kaufman E, Abed S, Rothstein R, editors. Democracy, peace and the Israeli-Palestinian conflict. Boulder and London: Lynne Rienner; 1993. p. 163–88.
- [61] Awad A, Kanaaneh H. Health Manpower Capabilities. In: Proceedings of the First Health Conference in the Arab Community in Israel. Nazareth, Israel; 1987.
- [62] Shuval J. Social dimensions of health: the Israeli experience. Westport, Connecticut: Praeger; 1992.
- [63] Al-Haj M. Social change and family processes: Arab communities in Shefar-Am. (Brown University studies in population and development) Boulder: Westview Press; 1987.

# **The Association of Gender Concordance and Primary Care Physicians' Perceptions of their Patients**

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# The Association of Gender Concordance and Primary Care Physicians' Perceptions of Their Patients

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**ABSTRACT.** In this article, we examined the effect of gender concordance on physicians' perception of their patients and of their medical condition, analyzing a data set of 8,258 visit questionnaires from the New Zealand National Primary Care Medical Care Survey conducted in 2001–2002. Multivariate analysis indicated that the concordant female patient/female physician dyad had a positive independent association with physicians' reporting high rapport and a negative independent association with reporting uncertainty about the diagnosis. The discordant female patient/male physician dyad had a positive independent association with physicians' perceptions of uncertainty of diagnosis and hidden agenda, and a negative independent association with rating the patient's condition of high severity. The findings suggest a need to raise male physicians' awareness to possible biases when treating female patients. The findings also suggest the need to empower female patients to take an active partnership role to improve their communication with male physicians.

**KEYWORDS.** Gender concordance, primary care, physicians, perceptions, survey, New Zealand

### *INTRODUCTION*

The effect of physician gender on health care delivery has become a topic of interest in light of the increasing entry of women into the medical profession, particularly primary care, in recent decades. In the US, the percentage of women entering medical school rose from 13.7% in 1971 to 46% in 2001 (Bertakis et al., 1995; Franks & Bertakis, 2003). Understanding how the gender of patient and physician influence the care process is important because it relates to patient outcomes and will provide the basis on which to develop strategies for providing healthcare that is more gender sensitive (Bertakis & Azari, 2007).

Previous studies have shown that female primary care physicians compared to male ones see proportionately more female patients (Franks & Bertakis, 2003) and provide more preventive services and preventive counseling (Bertakis et al., 1995; Henderson & Weisman, 2001; Franks & Bertakis, 2003; Beran et al., 2007; Bertakis & Azari, 2007) as well as psychosocial counseling (Henderson & Weisman, 2001; Roter, Hall, & Aoki, 2006). They engage more in patient-centered communication, such as partnership building, positive talk,

and emotionally focused talk (Roter, Hall, & Aoki, 2006; Bertakis & Azari, 2007) and have a more participatory decision making style (Beran et al. 2007; Bertakis & Azari, 2007). Female physicians also devote more time than their male counterparts to discussing family, medical, and social issues (Bertakis et al., 1995). Studies have also shown that patients, whether male or female, are more satisfied with female physicians than with male physicians (Bertakis et al., 1995). Some studies have demonstrated that female physicians spend more time with their patients (Franks & Bertakis, 2003; Roter, Hall, & Aoki, 2006), although this difference may be related to the type of visit and the gender distribution and health status of the patients (Bertakis et al., 1995).

Although previous studies have controlled for patient gender, only a few studies have examined the effect of gender concordance on aspects of health care delivery (Bertakis & Azari, 2007). We define *gender concordance* as similarity in gender of physician and patient. Different studies have reported mixed findings regarding the effect of gender concordance on provision of preventive services, counseling, and patient satisfaction (Schmittziel et al., 2000; Henderson & Weisman, 2001; Franks & Bertakis, 2003; Beran et al., 2007).

Earlier research indicates that physicians may be making some medical decisions based on gender-related considerations and stereotypes (Bertakis & Azari, 2007; Street, 2002; Munch, 2006). Previous studies also suggest that the association between patients' socio-demographic characteristics and the physicians' behavior during medical encounters, diagnosis, and treatment is at least partially mediated by differences in the physicians' perceptions of patients (Van Ryn & Burke, 2000). To understand better the causal pathway through which gender affects medical decision-making, the physicians' perspective is a crucial, yet missing, link in the literature. Specifically, studies have not examined the effect of gender concordance on physicians' perceptions of their patients from the physicians' point of view.

The purpose of our study therefore was to examine the effect of gender concordance on physicians' perception of their patients and of their medical conditions. The perceptions we examined include: degree of rapport with patient, perceived existence of a hidden agenda, degree of uncertainty about their diagnosis, and degree of severity of the patient's condition.

These variables represent two important dimensions of the clinical encounter: quality of communication and clinical judgment of the patients' condition. Higher rapport raises the likelihood that the patient will provide the physician with more information, which will

in turn improve diagnosis and treatment, and presumably the eventual outcome for the patient. Better communication and the resulting satisfaction with the encounter also raise the likelihood of patient adherence to the treatment (Cleary & McNeil, 1988; Bultman & Svarstad, 2000). “Hidden agenda” is a term coined by Barsky (1981) that refers to patients’ covert concerns or “non-presenting symptom” which they have difficulty in expressing to their physician (Menahem, 1987). Some examples may include alcoholism, domestic violence, depression, sexually transmitted diseases, etc. Revealing the hidden agenda is crucial for making a comprehensive bio-psycho-social diagnosis, enabling the physician to provide appropriate treatment, and is related to communication skills in listening and interpreting non-verbal cues (Kee & Wong, 1990; Robinson, 2001; Silverman, 2005).

Uncertainty about diagnosis and under-assessment of severity of condition represent perceptions that may have adverse effects on the treatment the patient receives. Uncertainty may result in unnecessary diagnostic procedures, while under- or over-estimation of severity will result in inappropriate care that may even endanger the patient. Physicians’ clinical judgment of the patients’ condition may be affected by their perceptions, as social psychological studies have demonstrated that unconscious stereotypes may lead to altered judgment even among well-intentioned people (Vay Ryn et al., 2006; Van Ryn, 2002; Van Ryn & Fu, 2003).

Gender is a substantial component of social status, and gender roles are at least in part, socially and culturally constructed. This can place a variety of expectations and constraints on physician-patient encounters. Gender concordance may facilitate communication, mutual understanding, and trust (Franks & Bertakis, 2003) and thus lead to greater patient satisfaction and to more effective use of the health system, and vice versa. The accumulating research on the effect of ethnicity, which is also a prominent social status determinant, supports this assumption. In previous studies in the United States, respondents who were ethnically concordant with their physician reported greater satisfaction with the physician and said they were receiving more preventive care (La Veist & Nuru-Jeter, 2002; Saha et al., 1999). An observational study revealed that ethnically concordant visits were of longer duration and received higher ratings of positive affect, reflecting higher interpersonal rapport and a higher degree of satisfaction (Cooper et al., 2003).

Perloff et al. (2006) have suggested a theoretical model depicting the associations between patients’ socio-demographic characteristics which affect physicians’ and patients’ expectations of the medical

encounter, which in turn affect the quality of communication that defines to a great extent the outcomes of care. Based on this theoretical approach, which Perloff et al. (2006) used to examine the implications of ethnic discordance, we suggest that gender concordance and discordance may have similar effects on physicians' perceptions and on the medical encounter.

## **METHODS**

### ***Setting***

New Zealand has a population of 4 million people, 20% of whom are of Maori and Pacific origin. Life expectancy at birth is 81.1 years for females and 76.7 years for males. The national expenditure on health in 2002 was 8.5% of the gross domestic product (GDP) (Health Policy Monitor, 2007). New Zealand has a largely tax-funded health system, in essence similar to the United Kingdom's National Health Service. New Zealand provides primary medical care through a network of general practitioners (GPs), i.e., family physicians, who have traditionally adopted a private, self-employed, for-profit, small business model. Only 60% of primary care in New Zealand is government funded; the rest is covered by patient co-payments (Crampton, Davis, & Lay-Yee, 2005). Since the late 1980s, community governed non-profit primary care organizations have developed in response to increasing demand for culturally appropriate primary care services that are more affordable. However, in 2004, still only about 3% of GPs worked in these organizations (Crampton et al., 2004).

New Zealand has about 23,000 health practitioners and 30,000 support workers delivering services in the community. For every 1,000 citizens, 2.2 physicians practice medicine. About 40% of medical practitioners and 23% of nurses work in primary care settings. GPs form the principal provider group of interest in primary care policy processes. Since the early 1940s, New Zealand's primary care policy has been shared control between government and GPs, largely because GPs have retained their independence by charging co-payments as a significant source of funding, thereby positioning the government as subsidizer rather than exclusive funding source of primary care. In 1993, New Zealand introduced contracting, bringing an opportunity for the government to exert more influence over primary care policy and prompting a more diverse range of primary care arrangements, including the formation of independent practitioner associa-

tions (Crampton, Davis, & Lay-Yee, 2005). In 2001, the government introduced and implemented a new Primary Health Care Strategy (King, 2001). This new strategy placed increased emphasis on creating a primary care-led health system, increasing the population focus of primary care, and reducing health inequalities (Hefford et al., 2005).

### ***Study Population and Sampling***

A nationally representative multistage probability sample of private general practitioners (GPs) and their patient visits in New Zealand comprised the sample of the National Primary Care Medical Care Survey (NatMedCa) (Raymont et al., 2004) that was used for the present analysis.

The NatMedCa study team (Raymont et al. 2004) generated a sampling frame of all active private GPs from telephone white pages listings. Other sources included the Medical Council Register<sup>1</sup> and laboratory client lists. They compared the three lists to identify all active physicians and included them in the sampling frame. They conducted an additional check on the completeness of the sampling frame by comparing it with the Independent Practitioner Association's (IPA) membership list. To obtain a nationally representative sample, the study team first sampled all the major cities. For towns and rural areas, the locations were selected so as to include areas in the North and South, urban and rural, and so that an organizational type that might mostly or only exist in particular areas would not be excluded. The age and gender distribution of the population in the selected areas were closely similar to that of the population in the non-selected areas. (For a detailed description, please see section 2.5 in Raymont et al. 2004.) In the next stage, the study team randomly sampled GPs from the listings in each sampled location with pre-determined selection probabilities. The listings were stratified by type of organization (independent; independent practitioner association; capitation—i.e., funding based on population served) and type of location (metropolis (>500,000), city (100,000–500,000), town (30,000–100,000), or rural area (<30,000)). A detailed description of the sampling procedure is presented in Raymont et al. (2004).

Of the total GP population (2,783), a sample of 397 was drawn. Of these, the study team found that 135 GPs approached were ineligible because they were not practicing general medicine (i.e., on sabbatical, moved or retired, in specialty practice). Of the 262 eligible GPs,

199 completed practice and visit questionnaires. For two one-week periods, approximately six months apart to account for season, every selected GP completed a questionnaire regarding a 25% systematic sample of patient visits. The study team instructed GPs to list all patient visits on a special form and to complete a detailed questionnaire on every fourth patient. Overall, 8,258 visit questionnaires were completed. The response rate was 71% for the first period and 66.4% for the second period. GP and visit weights were calculated to account for different sampling probabilities so that approximately unbiased estimates of proportions means and measures of association could be calculated (Korn & Graubard, 1991).

The study team obtained ethical approval of the study protocol from ethics committees of the medical faculties in all areas represented in the survey, coordinated by the Auckland Ethics Committee. GPs received a full description of the research, and they knew that they could withdraw from the study at any time. All participating GPs signed a consent form at the time of recruitment, following an open discussion of the project and provision of an information booklet. To maintain GP confidentiality, the dataset identified individuals by code numbers only. The study team requested that GPs refrain from putting any questions to their patients that were not justified by clinical “need-to-know.” Given the anonymity of the patient data and the fact that the GPs’ questioning and management were not altered for the study, patient consent was not sought.

### ***Data Collection and Questionnaire***

The primary purpose of the NatMedCa survey, conducted in 2001–2002, was to collect data on the content of patient visits. The methodology was based on the annual U.S. National Ambulatory Medical Care Survey (NAMCS).<sup>2</sup> Each participating GP received visit record forms, which they returned at the end of the week of data collection using a pre-addressed courier pack. GPs who did not return the data packet received telephone reminders at the beginning of the week and again a week later. The visit record form was adapted from the NAMCS. In addition, each GP enrolled in the study completed a practitioner questionnaire. Trained individuals entered the data using preformatted electronic forms. The visit record form and practitioner questionnaires included a large set of questions about the physician and patient visits (a detailed description is available in Raymont et al., 2004).

For the study reported here, we conducted a secondary analysis of visits of patients aged 15 or more years ( $n = 6,219$ ) occurring Monday through Friday, 8 a.m. to 6 p.m., using the subset of topics below. We excluded children under 15 years as it was considered that their visit data were most likely reflecting the interaction between their parent/care-giver and the physician. We extracted the dependent variables from the visit forms that the physicians filled out for each visit. The first was physician rating of degree of “uncertainty” as to diagnosis or management of the most important problem (none, low, medium, high); dichotomized into none vs. other. The second was physician rating of “general rapport achieved” (low, medium, high); dichotomized into high vs. other. The third was physician rating of “severity” of the most important problem (life threatening, intermediate, self-limiting, NA); dichotomized into life threatening or intermediate vs. other. The fourth was physician’s perception of “hidden agenda apart from the reason(s) for visit” (yes, no, don’t know); dichotomized into no vs. other.

We used questions included in two earlier regional studies, the Community Medical Care (CoMedCa) survey undertaken in the Hamilton Health District during 1979–1980 (Raymont, 1992; Scott & Gilmore, 1979) and the Waikato Medical Care (WaiMedCa) survey conducted during 1991–1992 (McAvoy et al., 1994) for measuring the first three dependent variables and the independent variables. The study team developed the question on “hidden agenda” for this survey. The origins of the question were two previous qualitative studies on physicians’ ability to recognize and deal with patients’ “hidden agenda” (Kee & Wong, 1990; Menahem, 1987).

We included several independent variables in the multivariate analysis. Gender concordance between physician and visiting patient was computed from data on the visit form and the physician questionnaire (classified into dyads: both male, both female, male physician and female patient, female physician and male patient). Ethnic concordance between physician and visiting patient was computed from data on the visit form and the physician questionnaire (both European vs. other<sup>3</sup>). Physician’s personal characteristics and characteristics of his/her practice included physician’s age and workload (measured by average number of daytime patients per week). Patient’s socio-demographic characteristics included age; marital status (married, living with partner, separated, divorced, widowed, never married dichotomized into married or living with partner vs. other); and socio-economic status as measured by the deprivation index of residence.<sup>4</sup> Patient’s health characteristics included the status of the problem (new, short-term;

long term; long term with flare up; preventive dichotomized into long term/chronic vs. other); and co-morbidity (taken as the number of diagnoses: one or more than one). Patient utilization of services were measured by the number of patient visits in the past 12 months<sup>5</sup> and his/her being new to the practice (yes, no).

### **Data Analysis**

We conducted the data analyses using the Statistical Analysis Software (SAS) statistical package (SAS Institute Inc., 2004), taking account of the stratified sample design, clustering of visits per physician, and weights that were inversely proportional to selection probability. The SAS SurveyLogistic procedure fits linear logistic regression models for discrete response survey data by the method of maximum likelihood. It incorporates complex sample designs with stratification, clustering, and unequal weighting, estimating variances of odds ratios using a Taylor expansion approximation (SAS Institute Inc., 2004).

Visits were the unit of analysis rather than patients who were not identifiable; we assumed that multiple visits per patient would be minimized as one in four visits associated with each physician were surveyed during each of two one-week periods separated by approximately six months.

We performed bivariate analyses using chi-square tests for comparing categorical variables with  $p$ -values computed from the Rao-Scott Chi-Square (SurveyFreq procedure). For continuous variables,  $t$ -tests and associated  $p$ -values were used (SurveyReg procedure).

We selected the potential confounding variables included in the logistic regression models based on associations with the dependent variables, physician gender or patient gender in the bi-variate analysis ( $p < 0.05$ ). We also included several variables that did not have a significant association with gender in the bi-variate analysis (e.g., workload, chronic condition) but could possibly have spurious or latent associations with the dependent variables we analyzed, and therefore we wanted to control for them. We list other independent variables used to characterize the sample but not included in the multivariate analysis in Appendix I, with an explanation as to why they were not included in the analysis. The independent variables were entered into each model simultaneously (which is the only method available for the complex sample in the SurveyLogistic procedure). We retained all the variables entered to the regression model. We used the Wald Chi-Square test to assess the logistic regression model fit.

We used multiple logistic regression to generate odds ratio estimates with 95% Wald confidence limits (SurveyLogistic procedure to control for the stratification, clustering and selection probability weights). The dependent variables were defined dichotomously as described above.

## FINDINGS

*Patient characteristics:* No statistically significant differences between female and male patients were found in: mean age (48.4 years); in proportion of European ethnicity (79%); in proportion of high deprivation score (categories 8–10 in the Deprivation Index) (24.8%); in prevalence of chronic disease (34.4%); and visit duration of over 15 minutes (30.5%) (Table 1). The analysis revealed statistically significant differences between women and men in: marital status (57.6% of women vs. 65.3% of men reported living with a partner); having a community services card (49.6% of women vs. 39.4% of men); presence of comorbidity (40.8% of women vs. 36.4% of men); having a female physician (33.5% of women vs. 15.7% of men); being new to the practice (5.7% of women vs. 8.9% of men); holding a high user card (6.9% of women vs. 4.8% of men); and number of visits in last 12 months (7.3% for women vs. 6.0% for men).

*Physician characteristics:* We found no statistically significant differences between female and male physicians by ethnicity (67% European), mean number of daytime patients per week (121.5) or employment arrangement (92% self-employed) (Table 2). We found statistically significant differences between female and male physicians in mean age (42.2 years for female vs. 46.8 years for male) and mean years in practice (12.7 for females vs. 17.4 for male).

*Physician perception of patients:* Overall, we found no statistically significant differences in bi-variate analyses between female and male physicians in most perceptions of patients. Altogether, 4.9% reported a perceived existence of a hidden agenda in the visit, 68.3% reported achieving high rapport with patient during the visit, and 47.2% rated the patient's condition to be of high severity. A slightly higher percentage of male physicians (53.8%) than female physicians (45.6%) reported some uncertainty about the diagnosis ( $p < 0.05$ ) (Table 2). In Appendix II we present the Multivariate logistic regression analysis of the independent associations of physician and patient gender and physicians' perceptions. The analyses showed statistically significant associations between physician male gender and perceptions of higher uncertainty and lower rapport. It also showed statistically significant

TABLE 1. Patient Characteristics by Gender ( $n$  = No. of Visits)

	Total	Women $n = 3,820$ (61.1%)	Men $n = 2,386$ (38.9%)	$P$ Value for Gender Difference
<b>Socio-demographic</b>				
Age in years <sup>1</sup> Mean (sd)	48.40 (6.83)	50.52 (0.73)	51.71 (0.69)	ns
Marital status (with partner) <sup>2</sup> $n$ (%)	3,731 (60.6)	2,206 (57.6)	1,525 (65.3)	0.0001
Ethnicity (European) <sup>2</sup> $n$ (%)	4,667 (79.0)	2,885 (79.8)	1,782 (77.9)	ns
Deprivation decile (8–10) <sup>2</sup> $n$ (%)	1,618 (24.8)	997 (24.9)	621 (24.4)	ns
Community services card (yes) <sup>2</sup> $n$ (%)	2,798 (45.6)	1,849 (49.6)	949 (39.4)	0.0001
<b>Health</b>				
Status of disease (chronic) <sup>2</sup> $n$ (%)	1,893 (34.4)	1,128 (33.1)	765 (36.4)	ns
Co-morbidity >1 diagnoses (yes) <sup>2</sup> $n$ (%)	2,339 (39.07)	1,508 (40.8)	831 (36.4)	0.01
<b>Utilization</b>				
<b>Physician gender<sup>2</sup></b>				
Female $n$ (%)	1,619 (26.6)	1,275 (33.5)	344 (15.7)	
Male $n$ (%)	4,587 (73.4)	2,545 (66.4)	2,042 (84.3)	0.0001
Patient new to practice <sup>2</sup> $n$ (%)	449 (7.0)	240 (5.7)	209 (8.9)	0.0002
Number of visits in last 12 months <sup>1</sup> mean (sd)	9.57 (1.32)	7.29 (0.28)	6.02 (0.25)	0.0001
High user card (yes) <sup>2</sup> $n$ (%)	344 (6.07)	231 (6.9)	113 (4.8)	0.032
Visit duration (>15 min.) <sup>2</sup> $n$ (%)	1,793 (30.47)	1,144 (31.1)	649 (29.6)	ns

<sup>1</sup>Total, Women, and Men columns = mean (SE); Significance test = Independent samples  $t$  test.

<sup>2</sup>Total, Women, and Men columns =  $n$  (%); Significance test = Chi-square test of independence.

associations between patient male gender and perceptions of higher severity and lower assessment of a hidden agenda.

Analysis of physicians' perceptions by gender concordance (Table 3) revealed statistically significant differences between the dyads in two of the four perceptions examined. Reported uncertainty about the diagnosis was highest for the female patient/male physician and male patient/male physician dyads (56.2% and 50.6%, respectively). Uncertainty was lower for female patient/female physician (46.6%) and male patient/female physician (42%). Reported assessment that

TABLE 2. Physician Characteristics by Gender (*n* = No. of Visits)

	Total	Women <i>n</i> = 1,622 (26.6%)	Men <i>n</i> = 4,597 (73.4%)	<i>P</i> Value
Socio-demographic				
Age in years <sup>1</sup> mean (sd)	45.56 (0.76)	42.15 (0.87)	46.79 (0.98)	0.0007
Ethnicity (European) <i>n</i> (%)	4,229 (67.0)	1,092 (63.8)	3,137 (68.1)	ns
Professional				
Years in practice <sup>1</sup> mean (sd)	16.18 (0.68)	12.74 (0.84)	17.39 (0.86)	0.0002
Practice				
Number of daytime patients per week <sup>1</sup> mean (sd)	121.54 (4.88)	100.61 (13.79)	129.14 (4.39)	ns
Employment arrangement (self employed) <sup>2</sup> <i>n</i> (%)	5,661 (92.0)	1,489 (95.5)	4,172 (90.8)	ns
Perceptions of patients				
Uncertainty about diagnosis (some) <sup>2</sup> <i>n</i> (%)	3,240 (51.6)	749 (45.6)	2,491 (53.8)	0.049
Hidden agenda (yes/unknown) <sup>2</sup> <i>n</i> (%)	281 (4.9)	77 (5.1)	204 (4.8)	ns
General rapport (high) <sup>2</sup> <i>n</i> (%)	4,142 (68.3)	1,089 (70.4)	3,053 (67.5)	ns
Severity (high) <sup>2</sup> <i>n</i> (%)	2,918 (47.2)	716 (45.1)	2,202 (47.9)	ns

<sup>1</sup>Total, Women, and Men columns = mean (SE); Significance test = Independent samples *t* test.

<sup>2</sup>Total, Women, and Men columns = *n* (%); Significance test = Chi-square test of independence.

the patient had a hidden agenda in the visit was highest for the female patient/male physician and female patient/female physician dyads (6.3% and 5.7%, respectively), and lower for male patient/female physician (3.3%) and for male patient/male physician (2.8%).

Multivariate logistic regression analysis revealed statistically significant associations between the patient/physician dyads and all of the four physician perceptions of patients we examined, after controlling for ethnic concordance, physician age and workload, patients' socio-demographic characteristics and utilization of services. Compared to the baseline dyad (male patient/male physician), the discordant female patient/male physician was positively independently associated with physicians' perceptions of uncertainty of diagnosis (OR = 1.24,  $p < 0.05$ ) and hidden agenda (OR = 2.16,  $p < 0.01$ ) and negatively independently associated with rating the condition as high severity (OR = 0.81,  $p < 0.05$ ) (Table 4). The concordant female patient/female

TABLE 3. Physicians' Perceptions by Gender Concordance ( $n$  = No. of Visits)

	Uncertainty about Condition (some) $n = 6,156$ $n$ (%)	Hidden Agenda (yes/unknown) $n = 6,055$ $n$ (%)	Rapport (high) $n = 6,206$ $n$ (%)	Severity (high 1 and 2) $n = 6,206$ $n$ (%)
Total	3,230(51.5)	281(4.9)	4,134(68.3)	2,913(47.2)
Male pat/male phys 2,031(32.8)	1,068(50.6)	55(2.8)	1,359(68.1)	1,007(49.2)
Fem pat/fem phys 1,260(20.4)	600(46.6)	66(5.7)	878(72.4)	547(43.2)
Male pat/fem phys 342(6.1)	147(42.0)	11(3.3)	210(64.0)	168(51.8)
Fem pat/male phys 2,523(40.6)	1,415(56.2)	149(6.3)	1,687(67.0)	1,191(46.9)
Rao-Scott Chi-Square	13.45	16.99	3.84	4.23
Df	3	3	3	3
significance	<0.0038	<0.0007	ns	ns

physician dyad was positively independently associated with reporting high rapport (OR = 1.63,  $p < 0.05$ ) and negatively independently associated with reporting uncertainty about the diagnosis (OR = 0.74,  $p < 0.05$ ).

## DISCUSSION

The main findings of this study were that gender concordance and discordance between physician and patient were related to the physicians' perceptions of their interactions with patients and of the patients' conditions. These associations revealed a more complex pattern of gender-related associations than an analysis of the separate effect of physician gender and patient gender, and thus add an additional perspective on the effect of gender in the medical encounter.

The concordant female patient/female physician dyad was positively independently related to reporting high rapport and negatively independently related to reporting uncertainty about the diagnosis. The discordant female patient/male physician dyad was positively independently related to physicians' perceptions of uncertainty of diagnosis and hidden agenda and negatively independently related to rating the condition of high severity.

TABLE 4. Physicians' Perceptions by Gender Concordance Multiple Logistic Regression ( $n$  = No. of Visits; OR = Odds Ratio; CI = Confidence Interval)

	Uncertainty About Condition (some) OR (95% CI) $n = 4503$	Hidden Agenda (yes/unknown) OR (95% CI) $n = 4452$	Rapport (high) OR (95% CI) $n = 4524$	Severity (high 1 and 2) OR (95% CI) $n = 4524$
Fem pat/male phys	1.238(1.048–1.462)*	2.158(1.455–3.203)**	0.907(0.747–1.101)	0.808(0.675–0.965)*
Fem pat/fem phys	0.681(0.470–0.987)*	2.05 (0.985–4.268)	1.626(1.070–2.470)*	0.753(0.503–1.127)
Male pat/fem phys	0.743(0.455–1.213)	0.922(0.332–2.559)	1.213(0.747–1.971)	1.066(0.660–1.722)
Ethnic concordance (European)	1.208(0.873–1.672)	0.970(0.623–1.510)	1.104(0.797–1.530)	1.135(0.846–1.522)
Patient age	0.998(0.994–1.003)	1.005(0.995–1.014)	0.998(0.992–1.003)	0.991(0.986–0.995)**
Physicians age	1.035(1.008–1.063)**	0.995(0.963–1.029)	0.967(0.944–0.990)**	1.00 (0.983–1.019)
Chronic disease	0.835(0.685–1.020)	0.971(0.603–1.562)	0.866(0.692–1.083)	1.639(1.362–1.973)**
Marital status (has partner)	1.165(0.973–1.396)	0.911(0.650–1.279)	1.479(1.247–1.753)**	0.907(0.778–1.057)
Co-morbidity (> 1 diagnoses)	1.319(1.103–1.576)**	2.170(1.417–3.323)**	1.139(0.938–1.384)	1.328(1.132–1.559)**
No visits in past 12 months	0.988(0.976–1.001)	1.005(0.969–1.043)	0.993(0.978–1.009)	0.976(0.961–0.992)**
Avg. no. of patients	1.001(0.997–1.005)	1.000(0.993–1.007)	0.998(0.994–1.001)	1.002(0.998–1.005)
Deprivation decile (high)	0.932(0.759–1.145)	0.688(0.470–1.008)	0.799(0.665–0.959)*	1.196(0.990–1.444)
Patient new to practice (yes)	0.989(0.692–1.412)	1.212(0.559–2.628)	0.463(0.325–0.658)**	1.317(0.933–1.86)
Wald Test	Chi square = 52.6	Chi square = 76.9	Chi square = 78.2	Chi square = 117.8
Chi-Square Test	$P < 0.0001$	$P < 0.0001$	$P < 0.0001$	$P < 0.0001$

\* $p < 0.05$ ; \*\* $p < 0.01$ .

Our finding that female physicians treating female patients reported higher rapport than the other dyads is consistent with a previous study reporting higher rapport and satisfaction in ethnically concordant dyads (Cooper et al., 2003). In both cases, the reason may be that similar social status facilitated effective communication, mutual understanding and trust (Franks & Bertakis, 2003), which were manifested in high rapport. Higher rapport in the female concordant dyad than in the male concordant dyad may be related to the better communication skills of female physicians (Roter, Hall, & Aoki, 2006; Bertakis & Azari, 2007). Another possibility is that it had to do with their ability to show greater empathy, defined as “understanding the inner experiences and perspectives of the patient combined with a capability to communicate this understanding to the patient” (Hojat et al., 2002). Similarity in beliefs, values, and experiences in society, may explain the finding that female physicians reported higher rapport with female patients than with male patients, as is the case in ethnically concordant dyads (Cooper et al., 2007). However, this finding may also originate from patients’ stereotypes, expectations, or communication skills, as depicted in Perloff’s (2006) theoretical model of the clinical encounter.

The lower rapport in the other dyads is cause for concern, since it may reduce satisfaction with physician services, which in turn may contribute to lower adherence to treatment (Kim et al., 2004) or a tendency to avoid primary care (Moore, 2004). Therefore, future studies should aim to understand the underlying reasons for gender-related low rapport and its implications on care so that the health services can build interventions to improve it.

Another perception related to the quality of communication is the existence of a hidden agenda, as it may affect the accuracy of the diagnosis and required treatment. In the female patient/male physician dyad, physicians were more likely to report that the patient had a hidden agenda that they failed to present in the encounter. Assuming this response indicates a failure to identify the un-presented problems, improving communication skills with female patients may be considered to create an atmosphere that allows the patients to disclose their condition fully, and consequently receive care that is more appropriate.

Another problematic perception was apparent in the female patient/male physician dyad—a higher likelihood to report uncertainty about the diagnosis (in contrast to a lower likelihood in the female patient/female physician dyad). Uncertainty about diagnosis is likely to affect negatively on the quality of care: physicians may order unnecessary tests or may prescribe unnecessary medications. How-

ever, further research is needed to ascertain the effects of physicians' uncertainty on their treatment and to examine the actual accuracy of diagnosis in the four dyads.

Finally, in the male physician/female patient dyad, we also found a lower likelihood of rating the patient's condition as being of high severity. This may have implications for the appropriateness of the treatment provided to women compared to men with similar conditions, as was previously reported in studies on treatment of heart conditions (Arber et al., 2006). However, further research is needed to assess whether male physicians indeed underestimate the severity of similar conditions presented by female or male patients (we did not have case-mix information in this study).

The strengths of this study lie in the nationally representative sample of physicians and their large number of patients' visits, and in the detailed level of information obtained on each individual visit. However, our study had several limitations. First, the data were based on physicians' self-reports. These are a good source for assessing perceptions but may not be accurate for some of the independent variables. Second, the diagnoses were coded into general categories (respiratory, etc.), and detailed medical classification of these conditions was beyond the scope of this article. Therefore, we did not control for case mix and compare perceptions regarding patients with similar medical conditions. Third, the dependent variable measuring perception of a "hidden agenda" was used for the first time in this quantitative study questionnaire and therefore further research is needed to ascertain its validity. Finally, the modest participation rates could reflect selection and participation bias and thus could have resulted in a non-representative sample that may reduce the generalizability of the findings.

In conclusion, this study was the first to examine the effect of gender concordance on physicians' perceptions of their patients and of their conditions, and therefore the conclusions are tentative until confirmed by additional studies. Previous studies have shown that physicians' perceptions of social and behavioral characteristics of patients affect their treatment (Van Ryn et al., 2006). Therefore, our findings highlight the need in future studies to examine the effect of male and female physicians' perceptions of their patients on their clinical decision making and treatment by patient gender. In particular, it is important to examine the effect on clinical decision making of perceptions regarding accuracy of diagnosis and rating of severity, both of which have immediate implications for the outcome of care. This may provide a missing link to understanding gender disparities

in health care as well as in health status (Doyal, 2001; Rieker & Bird, 2005), which exist despite higher use of services among women (Bindman *et al.*, 2007).

The association we have found of gender concordance and perceptions underscores the need for more studies in this area. In particular, it is important to examine additional physician perceptions relevant to care and to assess their effect on the quality of care provided to these gender-specific groups. It is also important to study these associations in other countries so as to assess whether these findings can be generalized to other settings.

Our findings highlight the particular exposure to risk of female patients visiting a male physician, related to physicians' perceptions that may be barriers to provision of high quality care. Our findings suggest the need of future studies to investigate the effect of these perceptions on the clinical treatment of female patients, controlling for case-mix. Meanwhile, it may be useful to draw male physicians' awareness to possible biases in assessing female patients' conditions (certainty of diagnosis, assessing severity), and possible problems in communication with them (rapport, hidden agenda).

Finally, the findings also have implications for patients, first and foremost, the need to provide information to female patients regarding possible dynamics in an encounter with male physicians that may have detrimental consequences for their health care, and empowering them to take an active partnership role to improve their communication with male physicians.

## NOTES

1. The Medical Council Register is an official list of all currently registered medical practitioners. It is maintained by the Medical Council of New Zealand, which is the professional body that authorizes the registration of practicing physicians.

2. NAMCS available at <http://www.cdc.gov/nchs/about/major/ahcd/ahcd1/htm>

3. Other ethnic groups include predominantly Maori (the indigenous people of New Zealand), Pacific, and Asian people.

4. Patients' residential addresses were collected and classified into 10 deprivation categories, using the NZ Deprivation Index (2001) classification of census mesh blocks (1 = lowest deprivation, 10 = highest) (Salmond & Crampton, 2002).

5. Physicians' reports based on the patients' medical records.

6. Ministry of Health New Zealand, <http://www.moh.govt.nz/moh.nsf>

7. Clinical terms (the Read Codes) version 3 reference manual. <http://www.connectingforhealth.nhs.uk/terminology/readcodes/publications>

## REFERENCES

- Arber, S., Kinlay, J., Adams, A., Marceau, L., Link, C., & O'Donnell, A. (2006). Patient characteristics and inequalities in doctors' diagnostic and management strategies relating to CHD: A video-simulation experiment. *SS&M*, *62(1)*, 103–115.
- Barsky, A. J. (1981). Hidden reasons some patients visit doctors. *Annals of Internal Medicine*, *94*, 492–498.
- Beran, M. S., Cunningham, W., Landon, B. E., Wilson, I. B., & Wong, M. D. (2007). Clinician gender is more important than gender concordance in quality of HIV care. *Gender Medicine*, *4(1)*, 72–84.
- Bertakis, K. D., & Azari, R. (2007). Patient gender and physician practice style. *Journal of Women's Health*, *16(6)*, 859–868.
- Bertakis, K. D., Helms, L. J., Callahan, E. J., Azari, R., & Robbins, J. A. (1995). The influence of gender on physician practice style. *Medical Care*, *33(4)*, 407–416.
- Bertakis, K., & Azari, R. (2007). Patient gender and physician practice style. *Journal of Women's Health*, *16*, 859–868.
- Bindman, A., Forrest, C., Britt, H., Crampton, P., & Majeed, A. (2007). Diagnostic scope of and exposure to primary medical care in Australia, New Zealand, and the United States: Results from three national surveys. *Br Med J*, *334(7606)*, 1261.
- Bultman, D. C., & Svarstad, B. L. (2000). Effects of physician communication style on client medication beliefs and adherence with antidepressant treatment. *Patient Education and Counseling*, *40*, 173–185.
- Cleary, P. D., & McNeil, B. (1988). Patient satisfaction as an indicator of quality care. *Inquiry*, *25*, 25–36.
- Cooper, L. A., Roter, D. L., Johnson, R. L., Ford, D. E., & Steinwachs, D. M. (2003). Patient-centered communication, ratings of care, and concordance of patient and physician race. *American College of Physicians*, *139*, 907–916.
- Crampton, P., Davis, P., & Lay-Yee, R. (2005). Primary care teams: New Zealand's experience with community-governed non-profit primary care. *Health Policy*, *72*, 233–243.
- Crampton, P., Davis, P., Lay-Yee, R., Raymont, A., Forrest, C., & Starfield, B. (2004). Comparison of private for-profit with private community-governed not-for-profit primary care services in New Zealand. *J Health Serv Res Policy*, *9(2)*, 17–22.
- Doyal, L. (2001). Sex, gender, and health: The need for a new approach. *BMJ*, *323*, 1061–1063.
- Franks, P., & Bertakis, K. D. (2003). Physician gender, patient gender, and primary care. *Journal of Women's Health*, *12(1)*, 73–80.
- Health Policy Monitor. (2007). Country Fact Sheet: New Zealand. [http://www.hpm.org/en/Country\\_Facts/Country\\_Selection/Australia\\_and\\_New\\_Zealand/New\\_Zealand.html](http://www.hpm.org/en/Country_Facts/Country_Selection/Australia_and_New_Zealand/New_Zealand.html)
- Hefford, M., Crampton, P., & Foley, J. (2005). Reducing health disparities through primary care reform: The New Zealand experiment. *Health Policy*, *72*, 9–23.
- Henderson, J. T., & Weisman, C. S. (2001). Physician gender effects on preventive screening and counseling. An analysis of male and female patients' health care experiences. *Medical Care*, *39(12)*, 1281–1292.

- Hojat, M., Gonnella, J. S., Nasca, T. J., Mangione, S., Veloksi, J. J., & Magee, M. (2002). The Jefferson Scale of physician empathy: Further psychometric data and differences by gender and specialty at item level. *Academic Medicine*, *77*(10), s58–s60.
- Kee, P. C. W., & Wong, W. N. (1990). The hidden agenda and diagnosis in general practice. *Singapore Medical Journal*, *31*, 427–431.
- Kim, S. S., Kaplowitz, S., & Johnston, M. V. (2004). The effects of physician empathy on patient satisfaction and compliance. *Eval Health Prof*, *27*, 237–251.
- King, A. (2001). *The Primary Health Care Strategy*. Wellington: Ministry of Health.
- Korn, E., & Graubard, B. (1991). Epidemiologic studies utilizing surveys: Accounting for the sampling design. *American Journal of Public Health*, *81*, 1166–1173.
- La Veist, T. A., & Nuru-Jeter, A. (2002). Is doctor-patient race concordance associated with greater satisfaction with care? *Journal of Health and Social Behavior*, *43*(3), 296–306.
- McAvoy, B., Davis, P., Raymont, A., & Gribben, B. (1994). The Waikato Medical Care (WaiMedCa) Survey 1991–1992. *New Zealand Medical Journal*, *107*(986 Part 2), 386–433.
- Menahem, S. (1987). Teaching students of medicine to listen: The missed diagnosis from a hidden agenda. *Journal of the Royal Society of Medicine*, *80*, 343–346.
- Moore, P. J., Sickel, A. E., Adler, N. E., Malat, J., Williams, D., & Jackson, J. (2004). Psychosocial factors in medical and psychological treatment avoidance: The role of doctor-patient relations. *Journal of Health Psychology*, *9*, 421–433.
- Munch, S. (2006). The women's health movement: Making policy, 1970–1995. *Social Work in Health Care*, *43*(1), 17–32.
- Perloff, R. M., Bonder, B., Ray, G. B., & Ray, E. B. (2006). Doctor-patient communication, cultural competence, and minority health: Theoretical and empirical perspectives. *American Behavioral Scientist*, *49*(6), 835–852.
- Raymont, A., Lay-Yee, R., Davies, P., & Scott, A. (2004). Family doctors: Methodology and description of the activity of private GPs. The National Primary Care Survey (NatMedCa), 2001/02 Report 1. Ministry of Health, Wellington, New Zealand. Available on the MOH website: <http://www.moh.govt.nz/natmedca>
- Raymont, A. (1992). General practice—consultation and outcome: A social analysis of the patient practitioner encounter. Thesis submitted for the degree of Doctor of Philosophy at the University of Auckland, New Zealand.
- Rieker, P. P., & Bird, C. E. (2005). Rethinking gender differences in health: Why we need to integrate social and biological perspectives. *The Journals of Gerontology: Series B, Vol. 60B(special issue)*, 40–47.
- Robinson, J. D. (2001). Closing medical encounters: Two physician practices and their implications for the expression of patients' unstated concerns. *Social Science & Medicine*, *53*, 639–656.
- Roter, D. L., Hall, J. A., & Aoki, Y. (2006). Physician gender effects in medical communication. *JAMA*, *288*(6), 756–764.
- Saha, S., Komaromy, M., Koepsell, T. D., & Bindman, A. B. (1999). Patient-physician racial concordance and the perceived quality and use of health care. *Arch Intern Med*, *159*, 997–1004.
- Salmond, C., & Crampton, P. (2002). NZDep2001 Index of Deprivation. Reserach

- Report. Department of Public Health, Wellington School of Medicine and Health Sciences.
- SAS Institute Inc. (2004). SAS/STAT 9.1 User's Guide. Cary, NC: SAS Institute Inc.
- Schmittiel, J., Grumbach, K., Selby, J. V., & Quesenberry, C. P. (2000). Effect of physician and patient gender concordance on patient satisfaction and preventive care practices. *J Gen Intern Med, 15*, 761–769.
- Scott, I. K., & Gilmore, L. L. (1979). The community medical care survey: A progress report. Auckland Department of Community Health: University of Auckland.
- Silverman, J. (2005). Hidden agendas and how to uncover them. *Medicine, 33*(2), 27–29.
- Street, R. L. (2002). Gender differences in health provider-patient communication: Are they due to style, stereotypes, or accommodation? *Patient Education Counseling, 48*(3), 199–200.
- Van Ryn, M., Burgess, D., Malat, J., & Griffin, J. (2006). Physicians' perceptions of patients' social and behavioral characteristics and race disparities in treatment recommendations for men with coronary artery disease. *American Journal of Public Health, 96*(2), 351–357.
- Van Ryn, M., & Burke, J. (2000). The effect of patient race and socio-economic status on physicians' perceptions of patients. *Social Science & Medicine, 50*, 813–828.
- Van Ryn, M., & Fu, S. S. (2003). Paved with good intentions: Do public health and human service providers contribute to racial/ethnic disparities in health? *American Journal of Public Health, 93*, 248–255.
- Van Ryn, M. (2002). Research on the provider contribution to race/ethnicity disparities in medical care. *Medical Care, 40*(supp. 1), I140–I151.

## APPENDIX I

### ***Additional Variables Used for Characterizing the Patient Sample***

*Community services card*—indicating socio-economic status (SES) and eligibility for discounts (see criteria on Ministry of Health [MOH] website).<sup>6</sup> This variable was found to be strongly correlated with deprivation decile, and therefore not included in the multivariate analysis.

*High user card*—indicating health status and eligibility for discounts (see criteria on MOH website). This variable was found to be strongly correlated with status of disease and therefore not included in the multivariate analysis.

*Visit duration*—physician's report (average 10–15 minutes; shorter; longer). Not included in the multivariate analysis as strongly

correlated with other independent variables, including gender concordance.

*Physician's years in practice*—a variable found to be strongly correlated with physician's age and therefore not included in the multivariate analysis.

*Employment arrangement (self-employed, salaried)*—most physicians, regardless of their gender, reported self-employment and this variable is conceptually unrelated to outcome variables.

*Patients' reasons for visits and patients' diagnoses* (up to 4 per patient) were classified using READ version 2,<sup>7</sup> a hierarchical system of classifying pathology-based groups (21 categories). The percentage in each category was no more than about 10%, excluding "respiratory system" (18.6%) with only slight differences in the distribution between male and female patients. We should note that only 0.4% of visits had gender specific diagnoses (pregnancy, childbirth, puerperium, perinatal).

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APPENDIX II. Physicians' Perceptions by Gender, Multiple Logistic Regression (n = No. of Visits; OR = Odds Ratio; CI = Confidence Interval)

	Uncertainty about Condition (some) OR (95% CI) n = 4,503	Hidden Agenda (yes/unknown) OR (95% CI) n = 4,452	Rapport (high) OR (95% CI) n = 4,524	Severity (high 1 and 2) OR (95% CI) n = 4,524
Physician gender (male)	1.68 (1.17–2.41)**	1.06 (0.53–2.08)	0.62 (0.42–0.91)*	1.04 (0.70–1.53)
Patient gender (male)	0.86 (0.73–1.00)	0.46 (0.32–0.65)**	1.02 (0.86–1.22)	1.27 (1.09–1.48)*
Ethnic concordance (European)	1.21 (0.87–1.68)	0.97 (0.62–1.51)	1.10 (0.79–1.53)	1.14 (0.85–1.52)
Patient age	0.99 (0.99–1.00)	1.00 (0.99–1.01)	0.99 (1.00)	0.99 (0.98–0.99)
Physicians age	1.03 (1.01–1.06)**	0.99 (0.96–1.03)	0.97 (0.94–0.99)	1.00 (0.98–1.02)
Chronic disease	0.84 (0.68–1.02)	0.97 (0.60–1.56)	0.86 (0.69–1.08)	1.64 (1.36–1.97)
Marital status (has partner)	1.16 (0.97–1.39)	0.91 (0.65–1.28)	1.49 (1.25–1.76)	0.91 (0.78–1.05)
Co-morbidity (>1 diagnoses)	1.32 (1.10–1.57)**	2.17 (1.42–3.32)**	1.14 (0.94–1.39)	1.33 (1.13–1.56)**
No visits in past 12 months	0.99 (0.98–1.00)	1.00 (0.97–1.04)	0.99 (0.98–1.01)	0.98 (0.96–0.99)*
Avg. no. of patients	1.00 (0.99–1.00)	1.00 (0.99–1.01)	0.99 (0.99–1.00)	1.00 (0.99–1.00)
Deprivation decile (high)	0.93 (0.76–1.14)	0.69 (0.47–1.01)	0.80 (0.67–0.96)*	1.19 (0.99–1.44)
Patient new to practice (yes)	0.99 (0.69–1.41)	1.21 (0.56–2.63)	0.46 (0.33–0.66)**	1.32 (0.93–1.86)
Wald Test	Chi square = 45.8	Chi square = 70.0	Chi square = 72.2	Chi square = 117.1
Chi-Square Test	$P < 0.0001$	$P < 0.0001$	$P < 0.0001$	$P < 0.0001$

\* $p < 0.05$ ; \*\* $p < 0.01$ .

# **The Association between Inquiry about Emotional Distress and Women's Satisfaction with their Family Physician: Findings from a National Survey**

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# The Association Between Inquiry About Emotional Distress and Women's Satisfaction with Their Family Physician: Findings from a National Survey

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**ABSTRACT.** *Background:* Women appear to be more vulnerable than men to emotional distress (ED). However, ED often goes unrecognized by family physicians.

*Purpose:* To (1) assess the rate of inquiry about ED by family physicians and (2) explore the association between physician's inquiry about ED and women's satisfaction with care.

*Methods:* Telephone interviews were conducted in 2003 using a structured questionnaire in a representative sample of 991 Israeli women aged 22 years or older, with a response rate of 84%.

*Results:* 33% of women reported ED during the past year but only 15% of women reported having discussed ED with their family physician in the last year. Higher rates of discussion of ED with the physician were found among women who had experienced ED (22.5%), those who had a

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chronic illness (20.1%) had low income (22.7%), and were Arabic (29.5%) or Russian speakers (26.3%). Multivariate analysis indicated that women who had discussed ED with their physician expressed higher satisfaction with the physician's professional level (OR = 6.85), attitude (OR = 2.45), spending enough time (OR = 2.90), and listening to the patient (OR = 3.19), compared with women who had not discussed ED with their physician.

*Conclusions:* Given the current low rates of inquiry about ED, it appears that developing sensitivity to women's emotional concerns and encouraging physicians to inquire about ED should be given higher priority in medical education at all levels. Furthermore, since inquiry about ED not only improves the appropriateness of care but is also associated with higher satisfaction with the physician, organizations in a competitive health care environment may have a particular interest in promoting this practice. doi:10.1300/J013v45n01\_04 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2007 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** Emotional distress, primary care physician, women's health, satisfaction with care

## INTRODUCTION

Psychological and social stressors, such as the breakup of an intimate relationship, a death in the family, economic hardship, humiliation, poor health and an assault on one's physical safety, frequently result in emotional distress (ED). ED refers to a range of disorders, which includes depression, anxiety, and less severe conditions such as depressive mood, demoralization, and unspecified distress (US Public Health Services, 2005). The detection of these disorders is important to the provision of appropriate care and the prevention of unnecessary tests and treatment (Pignon et al., 2002; US Preventive Services Task Force, 2003). The World Health Organization has recommended that patients with ED be managed mainly by primary care rather than by psychiatric agencies (WHO, 2001).

Emotional distress is associated with low socio-economic status, older age, minority ethnicity, low education, unemployment, a large number of children, multiple roles, limited social support, and domestic violence (Stirling, Wilson, & McConnachie, 2001; Callahan et al., 1998; Weissman, 2000; Ferraro & Su, 1999; Romito, Turan, & De Marchi, 2005). Most of these variables are more frequent in women

than in men. Indeed, women report ED (Callahan et al., 1998; Gross et al., 1998; Tabenkin et al., 2004) and depression and anxiety (Weissman, 2000; Rojas, Araya & Lewis, 2005; Seeman, 2000) more frequently than do men. Nevertheless, help-seeking rates among women remain low, even though they tend to seek help more than men do (Gross et al., 1998; Rickwood & Braithwaite, 1994).

Family physicians are expected to recognize a patient's emotional problems while continuing to fulfill competing medical demands (Callahan et al., 1998; Prior et al., 2003; Bower & Gilbody, 2005). Still, ED often goes unrecognized during medical encounters (Kessler, 2000), due to both physician-related and patient-related factors (Callahan et al., 1998).

Patient satisfaction with care is an important outcome measure in primary care, recognized as affecting compliance with physicians' recommendations and therefore related to improved health outcomes (Cleary & McNeil, 1988). Many studies have reported correlates with patient's satisfaction with care, related to the patients' background (e.g., age, gender, socio-economic status, illness), their expectations and the physician's practice style (Kaplan & Ware, 1999). However, we know of no studies on the association between physicians' inquiry about ED and patients' satisfaction with care.

On one hand, physicians who inquire about ED may be perceived as interested, caring, and skilled in diagnosis; on the other hand, some patients may resent their physician's attempt to intrude into their personal problems (Callahan et al., 1998; Kessler, 2000).

The objective of this paper was, therefore, to assess the rate of inquiry about ED by family physicians using a national sample of adult Israeli women, and to explore the association of such inquiry with women's satisfaction with care.

## **METHODS**

### ***Study Population and Sampling***

The study, conducted in Israel, was overseen by a steering committee, which fulfilled the functions of an Institutional Review Board, ensuring that the study met the ethical standards of studies on human subjects. The committee included three deputy directors of the Ministry of Health, medical directors affiliated with Israel's four health plans, representatives of patient organizations, and representatives of the health services research community. The steering committee reviewed and approved

the study protocol and questionnaire before the survey was conducted. After the questionnaire was pre-tested, the final revised version was sent again to all committee members, and approved before fieldwork began in August 2003.

A random representative sample of telephone numbers was drawn using the national computerized telephone listing of Bezeq, Israel's only domestic telephone company. To obtain informed consent, we sent a letter to each household in the sample before calling. The letter described the study objectives and requested participation. The principal researcher's phone number was provided so that respondents could phone and receive additional explanations or refuse to be approached. Thus, we ensured that each respondent had received all relevant information before granting verbal informed consent by phone to participate in the survey. Respondents who refused were not interviewed.

For each household sampled, one randomly chosen adult (over the age of 22 years) resident was interviewed.<sup>1</sup> Of the 2,699 telephone numbers initially sampled, 423 (15.6%) did not meet the eligibility criteria (i.e., they belonged to a business or institution, were fax-modems, or were inactive numbers). The final sample included 2,276 households in which a telephone interview could be conducted. At the conclusion of the fieldwork, a total of 1,908 questionnaires had been completed, yielding a response rate of 84%; while 6% refused, and 10% did not complete the interview for other reasons, such as language difficulties or medical or psychological problems. The data from each respondent were weighted to reflect the probability of selection according to household size and the number of telephones in the household. Then, each respondent was assigned the weight of his population stratum defined by nationality (Arabs/Jews) gender (men/women), and age (under/over age 65). Each stratum was given a weight reflecting its size in the population using data from Israel's Central Bureau of Statistics. We chose these variables for post stratification because they are significantly representative of the background of Israel's heterogeneous population and because national data on their joint distribution among the population are available.

The analyses presented in this paper were restricted to female respondents (n = 991).

### *Data Collection and Questionnaire*

The survey was conducted between August and October 2003. Telephone interviews were conducted by specially trained interviewers who

used a structured questionnaire in Hebrew, translated also to Arabic and Russian by professional translators. The Arabic and Russian versions of the questionnaire were translated back into Hebrew by Arabic- and Russian-speaking interviewers who received training on the content of the questionnaire. Inconsistencies between the original and back-translated versions were thoroughly explored and resolved by the researchers with these interviewers.

The study questionnaire included a large set of questions for evaluating the quality of health services (e.g., satisfaction with sick fund services, accessibility, availability, health counseling). The questionnaire was developed by the first author (RG) as a tool for monitoring the National Health Insurance law. The questions included standard questions translated to Hebrew as well as questions developed specifically for assessing the Israeli health care system. All questions were checked for face and construct validity after translation to Hebrew (see details in Gross, 2004). For the study reported here, a secondary analysis was conducted using a sub-set of the questions detailed as follows.

The *dependent variables* were patient satisfaction with the medical care provided by the physician as measured by four items: respondents were asked to rate on a scale of 1 to 4 (Not at all satisfied, Somewhat satisfied, Satisfied, Very satisfied) their family physician's professional level and attitude. They were also asked to rate on a scale of 1 to 4 (Not at all, To some extent, To a great extent, To a very great extent) whether the physician spent enough time with and listened to them. The latter are standard questions developed and validated by The Commonwealth Fund for their women's health survey (Collins et al., 1999).

Several *independent variables* were assessed. Self-reported ED as measured by the question: "Have you experienced ED (such as depression, anxiety, tension, great sadness) during the past year with which you found it difficult to cope by yourself?"<sup>2</sup> Possible responses were yes or no. This question was similar to the perceived need screening item in the national co-morbidity survey used in Ontario Canada and the United States (Kessler et al., 1997; Lin et al., 1996; Boyle et al., 1996), and was also used in Israel in previous surveys conducted in 1995, 1997, and 2001. We used this instrument and not standard scales for measuring depressive symptoms such as the CES-D scale, because our study examined correlates of physicians' inquiry about ED rather than of diagnosis of depression. Therefore, we needed to assess the presence of ED, a wider concept than depression.

To establish face validity, the question on ED was reviewed by the researchers, colleagues from the Bar-Ilan University School of Social

Work, colleagues from the Health Policy Research Unit at the Myers-JDC-Brookdale Institute, and members of the steering committee for the study. Structure validity was ascertained in previous studies we conducted, which have confirmed the expected correlations between self-reported ED and other variables. A multiple logistic regression analysis indicated that the probability for ED in the past year, as expected, was higher among divorced or widowed women (OR = 2.0,  $p < 0.001$ ) and men (OR = 2.4,  $p < 0.05$ ); women and men with chronic illnesses (OR = 2.6,  $p < 0.001$ ); and members of the Clalit (29.6%) and Leumit (30.0%) HMOs who have a membership of lower socio-economic status, compared with Maccabi and Meuchedet HMOs (19%) (Rabinowitz, Gross, & Feldman, 2003). As expected, a multiple logistic regression analysis also indicated that respondents who had experienced ED in the past year were more likely to visit a specialist in the past 3 months (OR = 1.44,  $p < 0.05$ ) and to use after hours care (OR = 2.03,  $p < 0.001$ ) (Gross, Feldman, Rabinowitz et al., 1998).

Inquiry about ED by the family physician was elicited by the question "During the past year, has your family physician asked you about, or discussed with you, ED or depression?" Possible responses were yes or no. This question was similar to a question developed by The Commonwealth Fund for reporting physician's inquiry about other topics such as smoking, domestic violence or substance abuse (Collins et al., 1999). We used the same format to report inquiry about ED. Demographic and health variables included gender, age, language spoken, education, self-reported chronic illness, and income. These were defined as dichotomous for the multivariate analysis.

### *Data Analysis*

We used the Statistical Package for the Social Sciences (SPSS). Bivariate analyses were performed using Chi-square tests. Multivariate analysis was performed using logistic regression. The dependent variables were defined dichotomously as follows: (1) Self-reported ED—yes/no; (2) having discussed ED with family physician—yes/no; and (3) rating of satisfaction with each of the four items—Satisfied or Very satisfied versus Somewhat or Not at all satisfied. Satisfaction was dichotomized given the skewed distribution of this variable. The independent confounding variables included in the final analysis were chosen based on the literature showing associations between demographic and socio-economic patient characteristics and patient satisfaction. They were included even if they were not statistically significantly related to the

dependent variables in the bivariate analyses, to account for possible spurious or latent effects and to make results more comparable to the literature. The models also included reported ED and inquiry about ED—both statistically significantly associated with patient satisfaction in the bivariate analysis stage ( $p < 0.05$ , chi-square test). Confounding variables were also included in multivariable models if they were related to inquiry about ED in the bivariate analyses. We also checked for interactions between variables that had a statistically significant effect on the dependent variables in the original models and included statistically significant interactions ( $p < 0.05$ ). Model fit was assessed using the Hosmer and Lemeshow goodness of fit test.

## RESULTS

Among the study population 18% of women were elderly; the majority spoke Hebrew (72%); most had over 12 years of education (52%), and 33% reported having a chronic disease (Table 1).

As many as 32.7% of the women respondents reported experiencing ED during the past year. Bivariate analyses indicated that Arabic-speaking (48.2%) and Russian-speaking women (41.5%; chi-square = 30 df = 2,  $p < 0.001$ ), and those who were older than 65 years (44.9%; chi-square = 17.8 df = 2,  $p < 0.001$ ), chronically ill (42%; chi-square = 19.1 df = 1,  $p < 0.001$ ), had a low level of education (47.6%; chi-square = 19.4 df = 2,  $p < 0.001$ ) or low income (45.4%; chi-square = 18.1 df = 1,  $p < 0.001$ ), were more likely to report ED (Table 2).

Regardless of whether they reported experiencing ED, 15% of the entire sample of women reported that their family physician had inquired about or discussed ED with them during the past year. Bivariate analyses indicated that this rate was higher among those who had reported experiencing ED during the past year (22.5%; chi-square = 17.6 df = 1,  $p < 0.001$ ), had a chronic illness (20.1%; chi-square = 8.9 df = 1,  $p < 0.003$ ), had low income (22.7%; chi-square = 10.2 df = 1,  $p < 0.001$ ), or were Arabic (29.5%) or Russian speakers (26.3%; chi-square = 52.5 df = 2,  $p < 0.001$ ) (Table 2).

Multiple logistic regression analyses indicated that being a Hebrew speaker (vs. Arabic or Russian speakers) had a negative effect (OR = 0.30) on having discussed ED with the family physician, while having a low income (OR = 1.65) and having both a chronic illness and ED (the interaction) had a positive effect (first column, Table 3). The stratum specific

TABLE 1. Characteristics of the Female Study Population (N = 991)\*

Variable	N (%)
Age group (years)	
22-44	458 (46.0)
45-64	348 (35.3)
65+	181 (18.3)
Language spoken	
Hebrew	713 (72.0)
Arabic	137 (13.8)
Russian	141 (14.2)
Education	
Less than 12 years	148 (15.1)
12 years	319 (32.6)
Over 12 years	513 (52.3)
Income	
Lowest income quintile	198 (20)
Other	793 (80)
Chronic illness	
Yes	327 (33)
No	665 (67)

\*Due to missing values number of women in sub-categories do not always add up to total N = 991.

odds ratios, adjusted for the other covariates in the model, showed that having ED was positively associated with physician inquiry about ED among women who had a chronic illness (OR = 3.96,  $p < 0.001$ ). Having ED had no statistically significant effect on physician inquiry about ED among women who did not have a chronic illness (second and third columns, Table 3).

Satisfaction with the family physician on all four items measured (i.e., professional level, attitude, spends enough time, really listens) was higher among women who reported having discussed ED with their physician (Figure 1).

Multiple logistic regression analyses indicated that women who had experienced ED during the past year were less satisfied with their physicians. After controlling for self-reported ED and the other independent variables, having been asked about ED was independently ( $p < 0.01$ ) associated with satisfaction with the family physician's professional

TABLE 2. Self-Reported ED During the Preceding Year and Reported Inquiry Rates, by Demographic Variables (N = 991)

Variable	N (%)	Self-Reported ED N (%)	Reported Inquiry About ED by Family Physician N (%)
Total (women)	991 (52)	318 (32.7)	133 (15.2)
Age group (years)			*
22-44	458 (46.0)	123 (27)	53 (13.5)
45-64	348 (35.3)	113 (33)	44 (13.9)
65+	181 (18.3)	79 (44.9)	36 (22.1)
Language spoken		**	**
Hebrew	713 (72.0)	181 (27.2)	54 (9.1)
Arabic	137 (13.8)	66 (48.2)	39 (29.5)
Russian	141 (14.2)	71 (41.5)	40 (26.3)
Education		**	NS
Less than 12 years	148 (15.1)	69 (47.6)	29 (21.0)
12 years	319 (32.6)	103 (32.9)	34 (12.1)
Over 12 years	513 (52.3)	144 (28.2)	70 (15.7)
Income			**
Lowest income quintile	198 (20)	89 (45.4)	42 (22.7)
Other	793 (80)	229 (29.5)	91 (13.2)
Chronic illness		**	**
Yes	327 (33)	136 (42.0)	62 (20.1)
No	665 (67)	182 (28.0)	71 (12.5)
Self reported ED			**
Yes	318 (32.7)		66 (22.5)
No	655 (67.3)		66 (11.6)

\*p < 0.05 Chi-square test; \*\*p < 0.001 Chi-square test.

level (OR = 6.85), attitude (OR = 2.45), spending enough time with the patient (OR = 2.90), and listening to the patient (OR = 3.19) (Table 4).

## DISCUSSION

Our findings are consistent with published observations that ED occurs more commonly among disadvantaged women (Stirling, Wilson, & McConnachie, 2001; Callahan et al., 1998; Weissman, 2000; Ferraro & Su, 1999; Gross et al., 1998); that ED often goes unrecognized during medical encounters (Kessler, 2000), and that physicians identify fewer

TABLE 3. Multiple Logistic Regression Results for Inquiry About ED During the Preceding Year by Demographic and Health Characteristics

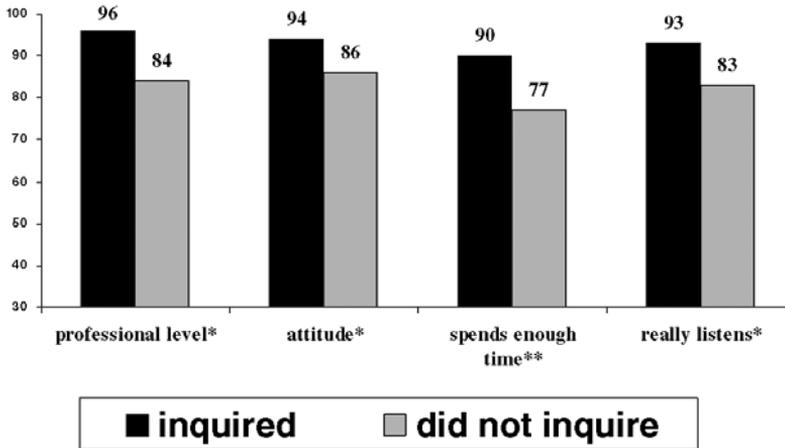
Variable	Entire Sample		Stratified Sample	
	Odds Ratio (95% CI)	Odds Ratio (95% CI): Had Chronic Illness	Odds Ratio (95% CI): Did Not Have Chronic Illness	
Age 65+ years	1.58 (0.95-2.62)	0.83 (0.43-1.60)	4.85 (2.27-10.36)**	
Spoke Hebrew	0.30 (0.20-0.46)**	0.38 (0.21-0.70)**	0.21 (0.12-0.38)**	
Low education (< 12 years)	0.99 (0.59-1.65)	0.90 (0.42-1.96)	1.05 (0.53-2.06)	
Lowest income quintile	1.65 (1.03-2.66)*	1.40 (0.62-3.17)	1.67 (0.90-3.08)	
Had chronic illness	0.70 (0.38-1.30)			
Had ED in the past year	0.83 (0.47-1.46)	3.96 (2.14-7.35)**	0.65 (0.36-1.20)	
Interaction: had ED and had chronic illness	4.85 (2.08-11.32)**			
Hosmer and Lemeshow Goodness of Fit Test (Chi-square)	12.79	5.65	7.13	

\*p < 0.05; \*\*p < 0.01.

than half of their distressed patients as suffering from ED (Shiber et al., 1990; Outram, Murphy, & Cockburn, 2004; Arrol, Khin & Kers, 2003). In our study, less than 25% of women who experienced ED reported having discussed their ED with their family physician. Multivariate analysis revealed that physicians discussed ED less often with Hebrew speaking women compared with Arabic and Russian speakers. They discussed ED more often with women who had a low income, and with women who had both a chronic illness and ED during the past year. However, we do not know whether the physicians actually perceived these patients' needs or responded to the patients' complaints about ED.

The main finding of the present survey is that when controlling for other factors (including ED which was inversely related to satisfaction with care), satisfaction with the physician was higher among women whose physician had inquired about ED. This finding is consistent with previous studies that have shown that a physician's affective attitude (Kenny, 1995) and empathy (Kim, Kaplowitz, & Johnston, 2004), as perceived by the patient, are major determinants of patient satisfaction with medical

FIGURE 1. Satisfaction with the Family Physician, by Inquiry About ED (Percent Reporting High/Very High Satisfaction)



\*  $p < 0.05$

\*\*  $p < 0.01$

care. Thus, patients probably perceive physicians who inquire about ED as empathetic, compassionate and caring, and this in turn positively affects their satisfaction with the physician. Furthermore, it is important to note that when a physician inquired about ED, women reported higher satisfaction both with inter-personal dimensions (attitude, listens to me, spends enough time with me) and with the physicians professional level. The odds ratio (6.85) for the effect of inquiry about ED on satisfaction with the professional level was much higher than the effect on satisfaction with the inter-personal dimensions (OR = 2.45 to 3.19).

Our findings suggest that by encouraging their patients to share their concerns during consultation, primary care physicians improve both appropriateness of care for women (US Public Health Services, 2005; US Preventive Services Task Force, 2003; WHO, 2001), and women's satisfaction with the care provided. Thus, by inquiring about ED physicians can gain a competitive advantage in retaining their clientele.

In most cases, identifying ED and other concerns requires recognizing that these may be present, even though the patient may not express them directly. Studies of physician-patient interaction have found that

TABLE 4. Multiple Logistic Regression Results: Satisfaction with Family Physician by Inquiry About ED and Background Variables

	High/Very High Satisfaction with Physician's Professional Level	High/Very High Satisfaction with Physician's Attitude	Physician Spends Enough Time with Me (Great/Very Great Extent)	Physician Really Listens to Me (Great/Very Great Extent)
	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Reported inquiry about ED	6.85 (2.6-18.33)**	2.45 (1.11-5.39)*	2.90 (1.56-5.40)**	3.19 (1.54-6.61)**
Self-reported ED during the past year	0.48 (0.32-0.73)**	0.56 (0.36-0.86)**	0.70 (0.49-1.01)	0.47 (0.331-0.69)**
Age (65 + years)	1.27 (0.69-2.33)	1.45 (0.77-2.72)	0.94 (0.58-1.54)	1.08 (0.62-1.85)
Spoke Arabic	1.77 (0.88-3.54)	5.28 (2.06-13.57)**	1.65 (0.91-2.99)	3.67 (1.72-7.83)**
Spoke Russian	0.48 (0.29-0.80)**	0.64 (0.38-1.1)	0.58 (0.37-0.92)*	0.73 (0.44-1.21)
Low Education (< 12 years)	0.74 (0.41-1.37)	0.44 (0.24-0.82)**	0.84 (0.49-1.42)	0.59 (0.33-1.03)
Lowest income quintile	0.60 (0.37-0.98)*	0.77 (0.45-1.30)	0.66 (0.42-1.01)	0.66 (0.41-1.06)
Had chronic illness	1.36 (0.86-2.16)	1.33 (0.83-2.13)	1.36 (0.92-2.02)	1.33 (0.87-2.04)
Hosmer and Lemeshow Goodness of Fit Test (Chi-square)	9.0	9.65	2.7	9.77

\*p < 0.05; \*\*p < 0.01.

patients seldom verbalize their emotions directly and spontaneously, but rather tend instead to offer cues related to lifestyle and life episodes (Del Piccolo et al., 2000). It appears that they express their emotions only if invited to elaborate (Shuchman et al., 1997). Patients may fail to share their ED with a physician because they perceive it as being a situational difficulty rather than a medical problem, or because they fear the label of mental disease (Callahan et al., 1998; Prior et al., 2003).

Physicians may ignore hints of a patient's ED for a variety of reasons, such as limited tolerance of the patient's expression of emotion (Holm & Aspegren, 1999), or failure to interpret verbal and non-verbal clues of the patients' anxiety and depression. Physicians may avoid inquiring about ED also because this may stigmatize the patient to insurers or employers, because of time constraints (Hornblow, Kidson & Ironside, 1988), or because they think ED is difficult to diagnose (Callahan et al., 1998; Arrol, Khin, & Kers, 2003; Susman, Crabtree, & Essink, 1995).

Contrary to these beliefs, evidence suggests that inquiry about a patient's concerns does not prolong the patient interview (Levinson, Gorawara-Bhat, & Lamb, 2000), and, in fact, can be conducted within the 10-minute time frame of a consultation (Margalit et al., 2004). The patient's concerns may easily be elicited by using two questions suggested by Arroll et al. (2003): "During the past month have you often been bothered by feeling down, depressed, or hopeless?" and "During the past month have you often been bothered by little interest or pleasure in doing things?" The patient's concerns may also be divined by paying increased attention to hints of distress (Suchman et al., 1997), especially to cues related to lifestyle and life events (Del Piccolo et al., 2000; Saltini et al., 2004).

Our study had several limitations. First, as noted, it was based on self-reports of ED and physicians' discussion of distress, both of which may be inaccurately recalled. Our respondents may have concealed ED or may not have recalled discussing the issue with their physician. Second, although used as a screening question in other epidemiological studies (Kessler et al., 1997; Lin et al., 1996; Boyle et al., 1996), the validity of the question was not reported and no single question may be optimal for eliciting ED. Also, we did not find a validated question specific for measuring physician inquiry about ED, and therefore adapted a standard question used for reporting physician behavior in other areas. Furthermore, our questionnaire did not differentiate between physician-initiated and patient-initiated discussions of ED, and the cross-sectional design did not permit assessment of temporal relations

or causation. Finally, in our analysis we controlled only for patient background characteristics that have been shown to be correlated with patient satisfaction. We could not control for the numerous number of additional variables that may have also affected patient's satisfaction with care.

Despite these limitations, our findings confirm the importance of identifying women's ED in the primary care setting, and highlight the association between inquiry about ED and women's satisfaction with their family physician. The growing prevalence of ED among women in developed countries, the implications of this condition for women's well-being and for health care costs (US Public Health Services, 2005), and the low rates we found on inquiry about ED, suggest that developing sensitivity to women's emotional concerns should be given higher priority in undergraduate and continuing medical education programs. Furthermore, inquiry about ED not only improves appropriateness of care, but was also associated in our study with higher satisfaction with the physician. Although our cross-sectional design cannot permit inference about causality, this finding is consistent with theory on the effect of an empathic attitude on patient satisfaction. We therefore suggest that a physician's inquiry about ED may be a factor contributing to higher patient satisfaction. However, the relationship between these two variables should be explored further in future studies to ascertain causality. Nevertheless, given the association we have found in our study, organizations in a competitive health care environment may have a particular interest in promoting this practice by issuing clinical guidelines and providing incentives to physicians to screen, identify, and treat patients who suffer from emotional distress.

## NOTES

1. The method for selecting a respondent within a household was based on random selection tables. The interviewer listed all household members over age 22 from eldest to youngest. For households in each size category (e.g., two adults over the age 22, three adults over the age 22, etc.) the interviewer used a selection table that listed random numbers according to the number of adults in the household (e.g., 2 numbers for households of two, etc.). The interviewer used the relevant selection table to select a respondent (e.g., the eldest) and then used the next number when encountering a household of the same size (e.g., the youngest).

2. We asked about ED in the past year so as to use the same timeframe used in the question about discussing ED with the physician. We could not ask about lifetime ED or physician's inquiry because of recall bias in self-reports.

## REFERENCES

- Arroll B, Khin N, Kers N. Screening for depression in primary care with two verbally asked questions—Cross sectional study *BMJ*. 2003;**327**:1144-1146.
- Bower P, Gilbody S. Managing common mental health disorders in primary care: Conceptual models and evidence base. *BMJ*. 2005;**330**:839-842.
- Boyle MH, Oford DR, Campbell D, et al. Mental health supplement to the Ontario health survey: Methodology. *Can J Psychiatry* 1996;**41**:549-558.
- Callahan EJ, Jaen CR, Crabtree BF, Zyzanski SJ, Goodwin MA, Stange KC. The impact of recent emotional distress and diagnosis of depression or anxiety on the physician-patient encounter in family practice. *J Fam Pract*. 1998;**46**:410-418.
- Cleary PD, McNeil B. Patient satisfaction as an indicator of quality care. *Inquiry* 1988;**25**:25-36.
- Collins KS, Schoen C, Joseph S, Duchon L, Simantov E, Yellowitz M. *Health Concerns Across a Woman's Lifespan: The Commonwealth Fund 1998 Survey of Women's Health*. New York: The Commonwealth Fund.
- Del Piccolo L, Saltini A, Zimmermann C, Dunn G. Differences in verbal behaviors of patients with and without emotional distress during primary care consultations. *Psychol Med*. 2000;**30**:629-643.
- Ferraro KF, Su Y. Financial strain, social relations, and psychological distress among older people: A cross-cultural analysis. *J Gerontol B Psychol Sci Soc Sci*. 1999;**54**:S3-S15.
- Gage LW, Leidy NK. Screening for psychosocial distress: Implications for prevention and health promotion. *Public Health Nurs*. 1991;**8**:267-275.
- Goldberg DP, Hillier VF. A scaled version of the general health questionnaire. *Psychol Med*. 1979;**9**:139-145.
- Gross R, Feldman D, Rabinowitz J, Greenstein M, Berg A. Mental distress as perceived by the adult population in Israel: Characteristics and patterns of utilization of health services. *Harefu'a* 1998;**134**(5):6-12. (Hebrew).
- Gross R. A consumer-based tool for evaluating the quality of health services in the Israeli health care system following reform. *Health Policy* 2004;**68**:143-158.
- Holm U, Aspegren K. Pedagogical methods and affect tolerance in medical students. *Med Educ*. 1999;**33**:14-18.
- Hornblow AR, Kidson MA, Ironside W. Empathic processes: Perception by medical students of patients' anxiety and depression. *Med Educ*. 1988;**22**:15-18.
- Kaplan SH, Ware EF. The patient's role in health care and quality assessment. In: Goldfield N, Nash DB (eds), *Managing Quality of Care in a Cost-focused Environment*. Tampa (FL): Aspen publication; 1999. pp. 13-55.
- Kenny DT. Determinants of patient satisfaction with the medical consultation. *Psychology and Health* 1995;**10**:427-437.
- Kessler RC, Frank RG, Edlund M, Katz SJ, Lin E, Leaf P. Differences in the use of psychiatric outpatient services between the United States and Ontario. *N Eng J Med*. 1997;**336**:551-557.
- Kessler RC. Gender and mood disorders. In: Goldman MB, Hatch MC (eds), *Women and Health*. San Diego: Academic Press; 2000. pp. 997-1009.

- Kim SS, Kaplowitz S, Johnston MV. The effects of physician empathy on patient satisfaction and compliance. *Eval Health Prof.* 2004;**27**:237-251.
- Levinson W, Gorawara-Bhat R, Lamb J. A study of patient clues and physician responses in primary care and surgical settings. *JAMA.* 2000;**284**:1021-1027.
- Lin E, Goering P, Offord DR, Campbell D, Boyle MH. The use of mental health services in Ontario: Epidemiologic findings. *Can J Psychiatry* 1996;**41**:572-577.
- Margalit APA, Glick SM, Benbassat J, Cohen A. Effect of a bio-psycho-social approach on patient satisfaction and patterns of care. *J Gen Intern Med.* 2004;**19**:483-489.
- Outram S, Murphy B, Cockburn J. The role of GPs in treating psychological distress: A study of midlife Australian women. *Fam Pract.* 2004;**21**:276-281.
- Pignone MP, Gaynes BN, Rushton JL, Burchell CM, Orleans CT, Mulrow CD, et al. Screening for depression in adults: A summary of the evidence for the US preventive services task force. *Ann Intern Med.* 2002;**136**:765-776.
- Prior L, Wood F, Lewis G, Pill R. Stigma revisited, disclosure of emotional problems in primary care consultations in Wales. *Soc Sci Med.* 2003;**56**:2191-2200.
- Rabinowitz J, Gross R, Feldman D. Correlates of a perceived need for mental health assistance and differences between those who do and do not seek help. *Soc Psychiatr Psychiatric Epidemiol.* 1999;**34**:141-146.
- Rabinowitz J, Gross R, Feldman D. Perceived need and receipt of outpatient mental health services: Factors affecting access in Israeli HMOs. *J. Ambulat. Care Manage.* 2003;**26**(3):260-269.
- Rickwood DJ, Braithwaite VA. Social-psychological factors affecting help seeking for emotional problems. *Soc Sci Med.* 1994;**39**:563-572.
- Rojas G, Araya R, Lewis G. Comparing sex inequalities in common affective disorders across countries, Great Britain and Chile. *Soc Sci Med.* 2005;**60**:1693-1703.
- Romito P, Turan JM, De Marchi M. The impact of current and past interpersonal violence on women's mental health. *Soc Sci Med.* 2005;**60**:1717-1727.
- Saltini A, Mazzi MA, Del Piccolo L, Zimmermann C. Decisional strategies for the attribution of ED in primary care. *Psychol Med.* 2004;**34**(4):729-739.
- Seeman MV. Mental illness in women. In Goldman MB, Hatch MC (ed), *Women & Health.* Academic Press, San Diego; 2000. pp. 989-996.
- Shiber A, Maoz B, Antonovsky A, Antonovsky H. Detection of emotional problems in the primary care clinic. *Fam Pract.* 1990;**7**(3):195-200.
- Stirling AM, Wilson P, McConnachie A. Deprivation, psychological distress, and consultation length in general practice. *Br J Gen Pract.* 2001;**51**(467):456-460.
- Suchman AL, Markakis K, Beckman HB, Frankel R. A model of empathic communication in the medical interview. *JAMA* 1997;**277**:678-682.
- Susman JL, Crabtree BF, Essink G. Depression in rural family practice; easy to recognize, difficult to diagnose. *Arch Fam Med.* 1995;**4**:427-431.
- Tabenkin H, Meredith AG, Zyzanski SJ, Stange KC, Medalie JH. Gender differences in time spent during direct observation of doctor-patient encounters. *J Women's Health.* 2004;**13**:341-349.
- United States Preventive Services Task Force (USPSTF). Screening for depression. In *Guide to Clinical Preventive Services, Third Edition.* Periodic updates 2003; **1**:121-145.

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United States Public Health Services. Mental health: A report of the surgeon general, Chapter 4: Adults and mental health; 2005. Accessed at [www.mentalhealth.samhsa.gov](http://www.mentalhealth.samhsa.gov)

Weissman MM. Depression and gender implications for primary care. *J Gender Specific Med.* 2000;**3**(7):53-57

World Health Organization. Mental Health: New Understanding. *The World Health Report 2001*. New Hope. Geneva: WHO; 2001.



## Afterword

*Cathy Schoen*

It is with great pleasure but also sorrow that I prepared this essay in memory and recognition of Revital's insightful research on women's health with its focus on those most vulnerable due to income, ethnicity or health. With her premature death, I lost a friend and the international health policy community lost a creative and passionate health policy analyst with the capacity to listen closely to women's care experiences, understand these experiences in the broader context of health systems, families and communities, and identify policies that could make a positive difference. As the five articles I was asked to review illustrate, Revital selected topics and crafted a research approach that could give voice to the vulnerable in ways that provide insight for policy leaders to move from research results to action. Although three of these articles focused on the diverse experiences within Israel, the findings in all five articles resonate with a global audience because of challenges we share in developing systems that equitably meet the diverse needs of our populations. . She has left us with a rich set of analyses that help inform efforts to address not just women's health concerns but also more general efforts to evolve more patient-centered, responsive health systems for those vulnerable due to family circumstances as well as ability to pay for and access care due to socio-economic factors.

Given that women generally have more frequent contact with the health care system throughout their lifetimes, both as patients and in their central role as family care-givers, women's experiences offer a particularly clear window on how well health systems perform. An early survey of Israeli women conducted in 1998 in conjunction with a bi-national conference on women's health, provided Revital with a platform for further exploration of how women's experiences varied by ethnicity, family circumstances, education and income. Designed to replicate core questions in a 1998 U.S. survey, this early work provided the opportunity to learn by comparing women's experiences in two very different insurance and care systems and to later assess and understand the disparate experiences within Israel (Schoen,

Simantov, Gross, Brammli & Leiman, 2003). The findings highlighted the fact that although universal health systems help facilitate more equitable access, experiences still vary by income, education, sources of care, and ethnicity. Within Israel, women with less education and lower income were particularly at risk when navigating the health system compared to more affluent and educated women.

Underscoring the fact that health systems tend to prioritize medical intervention and treatment over prevention, follow-up analysis of the 1998 survey documented that in both countries, a high proportion of women did not receive preventive care and health counseling even in the absence of financial barriers, as reported in *Health counseling for women in the absence of financial barriers: Comparing reported counseling rates of women in the United States and Israel*. Israeli counseling rates were particularly low – including counseling for women with self-identified health risk factors such as smoking, diabetes or other chronic diseases. Counseling rates were low in the US as well as Israel for women who experienced domestic violence. Building on the central finding of missed opportunities to engage women to discuss health concerns within Israel’s universal health system with few financial barriers, Revital and her co-authors pointed to the need to address structural constraints – including clinician workload and inclusion of nurses on care teams as well as refocusing medical education to include counseling on health and lifestyle as part of a core curriculum for primary care physicians. Strikingly, such recommendations are at the core of initiatives within the United States and other high-income countries to redesign primary care to enable team-work and focused time with patients at high health risk. Known as “patient-centered medical homes,” and in the case of those with chronic conditions the “chronic care model”, the efforts to develop a new primary care foundation for health systems emphasize engaging patients and families and a focus on population health. And these efforts seek to redesign practice systems to make smarter use of clinician time during patients’ visits – scheduling longer time with those at high risk, having nurses and other non-doctor staff work closely together to assure

access, provide and manage care, and enabling conversations about sensitive issues and concerns.

Revital built on these early insights regarding missed opportunities to address health concerns by looking at the experiences of women who were particularly vulnerable due to their subservient roles in their family and community. In *The Healthcare Experiences of Arab Israeli Women in a Reformed Healthcare System* she creatively combined survey results with qualitative data from interviews with women, their physicians, and community-based nurses. This analysis uncovered the “stifling effect family politics and surveillance” had on Arab Israeli women’s ability to discuss issues of concern with their doctors or seek help in local community practices, especially when these practices were closely tied to their husbands and families. The survey found Arab Israeli women were significantly less likely to receive care for their health concerns and more likely to be embarrassed to discuss concerns and to rate their doctor’s negatively. The qualitative interviews found that both doctors and women agreed that they do not communicate well. In contrast, these women felt more comfortable with nurses who worked for public clinics – outside of the local practices, thus facilitating private, personal conversations about health concerns. The creative blend of survey and personal interviews enabled the insight that social forces can interact to erect barriers to care for those vulnerable to clan and family pressures. Drawing on these insights, this work called for outreach, greater involvement of nurses, and a targeted effort to empower vulnerable women to advocate for their health care needs.

The issue of whether health care clinics and practices can provide a safe haven in very local communities with disparities by sex, race or ethnicity again resonates well beyond the context of Arab Israeli women. By focusing on women separate from ethnicity, this strikingly original article points to the importance for policy makers in all countries of ensuring that local health services offer diverse entry points and a secure, protective environment. Highlighting that these concerns extend internationally, in the article *The association of gender concordance and primary care physicians’ perceptions*

of their patients, Revital examined gender concordance using New Zealand data to find that doctors also respond to more positively when comfortable with their patients. This analysis found that female doctors were less likely to be uncertain about the diagnosis and more likely to report a high rapport with their female patients. In contrast, male physicians with female patients were more likely to be concerned about a hidden agenda, not fully learning about their patients' concerns. As in the Arab Israeli women study, the work points to the importance of medical school curriculum and care systems putting a priority on communicating with patients and empowering women or other vulnerable populations to take a more active role when seeking care.

Continuing to use women's health care experiences to inform efforts to develop more patient-centered and effective health systems, in *Self-rated health status and health care utilization among immigrant and non-immigrant Israeli Jewish Women*, Revital analyzed the experience of immigrant Jewish women, and the extent to which women discuss emotional distress and mental health concerns with their physicians. The two studies again revealed missed opportunities to reach patients at risk due to poor health, including mental health. Similar to Arab Israeli women, recent Jewish immigrants were less likely than non-immigrant Jewish women to receive care, to discuss concerns with their doctor, or to be positive about their care experiences. Although immigrant women were particularly vulnerable to symptoms of depression and poor mental health, they were less likely to report health counseling.

A separate article, *The Association between Inquiry about Emotional Distress and Women's Satisfaction with their Family Physician: Findings from a National Survey*, pointed to the general failures of the primary care system to address mental health and emotional concerns. This study found that less than 25 percent of women who experienced emotional distress (including depression, anxiety, and great sadness) had discussed such distress with their family physician. Adding to findings from Revital's other studies, this study found that physician attitudes and empathy matter to patients: women who

engaged in any discussion with their physician were more satisfied with their care. The study highlights the need for primary care physicians to consider the whole patient, including mental health or stress concerns. Notably, care systems within the United States find that addressing mental health when caring for patients with chronic conditions is central to success in improving health outcomes and reducing complications over time (Reiss-Brennan, Briot, Savitz & Staheli, 2010).

In conclusion, Revital Gross has left us with a rich body of work focused on women's health that provide insights beyond just women's experiences or the Israeli health care system. All nations share the challenge of how to train health care providers – doctors, nurses and others – to listen to patients, solicit health concerns and address mental as well as physical health concerns. Revital's insightful work highlights the challenge of adopting flexible approaches that can respond to diverse populations, with attention to those vulnerable due to income, education, health, ethnicity or social and family roles. Her findings give voice to those who often are not heard and reveal frequent missed opportunities to engage patients. Her insights regarding policies and health system changes to improve care experiences and outcomes apply to international reform initiatives as well as the Israeli health system.

It is an honor to contribute this essay to a collection of her work.

## Footnotes

Schoen, C. Simantov, E., Gross, R., Brammli, S., Leiman, J. (2003). "Disparities in Womens' Health and Health Care Experiences in the United States and Israel: Findings form 1998 National Women's Health Surveys," *Women and Health*, 37(1):49-70

Reiss-Brennan, B., Briot, P.C., Savitz, L.A, Staheli, R. (2010). "Cost and Quality Impact of Intermountain's Mental Health Integration Program," *Journal of Healthcare Management*, 55(2): 97-113.



**Part IV:**

**Psychosocial  
Factors, Health  
and Well-being**



## Introduction

Larissa Remennick

I first met Revital in the early 1990s – my initial years as a new immigrant in Israel trying to re-launch my academic career in the new professional milieu. In this period, my time was divided between a research fellowship at the Institute of Epidemiology, Sheba Medical Center, School of Public Health of the Hebrew University and the JDC-Brookdale Institute. At all three institutions, the focus of much research was on issues facing immigrants from the former Soviet Union (particularly women), their health and family planning practices, and their mental and behavioral patterns, upon relocation to Israel. In this context my research interests crossed paths with those of Revital. Later, when Revital joined the School of Social Work at Bar-Ilan in the early 2000s, we referred students to each other's courses and co-supervised a number of graduate projects. Revital's students were devoted to her as a superb lecturer and committed research adviser, and there was always a waiting list of advanced students seeking her supervision.

Thus, our paths crossed in more than one domain: we mixed in the same professional circles, followed each other's work, and even co-authored an article, which is included in this volume, *Self-rated health status and health care utilization among immigrant and non-immigrant Israeli Jewish women*. I always had great respect for her as one of the foremost experts on Israel's healthcare system and many central aspects of its functioning, particularly in the areas of primary care, physician/patient interaction and satisfaction with the system. I recall many informal consultations with Revital regarding my own research plans, methodology, and access to data – she was invariably helpful, sharing her expertise generously and without reservation. The news of her untimely death at the peak of her professional career was as devastating to me as to the rest of her colleagues and students.

The following section of this volume reflects multiple contributions made by Revital and her co-authors to the growing stream of research in social epidemiology and social factors of health and illness. The very scope of the

issues covered in the articles – from factors of patient compliance with prescribed antidepressants to social support of diabetic patients and temporal trends and ethnic differentials in adolescent obesity in Israel – typify her broad range of interests and fields of expertise. A permanent feature of the research conducted by Revital and her team was a clear interface between macro-level patterns (e.g. population trends in youth obesity or compliance with psychotropic prescriptions among populations registered with a national health plan) and individual, micro-level clinical and behavioral phenomena (e.g. individual assessments of quality of life with and without diabetes among the chronically ill).

A good example of this nexus is the study of perceived caregiver burden among Israeli women - *Women caring for disabled parents and other relatives: Implications for social workers in the health services* - that demonstrated several universal features of caregiver stress and also zoomed in on specific contexts of care for the women looking after their elderly parents versus those who care for disabled children or spouses. These findings emphasize the central role of social support of caregivers as their major coping tool and suggest a few ways by which social workers involved in eldercare can assist these primary caregivers. Similarly, understanding individual determinants of quality of life among patients living with diabetes, a chronic disease reaching epidemic level (see *Determinants of quality of life in primary care patients with diabetes: implications for social workers*) reflects how many of Revital's publications are relevant not only for health policy makers and clinicians but also for a range of other helping professions, including medical social workers, counselors and therapists of various kinds.

Drawing on her broad professional ties and extensive knowledge base (including advanced statistical techniques), Revital dealt with subjects previously untouched by Israeli health-policy experts and utilized large existing databases for new and original research. She examined the combination of patient characteristics with those of the primary care physician as explanatory factors of adherence to antidepressant drugs (see *Disparities in antidepressant adherence in primary care: Report from Israel*).

She also pioneered the systematic utilization of the enormous database maintained for decades by the IDF Medical Corps on the health characteristics of pre-draft male adolescents, as well as of soldiers at various stages of service. Teaming up with IDF medical officers, she mined valuable data on long-term trends in overweight and obesity among young Israelis (see *Population-based trends in male adolescent obesity in Israel 1967-2003* and *Disparities in obesity temporal trends of Israeli adolescents by ethnic origin* in this volume). Their analysis has shown that the prevalence of obesity among 17-year-old males has consistently risen between 1967 and 2003: the percentage of obese youths (i.e. with a BMI of 24.9 or more) almost tripled between the birth cohorts of 1950 (1.54%) and 1986 (4.54%). However, the rates of increase in excess weight differed between ethnic groups of Israeli Jews: while, at the start of the process, economically disadvantaged Jews of Middle Eastern origin had been much thinner (i.e. with significantly lower BMI scores), they have increasingly joined the overweight club over the years, so that the BMI gap between European (Ashkenazi) Jews and Jews of Middle Eastern (Mizrahi) descent is expected to close sooner or later. The faster growth of obesity among Mizrahi youths is connected in this study with their residence in towns of lower socio-economic status and neighborhoods with limited access to low-calorie diets and sports facilities, as well as a lower awareness of health in their families. The westernization of healthy traditional diets from their countries of origin (including the adoption of fast foods, sugary snacks etc.) may have had a greater impact on Mizrahi Jews with limited economic means, similar to the trends observed among Mexicans, Afro-Americans, and other minorities in the US. This study contributes to a more comprehensive and comparative understanding of the association between socio-economic status, lifestyles, and health outcomes in modern societies.

A similar nexus between the medical and the social, the public and the individual, typifies most of the research projects and articles authored by Revital and reflected in this volume. For this reason, her professional legacy is sure to remain relevant and insightful for generations of students and researchers in public health, social epidemiology, and health systems.



# **Women Caring for Disabled Parents and Other Relatives: Implications for Social Workers in the Health Services**

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# Women Caring for Disabled Parents and Other Relatives: Implications for Social Workers in the Health Services

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**ABSTRACT.** Caring for an ill or disabled relative is a life experience shared by many women. Based on data from a representative sample of women in Israel, this study examined the demographic, employment, and health characteristics of women caregivers, focusing on the extent of care provided and its effect on the caregiver's physical and mental health. Using the conceptual framework of caregiving-related stress, we compared women who care for a parent, and women who care for another relative. The study found more instrumental difficulties, which

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lead to greater burden, among women who care for a disabled relative who is not a parent. Furthermore, larger proportions of women caring for a disabled relative who is not a parent report depressive mood symptoms, poor health status, and the need for psychological counseling. The findings suggest that formal service providers, chiefly social workers, may better support women caregivers once they are aware of the needs arising from disparate contexts of care. [Article copies available for a fee from *The Haworth Document Delivery Service*: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2003 by *The Haworth Press, Inc.* All rights reserved.]

**KEYWORDS.** Informal caregiving, women's health, social workers

### *INTRODUCTION*

Caring for a disabled relative, especially a parent, is a life experience shared by many women. The traditional roles of housewife, mother, and grandmother have been expanded to include the provision of informal care to elderly family members who need help with daily functioning. In recent generations, women face a dilemma arising from their obligation to conflicting values: the traditional value of caring for elderly relatives, versus the modern value of work and professional development outside the home (Brewer, 2001; Brody, 1994; Stone, 1990).

Contrary to popular opinion, studies have revealed that inter-generational ties in families are as strong as they once were. Despite the expanding role of the welfare state and extensive demographic changes during the past hundred years, families still tend to care for disabled elderly relatives on their own. Women bear primary responsibility for providing this care (Dwyer, Folts, & Rosenberg, 1994; Dwyer & Seccombe, 1991; Osterbusch, Keigher, Miller, & Linsk, 1987; Robinson, 1997; Donelan et al., 2001; Brewer, 2001; Tennstedt, 1993).

Reliance on women to provide care assumes that they are available to do so. However, many women work outside the home, and so have less free time to devote to care than they had in the past (Brody, 1994). In Israel, the proportion of women in the work force is constantly increasing. While only one-third of Israeli women ages 25-64 were employed in 1970, by 1994 two-thirds of the women these ages were working, most of them full time (Central Bureau of Statistics, 1998). At the same time, the parent support ratio by females (i.e., the ratio of people age 80 and

over to women ages 50-64) has increased from 11 in the early 1960s, to nearly 40 at present (Central Bureau of Statistics, 1961, 1973, 1984, 1995). This means that far fewer women are available to care for the increasing population of elderly. Nevertheless, a study conducted in the 1990s among disabled elderly people revealed that 80% of their support was provided by family members, primarily women (Brodsky & Naon, 1993).

Studies have shown that caring for an ill, handicapped, or disabled relative has much influence on the family members who share the burden of care, and particularly on the primary caregiver (Whitlatch, 1997). This is expressed in a sense of burden, exhaustion and emotional distress, disruption of family life, and impaired relations between husband and wife. Family caregivers report a decline in their general physical and mental health, symptoms related to the physical burden of care such as back pain and fatigue, and psychosomatic symptoms such as ulcers, frequent headaches, and insomnia (Anthony-Bergstone, 1988; Brody, 1994; Snyder, 1985).

Studies that have focused on caregivers who are women note additional effects of caregiving, such as role conflict and infringement on family obligations and social life. Caregiving also has implications for the work life of women who miss work days, work fewer hours per week, forfeit professional promotion, or leave the work force altogether—all of which also affect their level of earnings (Brewer, 2001; Brody, 1994; Glendenning, 1992; Wagner & Neal, 1994). Women report feeling stressed because of the need to balance caregiving with personal, professional, and family life (Brody, 1994; Fredriksen, 1996; Glendenning, 1992; Stull, Bowman, & Smerlia, 1994; Wagner & Neal, 1994).

While the burden on women caregivers has been studied extensively, this study focuses on an aspect of caregiving that has been given relatively little attention: a comparison of the extent and nature of informal care and its effects on women who care for a parent, and women who care for another relative (usually a spouse or child).

The importance of distinguishing among caregivers with different degrees of kinship to the patient arises from the conceptual framework of caregiving-related stress (Pearlin, 1989; Pearlin et al., 1990; Aneshensel et al., 1993). According to this theory, caregiving situations create two major types of stressor: primary and secondary. Primary stressors are related to the demands and tasks of daily care, such as assistance with activities of daily living (e.g., bathing, dressing, feeding); assistance with instrumental activities (e.g., shopping, paying bills); and in some

cases supervising the patient and restraining him from harmful actions. Secondary stressors develop as caregiving continues over time, and emerge as conflicts with other social roles, problems with network relationships, and feelings about self. Examples of these are economic hardship, family conflict, restriction of social activities, and psychological distress arising from an erosion of the sense of control, doubts about competency, and having to take on an unwanted role. These can ultimately affect mental well being (e.g., depression, anxiety), as well as physical health.

Using this conceptual framework as our guide, we would expect caregiving to create different stressors among women who care for a disabled parent, and women who care for a disabled spouse or child. For example, in caring for a parent, the caregiver usually has the help of other siblings and sometimes even the other parent, who take some of the responsibility for care and therefore reduce the burden (especially regarding instrumental, financial, and social support). This may not be the case for a woman who cares for a spouse or child. In addition, the gendered nature of caring for elderly parents reflects the dominant pattern of caregiving, and is almost a normative life experience, which most women are socialized to expect to perform (Brewer, 2001). Taking on this role when the time comes may therefore induce less role conflict and arouse fewer feelings of resentment than might caring for other family members, which is less of a universal experience.

In light of this conceptual framework, the research question posed in this study was “What are the differences in background characteristics, burden of care, and physical and mental health outcomes of caregiving between women who care for a parent and women who care for a spouse or child?”

## **METHODOLOGY**

### ***The Study Population and Sample***

The study population included all women over age 22 who are permanent residents of Israel. A random representative sample of households was drawn up using the national computerized telephone listing of Israel’s only domestic telephone company. For each listing sampled that met the eligibility criteria, one randomly chosen female resident was interviewed. Of the 1,309 households initially sampled, 158 (12%) did not meet the eligibility criteria (i.e., they belonged to a business or

institution, were fax-modems, or had no women residents over age 22). An additional 141 (10.8%) were inactive numbers (i.e., the line had been disconnected, or there was no answer at any hour of the day or night after an average of three calls per week for the duration of the field work). The final sample included 1,010 households in which a telephone interview could be conducted.

The interviews were conducted in September and October 1998. At the conclusion of the field work, a total of 849 questionnaires had been completed, giving a response rate of 84%; 9% refused, and 7% did not complete the interview for other reasons, such as language difficulties or medical or psychological problems. Each respondent was given a weight that expressed the probability of her being included in the sample. The characteristics of the sample population are detailed in the Appendix.

### *Data Collection and Analysis*

Telephone interviews were conducted at the JDC-Brookdale Institute by specially-trained interviewers, using a structured questionnaire. The study questionnaire was developed by The Commonwealth Fund (Collins et al., 1999) and adapted for the Israeli health system. The questionnaire was translated into Hebrew, Arabic, and Russian. Seventy-five percent of the respondents were interviewed in Hebrew, 15% in Russian, and 10% in Arabic.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago IL). Bivariate analysis was performed using overall Chi Square tests. Multivariate analysis was performed using linear multivariate regression and logistic multivariate regression (when the dependent variable was defined dichotomously).

This study had several limitations, which should be noted. First, the data were collected as part of a broader study of women's health and welfare (Gross & Brammli, 2000). Consequently, the scope of questions about caregiving was limited. For example, we could not study detailed measures of perceived burden, coping methods, and additional explanatory variables. In addition, since this study examined the extent of caregiving among all women, the size of the sample of caregivers was relatively small and did not allow for a finer distinction among levels of kinship in the multivariate analysis (i.e., spouse and child). However, the bivariate analysis showed similarities between caregivers of a spouse or child in main study variables, which allowed us to unify them for the purpose of multivariate analysis. The small sample size also did

not allow for a distinction between women who reported caring for another relative (i.e., not a parent, spouse, or child), and who therefore were not included in the subsequent analysis.

## FINDINGS

### *Characteristics of Caregivers and the Extent of Care*

The women were asked, “Are you currently responsible for caring for an ill or disabled relative?” Sixteen percent of the respondents reported caring for an ill or disabled relative (hereafter, “disabled”). Sixty-three percent of them reported caring for their or their spouse’s parent (hereafter, “parent”), 15% reported caring for their spouse, 14% for a child, and 8% for another relative.

Table 1 indicates that a larger proportion of women who are caregivers (compared to women who are not caregivers) are ages 45-54, divorced, and have low income. Women who care for a child or spouse differ from women who care for a parent in several demographic variables: A lower percentage of those who care for a parent have a low level of education, and are housewives or work in unskilled blue collar jobs. In addition, a larger proportion of them live in the center of the country. As might be expected, women who care for a parent or spouse are older than women who care for a child (smaller percentages of them are between the ages of 22 and 44).

In order to discern the independent influence of the women’s background variables on caregiving, we conducted a multivariate analysis (see Table 2). Table 2 indicates that being between ages 45 and 64, having secondary education, and working have an independent influence on the probability of caring for a disabled parent. The only characteristic that had an independent influence on the probability of caring for a spouse or child who was disabled was “not working.”

A smaller percentage (21%) of the women who care for a parent devote 43 or more hours per week to care, compared to about 40% of the women who care for a spouse or child. Among those who care for a parent, 25% reported that he/she lives with them, compared to 71% and 86% of those caring for a child or spouse, respectively.

Forty-one percent of the women who care for a parent reported that their disabled relative receives additional paid care, compared to only 16% of the women who care for a child and 19% of the women who care for a spouse. Ninety-seven percent of the women who care for a parent

TABLE 1. Characteristics of Caregivers of a Disabled Relative (in %)

Variable	In the Total Population		Among Caregivers		
	Not Caregiver n = 707	Caregiver n = 127	Cares for a Parent n = 87	Cares for a Child n = 20	Cares for a spouse n = 20
Total	84	16	10	3	3
Age* <sup>#</sup>					
22-44	57	42	37	50	37
45-54	18	38	48	20	31
55-64	10	16	15	25	16
65 and over	15	4	0	5	16
Language					
Hebrew	70	73	78	63	67
Russian	20	15	14	16	9
Arabic	10	12	8	21	24
Marital status <sup>#</sup>					
Unmarried	15	9	9	0	
Married	69	72	68	90	100
Divorced	7	15	3	5	0
Widowed	9	4	20	5	0
Education <sup>#</sup>					
Up to 12 years	23	21	10	40	52
Secondary	51	56	64	50	29
Post-secondary	26	23	26	10	19
Per capita income*					
1st-2nd quintile	39	57	55	65	60
3rd quintile	24	17	20	12	15
4th quintile	18	12	12	12	15
5th quintile	19	14	13	11	10
Employment status <sup>#1</sup>					
Employed	67	67	76	24	60
Unemployed	11	9	9	12	0
Disabled	3	3	3	6	7
Housewife	19	11	11	59	33
Type of employment <sup>#</sup>					
Highly skilled white collar	40	40	40	80	22
White collar	22	27	30	0	11
Skilled blue collar	20	21	24	0	11
Unskilled blue collar	18	12	6	20	56
Residence					
Center of country	43	47	53	25	30
Periphery	57	53	47	75	70

<sup>1</sup>Women under age 65.

\* $p < 0.05$ —statistically significant difference between caregivers and non-caregivers.

<sup>#</sup> $p < 0.05$ —statistically significant difference between caregivers of a parent, and of another relative.

TABLE 2. Care of a Disabled Relative, by Background Variables (Logistic Regression)

Variable	Cares for a Parent		Cares for Another Relative	
	B Coefficient	Odds Ratio (CI)	B Coefficient	Odds Ratio (CI)
Age 45-64	1.6*	4.7 (2.9-7.7)	0.34	1.4 (0.8-2.6)
Arab	0.55	1.7 (0.7-4.4)	0.4	1.5 (0.6-3.5)
Immigrant from the former Soviet Union	-0.4	0.7 (0.3-1.3)	0.02	1.0 (0.4-2.2)
Secondary education	0.72*	2.1 (1.2-3.4)	-0.4	0.7 (0.3-1.2)
Not working	-0.85*	0.4 (0.2-0.7)	0.6*	1.8 (1.0-3.4)
Lives in the center of the country	0.42	1.5 (0.9-2.4)	-0.02	0.9 (0.5-1.8)
Married	-0.4	0.7 (0.4-1.2)	0.5	1.6 (0.8-3.4)

\* $p < 0.05$

reported receiving full or partial financial assistance,<sup>1</sup> compared to 50% of the women who care for a child and 67% of the women who care for a spouse. Fifty-three percent of the women who care for a parent reported paying out-of-pocket for all or some of this care, compared to 80% of the women who care for a child and 100% of the women who care for a spouse (see Table 3).

### *The Physical and Mental Health of Caregivers*

Table 4 indicates that a large proportion of the women who care for a child (55%) or spouse (58%) assess their health as being fair to poor, compared to 30% of the women who care for a parent and 31% of the women who do not care for a disabled relative. A large proportion of women caring for a child (60%) or spouse (67%) have at least one health problem (from a list of eight prevalent problems),<sup>2</sup> compared to 44% of the women who care for a parent and 41% of the women who do not care for a disabled relative.

Differences were found among the caregivers in level of depression. The study included a measure of “depressive mood during the past week”,<sup>3</sup> which was constructed based on the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977). A large proportion of the women who care for a child (60%) and for a spouse (70%) had a “high level of depressive mood” according to this measure, compared to 39% of the women who care for a parent and 37% of the women who do not care for a disabled relative. Similarly, a relatively large proportion of the women who care for a child (40%) and for a

TABLE 3. Extent of Care of a Disabled Relative (in %)

<b>Aspect of Care</b>	<b>All Caregivers N = 127</b>	<b>Cares for a Parent N = 87</b>	<b>Cares for a Child N = 20</b>	<b>Cares for a Spouse N = 20</b>
Weekly hours devoted to care*				
Up to 12	48	52	41	33
13-42	26	27	18	27
43 or over	27	21	41	40
Patient's place of residence*				
In the respondent's home	40	25	71	89
In his own home	50	64	19	9
Somewhere else	10	10	10	5
Additional paid care*				
Yes	31	41	16	19
No	69	59	84	81
Receives financial assistance (from National Insurance Institute or other agency)*				
Yes, full	17	16	17	33
Yes, partial	70	81	33	33
No	13	3	50	33
Pays out-of-pocket*				
Yes, for all care	10	3	20	50
Yes, for some care	49	50	60	50
No	41	47	20	0

\*p &lt; 0.05

TABLE 4. Physical and Mental Health Problems, by Caregiving (in %)

Physical or Mental Health Problem		Caregivers		
		Not Caregivers	Cares for a Parent	Cares for a Child
Assesses health as fair or poor*	31	30	55	58
Has disability, handicap or chronic illness	20	28	25	35
Has at least one health problem*	41	44	60	67
High score on Depressive Mood Index*	58	39	60	70
Needed psychological counseling during the past year*	13	13	40	32

\*p &lt; 0.05

spouse (32%) reported needing psychological counseling during the past year, compared to 13% of the women who care for a parent and 13% of the women who do not care for a disabled relative.

In order to examine whether caring for a disabled relative has an independent influence on assessment of health status, we conducted a multivariate logistic regression analysis (see Table 5). Table 5 indicates that caring for a parent and caring for another relative (child or spouse) does not have an independent influence on self-reported health status.

In order to examine whether caring for a disabled relative has an independent influence on depressive mood, we conducted a multivariate linear regression analysis (see Table 6). Table 6 indicates that caring for a child or spouse does have an independent effect on a high score for depressive mood during the past week. However, caring for a disabled parent does not have an independent effect on depressive mood symptoms.

## DISCUSSION

This study highlighted the differences between women who care for a disabled parent and women who care for another relative (child or spouse). We found more instrumental difficulties, which lead to greater burden, among women who care for a disabled relative who is *not* a parent. First, these women devote more hours to providing care. Second, in a larger proportion of cases, the disabled relative lives with them, while a smaller proportion have additional paid care (in other words, more burden falls on them). Finally, a larger proportion of these women report paying out-of-pocket for additional care, and not receiving financial assistance.

As might be expected based on theories regarding stress arising from caregiving (Pearlin et al., 1990), we also found differences between these two groups in the physical and mental health outcomes of caregiving. More than half of the women who care for a disabled relative who is *not* a parent reported having fair to poor health and a high level of depressive mood, and about one-third of them reported needing psychological counseling. These proportions were higher than those among women who care for a disabled parent (which were quite similar to those of women who do not care for a relative). However, multivariate analysis revealed that caring for a relative who is not a parent had an *independent influence* only on depressive mood symptoms (but not on self-reported health status).<sup>4</sup>

TABLE 5. Assessment of Health Status as Being Poor, by Background Variables (Logistic Regression)

Variable	B Coefficient	Odds Ratio (CI)
Arab	0.14	1.2 (0.35-3.8)
Immigrant from the former Soviet Union	1.15*	3.0 (1.5-6.2)
Per capita income	-0.6*	0.6 (0.4-0.86)
Age	0.5*	1.7 (1.2-2.3)
Not working	0.95*	2.6 (1.1-5.9)
Lives in the center of the country	0.6	1.8 (0.9-3.6)
Cares for a parent	-0.2	0.8 (0.2-2.7)
Cares for another relative	0.09	1.1 (0.3-3.7)

\* $p < 0.05$ 

TABLE 6. Depressive Mood Symptoms During the Past Week, by Background Variables (Linear Regression)

Variable	B Coefficient (CI)	Std. Error
Arab	0.7 (-0.5, 1.8)	0.6
Immigrant from the former Soviet Union	1.3* (0.5, 2.0)	0.4
Per capita income	-0.14* (-0.3, -0.01)	0.06
Age	0.2 (-0.1, 0.6)	0.2
Has at least one health problem	1.5* (0.7, 2.2)	0.4
Lives in the center of the country	0.2 (-0.4, 0.9)	0.3
Not working	0.6 (-0.1, 1.4)	0.4
Cares for a parent	0.4 (-0.6, 1.4)	0.5
Cares for another relative	2.6* (1.4, 3.9)	0.6

\* $p < 0.05$ ;  $R^2 = 0.14$ 

The general picture that arises from our findings is that caring for an elderly parent is less of a burden and has fewer consequences for health than does caring for a disabled spouse or child. Similarly, Barnes, Given, and Given (1992) found that people who care for a disabled elderly spouse are at higher risk for health problems and a sense of burden than are children who care for a disabled elderly parent. They attributed this in part to age differences between the two groups of caregivers. Our findings indicate that the kinship relationship between caregiver and patient leads to differential effects on the caregiver's mental health, even after controlling for the caregiver's age.

Other studies have also found distinctive caregiving experiences related to the caregiver's degree of kinship with the patient. For example, parents caring for a disabled child indicated confronting the unique problem of stigmatization and feelings of guilt (Lefley, 1997). Similarly, adult children caring for a parent with Alzheimer's disease were more likely than spousal caregivers to feel they were "captives" of caregiving (Aneshensel et al., 1993). Difficulties reported by caregivers of patients with AIDS varied with degree of kinship, as well as with other personal characteristics of both the caregiver and patient (Turner & Pearlin, 1989).

There are a number of possible explanations for the differences we found between caring for a parent and caring for another relative. As discussed by Aneshensel et al. (1993), higher levels of reported depressive symptoms and need for psychological care may be related to greater instrumental demands on the caregiver (primary stressors)—that is, the number of hours of care needed, living with the disabled person, the absence of additional paid help, and the need to make out-of-pocket payments. Another explanation may be found in expectations (creating secondary stressors): It is possible that women perceive the care of a disabled parent as an expected part of the life course, accept the burden of care with greater ease, and therefore feel less mental distress. In contrast, caregivers may perceive the need to care for a spouse or child as an unexpected crisis, and therefore feel greater distress, tension, and burden (Parker, 1996). Yet another possible explanation may be related to the *positive* aspects of caring for a disabled relative, such as a sense of accomplishment, gratification from the inter-personal relationship, and fulfillment from providing care (Lefley, 1997; Martin, 1999). It is possible that caring for a disabled parent is perceived as being more rewarding than is caring for another relative.

Another explanation may be related to the presence of a family support network (i.e., siblings or children), which has been found to affect subjective perception of the burden of care (Barnes, Given, & Given, 1992; Blasinsky, 1998; Pilisuk & Parks, 1988). Social support represents the resources that one actually uses in dealing with life problems. In the conceptual model of stress in caregiving situations, this variable is identified as a major mediating construct, which relieves stress by inhibiting the scope and severity of both primary and secondary stressors, and the extent and intensity of stress outcomes (Pearlin, 1989; Pearlin et al., 1990). Although many studies have found this to be an important variable, their findings regarding the influence of the size and density of a caregiver's social network have not been unequivocal (Lefley, 1997).

Unlike women who care for a spouse or child, women who care for a parent may have broader support, including siblings, a spouse, or children who share their burden.

Finally, the greater burden on caregivers of relatives who are not parents may be related to the different formal support systems for these populations. For example, Israel's Community Long-term Care Law stipulates universal personal entitlement for disabled and mentally frail elderly, using clearly defined eligibility criteria—primary among which are disability and the need for constant supervision. These benefits are provided as in-kind services (e.g., personal care, housekeeping), and offer partial relief to those who care for disabled elderly. At the end of 2000, 14% of all of Israel's elderly and 43% of those age 85 and over were entitled to assistance under this law (Brodsky, Shnoor, & Beer, 2002).

The findings indicate that the burden of care is heavier on caregivers of a disabled child or spouse than on caregivers of a disabled parent. Nevertheless, all caregivers can benefit from support, and social workers can play a major role in providing such support. Counseling and guidance about the process of care of the disabled relative, and answers to questions that arise during the course of caregiving have been shown to be very helpful (Bentur & Mualem, 2001; Knight, Lutsky, & Macofsky-Urban, 1993; Whitlatch, Zarit, Goodwin, & von Eye, 1995; Whitlatch, Zarit, & von Eye, 1991). Social workers in the health services can also help by increasing the sensitivity of physicians and other health professionals to the consequences of caregiving, as well as by identifying women who are caregivers and therefore are at higher risk of depression and illness, and providing them with appropriate support. Another way of assisting caregivers might be to facilitate the creation of institutionalized or informal support groups in which women can share their feelings, gain social support, and reduce caregiving-related stress (Bass, McClendon, Brennan, & McCarthy, 1998; Goodman, 1990). However, since women who care for a parent feel less burdened and cope better with their sense of burden, social workers and other health and social service professionals may wish to give special attention to the support of women who care for a relative who is *not* a parent.

Another role for social workers could be as advocates for benefits to caregivers. Such support is especially needed in the US, where there is a paucity of (financial and other) assistance for family caregivers. In light of the time devoted to care and the financial and psychological burden it imposes, caregivers could be greatly helped by legislation that provides for in-kind services or benefits, such as has been passed in several west-

ern European countries (Ireland, France, Germany, and the Scandinavian countries). In these countries, benefits, financial allowances, and special work conditions are available to family caregivers (Ungerson, 1995). Financial benefits enable women to hire paid help and so find temporary relief from the burden of care. Special work conditions, such as increased flexibility taking sick days and unpaid leave, or temporarily reducing working hours, help women caregivers remain in the work force, and continue earning money that can lighten the financial burden of care (Stull, Bowman, & Smerlia, 1994). In light of their professional standing and familiarity with the needs of women caregivers, social workers in the US could act as advocates for similar arrangements.

As noted, this study was carried out as part of a comprehensive study of the health and welfare of women; consequently, it was not possible to examine all aspects of the complicated caregiving experience. We would therefore note a number of questions that require continued examination. First, it is important to understand the specific needs of women who care for disabled relatives at all levels of kinship (parents, spouses, children, siblings), and to define the areas in which they need guidance and support. Second, additional research is needed to better understand the reasons for the difficulties unique to caring for a disabled relative who is not a parent, and to help devise more effective means of support. Third, it is necessary to deepen our understanding of formal support systems for different disabled populations and their influence on caregivers' perceived sense of burden.

Finally, we would note that caution should be exercised in generalizing our findings to the situation in the US, whose system of care differs substantially from that of Israel. For example, in the US, Medicare does not provide coverage of custodial care (while in Israel, universal entitlement to such care is mandated by law.) Consequently, caregivers need to provide these services by themselves, pay out of pocket, or apply for Medicaid. It is thus reasonable to assume that caregivers of elderly parents are under more stress in the US than in Israel. Another difference between caregiving in the US and in Israel is related to the different age distribution of caregivers in the two countries. In Israel, 4% of women caregivers were age 65 or over, while the findings of The Commonwealth Fund survey in the US revealed that 15% of women caregivers in the US were age 65 or over (Donelan et al., 2001). Given this difference, we may expect the burden of care of a parent to be greater in the US than in Israel. Therefore, research is needed into the differing needs of caregivers of a parent versus a spouse or child in the US and in other coun-

tries in order to determine whether the pattern discovered in Israel exists elsewhere, as well.

In summary, caring for an ill or disabled relative constitutes a burden on many women. Assistance and support to caregivers could improve the quality of care and the lives of the ill and disabled, as well as of the caregivers, ultimately benefiting all of society. Social workers have the professional training and qualifications to provide such support, and therefore can take a leading role in lessening the burden of care.

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## NOTES

1. Financial assistance includes in-kind services provided through the National Insurance Institute as mandated by the Community Long-term Care Law, reimbursement for some services by the health plans, and private insurance.

2. Women were asked about hypertension, a heart condition, cancer, diabetes, anxiety or depression, osteoporosis, arthritis, and obesity.

3. The measure was composed of the following items: feels depressed, sleeps restlessly, does not enjoy life, has crying fits, is sad, and feels others don't like her. The respondents were asked to report to what degree they felt each of these things during the past week (most of the time, some of the time, rarely, not at all). Each woman was given a score of between 0 and 18, which reflected the number and frequency of the symptoms. The responses were divided into three groups: low level of depressive mood (women with scores of 0-2); moderate level of depressive mood (women with scores of 3-5); and high level of depressive mood (women with scores of 6 or more).

4. The measure of self-assessed health status is also affected by mental state (Krause & Jay, 1994). This may explain why bivariate analysis found that a larger proportion of women caring for a child or spouse reported both poor health status and depressive mood. However, multivariate analysis found that caring for a child or spouse did not have an independent effect on health status, but only on depressive mood. Furthermore, the relationship between caring for a spouse and the presence of illness may be also affected by age, as caregivers of a spouse tend to be older. Therefore, the correlation found by bivariate analysis may be spurious.

## REFERENCES

- Aneshensel, C.S., Pearlin, L.I., & Schuler, R. H. (1993). Stress, role captivity and the cessation of caregiving. *Journal of Health and Social Behavior*, 34, 54-70.
- Anthony-Bergstone, C.R., Zarit, S.H., & Gatz, M. (1988). Symptoms of psychological distress among caregivers of dementia patients. *Psychology of Aging*, 3, 245-248.

- Barnes, C.L., Given, B.A., & Given, C.W. (1995). Parent caregivers: A comparison of employed and not employed daughters. *Social Work, 40*(3), 375-381.
- Barnes, C.L., Given, B.A., & Given, C.W. (1992). Caregivers of elderly relatives: Spouses and adult children. *Health and Social Work, 17*(4), 282-289.
- Bass, D.M., McClendon, M.J., Brennan, P.F., & McCarthy, C. (1998). The buffering effect of a computer support network on caregiver strain. *Journal of Aging and Health, 10*(1), 20-43.
- Bentur, N., & Mualem, A. (2000). The Effect on the family of caring for a home hospital patient. *Harefuah 140*, 386-391. (Hebrew)
- Brewer, L. (2001). Gender socialization and the cultural construction of elder caregivers. *Journal of Aging Studies, 15*, 217-235.
- Brody, E.M. (1994). Women as unpaid caregivers: The price they pay. In E. Friedman (Ed.), *An unfinished revolution: Women and health care in America* (pp. 67-86). New York: United Hospital Fund.
- Brodsky, J. (1998). The changing needs of the elderly in Israel and issues in the development of services. In M. Ben-Eliezer (Ed.), *The complete guide to long-term care insurance in Israel* (pp. 11-17). Tel Aviv: The Association of Insurance Agents in Israel. (Hebrew)
- Brodsky, J., & Naon, D. (1993). Home care services in Israel: Implications of the expansion of home care following implementation of the Community Long-Term Care Insurance Law. *Journal of Cross-Cultural Gerontology, 8*, 375-390.
- Brodsky, J., Shnoor, Y., & Beer, S. (2000). *The elderly in Israel: The 2000 statistical abstract* M-53-00. Jerusalem: JDC-Brookdale Institute. (Hebrew)
- Brodsky, J., Shnoor, Y., & Beer, S. (1999). *The elderly in Israel: The 1999 statistical abstract* M-51-99. Jerusalem: JDC-Brookdale Institute. (Hebrew)
- Central Bureau of Statistics. (1998). *Women in statistics*. Jerusalem: Government Printing Office. (Hebrew)
- Collins, K.S., Schoen, C., Joseph, S., Duchonn, L., Simantov, E., & Yellowitz, M. (1999). *Health concerns across a woman's lifespan: The Commonwealth Fund 1998 survey of women's health*. New York: The Commonwealth Fund.
- Donelan, K., Falik, M., & DesRoches, C.M. (2001). Caregiving challenges and implications for women's health. *Women's Health Issues, 11*(3), 185-200.
- Dwyer, J.W., Folts, W.E., & Rosenberg, E. (1994). Caregiving in social context. *Educational Gerontology, 20*, 615-631.
- Dwyer, J.W., & Seccombe, K. (1991). Elder care as family labor. *Journal of Family Issues, 12*(2), 229-247.
- Fredriksen, K.I. (1996). Gender differences in employment and the informal care of adults. *Journal of Women & Aging, 8*(2), 35-53.
- Glendenning, C. (1992). Notes and issues—employment and 'community care': Policies for the 1990s. *Work, Employment and Society, 6*(1), 103-111.
- Glendenning, C., Schunk, M., & McLaughlin, E. (1997). Paying for long-term domiciliary care: A comparative perspective. *Ageing and Society, 17*(2), 123-140.
- Goodman, C. (1990). Evaluation of a model self-help telephone program: Impact on natural networks. *Social Work, 35*(6), 556-562.

- Knight, B.G., Lutsky, S.M., & Macofsky-Urban, F. (1993). A meta-analytic review of interventions for caregiver distress: Recommendations for future research. *The Gerontologist*, 33, 240-248.
- Krause, N.M., & Jay, G.M. (1994). What do global self-rated health items measure? *Medical Care*, 32, 930-942.
- Lefley, H.P. (1997). Synthesizing the family caregiving studies: Implications for service planning, social policy and further research. *Family Relations*, 46(4), 443-450.
- Martin, C.D. (1999). Blessings in disguise: The positive aspects of caregiving. *The Southwest Journal on Aging*, 15(2)/16(1), 95-102.
- Murphy, B., Schofield, H., Nankervis, J., Bloch, S., Herrman, H., & Singh, B. (1997). Women with multiple roles: The emotional impact of caring for ageing parents. *Ageing and Society*, 17(3), 277-291.
- Naon, D., Morginstin, B., Schimmel, M., & Rivlis, G. (2000). *Children with special needs: An assessment of needs and coverage by services RR-355-00*. Jerusalem: JDC-Brookdale Institute. (Hebrew)
- Osterbusch, S.E., Keigher, S.M., Miller, B., & Linsk, N.L. (1987). Community care policies and gender justice. *International Journal of Health Services*, 17(2), 217-232.
- Parker, M. (1996). Families caring for chronically ill children with tuberous sclerosis complex. *Family and Community Health*, 19(3), 73-84.
- Pearlin L.I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, 30, 241-256.
- Pearlin, L.I., Mullan, J.T., Semple, S.J., & Skaff, M.M. (1990). Caregiving and the stress process: An overview of concepts and their measures. *The Gerontologist*, 30(5), 583-594.
- Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Robinson, K.M. (1997). The family's role in long-term care. *Journal of Gerontological Nursing*, 25, 7-11.
- Schulz, R., O'Brien, A.T., Bookwala, J., & Fleissner, K. (1995). Psychiatric and physical morbidity effects in Alzheimer's disease caregiving: Prevalence, correlates, and causes. *The Gerontologist*, 35, 771-791.
- Snyder, B., & Keffe, K. (1985). The unmet needs of family caregivers for frail and disabled adults. *Social Work and Health Care*, 10(3), 1-14.
- Stone, R.I., & Short, P.F. (1990). The competing demands of employment and informal caregiving to a disabled elder. *Medical Care*, 28(6), 513-526.
- Stull, D.E., Bowman, K., & Smerlia, V. (1994). Women in the middle: A myth in the making? *Family Relations*, 43(3), 319-324.
- Tennstedt, S., Crawford, S., & McKinlay, J. (1993). Is family care on the decline? A longitudinal investigation of the substitution of long-term care services for informal care. *Milbank Memorial Quarterly*, 7(4), 601-624.
- Turner, H.A., & Pearlin, L.I. (1989). Issues of age, stress and caregiving. *Generations*, Fall, 56-59.
- Ungerson, C. (1995). Gender, cash and informal care: European perspectives and dilemmas. *Journal of Social Policy*, 24(1), 31-52.
- Wagner, D.L., & Neal, M.B. (1994). Caregiving and work: Consequences, correlates, and workplace responses. *Educational Gerontology*, 20, 645-663.

- Whitlatch, C.J., Feinberg, L.F., & Sebesta, D.S. (1997). Depression and health in family caregivers. *Journal of Aging and Health, 9*(2), 222-243.
- Whitlatch, C.J., Zarit, S.H., Goodwin, P.E., & von Eye, A. (1995). The influence of successful psychoeducational interventions on the course of family care. *Clinical Gerontology, 16*, 17-30.
- Whitlatch, C.J., Zarit, S.H., & von Eye, A. (1991). Efficacy of interventions with caregivers: A reanalysis. *The Gerontologist, 31*, 9-14.
- Wykel, M.L. (1994). Physical and mental health of women caregivers of older adults. *Journal of Gerontological Nursing, 20*(3), 48-49.

## APPENDIX: Distribution of the Sample Population, by Principal Variables (in %)

Variable	Percentage of the Total Population
Age	
22-44	54
45-54	22
55-64	11
65 and over	13
Health plan membership	
Clalit	56
Maccabi	24
Leumit	10
Meuhedet	10
Education	
Less than 12 years	23
Secondary	52
Post-secondary	25
Language	
Hebrew	71
Russian	19
Arabic	10
Marital status	
Unmarried	14
Married	70
Divorced	8
Widowed	8
Country of origin	
Israel	48
Western Europe or United States	7
Asia or Africa	17
Eastern Europe or former Soviet Union	28
Employment status	
Working	57
Not working	43
Reason for not working	
Housewife	41
Retired	31
Unemployed	21.5
Disabled	6.5
Type of employment	
Highly skilled white collar	40
White collar	23
Skilled blue collar	20
Unskilled blue collar	17
Family's ability to purchase basic goods	
Has a great deal of difficulty	22
Has some difficulty	35
Has no difficulty	43



# **Determinants of Quality of Life in Primary Care Patients with Diabetes: Implications for Social Workers**

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# Determinants of Quality of Life in Primary Care Patients with Diabetes: Implications for Social Workers

*Liat Ayalon, Revital Gross, Hava Tabenkin, Avi Porath, Anthony Heymann, and Boaz Porter*

Using a cross-sectional design of 400 primary care patients with diabetes, the authors evaluated demographics, health status, subjective health and mental health, health behaviors, health beliefs, knowledge of diabetes treatment, satisfaction with medical care, and quality of medical care as potential predictors of QoL and QoL in the hypothetical absence of diabetes. Those who reported difficulties meeting basic needs, diabetes-related complications, worse subjective health, and dissatisfaction with medical care were more likely to report worse QoL. Those who reported difficulties meeting basic needs, higher cholesterol level, and worse subjective health also were more likely to report better QoL in the hypothetical absence of diabetes. In addition, diabetes management played a major role in one's QoL in the hypothetical absence of diabetes:

Engaging in stricter diabetes self-care and taking pharmaceutical treatment for managing diabetes were associated with better QoL in the hypothetical absence of diabetes. Providing psychosocial support geared toward diabetes self-management may improve patients' QoL. When doing so, social workers need to be aware of the potential trade-off between following medical recommendations that advocate for a strict lifestyle and patients' QoL.

KEY WORDS: *disease management; illness representations; patient–physician relationships; quality of life; subjective well-being*

Diabetes has long been acknowledged as a biopsychosocial disease (DeCoster, 2001). Diabetes management involves a dramatic change in lifestyle, including keeping a low-sugar diet, maintaining an exercise regime, monitoring daily blood sugar, and taking oral medications or insulin supplements. Social workers are in a unique position to help patients with diabetes maintain a healthy lifestyle and negotiate the medical world (Amir, Rabin, & Galatzer, 1990; DeCoster & Cummings, 2005; Gross et al., 2007). Knowledge of the specific factors that affect one's quality of life (QoL) is of utmost importance to social workers for the development and implementation of future interventions that would help patients with diabetes manage their condition (Claiborne & Massaron, 2000). Because the QoL of diabetic patients is affected by many variables, which are not all related to diabetes, it is particularly important to ask patients about their QoL in the hypothetical absence of diabetes and not only about their subjective general QoL. The

former gives information about the perceived effect diabetes has on one's QoL.

QoL has captured an increasing role in medical literature. Research has shown that QoL is a risk factor for longer and more complicated hospital stays, poor adherence to medical treatment, and increased morbidity and mortality (Fan, Curtis, Tu, McDonell, & Fihn, 2002; Jacobson, Wu, & Feinberg, 2003; Rumsfeld et al., 1999; Westin, Nilstun, Carlsson, & Erhardt, 2005). As a result, it is no longer acceptable to evaluate only the biophysiological indicators of the disease, rather a comprehensive evaluation that takes into consideration QoL is indicated (Rubin & Peyrot, 1999).

Diabetes has been associated with low QoL that tends to decline over the years (Brown et al., 2004; Hart, Redekop, Berg, Bilo, & Meyboom-de Jong, 2005). Several studies have identified demographic and clinical characteristics, illness representations, and health behaviors associated with QoL in patients with diabetes. For example, all of the following have

been associated with lower QoL in patients with diabetes: lower socioeconomic status (Wandell, 2005), medical comorbidity, diabetes-related complications and symptoms (Davis et al., 2005; De Berardis et al., 2002; Hart et al., 2005; Vileikyte, 2001; Wandell, 2005;), higher body mass index (BMI) (Maddigan, Majumdar, & Johnson, 2005), pain, depression (Lustman & Clouse, 2005; Paschalides et al., 2004), anxiety (Paschalides et al., 2004), lower perceived sense of control over diabetes (Paschalides et al., 2004), lower self-efficacy (Rose, Fliege, Hildebrandt, Schirop, & Klapp, 2002), pessimism (Rose et al., 2002), nonadherence to an exercise regime (Glasgow, Ruggiero, Eakin, Dryfoos, & Chobanian, 1997; Smith & McFall, 2005), and poor continuity of care (Wandell, 2005).

These studies provide important information about potential determinants of QoL in patients with diabetes. However, the majority of these studies did not evaluate a large set of predictors simultaneously to better determine the relative importance of each predictor. Furthermore, potential predictors of QoL such as knowledge of diabetes care or satisfaction with medical services have not been adequately evaluated in past research. In addition, only very few studies have asked people directly about the subjective effect of diabetes on their QoL (that is, perceived QoL in the hypothetical absence of diabetes) (Bradley & Speight, 2002; Bradley et al., 1999). This question is important because it evaluates the specific effect of diabetes on one's QoL rather than a general perception of QoL. In contrast to past research, the present study evaluates a large array of potential predictors of QoL and perceived QoL in the hypothetical absence of diabetes in a sample of primary care patients with diabetes. This study also has the advantage of being conducted in Israel, a country that has a universal health care system. Thus, we do not expect QoL to be affected by socioeconomic or access issues. Instead, we expect daily factors associated with the management of diabetes to be associated with lower QoL. We also expect subjective health and mental health to be the strongest predictors of QoL because of the relatively symptomatic nature of diabetes.

## METHOD

This is a secondary data analysis of a study funded by the Israeli National Institute for Health Policy and Health Services Research to assess adherence

to diabetes and hypertension guidelines by primary care physicians. The study was approved by the Institutional Review Board of Haemek Hospital.

## The Study Population

The primary sampling unit included community-based primary care physicians who were affiliated with the two largest health plans in Israel (Clalit Health Services and Maccabi Health Services), insuring over 80 percent of the population. From each physician, we sampled a representative group of patients with diabetes, hypertension, or both. A total of 1,369 participants with diabetes, hypertension, or both completed the patient questionnaire (77 percent response rate). Each participant was assigned a weight based on the probability of being sampled, corrected to reflect the health plan's composition of patients with hypertension, diabetes, or both conditions. The secondary data analysis presented in this article is based on 400 weighted cases of patients with diabetes type 2. We do not report in this analysis data on individuals diagnosed only with hypertension.

## Data Collection

Between December 2002 and June 2003, trained interviewers conducted telephone interviews of patients with diabetes using structured questionnaires. The interviews lasted approximately 20 minutes; questionnaires were available in Hebrew, Arabic, and Russian.

## Measures

All measures are based on patients' self-report. All measures were validated before their use in the present study. Measures were extensively evaluated for face and construct validity in a pilot study with diabetes patients (see Gross et al., 2003). Face validity was established by review of the questions by four physicians and four health scientists from the Myers-JDC-Brookdale Institute. All have vast experience in conducting care surveys. To establish construct validity of the measures, a pretest with 135 patients with diabetes was conducted (Gross, 2001).

## Outcome Variables

QoL was examined by the question "How would you define your overall quality of life?" Response options were very good = 5, good = 4, mediocre = 3, bad = 2, and terrible = 1. This variable followed a

normal distribution. (Note that single-item measures of health, quality of life satisfaction, and so forth are routinely used in population surveys in which health is only one among many issues measured and that have to be covered in a short interview; Wilkin, Hallam, & Doggett, 1991.)

We also evaluated the perceived effect that diabetes had on patients' QoL using a question about QoL in the hypothetical absence of diabetes. Perceived QoL in the hypothetical absence of diabetes was examined by the following question: "If you did not suffer from diabetes, how would your overall quality of life have been?" Response options were much better = 5, somewhat better = 4, exactly the same = 3, worse = 2, and much worse = 1. Because this variable was positively skewed with the majority of participants stating that their perceived QoL in the absence of diabetes would have been much better or somewhat better, it was dichotomized; those endorsing the response options much better or somewhat better were grouped under a single value representing improvement (1), and those endorsing the response options exactly the same, worse, or much worse were grouped under a single value that signifies no change or worse (0).

### Predictors

**Sociodemographic Information.** We evaluated gender (male = 1, female = 0), age, marital status (married = 1, not married = 0), place of birth (Israel = 1, outside of Israel = 0), work status (employed = 1, unemployed = 0), education (did not complete elementary school = 0, no schooling at all = 1, elementary school/middle school = 2, high school education = 3, some college/university = 4), and difficulties meeting basic needs (very difficult = 1, somewhat difficult = 2, no difficulty = 3).

**Medical Complications.** We evaluated presence of high cholesterol (yes = 1, occasionally = 2, no = 3), balanced glucose level (yes = 1, occasionally = 2, no = 3), diabetes-related complications (yes = 1, no = 0), and BMI.

**Subjective Health and Mental Health.** We evaluated subjective health status (excellent = 5, very good = 4, good = 3, mediocre = 2, very bad, = 1) and the presence of emotional distress (yes = 1, no = 0). Emotional distress was measured using the following question: "During the past year, have you experienced emotional distress, (for example, depression, anxiety, tension, great sadness), which you

found difficult to cope with by yourself?" Possible responses were yes or no. This question was similar to the perceived need screening question used in the U.S. national comorbidity survey (Kessler et al., 1997) and the Mental Health Supplement of the Ontario Health Survey (Lin, Goering, Offord, Campbell, & Boykem, 1996). It was used in Israel in previous surveys in which construct validity was ascertained (Gross, Feldman, Rabinowitz, & Grinstein, 1998; Rabinowitz, Gross, & Feldman, 1999; Rabinowitz, Gross, & Feldman, 2003).

**Health Behaviors.** We evaluated whether participants were physically active (yes = 1, no = 0), followed a special food and/or drinking diet (lower score indicating a stricter regime, range = 0 to 4), regular diabetes self-care (for example, foot care, glucose checks, and regular doctor appointments; higher score indicating greater care, range = 0 to 3), and pharmaceutical treatment related to diabetes care (pills, injections, or both = 1; none = 0).

**Health Beliefs and Knowledge.** To evaluate diabetes-related knowledge, we used five questions concerning the potential effect of diabetes on blood vessels and feet and the effects of diet, physical activity, and weight management on diabetes management (higher score indicates better diabetes knowledge, range = 0 to 5). Perceived ability to control diabetes was evaluated by the following statements: "Diabetes medicine can help me feel better," "A diet can help me feel better," "It is important to adhere to diabetes treatment," and "My diabetes can be under control" (higher score indicates greater beliefs in the ability to control diabetes, range = 0 to 4).

**Quality of Medical Care.** We used six questions about the level of medical explanation regarding diabetes complications, appropriate diet, foot care, eye check, diabetes care, and the importance of carrying a diabetes identification card (higher score represents more explanations provided by medical staff, range = 0 to 6). We evaluated whether care was provided according to guidelines by asking participants about having a physical exam, foot check, electrocardiogram, dietician services, and eye check within the past year (higher score represents greater adherence to guidelines of care, range = 0 to 5). We evaluated satisfaction with diabetes care using the following two statements: "My diabetes could have been managed in a better way" and "I am confused by instructions given by medical personnel" (higher score indicates greater satisfaction, range = 0 to 2).

**Statistical Analysis**

To examine potential predictors of QoL, we conducted Spearman's correlation. To examine potential predictors of perceived QoL in the hypothetical absence of diabetes, we conducted *t*-test analyses in the case of continuous variables and chi-square analyses in the case of categorical variables. All variables significant at the .05 level were examined for multicollinearity and then entered into multivariate regression models; we conducted an ordinal regression with QoL as an outcome variable and a logistic regression with QoL in the hypothetical absence of diabetes as an outcome variable.

**RESULTS**

Overall, 74.9 percent of the sample was married. Men constituted 55.7 percent of the sample. A total of 60.9 percent had elementary or high school education. Overall, 22.8 percent reported that it is very difficult for them to meet basic needs, 32.6 percent reported that they suffer from high cholesterol, 19.6 percent reported that they suffer from diabetes-related complications, and 32.2 percent reported that they suffer from emotional distress. A total of 69.7 percent reported that their QoL was very good or good, and 71.2 percent reported that their QoL would have improved in the hypothetical absence of diabetes.

**QoL**

In bivariate analyses, higher QoL was associated with higher levels of education ( $r = .11, p < .05$ ). Higher QoL was also associated with fewer difficulties meeting basic needs ( $r = .36, p < .01$ ), no medical complications related to diabetes ( $r = -.23, p < .01$ ), a balanced glucose level ( $r = -.16, p < .01$ ), and lower BMIs ( $r = -.21, p < .01$ ). In addition, better subjective health status ( $r = .54, p < .01$ ), the absence of emotional distress ( $r = .28, p < .01$ ), and being physically active ( $r = .14, p < .01$ ) were all associated with higher QoL. Perceived ability to control diabetes ( $r = .14, p < .01$ ) and greater satisfaction with medical care ( $r = .25, p < .01$ ) also were associated with higher QoL. There was no evidence for multicollinearity. Multivariate analysis revealed that relative to those who reported having difficulties meeting basic needs, those who reported having no such difficulties also reported higher QoL. Those who reported more diabetes-related complications and worse subjective health were more likely to report worse QoL. In addition,

**Table 1: Multivariate Analysis of Predictors of Quality of Life (N = 400)**

Predictor	B	SE B
<b>Demographics</b>		
Education		
(Did not complete/no schooling at all)		
Elementary school/middle school	-.33	.24
High school education	-.26	.23
Some college	-.15	.35
University	.57	.30
Difficulty meeting basic needs		
(Very difficult)		
Somewhat difficult	-.10	.19
No difficulty	.58**	.20
<b>Health Status</b>		
Diabetes-related complications		
(No)		
Yes	-1.10**	.33
BMI	-.003	.008
<b>Subjective Health Status</b>		
Self-rating		
(Very bad)		
Mediocre	.31	.42
Good	.73**	.28
Very good	-.67**	.26
Excellent	-2.33**	.37
Emotional distress		
(No)		
Yes	-.23	.30
<b>Health Behaviors</b>		
Physical activity		
(No)		
Yes	-.42	.28
<b>Knowledge and Beliefs</b>		
Perceived ability to control diabetes	.38	.21
Satisfaction with diabetes treatment	.67**	.20

Notes: Reference categories are in parentheses. BMI = body mass index. Ordinal regression analysis was conducted to evaluate predictors of quality of life [ $\chi^2(18) = 125.75, p < .0001$ ]. \*\* $p < .01$ .

dissatisfaction with medical care was associated with worse QoL [ $\chi^2(18, N = 233) = 125.75, p < .001$ ]. (See Table 1.)

**QoL in the Hypothetical Absence of Diabetes**

In bivariate analyses, reporting a potential improvement in one's QoL in the hypothetical absence of

diabetes was associated with being younger [ $t(359) = -2.67, p < .05$ ] and with having greater difficulties meeting basic needs [ $\chi^2(2, N = 363) = 10.79, p < .01$ ]. In addition, reporting an imbalanced cholesterol level [ $\chi^2(2, N = 355) = 10.38, p < .01$ ], reporting diabetes-related complications [ $\chi^2(1, N = 366) = 7.24, p < .01$ ], reporting an imbalanced glucose level [ $\chi^2(2, N = 346) = 7.29, p < .05$ ], and reporting poorer subjective health status [ $\chi^2(4, N = 363) = 23.10, p < .01$ ] all were associated with a potential improvement in QoL in the hypothetical absence of diabetes. Last, reporting greater adherence to diabetes diet [ $t(363) = -4.17, p < .01$ ], reporting more regular diabetes care [ $t(364) = 4.84, p < .01$ ], reporting the use of medical treatment related to diabetes [ $\chi^2(1, N = 367) = 17.20, p < .01$ ], and having better diabetes knowledge [ $t(364) = 2.87, p < .01$ ] were associated with a potential improvement in QoL in the hypothetical absence of diabetes. There was no evidence for multicollinearity. In multivariate analysis, those who reported difficulties meeting basic needs were significantly more likely to report better QoL in the hypothetical absence of diabetes. Those of higher cholesterol level and worse subjective health status also were significantly more likely to report better QoL in the hypothetical absence of diabetes. Diabetes management played a major role in the effect that diabetes has on an individual's QoL; engaging in stricter diabetes self-care and taking pharmaceutical treatment for managing diabetes were associated with better QoL in the hypothetical absence of diabetes [ $\chi^2(16) = 78.88, p < .001$ ]. (See Table 2.)

**DISCUSSION**

The present study evaluated QoL and QoL in the hypothetical absence of diabetes by using a large and representative sample of patients with diabetes. As expected, those who reported suffering from medical complications and having worse health status also reported worse QoL. This finding provides further support to the validity of our QoL measures. It is interesting to note that having difficulties meeting basic needs was a significant predictor of both QoL and QoL in the hypothetical absence of diabetes. Given that Israel has a national health care system, it is of particular interest that income still has such an important impact on all aspects of an individual's QoL.

It was unexpected that engaging in stricter diabetes self-care and taking pharmaceutical treatment

**Table 2: Multivariate Analysis of Predictors of Quality of Life in the Hypothetical Absence of Diabetes (N = 400)**

Predictor	OR	95% CI
<b>Demographics</b>		
Age	.99	.96–1.03
Difficulty meeting basic needs (Yes)		
Somewhat difficult	.48	.20–1.19
No difficulty	.33	.14–.76**
<b>Health Status</b>		
High cholesterol level (Yes)		
Occasionally	.54	.17–1.70
No	.46	.24–.90*
Balanced glucose level (Yes)		
Occasionally	.66	.46–1.64
No	.22	.70–4.28
Diabetes-related complications (Yes)		
No	1.32	.59–2.99
<b>Subjective Health Status</b>		
Self-rating (Very bad)		
Mediocre	.61	.23–1.59
Good	.96	.35–2.65
Very good	.30	.08–1.06
Excellent	.05	.01–.46**
<b>Health Behaviors</b>		
Diabetes diet (Yes)		
No	.81	.64–1.02
Regular diabetes care	2.07	1.46–2.94**
Pharmaceutical treatment related to diabetes care (No)		
Yes	2.74	1.076.99*
<b>Knowledge and Beliefs</b>		
Diabetes knowledge	1.21	.91–1.60

Notes: Reference categories are in parentheses.  $\chi^2(16) = 78.88, p < .001$ . OR = odds ratio. CI = confidence interval. \* $p < .05$ . \*\* $p < .01$ .

for managing diabetes were associated with better QoL in the hypothetical absence of diabetes but not with an individual's QoL. These findings emphasize the trade-off between following a strict lifestyle as advocated by current medical thinking and an individual's QoL. Our findings demonstrate the high

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*Social workers can assist patients with diabetes in their adjustment to lifestyle changes by providing them with supportive medical services, psychosocial counseling, and self-help groups.*

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toll diabetes management takes on an individual's QoL. Regular checkups for potential complications of diabetes and the use of pharmacological measures are often considered necessary ingredients for the successful management of diabetes. Yet the present study highlights a noteworthy conflict related to diabetes management by showing that strictly adhering to medical guidelines for the treatment of diabetes hampers the individual's QoL. Thus, patients may prefer to compromise their health and risk future complications to improve their QoL in the short-term. Our findings are in line with previous studies that highlight the difficulties patients with diabetes report in adopting appropriate lifestyle behaviors (Anderson et al., 2003; Hall, Joseph, & Schwartz-Barcott, 2003), as these behaviors often are disruptive and require patients to be highly motivated. Moreover, patients with diabetes may feel stigmatized by the management of their condition (for example, the need to inject and to maintain a special diet), and this may lead to further impairment in their QoL (Broom & Whittaker, 2004; DeCoster, 2003). Our findings suggest that when working with patients with diabetes, social workers should adopt an ecological approach that takes into consideration the patient's psychosocial and medical needs as well as the overall social environment (McLeroy, Bibeau, Steckler, & Glanz, 1988).

The finding that dissatisfaction with medical services is associated with worse QoL is understandable given that successful diabetes management requires close relationship with medical services. Thus, to improve the QoL of diabetes patients, social workers should be aware of the need to counsel patients and assist them in overcoming bureaucracy and other problems they may encounter with medical services (Gross et al., 2007).

#### **LIMITATIONS**

First, QoL and perceived QoL in the hypothetical absence of diabetes were each evaluated by a single question. However, research has shown that

a single question is adequate for the evaluation of QoL (Ayalon et al., 2006; Bernhard, Sullivan, Hurny, Coates, & Rudenstam, 2001; de Boer et al., 2004). In addition, some may question the validity of evaluating one's QoL in the hypothetical absence of diabetes because of the hypothetical aspect of this question. However, both our pilot study and this study found that in addition to face validity, the QoL questions also have high construct validity. Furthermore, research has consistently shown that asking patients about their QoL in the hypothetical absence of the disease provides meaningful information (Ayalon et al., 2006; Bradley & Speight, 2002; Bradley et al., 1999). Second, the study did not include biological markers of diabetes and did not evaluate physicians' perceptions of patients' conditions. A more comprehensive approach that takes into consideration biological markers and physicians' perception may provide important insights. However, it is important to note that subjective evaluation of an individual's own health status is considered one of the best indicators of mortality and morbidity (Idler & Kasl, 1991). Last, the cross-sectional nature of the design prohibits conclusions about cause and effect.

#### **IMPLICATIONS FOR SOCIAL WORKERS**

In recent years, researchers have called for increased cooperation between medicine and social work (Wendt, 1990) in the management of diabetes (Gross et al., 2007). The implications of this study suggest that attempts to improve the QoL of patients with diabetes should follow an ecological approach for health promotion by focusing on the individuals within the social and medical context (McLeroy et al., 1988). Social workers are in a unique position because they can assist patients with diabetes in their adjustment to lifestyle changes by providing them with supportive medical services, psychosocial counseling, and self-help groups (Wendt, 1990). When doing so, social workers need to be aware of the potential trade-off between following medical recommendations that advocate for a strict lifestyle and patients' QoL. This may improve patients' adherence to diabetes management recommendations and as a result improve patients' medical conditions, reduce diabetes-related complications, and reduce health care expenditures (Amos, McCarty, & Zimmet, 1997; Goldfracht & Porath, 2000). Social workers can further assist medical personnel in negotiating

these changes with patients (Gross et al., 2007). Furthermore, because of their knowledge of public policy and community work, social workers can help integrate appropriate health behaviors into the public notion (McLeroy et al., 1988; Wendt, 1990). Finally, as part of a comprehensive approach toward the management of diabetes, the questions used in the present study to measure QoL and perceived QoL in the hypothetical absence of diabetes could be used to screen patients and assist those with lower QoL to better cope with the demands of diabetes management. **HSW**

## REFERENCES

- Amir, S., Rabin, C., & Galatzer, A. (1990). Cognitive and behavioral determinants of compliance in diabetics. *Health & Social Work, 15*, 144–151.
- Amos, A. F., McCarty, D. J., & Zimmet, P. (1997). The rising global burden of diabetes and its complications: Estimates and projections to the year 2010. *Diabetes Medicine, 14*(Suppl. 5), S1–S85.
- Anderson, R. T., Balkrishnan, R., Camacho, F., Bell, R., Duren-Winfield, V., & Goff, D. (2003). Patient-centered outcomes of diabetes self-care. Associations with satisfaction and general health in a community clinic setting. *North Carolina Medical Journal, 64*(2), 58–65.
- Ayalon, L., Gross, R., Tabenkin, H., Porath, A., Heymann, A., & Porter, B. (2006). Determinants of quality of life in primary care patients with hypertension. *International Journal of Psychiatry in Medicine, 36*, 483–497.
- Bernhard, J., Sullivan, M., Hurny, C., Coates, A. S., & Rudenstam, C. M. (2001). Clinical relevance of quality item quality of life indicators in cancer clinical trials. *British Journal of Cancer, 84*, 1156–1165.
- Bradley, C., & Speight, J. (2002). Patient perceptions of diabetes and diabetes therapy: Assessing quality of life. *Diabetes/Metabolism Research and Review, 18*(Suppl. 3), S64–S69.
- Bradley, C., Todd, C., Gorton, T., Symonds, E., Martin, A., & Plowright, R. (1999). The development of an individualized questionnaire measure of perceived impact of diabetes on quality of life: The ADDQoL. *Quality of Life Research, 8*(1–2), 79–91.
- Broom, D., & Whittaker, A. (2004). Controlling diabetes, controlling diabetics: Moral language in the management of diabetes type 2. *Social Science and Medicine, 58*, 2371–2382.
- Brown, D. W., Balluz, L. S., Giles, W. H., Beckles, G. L., Moriarty, D. G., Ford, E. S., & Mokdad, A. H. (2004). Diabetes mellitus and health-related quality of life among older adults. Findings from the behavioral risk factor surveillance system (BRFSS). *Diabetes Research and Clinical Practice, 65*, 105–115.
- Claiborne, N., & Massaron, E. (2000). Mental quality of life: An indicator of unmet needs in patients with diabetes. *Social Work in Health Care, 32*, 25–43.
- Davis, R. E., Morrissey, M., Peters, J. R., Witttrup-Jensen, K., Kennedy-Martin, T., & Currie, C. J. (2005). Impact of hypoglycaemia on quality of life and productivity in type 1 and type 2 diabetes. *Current Medical Research and Opinion, 21*, 1477–1483.
- De Berardis, G., Franciosi, M., Belfiglio, M., Di Nardo, B., Greenfield, S., Kaplan, S. H., Pellegrini, F., Sacco, M., Tognoni, G., Valentini, M., Nicolucci, A., & the QuED Study Group. (2002). Erectile dysfunction and quality of life in type 2 diabetic patients: A serious problem too often overlooked. *Diabetes Care, 25*, 284–291.
- de Boer, A. G., van Lanschot, J. J., Stalmeier, P. F., van Sandick, J. W., Hulscher, J. B., de Haes, J. C., & Sprangers, M. A. (2004). Is a single-item visual analogue scale as valid, reliable and responsive as multi-item scales in measuring quality of life? *Quality of Life Research, 13*, 311–320.
- DeCoster, V. A. (2001). Challenges of type 2 diabetes and the role of health care social workers: A neglected area of practice. *Health & Social Work, 26*, 26–37.
- DeCoster, V. A. (2003). The emotions of adults with diabetes: A comparison across race. *Social Work in Health Care, 36*(4), 79–99.
- DeCoster, V. A., & Cummings, S. M. (2005). Helping adults with diabetes: A review of evidence-based practice. *Health & Social Work, 30*, 259–264.
- Fan, V. S., Curtis, J. R., Tu, S. P., McDonnell, M. B., & Fihn, S. D. (2002). Using quality of life to predict hospitalization and mortality in patients with obstructive lung diseases. *Chest, 122*, 429–436.
- Glasgow, R., Ruggiero, L., Eakin, E., Dryfoos, J., & Chobanian, L. (1997). Quality of life and associated characteristics in a large national sample of adults with diabetes. *Diabetes Care, 20*, 562–567.
- Goldfracht, M., & Porath, A. (2000). Nationwide program for improving the care of diabetic patients in Israeli primary care centers. *Diabetes Care, 23*, 495–499.
- Gross, R. (2001). *Summary of validity tests from the "Adherence to Guidelines pilot study"* [Internal document]. Jerusalem: Myers-JDC-Brookdale Institute.
- Gross, R., Feldman, D., Rabinowitz, J., & Grinstein, M. (1998). Mental distress as perceived by the adult population in Israel: Characteristics and patterns of utilization of health services. *Harefu'a, 134*(5), 6–12.
- Gross, R., Tabenkin, H., Heymann, A., Greenstein, M., Matzliach, R., Porath, A., & Porter, B. B. (2007). Physician's ability to influence the lifestyle behaviors of diabetic patients: Implications for social work. *Social Work in Health Care, 44*, 191–204.
- Gross, R., Tabenkin, H., Porath, A., Heymann, A., Greenstein, M., Porter, B., & Matzliach, R. (2003). The relationship between primary care physicians' adherence to guidelines for the treatment of diabetes and patient satisfaction: Findings from a pilot study. *Family Practice, 20*, 563–569.
- Hall, R. F., Joseph, D. H., & Schwartz-Barcott, D. (2003). Overcoming obstacles to behavior change in diabetes self-management. *Diabetes Education, 29*, 303–311.
- Hart, H. E., Redekop, W. K., Berg, M., Bilo, H. J., & Meyboom-de Jong, B. (2005). Factors that predicted change in health-related quality of life were identified in a cohort of diabetes mellitus type 1 patients. *Journal of Clinical Epidemiology, 58*, 1158–1164.
- Idler, E. L., & Kasl, S. (1991). Health perceptions and survival: Do global evaluations of health status really predict mortality? *Journal of Gerontology, 46*(Suppl. 2), S55–S65.
- Jacobson, D. L., Wu, A. W., & Feinberg, J. (2003). Health-related quality of life predicts survival, cytomegalovirus disease, and study retention in clinical trial participants with advanced HIV disease. *Journal of Clinical Epidemiology, 56*, 874–879.
- Kessler, R. C., Frank, R. G., Edlund, M., Katz, S. J., Lin, E., & Leaf, P. (1997). Differences in the use of psychiatric outpatient services between the United States and Ontario. *New England Journal of Medicine, 336*, 551–557.
- Lin, E., Goering, P., Offord, D. R., Campbell, D., & Boykem, M. H. (1996). The use of mental health

- services in Ontario: Epidemiologic findings. *Canadian Journal of Psychiatry*, 41, 572–577.
- Lustman, P. J., & Clouse, R. E. (2005). Depression in diabetic patients: The relationship between mood and glycemic control. *Journal of Diabetes Complications*, 19, 113–122.
- Maddigan, S. L., Majumdar, S. R., & Johnson, J. A. (2005). Understanding the complex associations between patient–provider relationships, self-care behaviors, and health-related quality of life in type 2 diabetes: A structural equation modeling approach. *Quality of Life Research*, 14, 1489–1500.
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15, 351–377.
- Paschalides, C., Wearden, A. J., Dunkerley, R., Bundy, C., Davies, R., & Dickens, C. M. (2004). The associations of anxiety, depression and personal illness representations with glycaemic control and health-related quality of life in patients with type 2 diabetes mellitus. *Journal of Psychosomatic Research*, 57, 557–564.
- Rabinowitz, J., Gross, R., & Feldman, D. (1999). Correlates of perceived need for mental health assistance and differences between those who do and do not seek help. *Social Psychiatry and Psychiatric Epidemiology*, 34, 141–146.
- Rabinowitz, J., Gross, R., & Feldman, D. (2003). Perceived need and receipt of outpatient mental health services: Factors affecting access in Israeli HMOs. *Journal of Ambulatory Care Management*, 26, 260–269.
- Rose, M., Fliege, H., Hildebrandt, M., Schirp, T., & Klapp, B. F. (2002). The network of psychological variables in patients with diabetes and their importance for quality of life and metabolic control. *Diabetes Care*, 25, 35–42.
- Rubin, R. R., & Peyrot, M. (1999). Quality of life and diabetes. *Diabetes/Metabolism Research and Reviews*, 15, 205–218.
- Rumsfeld, J. S., MacWhinney, S., McCarthy, M., Jr., Shroyer, A. L. W., Villa Nueva, C. B., O'Brien, M., & the PSOCs Investigators. (1999). Health-related quality of life as a predictor of mortality following coronary artery bypass graft surgery. *JAMA*, 281, 1298–1303.
- Smith, D. W., & McFall, S. L. (2005). The relationship of diet and exercise for weight control and the quality of life gap associated with diabetes. *Journal of Psychosomatic Research*, 59, 385–392.
- Vileikyte, L. (2001). Diabetic foot ulcers: A quality of life issue. *Diabetes Metabolism Research and Review*, 17, 246–249.
- Wandell, P. E. (2005). Quality of life of patients with diabetes mellitus. An overview of research in primary health care in the Nordic countries. *Scandinavian Journal of Primary Health Care*, 23, 68–74.
- Wendt, W. R. (1990). Between social and somatic disorders: The promotion of health as part of general social work practice. *Social Science & Medicine*, 31, 35–42.
- Westin, L., Nilstun, T., Carlsson, R., & Erhardt, L. (2005). Patients with ischemic heart disease: Quality of life predicts long-term mortality. *Scandinavian Cardiovascular Journal*, 39(1–2), 50–54.
- Wilkin, D., Hallam, L., & Doggett, M.-A. (1991). *Measures of need and outcome for primary health care*. New York: Oxford University Press.

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# **Population-based Trends in Male Adolescent Obesity in Israel 1967-2003**

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## Adolescent health brief

## Population-Based Trends in Male Adolescent Obesity in Israel 1967–2003

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**Abstract**

Obesity increased monotonically from 1.2% to 3.8% of males age 17 (1967–2003). Low socioeconomic status had an independent positive effect on obesity. The likelihood of obesity had risen more steeply over time among the low socioeconomic status group than among other adolescents. Rise in obesity, standard of living, and income inequality (as measured by the Gini index) increased concomitantly. © 2009 Society for Adolescent Medicine. All rights reserved.

**Key words:**

Obesity; Adolescents; Trends; Inequality; Israel

Adolescence is a critical period for the onset of obesity [1]. There is a lack of population-based longitudinal data on adolescent obesity. Adult obesity is associated with education, income, gender, race, and ethnicity [2] and neighborhood socioeconomic status (SES) [3]. Regarding adolescence, data on trends in the prevalence of obesity in various groups of adolescents outside the United States are scant [2] and inconclusive about the association of SES in creating health differentials in general and obesity in particular [4]. Differing national trends [5] suggest the importance of international data on obesity. We analyzed trends in the body mass index (BMI) of adolescents focusing on obesity (BMI >30 kg/m<sup>2</sup>) among 17-year-old boys in Israel measured in the years 1967 to 2003, examining the effect of SES of residence as defined by the Israeli Central Bureau of Statistics (CBS) [6]. This study is unique in its being based on a national data set, which

includes valid measurements, conducted by physicians, for almost the entire population of 17-year-olds over 36 years.

**Methods**

The National Service Act requires all 17-year-old Jewish Israeli citizens, as part of screening for military draft, to present at recruitment centers for medical examinations, which include being weighed and measured by a physician. Using this computerized data set we calculated the BMI for almost all 1,140,937 Jewish males born in the years 1950 to 1987. Only a few exemptions are granted to adolescents with severe mental or physical disabilities or severe chronic illness.

The dependent variable was BMI (weight in kilograms divided by height in meters squared) at the age of 17. Participants were classified into four groups: BMI <19 (underweight), 19–24.99 (normal), 25–30 (overweight), and >30 (obese). Independent variables that were adjusted for in the multivariate analysis included year of birth, education, SES of residence, and country of origin.

Data on education, year of birth, and country of origin (classified by the father's country of birth) were obtained

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Table 1  
Multinomial regression for predictors of BMI (base category: BMI = 19–24.99)

	BMI >30 OR (95% CI)	BMI 25–30 OR (95% CI)	BMI <19 OR (95% CI)
Birth year (compared to reference category: birth years 1950–1969)			
1970–1973	1.79 ** (1.70–1.89)	1.32** (1.29–1.35)	1.10** (1.09–1.12)
1974–1980	2.36** (2.27–2.45)	1.36** (1.33–1.38)	1.15** (1.14–1.17)
1981+	3.69** (3.56–3.83)	1.66** (1.63–1.69)	1.19** (1.17–1.21)
Education (compared to reference category: high 11+ years)			
Low (1–8)	1.52 ** (1.43–1.61)	1.03* (1.00–1.06)	1.09** (1.07–1.11)
Medium (9–10)	1.35** (1.30–1.40)	1.07** (1.04–1.09)	1.13** (1.12–1.15)
Socioeconomic status of residence (compared to reference category: high 8–10)			
Low (1–4)	1.35** (1.25–1.45)	1.12** (1.08–1.16)	1.00 (0.97–1.02)
Medium (5–7)	1.22** (1.17–1.26)	1.09** (1.07–1.10)	0.95** (0.94–0.96)
Country of Origin (compared to reference category: Israeli born)			
Former Soviet Union	1.07** (1.01–1.13)	1.19** (1.15–1.22)	0.78** (0.76–0.80)
Asia–Africa	0.82** (0.78–0.87)	0.88** (0.86–0.90)	1.08** (1.06–1.10)
West	1.10** (1.04–1.16)	1.15** (1.12–1.18)	0.84** (0.83–0.86)
Goodness of fit	3726.5		
Pearson chi-square	df = 396, <i>p</i> < .0001		

\**p* < .05; \*\**p* < .0001.

BMI = body mass index; OR = odds ratio; CI = confidence interval.

from draft board examination records. Data on place of residence was obtained from the Ministry of Interior's records and coded for 10 SES categories based on the Israeli CBS classification [6]. We classified the 10 SES categories into three groups—low (categories 1–4), medium (categories 5–7), and high (categories 8–10)—based on the distribution. The CBS classification takes into account 15 parameters representing measures for demography, education, standard of living, and receipt of National Insurance welfare benefits as measured in the most recent population census conducted in 2003. The CBS did not collect this data regularly, and therefore we could not assign contemporary data for each year in the study. This is a limitation of the data set because the SES of some locations may have changed overtime. However, we have no reason to assume there is a systematic bias. (The CBS conducted previous surveys on SES of residence in 1995, 1999, and 2001. There is no available data on changes in SES of different residence places since 1967. The only time that the CBS published a comparison of the SES of residencies was in the 2003 census, compared to 2001. The data indicate that there are only a few changes; some residences have improved their rating and some have declined. Almost all changes were of one category only [6].)

Years of birth were grouped into four categories (1950–1969, 1970–1973, 1974–1980, and 1981+) reflecting periods in which there was an apparent increase in rates of obesity as determined in preliminary analysis of the discrete data by year. We checked the models for robustness using different cutoff points, and found them to be robust.

Data were analyzed descriptively and multinomial regression analysis used for identifying risk factors (with normal weight as the base category for comparison). The odds ratios presented are adjusted for each other. We used the Statistical

Package for the Social Sciences (SPSS 12.01 for Windows, SPSS, Chicago, IL).

## Results

Almost half of the adolescents (49.5%) were Caucasians of Asian–African country of origin, 27.7% were of Western origin (Western Europe, North and South America, and English-speaking countries), 12.1% of Eastern European origin, 6.3% of Israeli origin, and 4.5% had a missing value. Most (76.3%) had completed 11 or more years of schooling, 13.9% had completed 9 to 10 years, 8.9% had completed 8 years or less, and 3.7% had a missing value. About half (48.3%) resided in a medium SES area, 25.3% in a low SES area, 20.2% in a high SES area, and 6.2% had a missing value. Almost half (47.1%) were born in the years 1950 to 1969, 11.4% were born in 1970 to 1973, 22.8% were born in 1974 to 1980, and 18.7% were born in 1981 or later.

Between 1967 and 2003, obesity (BMI >30 kg/m<sup>2</sup>) increased from 1.2% to 3.8%. A smaller increase was found in the prevalence of overweight (BMI between 25 kg/m<sup>2</sup> and 30 kg/m<sup>2</sup>), from 8.5% to 12.2%, and underweight (BMI <19 kg/m<sup>2</sup>), from 16.2% to 18.9%, whereas the prevalence of normal weight declined. Multinomial logistic regression analysis within BMI groups controlling for education, SES of residence, and country of origin, showed that the coefficients of birth year had an independent effect on weight status, with the highest effects on the likelihood of obesity, and weaker effects on the likelihood of overweight and underweight. Obesity and overweight levels monotonically increased over time (consistent upward trend), with continued large increases from each period to the next (no overlap in confidence intervals).

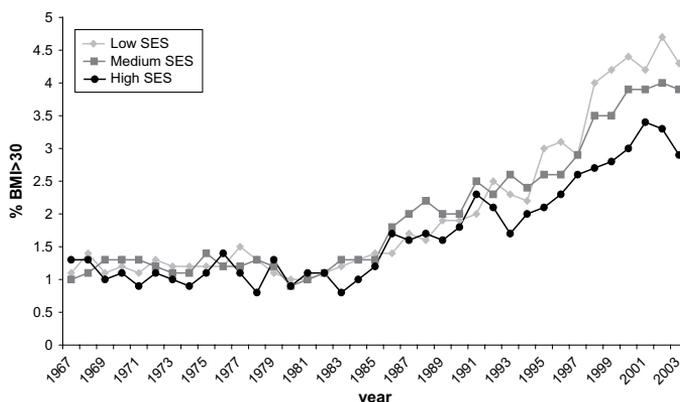


Figure 1. Obesity trends at the age of 17 by SES of residence, 1967 to 2003.

Low SES of residence (odds ratio [OR] = 1.35) and low education (OR = 1.52) had increased the likelihood of obesity, whereas Asian–African origin (OR = 0.82) decreased the likelihood of obesity (Table 1).

Obesity rates of all SES groups were similar and stable until the late 1980s. After that, obesity rates rose in all SES groups, with higher rates observed among adolescents of low SES areas since the mid-1990s. There was a nonlinear growth in the relative rates of obesity among adolescents residing in low SES areas compared to others, with an increase in the gap over the course of time (Figure 1).

### Summary and Discussion

The main finding of this study is that the prevalence of obesity among Israeli adolescents tripled between 1967 and 2003. The increase in the prevalence of obesity was observed among those measured after 1987 (i.e., when those born after 1970 reached the age of 17 and presented at the recruitment centers). The increase in prevalence of obesity persisted after controlling for country of origin, education, and SES of residence. Obesity increased among those born in the early 1970s (OR = 1.79) and increased more among those born in the late 1970s (OR = 2.36) and 1980s (OR = 3.69) similar to other developed countries [7].

This trend coincides with the rise in the standard of living that has occurred in Israel since 1967, reflecting also a more sedentary life style. To illustrate, the proportion of households with a car increased from 7.8% in 1963 to 22% in 1972, to 50.4% in 1992, and to 57.2% in 2003. The proportion of families with two or more cars increased from 5% in 1983 to 9.9% in 1998 and 13.4% in 2003. Similarly, the proportion of households with a television set increased from 64% in the 1972 census (when first measured) to 88.7% in 1975 and to 92% in 1999 [8].

For the subgroup born after 1967, the years of their childhood and adolescence coincided with the years of the rise in

standard of living. As in other countries [7,9], the rise in standard of living has changed the environment in which adolescents were raised, possibly affecting their weight as measured when they were 17. However, our data do not allow inferring causal relationships. Moreover, it is not known which years in a person's life are most affected by environmental factors that influence obesity, suggesting the need to examine this issue in future studies.

Multivariate analysis revealed that regardless of year of birth, the likelihood of obesity was higher among those residing in low SES areas, with an independent positive effect on obesity in the regression model. This is consistent with previous studies, which found, mainly in the United States, an association between SES and adult [3] and adolescent obesity [2,4,9].

Furthermore, over time, the prevalence of obesity rose more steeply among the low SES population group. To understand this trend, we suggest a hypothesis drawing upon social theories and empirical studies on the effects of social inequality on mortality [10], and empirical studies, comparing countries or regions with different inequality rates [11]. These studies have noted that the negative effect of inequality on health conditions was stronger among disadvantaged groups. Indeed, income inequality in Israel had increased concomitant with the increase in standard of living and in obesity. The Gini index for measuring income inequality had risen from 0.233 in 1950, to 0.43 in 1980, and 0.523 in 2003. We suggest that future studies examine the hypothesis regarding a possible association between the increase in income inequality and the more steep increase in obesity rates among Israeli adolescents of low SES compared to others.

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## References

- [1] Dietz WH. Critical periods in childhood for the development of obesity. *Am J Clin Nutr* 1994;59:959.
- [2] Wardle J, Henning Brodersen N, Cole TJ, et al. Development of adiposity in adolescence: five year longitudinal study of an ethnically and socioeconomically diverse sample of young people in Britain. *BMJ* 2006;332:1130–5.
- [3] Molarius A, Seidell JC, Sans S, et al. Educational level, relative body weight, and changes in their association over 10 Years: an international perspective from the WHO Monica Project. *Am J Public Health* 2000; 90(8):1260–8.
- [4] Goodman E, Slap GB, Huang B. The public health impact of socioeconomic status on adolescent depression and obesity. *Am J Public Health* 2003;93(11):1844–50.
- [5] Wang Y. Cross-national comparison of childhood obesity: the epidemic and the relationship between obesity and socioeconomic status. *Int J Epidemiol* 2001;30(5):1129–37.
- [6] Central Bureau of Statistics. 2003 Classification of Municipalities by the Socio-economic Characteristics of the Population, ISSN 1281. Jerusalem, Israel: Central Bureau of Statistics, 2003.
- [7] Ogden CL, Fryar CD, Carroll MD, Flegal KM. Mean body weight, height, and body mass index, United States 1960–2002. *CDC Adv Data* 2004;347:1–20.
- [8] Central Bureau of Statistics. Annual Reports, 1963B2003. Israel, Jerusalem: Central Bureau of Statistics, 1963.
- [9] Wang Y, Beydoun MA. The obesity epidemic in the United States by gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. *Epidmiol Rev* 2007;29:6–28.
- [10] Wilkinson RG, Pickett KE. Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med* 2006; 62:1768–84.
- [11] Dahl E, Elstad JJ, Hofoss D, et al. For whom is income inequality most harmful? A multi-level analysis of income inequality and mortality in Norway. *Soc Sci Med* 2006;63:2562–74.

# **Disparities in Obesity Temporal Trends of Israeli Adolescents by Ethnic Origin**

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## ORIGINAL ARTICLE

**Disparities in obesity temporal trends of Israeli adolescents by ethnic origin**REVITAL GROSS<sup>1,2,7</sup>, SHULI BRAMMLI-GREENBERG<sup>1</sup>, JONATHAN RABINOWITZ<sup>2</sup>, BARAK GORDON<sup>3,4</sup> & ARNON AFEK<sup>5,6</sup>

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**Abstract**

**Objective.** To analyze the temporal trends of obesity over time among male adolescents of different ethnic origins. **Methods.** Population-based national data of subjects presenting at recruitment centers for medical examinations as part of screening for military draft. Subjects were 17-year-old Jewish males (n=1 140 937) born in the years 1950–1986. Data on body mass index (BMI) were measured (without clothing and shoes) by physicians. We calculated the prevalence of obesity (BMI 29.4 or higher) for each year by ethnic origin group. A Multinomial logistic regression model was used to estimate the effects of ethnic origin and other risk factors on the likelihood of obesity. **Results.** Over time, obesity rates have risen among all ethnic groups of adolescents. Multinomial regression analysis showed a lower likelihood of obesity among those of Asia-Africa origin as compared with other groups. However, obesity rates have increased more significantly over time among this ethnic group compared with the other groups. **Conclusion.** A significant finding of this study is the disparities in temporal trends in the likelihood of obesity over time. Among adolescents of Asia-Africa origin the likelihood of obesity increased more steeply over time compared with other groups of adolescents. Health services in Israel should thus consider Asia-African origin as a distinct risk factor and target interventions to prevent future obesity among these adolescents.

**Key words:** Adolescents, obesity, disparities, ethnicity, trends, Israel, population based data

**Introduction**

Adolescence is a critical period for the onset of obesity and for obesity-associated morbidity (1–6), and therefore, adolescents should be a priority target population for intervention (7). A national survey of adolescents in Israel revealed that 7.4% of male middle and high school students and 3.9% of female students were obese, with higher rates among those of low socioeconomic status (8.3% vs. 6.8% among males; 5.7% vs. 2.5% among females) (8). The analysis of trends and the identification of risk groups in this population are imperative for effective public health interventions to promote healthier lifestyle behaviors. However, there is a lack of population-based data on trends in adolescent obesity in Israel.

Adult obesity is known to be associated with education, income, gender, race and ethnicity (9–11), as well as with the socioeconomic status (SES) of neighborhoods (12). However, only a few studies have compared adolescent obesity among population groups, mainly in the United States. These studies have led to conflicting conclusions on the importance of SES and ethnicity in creating health differentials in general and obesity in particular among adolescents (13–18).

Previous studies have examined trends in prevalence of obesity among *adult* population groups and have shown differential increase rates in the prevalence of obesity over time by gender, SES and ethnicity (9,19–22). However, only a few studies have examined growth rates in the prevalence of obesity

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in various groups of *adolescents* (23). A study comparing the effect of gender, urban-rural residence and SES on trends in body weight showed notable differences among adolescents in the US, China, Brazil and Russia (24), suggesting the importance of international data on this subject.

Previous analysis of the Israeli Defense Forces population-based data set (25) revealed that the prevalence of obesity among Israeli adolescents has increased threefold between 1967 and 2003, from 1.2% to 3.8% of adolescents with body mass index (BMI) >30. This trend persisted after controlling for confounding effects of ethnicity, education and SES of residence. Low SES of residence (OR=1.35) and low education (OR=1.52) had a positive independent effect on obesity while Asian-African origin (OR=0.82) had a negative effect (24). Reports from other countries note a similar increase in adolescent obesity (26–29).

The purpose of the current study was to extend the analysis of population-based obesity trends among Israeli male adolescents and to analyze the temporal trends of obesity over time among adolescents of different ethnic origins.

Israel is a multiethnic society. The Jewish population, which comprises 75% of the population, includes immigrants from an array of countries and diverse backgrounds who differ in culture, health related life style behaviors (e.g., diet preferences), political power, social and economic status. The earliest wave of modern immigration in the pre-state period (i.e., prior to 1948) was primarily from Russia and Eastern Europe (30,31). The next wave included predominantly Asian-African Jews who came in the early 1950s, from traditional developing countries with an Islamic majority. They found it difficult to integrate into the prevailing society dominated by the Eastern European immigrants who continue to populate the elite in Israel. Over time the difference between these groups have been reduced, but not eliminated (30,31).

Another smaller group of immigrants, arriving primarily since 1967, are from Western countries (North America and Western Europe). They have high education, income and social status (32). The next major waves of immigration were from the USSR, with a smaller group arriving in the 1970s followed by a very large wave in the 1990s. They have higher levels of education compared with the Asian-African group but lower income, occupational and social status compared with the Israeli and Western groups (33,34). These immigrants are struggling with integration into the dominant society, and are still perceived (by themselves and others) as a separate group retaining their own identity and culture (33). As a group they have higher morbidity than

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Israelis of other origins and exhibit more health harming behaviors (35,36).

This study is unique in its being based on a national population-based data set, which includes valid measurements, conducted by physicians, for almost the entire population of 17-year-old boys over 36 years. It is also unique in its approach to disparities in prevalence of obesity. We not only examine differences in current prevalence of obesity, but attempt to identify groups at risk for future obesity by analyzing the likelihood of obesity over time.

The temporal trends of obesity among population groups are an important indicator of future obesity rates forecasting possible problems among populations and thus contributing to planning of health promotion interventions.

## **Methods**

### *Study population*

The National Service Act requires that all 17-year-old Israeli citizens present themselves at recruitment centers for medical examinations as part of screening for military draft. The health examinations include measurements of height and weight (without clothing and shoes), conducted by a physician. Measurements are recorded in a computerized file. We retrieved these data and calculated the BMI for almost all 1 140 937 Jewish males born in the years 1950–1987. The size of the population for each year is not presented for national security reasons. Only a few draft board exemptions are granted to adolescents with severe mental or physical disabilities or severe chronic illness.

### *Variables*

The dependent variable was BMI (weight in kilograms divided by height in meters squared), at the age of 17. Participants were classified into four groups according to the IOTF BMI thresholds for children (37,38): BMI <18.05 (underweight); 18.05–24.49 (normal); 24.5–29.39 (overweight); 29.4 or higher (obese).

Independent variables that were adjusted for in the multivariate analysis included year of birth, education, SES of residence and country of origin.

### *Year of birth*

Data were obtained from draft board examination records, which are based on the date of birth listed in the population registry of the Ministry of Interior. Year of birth was grouped into three evenly-spaced categories: 1950–1961; 1962–1973; and 1974–1986. As we have data by year and not by month the final

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year category is 12 years. We checked the multivariate models for robustness using different cut-off points, and found them to be robust.

### Education

Data were obtained from draft board examination records based on self-reports of the recruits. We categorized education years into low (7 grades or less); medium (9–10 grades), and high school (11 grades or more).

### Country of origin

Data were obtained from draft board examination records, based on self-reports of the recruits. They were classified by the father's country of birth into four ethnic origin groups: Israel (second generation born in Israel); USSR (including Eastern European countries); Asia-Africa; and Western (Western Europe, North or South America, or English-speaking countries).

### SES of place of residence

Data on place of residence was obtained from the Ministry of Interior's records and coded for 10 SES categories based on the Israeli Central Bureau of Statistics (CBS) classification (39). We classified the 10 SES categories into three groups: Low (categories 1–4); Medium (categories 5–7); and High (categories 8–10), based on the distribution. The CBS classification takes into account 15 parameters representing measures for demography, education, standard of living, and receipt of National Insurance welfare benefits, as measured in the most recent population census conducted in 2003. The CBS did not collect this data regularly and therefore we could not assign contemporary data for each year in the study. This is a limitation of the data set as the SES of some locations may have changed over time. However, we have no reason to assume there is a systematic bias. The CBS conducted previous surveys on SES of residence in 1995, 1999, and 2001. There is no available data on changes in SES of different residence places since 1967. The only time that the CBS published a comparison of the SES of residencies was in the 2003 census, compared with 2001. The data indicate that there are only a few changes; some residences have improved their rating and some have declined. Almost all changes were of one category only (39).

### Statistical methods

Descriptive rates of BMI category (under weight, normal, overweight and obese) were calculated and

tabulated for each year by population group. For multivariate analyses, we used a multinomial logistic regression model for identifying risk factors (with normal weight as the base category for comparison). We present the model for predictors of obesity. To test for statistically significant differences between ethnic groups over time we included predictor variables (Birth year, education, SES of residence and country of origin) and interaction terms between country of origin and birth year. The odds ratios presented are adjusted for covariates. We used the Statistical Package for the Social Sciences (SPSS 12.01 for Windows) (40).

The study has been approved by the Institutional Review Board of the Israeli Defense Forces.

## Results

This population-based study included all male recruits born between 1950–1986 and measured at the age of 17. Almost half of the adolescents (49.5%) were Caucasians of Asia-Africa origin, 27.7% of Western origin (Western Europe, North and South America, and English-speaking countries), 12.1% of Eastern Europe origin, 6.3% of Israeli origin, and 4.5% had a missing value. Most (76.3%) completed 11 or more years of school, 13.9% completed 9–10 years, 8.9% completed 8 years or less and 3.7% had a missing value. About half (48.3%) resided in medium SES area, 25.3% in a low SES area, 20.2% in a high SES area, and 6.2% had a missing value (see Table I).

Overall, obesity (BMI 29.4 or higher) rates have risen from 1.54% among those born in 1950 to 4.54% among those born in 1986. Obesity has risen in all ethnic groups over time (Figure 1). Comparing adolescents born in 1986 by country of origin shows lower rates of obesity among adolescents

Table I. Distribution of country of origin, education, and socioeconomic status (SES) of residence (%) (N=1 140 937).

	%	N
Country of origin		
Israel	6.3	71 879
Asia-Africa	49.5	564 764
USSR	12.0	136 913
Western	27.7	316 039
Missing value	4.5	51 342
Education		
Low (1–8 years)	8.9	101 544
Medium (9–10)	13.9	158 590
High (11 or more)	73.5	838 588
Missing value	3.7	42 215
SES of Residence		
Low (1–4)	25.3	288 657
Medium (5–7)	48.3	551 073
High (8–10)	20.2	230 469
Missing value	6.2	70 738

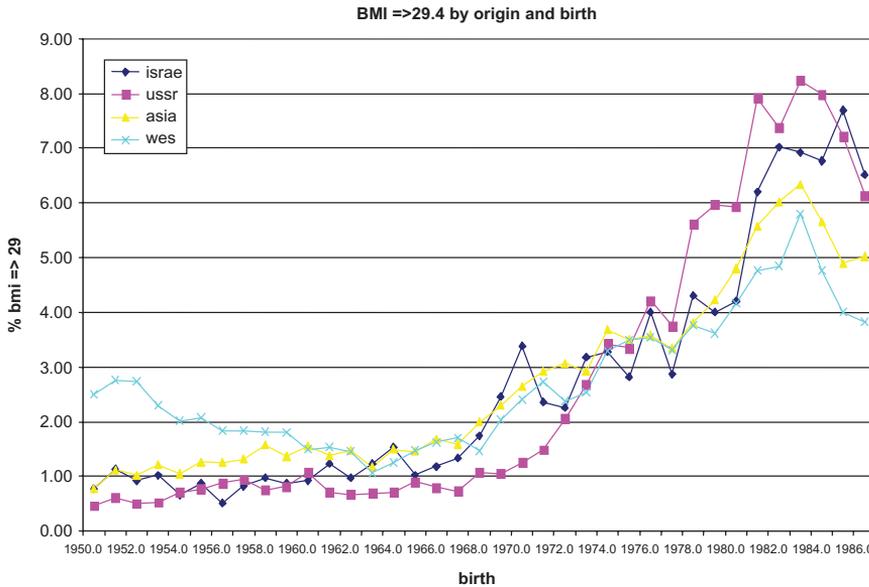


Figure 1. Obesity trends by birth year and country of origin (Body mass index [BMI]=29.4 or higher).

of Western origin (3.82%) and Asia-Africa origin (5.02%) compared with those from the USSR (6.14%) and Israeli origin (6.51%).

Multinomial logistic regression analysis of obesity indicates that controlling for education, SES and ethnic origin, there was a statistically significant increase in the odds ratios of later birth year categories (1.377, CI=1.206–1.573 and 2.653, CI=2.358–2.985,  $p < 0.0001$ , respectively) indicating a rise in the likelihood for obesity among those born in later years. The coefficient of Asia-Africa origin was negative while the coefficient of USSR and Western origin was positive indicating an overall lower likelihood of obesity among adolescents of Asia-Africa origin. However, the interaction terms between birth year categories and Asia-Africa origin were statistically significantly positive indicating that obesity rates have increased more significantly over time among this ethnic group compared with the other groups. The interaction terms with Western origin were statistically significantly negative, and the interaction terms with USSR origin were not statistically significant (Table II).

The multinomial regression coefficients indicate that low and medium education level had a positive effect on the likelihood of obesity as well as low and medium SES of residence (Table II).

Coefficients of variables affecting overweight and underweight are presented in Appendix 1. Overall, the determinants of overweight are similar to determinants

of obesity (although the coefficient values are lower), and determinants of underweight differ.

### Discussion

Using multinomial logistic regression we examined the independent effect of birth year, ethnicity, education and SES, as well as the interaction between birth year and ethnicity. Birth year had a positive effect on likelihood of obesity. This trend is concordant with reports from other countries on the rise of obesity among adolescents over time (1).

The lower likelihood of obesity among Israelis of Asia-African origin compared with other ethnic groups (reflected in the odds ratio of these groups in the regression model) may be related to genetic and biological factors affecting the predisposition to obesity (41), or to cultural diet preferences of this ethnic group (42). This finding differs from reports on adolescents from disadvantaged groups in the US and other countries, which typically have higher than average prevalence of obesity (18,43–46). We note that in Israel, the population of Asia-African origin is Caucasian, thus differing from the African-American ethnic group in the US.

Controlling for ethnic group, low and medium education had a positive effect on obesity rates, as well as low and medium SES of residence (reflected in the odds ratio of these groups in the regression

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Table II. Multinomial regression model for predictors of obesity (BMI=29.4 or higher).

	B	SE	OR (95% CI)	Significance
Birth Year (reference category 1950–1961)				
1962–1973	0.320	0.068	1.377 (1.206–1.573)	0.0001
1974–1986	0.976	0.060	2.653 (2.358–2.985)	0.0001
Education (reference category 11+ years)				
Low (1–8 years)	0.450	0.027	1.568 (1.486–1.654)	0.0001
Medium (9–10 years)	0.291	0.018	1.337 (1.290–1.386)	0.0001
Socioeconomic status of residence (reference category 8–10)				
Low (1–4)	0.306	0.034	1.358 (1.271–1.452)	0.0001
Medium (5–7)	0.194	0.016	1.214 (1.176–1.254)	0.0001
Country of origin (reference category Israel)				
Asia-Africa	-0.594	0.059	0.552 (0.492–0.620)	0.0001
USSR	0.266	0.076	1.305 (1.124–1.514)	0.0001
Western	0.354	0.059	1.424 (1.269–1.598)	0.0001
Interaction terms				
Birth year 1962–1973 and Asia-Africa origin	0.305	0.075	1.357 (1.172–1.571)	0.0001
Birth year 1974–1986 and Asia-Africa origin	0.492	0.066	1.635 (1.436–1.862)	0.0001
Birth year 1962–1973 and USSR origin	-0.117	0.095	0.890 (0.738–1.072)	0.220
Birth year 1974–1986 and USSR origin	-0.147	0.082	0.864 (0.735–1.015)	0.075
Birth year 1962–1973 and Western origin	-0.270	0.075	0.763 (0.659–0.885)	0.0001
Birth year 1974–1986 and Western origin	-0.310	0.066	0.734 (0.644–0.835)	0.0001

Goodness of Fit: Pearson Chi Square 1483.991 df 276 significance 0.0001.

BMI: Body mass index, SE: Standard error.

model). This finding is concordant with reports from other countries on the association between low SES and obesity rates (18,47–50).

A significant finding of this study are the disparities in temporal trends in the likelihood of obesity over time. The multinomial logistic regression analysis revealed that among adolescents of Asia-Africa origin, the likelihood of obesity increased more steeply over time compared with other groups of adolescents (as reflected in the statistically significant positive odds ratios of the interaction terms between birth year categories and Asia-African origin). The interaction terms between birth year categories and USSR origin were not statistically significant and the interaction terms between birth year categories and Western origin were negative. Although the social status of the Asian-African origin group has improved as they have assimilated into the Israeli society, they remain a disadvantaged group with lower levels of education and income (30,51), and lower social status related to the ethnic/cultural identity of non-Western (“Oriental”) origin (52). The more rapid growth in the likelihood of obesity among disadvantaged groups is consistent with US findings that compared change in crude rates of obesity (without controlling for confounders) among children and adolescents in low-income families and of African-American origin (2,6).

We found an increased risk for obesity over time in the Asian-African group, after controlling for SES and education level. This may be related to genetic/biological factors that make this group less tolerant to modern processed foods, which they have begun to consume as they became more acculturated in the Israeli society, and moved away from their traditional diet (53,54). Another reason may be the effects of chronic stress associated with membership in lower social strata groups (55,56) and the increase in social inequality in Israel (57) as measured by the Gini index, which is defined as the arithmetic average of the absolute differences between all pairs of incomes in a population with the total then normalized on mean income. Thus, if income is distributed completely equally the Gini value is zero. Social inequality is associated with negative health related behaviors (58). This is consistent with studies that have shown that the negative effect of inequality on health conditions is stronger among disadvantaged groups (59,60).

The causes of the observed increase in the prevalence of obesity among entire populations are uncertain. Possible explanations have included the increasing availability of calorie-rich foods and soft drinks with a concomitant rise in the prices of vegetables and fruits and life-style changes (e.g., increase in labor-saving devices, changes in work

and entertainment patterns, changes in the family's increasing demand for pre-prepared foods). Environmental and social changes limiting physical activity and increase in sedentary activities, such as watching TV and using computers (2,9,61–63), have also been noted. Other possible explanations relate to changes in cultural norms and expectations regarding weight standards (2,9,62).

The more rapid increase in the likelihood of obesity over time in a disadvantaged ethnic group, as found in our study, may be related to the above explanatory factors. They may be more vulnerable to the effects of these factors. However, future studies are needed to examine specific associations between societal changes and differential *temporal trends* of obesity in different population groups.

The main advantage of our study is its avoidance of some of the limitations of previous epidemiological studies of obesity trends noted by Subramanian and Kawachi (64). First, we have estimated the effect of time on prevalence of obesity separately from the effect of confounders (SES, education and country of origin). Second, we did not only compare obesity rates *between* different groups, but also compared trends in the likelihood of obesity *within* each group controlling for other background variables, using multivariate analysis, and thus have disentangled the effect of ethnic origin and SES.

Nevertheless, we should note the limitations of our study. First, our SES measure is at the locality level, rather than the individual level; the database does not include information on family income, or parents' education and profession. Second, our database does not include environmental, social and cultural variables that may affect growth in obesity rates over time.

The findings of this study among Israeli adolescents suggests that disadvantaged ethnic groups may be at a higher risk than previously estimated because of the increase of obesity, regardless of the current prevalence of obesity. Our study thus underscores the need for future studies to examine factors affecting obesity growth rates in different populations. On a national level, health services in Israel should consider Asia-African origin as a distinct risk factor for obesity even though current obesity rates are still lower than in other groups, and target interventions to restrict growing rates of obesity among this group of adolescents.

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### References

1. WHO. Obesity: Preventing and Managing the Global Epidemic – Report of a WHO Consultation. 894. 2000. Technical Report Series.
2. Anderson PM, Butcher KF. Childhood Obesity: Trends and Potential Causes. *Future Child* 2006;16(1):19–45.
3. Lissau I, Overweight and Obesity Epidemic Among Children. Answer from European Countries. *Int J Obes Relat Metab Disord* 2004;28:510–515.
4. Starfield B, Riley A, Witt W, Robertson J. Social Class Gradients in Health during Adolescence. *J Epidemiol Community Health* 2002;56:354–361.
5. Dietz WH. Critical Periods in Childhood for the Development of Obesity. *Am J Clin Nutr* 1994;59:959.
6. Delva J, O'Malley PM, Johnston LD. Racial/Ethnic and Socioeconomic Status Differences in Overweight and Health-related Behaviors among American Students: National Trends 1986–2003. *J Adolesc Health* 2006;39:536–545.
7. Kahn HS, Tatham LM, Pamuk ER, Heath Jr. CW. Are Geographic Regions with High Income Inequality Associated with Risk of Abdominal Weight Gain? *Soc Sci Med* 1998; 47(1):1–6.
8. Ministry of Health Food and Nutrition Services Mabat Youth, First Israeli National Health and Nutrition Survey in 7th-12th grade students 2003-2004, The Israel Center for Disease Control, 2006. Publication No. 240 Jerusalem, Israel
9. Chang VW, Lauderdale DS. Income Disparities in Body Mass Index and Obesity in the United States, 1971–2002. *Arch Intern Med* 2005;165:2122–2128.
10. Kautiainen S, Rimpela A, Vikat A, Virtanen SM. Secular Trends in Overweight and Obesity among Finnish Adolescents in 1977–1999. *Int J Obes Relat Metab Disord* 2002; 26(4):544–552.
11. Sarlio-Lahteenkorva S, Silventoinen K, Lahti-Koski M, Laatikainen T, Jousilahti P. Socio-economic Status and Abdominal Obesity among Finnish Adults from 1992-2002. *Int J Obes Relat Metab Disord* 2006;30:1653–1660.
12. Molarius A, Seidell JC, Sans S, Tuomilehto J, Kuulasmaa K. Educational Level, Relative Body Weight, and Changes in their Association over 10 Years: An International Perspective from the WHO Monica Project. *Am J Public Health* 2000; 90(8):1260–1268.
13. Peneau S, Salanave B, Maillard-Tayssier L, et al. Prevalence of Overweight in 6-15 Year Old Children in Central/Western France from 1996 to 2006: Trends towards Stabilization. *Int J Obes Relat Metab Disord* 2009;doi:10.1038.
14. Sundblom E, Petzold M, Rasmussen F, Callmer E, Lissner I. Childhood Overweight and Obesity Prevalences levelling off in Stockholm but Socioeconomic Differences Persist. *Int J Obes Relat Metab Disord* 2008;32:1525–1530.
15. Johnson CA, Xie B, Liu C, et al. . Socio-Demographic and Cultural Comparison of Overweight and Obesity Risk and Prevalence in Adolescents in Southern California and Wuhan, China. *J Adolesc Health* 2006;39(6):925.e1–925.e8.
16. Zhang Q, Wang Y. Using Concentration Index to Study Changes in Socio-Economic Inequality of Overweight among US Adolescents Between 1971-2002. *Int J Epidemiol* 2007;36: 916–925.

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17. Scharoun-Lee M, Adair LS, Kaufman JS, Gordon-Larsen P. Obesity, Race/Ethnicity and the Multiple Dimensions of Socioeconomic Status During the Transition to Adulthood: A Factor Analysis Approach. *Soc Sci Med* 2009;68(4): 708–716.
18. Wardle J, Henning Brodersen N, Cole TJ, Jarvis MJ, Boniface DR. Development of Adiposity in Adolescence: Five Year Longitudinal Study of an Ethnically and Socioeconomically Diverse Sample of Young People in Britain. *BMJ* 2006;332: 1130–1135.
19. Martikainen PT, Marmot MG. Socioeconomic Differences in Weight Gain and Determinants and Consequences of Coronary Risk Factors. *Am J Clin Nutr* 1999;69: 719–726.
20. Sarlio-Lahteenkorva S, Silventoinen K, Lahelma E. Relative Weight and Income at Different Levels of Socioeconomic Status. *Am J Public Health*. 2004;94(3):468–472.
21. Bramley D, Hebert P, Tuzzio L, Chassin M. Disparities in Indigenous Health: A Cross-Country Comparison between New Zealand and the United States. *Am J Public Health* 2005;95(5):844–850.
22. Ogden CL, Fryar CD, Carroll MD, Flegal KM. Mean Body Weight, Height, and Body Mass Index, United States 1960–2002. *CDC Advance Data* 2004;347:1–20.
23. Wang Y, Zhang Q. Are American Children and Adolescents of Low Socioeconomic Status at Increased Risk of Obesity? Changes in the Association between Overweight and Family Income between 1971 and 2002. *Am J Clin Nutr* 2006;84(4): 707–716.
24. Wang Y. Cross-national Comparison of Childhood Obesity: the Epidemic and the Relationship between Obesity and Socioeconomic Status. *Int J Epidemiol* 30(5):1129–1137.
25. Gross R, Brammli-Greenberg S, Gordon B, Rabinowitz J, Afek A. Population-based Trends in Male Adolescent Obesity in Israel 1967–2003. *J Adolesc Health* 2009;44(2): 195–198.
26. Kromeyer-Hauschild K, Zellner K. Trends in Overweight and Obesity and Changes in the Distribution of Body Mass Index in Schoolchildren of Jena, East Germany. *Eur J Clin Nutr* 2007;61(3):404–411.
27. Magkos F, Manios Y, Christakis G, Kafatos AG. Age-dependent Changes in Body Size of Greek Boys from 1982 to 2002. *Obesity* 2006;14(2):289–294.
28. Rzehak P, Heinrich J. Development of Relative Weight, Overweight and Obesity from Childhood to Young Adulthood. A Longitudinal Analysis of Individual Change of Height and Weight. *Eur J Epidemiol* 2006;21(9):661–672.
29. Booth ML, Dobbins T, Okely AD, Denney-Wilson E, Hardy LL. Trends in the Prevalence of Overweight and Obesity Among Young Australians, 1985, 1987, and 2004. *Obesity (Silver Spring)* 2007;15(5):1089–1095.
30. Friedlander D, Okun BS, Eisenbach Z, Elmakias LL. Immigration, Social Change and Assimilation: Educational Attainment among Birth Cohorts of Jewish Ethnic Groups in Israel, 1925–29 to 1965–69 Population Studies 2002;56(2): 135–150.
31. Metz HC. Israel: A Country Study. Washington: GPO for the Library of Congress, 1988. <http://countrystudies.us/israel/>
32. Dashefsky A, Lazerwitz B. North American Migration to Israel: Stayers and Leavers. *Contemporary Jewry* 1986; 7(1):43–63.
33. Shamai S, Ilatov Z. Acculturation Models of Immigrant Soviet Adolescents in Israel. *Adolescence* 2005;40 (159): 629–644.
34. Friedberg R. The Impact of Mass Migration on the Israeli Labor Market The Quarterly Journal of Economics 2001; 116 (4):1373–1408.
35. Gross R, Brammli Greenberg S, Remenick L. Self-Rated Health Status and Health Care Utilization Among Immigrant and Non-immigrant Israeli Jewish Women. *Women Health* 2001;34(3):53–69.
36. Ott JJ, Paltiel AM, Becher H. Noncommunicable Disease Mortality and Life Expectancy in Immigrants to Israel from the Former Soviet Union: Country of Origin Compared with Host Country. *Bull World Health Organ* January 2009; 87(1).
37. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a Standard Definition for Child Overweight and Obesity Worldwide: International Survey. *BMJ* 2000;320(7244): 1240–1243.
38. Cole TJ, Flegal KM, Nicholls D, Jackson AA. Body Mass Index Cut Offs to Define Thinness in Children and Adolescents: International Survey. *BMJ* 2007;335(7612):194.
39. Central Bureau of Statistics 2003 Classification of Municipalities by the Socio-economic Characteristics of the Population, ISSN 1281, Jerusalem, Israel.
40. Statistical Package for the Social Sciences 12.01, SPSS Inc. Chicago Ill.
41. Kertzman H, Livshitz G, Green MS. Ethnic Differences in Indices of Body Mass and Body Fat Distribution in Israel. *Int J Obes Relat Metab Disord* 1994;18(2):69–77.
42. Shahar D, Shai I, Vardi H, Brenner-Azrad A, Fraser D. Development of a Semi-quantitative Questionnaire (FFQ) to Assess Dietary Intake of Multiethnic Populations. *Eur J Epidemiol* 2003;18:855–861
43. Nelson JA, Chiasson MA, Ford V. Childhood Overweight in a New York City WIC Population. *Am J Public Health* 2004;94:458–462.
44. Leyk D, Rohde L, Gorges W, et al. Physical Performance, Body Weight and BMI of Young Adults in Germany 2000–2004: Results of the Physical-Fitness Test Study. *Int J Sports Med* 2006;27(8):642–647.
45. Singh GK, Kogan MD, van Dyck PC. A Multilevel Analysis of State and Regional Disparities in Childhood and Adolescent Obesity in the United States. *J Community Health* 2008;33:90–102.
46. Hoetscher DM, Day RS, Lee ES, et al. Measuring the Prevalence of Overweight in Texas Schoolchildren. *Am J Public Health* 2004;94:1002–1008.
47. Stafford M, Cummins S, Ellaway A, et al. Pathways to Obesity: Identifying Local, Modifiable Determinants of Physical Activity and Diet. 2007. *Soc Sci Med* 2007;65(9): 1882–1897.
48. Drewnowski A, Rehm CN, and Solet D. Disparities in Obesity Rates: Analysis by Zip Code Area. *Soc Sci Med* 2007;65(12):2458–2463.
49. Wang Y, Beydoun MA. The Obesity Epidemic in the United States – Gender, Age, Socioeconomic, Racial/Ethnic, and Geographic Characteristics: A Systematic Review and Meta-regression Analysis. *Epidemiol Rev* 2007;29:6–28.
50. Lien N, Kumar BN, Holmboe-Ottesen G, Klepp KI, Wandel M. Assessing Social Differences in Overweight among 15 to 16 Year Old Ethnic Norwegians from Oslo by Register Data and Adolescent Self-Reported Measures of Socio-Economic Status. *Int J Obes Relat Metab Disord* 2007;31:30–38.
51. Lissak M, Horowitz D. Trouble in Utopia: the Overburdened Polity of Israel. Tel Aviv: Am Oved, 1990:69–141.
52. Khazzoom A. The Great Chain of Orientalism: Jewish Identity, Stigma Management, and Ethnic Exclusion in Israel. *American Sociological Review* 2003;68(4):481–510.
53. Goldbourt U. Geographic Origin of Jewish Migrants, Period of Immigration and Diversity of Acculturation: Is Israel a Cardiovascular Melting Pot? *Israel Medical Association Journal* 2002;4:370–372.

54. Trostler N. Health risks of immigration: the Yemenite and Ethiopian cases in Israel. *Biomed Pharmacother* 1997;51(8):352–359.
55. Cohen DA, Farley TA, Mason K. Why is poverty unhealthy? Social and physical mediators. *Soc Sci Med* 2003;57(9):1631–1641.
56. Thorpe RJ, Brandon DT, LaVeist, TA. Social context as an explanation for race disparities in hypertension: findings from the Exploring Health Disparities in Integrated Communities (EHDIC) study. *Soc Sci Med* 2008;67(10):1604–1611.
57. National Insurance Institute Annual Reports, State of Israel, Jerusalem.
58. Wilkinson RG, Pickett KE. Income inequality and population health: A review and explanation of the evidence. *Soc Sci Med* 2006;62:1768–1784.
59. Dahl E, Elstad JI, Hofoss D, Martin-Mollard M. For whom is income inequality most harmful? A multi-level analysis of

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- income inequality and mortality in Norway. *Soc Sci Med* 2006;63:2562–2574.
60. Pickett KE, Kelly S, Brunner S, Lobstein T, Wilkinson RG. Wider income gaps, wider waistbands? An ecological study of obesity and income inequality. *J Epidemiol Community Health* 2005;59:670–674.
61. Bassett MT, Perl S. Obesity: The Public Health Challenge of Our Time. *Am J Public Health* 2004;94(9):1477.
62. Finkelstein EA, Ruhm CJ and Kosa KM. Economic Causes and Consequences of Obesity. *Annu Rev Public Health* 2005;26:239–257.
63. Sturm R. Childhood Obesity – What We Can Learn From Existing Data on Societal Trends, Part 1. *Preventing Chronic Disease* 2005;2(1):1–9.
64. Subramanian SV, Kawachi I. Income Inequality and Health: What Have We Learned So Far? *Epidemiol Rev* 2004;26:78–91.

**Supplementary material available online**

Appendix 1

# **Disparities in Antidepressant Adherence in Primary Care: Report from Israel**

Liat Ayalon, Revital Gross, Aviv Yaari,  
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## Disparities in Antidepressant Adherence in Primary Care: Report From Israel

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Ran D. Balicer, MD, PhD, MPH; and Margalit Goldfracht, MD

**Objectives:** To evaluate patient and physician characteristics associated with the purchase of antidepressant medication for at least 6 months.

**Study Design and Methods:** Clalit Health Services is the largest managed care health fund in Israel, a country that uses a universal healthcare system. We randomly sampled 30,000 primary care patients over the age of 22 years. Our analytic sample consisted of those 949 patients who did not purchase antidepressant medication during the last quarter of 2005 and purchased antidepressant medication at least once in 2006. We used multilevel analysis, with whether or not medication was purchased for at least 6 months as an indicator of adherence. Patient and physician characteristics were evaluated as potential predictors.

**Results:** Only 23% of the sample was classified as adherent. Physician characteristics explained only a small portion of the variance in adherence and, as a result, were not included in multivariate analysis. Patients who did not have a somatic diagnosis, had a depression diagnosis, and were of higher socioeconomic status were more likely to be classified as adherent. Patients who purchased tricyclic antidepressants were less likely to be classified as adherent.

**Conclusions:** The findings suggest that in a managed care setting, there is high uniformity among physicians. Although physician characteristics explain little of the variability associated with adherence, certain patient characteristics as determined by their physicians (eg, antidepressant drug class, psychiatric diagnosis) do play a role in adherence.

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For author information and disclosures,  
see end of text.

The public health costs associated with untreated or undertreated depression or anxiety are substantial.<sup>1,4</sup> Primary care providers serve as the main gatekeepers for mental health problems in Israel as in other countries,<sup>5</sup> with both depression and anxiety being most often managed in primary care clinics by primary care providers.<sup>6-8</sup> Fortunately, the past few decades have seen a tremendous improvement in the management of depression and anxiety.<sup>9,10</sup> According to current clinical guidelines, the first line of treatment for the management of either depression or anxiety should be an antidepressant such as a serotonin reuptake inhibitor (SSRI) or a serotonin-norepinephrine reuptake inhibitor. Older antidepressant medications, such as tricyclic antidepressants (TCAs) or monoamine oxidase inhibitors, may also be indicated for specific populations or as augmentation therapy.<sup>11</sup> Clinical guidelines recommend the use of these agents for a minimum of 6 consecutive months in order to achieve adequate efficacy and stabilize the psychiatric condition.<sup>11-14</sup>

Despite the documented efficacy of these pharmacologic agents in the management of depression and anxiety, reports of nonadherence are staggering.<sup>15-17</sup> Studies have shown that more than 30% of the patients discontinue their medications within the first 4 weeks of treatment<sup>15,18</sup> and more than 60% discontinue within the first 6 months.<sup>16</sup>

Reasons for nonadherence vary and may relate to patient, drug, and provider characteristics. Studies that have focused primarily on patient characteristics found that individuals of ethnic minority background, younger or older adults,<sup>19</sup> individuals of lower socioeconomic status (SES),<sup>17,18</sup> and those with a personality, substance use,<sup>19</sup> somatization, depression, or anxiety diagnosis<sup>20</sup> are less likely to adhere to their regime. In contrast, others found that carrying a dual depression and anxiety diagnosis results in better adherence.<sup>21</sup> Beliefs concerning psychotropic medications,<sup>22,23</sup> the stigma of mental illness,<sup>24</sup> or a mismatch between patients' preferred and assigned treatment<sup>25</sup> have also been shown to be barriers to adherence. In addition, the side effect profile of a particular drug<sup>26</sup> is of importance, with certain psychotropic drugs resulting in lower adherence than others.<sup>17,18,27</sup>

It has been argued that physicians' knowledge about appropriate treatments, and their ability to establish rapport, assess patients' attitudes, and

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provide appropriate consultation and information are all essential for establishing appropriate adherence.<sup>28</sup> Hence, as expected, physician characteristics have also shown to be associated with adherence to antidepressant medication. Whereas some found that receiving services from providers with a mental health specialty results in better adherence to psychotropic medication,<sup>21,29</sup> others noted that simply providing patients with educational messages concerning the importance of the medication improves adherence.<sup>30</sup> Using a guideline-concordant follow-up<sup>13</sup> or concurrent psychotherapy<sup>31</sup> was also associated with improved adherence. Nevertheless, several different interventions specifically geared toward increasing adherence to psychotropic medication were found to be largely ineffective,<sup>32</sup> leading researchers to argue for a need for a substantial shift in services at the organizational level in order to improve adherence.<sup>33</sup> Thus, questions have arisen about the provider role in improving adherence to psychotropic medications.

Although informative, the majority of research to date focused either on patient characteristics or on provider characteristics as facilitators of adherence, but did not take both into account simultaneously. In addition, results are still equivocal with regard to the role of primary care physicians as facilitators of adherence to antidepressant medications. Moreover, the majority of research was conducted in countries that do not use a universal healthcare system. Thus, although we know that the prohibitive costs of psychotropic medications may be a potential barrier for some patients,<sup>34</sup> we do not know whether disparities in adherence continue in the absence of financial constraints to the patient.

The present study provided a unique opportunity to evaluate patient and provider characteristics associated with adherence to antidepressant medications in primary care clinics in Israel, a country that uses a universal healthcare system, providing a comprehensive, uniform basket of services that includes psychotropic medications, but not psychotherapy.<sup>35</sup> We used a comprehensive computerized medical registry of Clalit Health Services, the largest healthcare fund in Israel, which insures 53% of the Israeli population and operates as a managed care organization. Under the Israeli system, the primary care provider is considered responsible for all patient healthcare needs. The provider is responsible for the care of a defined number of patients and refers patients for consults as needed. Based on expert recommendations, the primary care provider determines patients' treatment. The database includes information on patient characteristics as well as pri-

### Take-Away Points

Characteristics of patients and physicians at Israel's largest HMO were evaluated as potential predictors of antidepressant adherence (ie, the medication was purchased for 6 months or longer).

- Only 23% of the patient sample was classified as adherent.
- Although physician characteristics explain little of the variability in adherence, certain patient characteristics as determined by their physicians (eg, antidepressant drug class, psychiatric diagnosis) do play a major role in adherence.
- Even in a country that has universal healthcare, population group differences exist and are associated with socioeconomic status.

mary care provider characteristics, thus allowing a distinctive analysis of the actual purchasing behavior of patients instead of relying on self-reports, which have known limitations, in particular regarding sensitive issues.<sup>36</sup>

Based on past research concerning nonadherence to psychotropic medications, we expected both patient and physician characteristics to be associated with nonadherence. Specifically, we expected older and younger individuals as well as ethnic minorities to show higher levels of nonadherence. We also expected those who did not carry a psychiatric diagnosis to have lower levels of adherence. We expected physician specialty to be associated with adherence (ie, patients of physicians who specialize in family medicine would demonstrate higher levels of adherence). This expectation was based on past research, which has shown that family medicine physicians are more likely than internal medicine physicians to manage depression by themselves.<sup>37</sup>

## METHODS

We randomly sampled 30,000 primary care patients over the age of 22 years as of January 2006 from Clalit Health Services' computerized medical registry. Of these patients, 591 died in 2006 and 4446 had incomplete physician data. Thus, the source sample consisted of 25,086 primary care patients. (These are not mutually exclusive; one can have missing values and be dead at same time.) Of these, 1219 had a documented purchase of antidepressant medication in the last quarter of 2005 and were excluded from analysis. Our study group consisted of the 949 patients who did not purchase antidepressant medication during the last quarter of 2005, but did purchase antidepressant medications at least once in 2006.

### Measures

Clalit Health Services uses a computerized medical registry that contains both patient and physician data. All physician visits are recorded in this registry and are matched with

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pharmacy data using patient and physician unique IDs. For the purpose of the study, data were deidentified to prevent patients' breach of confidentiality.

**Adherence to Antidepressant Medications.** We extracted data regarding antidepressant (eg, SSRIs, TCAs, other) purchase. Adherence to a new antidepressant regime was defined as no purchases of antidepressant medication in the last quarter of 2005, followed by at least 6 months of purchase starting in 2006. Although purchasing is not necessarily synonymous with adherence as indicated by actual usage of the medication, it does indicate an active decision on the part of the patient and involves a financial investment. In addition, once antidepressants are purchased for 3 months or longer, they are considered a chronic medication by Clalit Health Services. As such, they are listed in all patient-related correspondence. According to the clinical guidelines of Clalit Health Services, discontinuation of a chronic medication is not automatic, but instead requires a discussion between patient and provider.

### Patient-Level Predictors

**Demographic Information.** Age, sex, birth country, and number of years in Israel are listed in the registry based on patients' self-report during their first visit.

**The Charlson Comorbidity Index.** The Charlson Comorbidity Index (CCI) score uses both the number and seriousness of medical conditions to predict mortality. The CCI includes 19 medical conditions that are weighted on a scale of 1 to 6 based on their 12-month relative mortality risk, with total scores ranging from 0 to 37. Because age was found to be an independent risk factor for mortality, one score is added to the CCI total score for each decade of life over the age of 50 years.<sup>38</sup> Past research has recommended the use of the CCI as a continuous measure rather than a categorical one, in order to refine its ability to distinguish between patients.<sup>39</sup> This score is calculated by Clalit Health Services' medical division for all primary care patients, adjusted for their age.

**Somatic Diagnosis.** A list of common nonpsychiatric somatic conditions that may indicate a psychiatric condition was constructed by the authors based on the medical literature.<sup>40-44</sup> These conditions include the various types of arthritis pain, head and back pain, abdominal pain, and insomnia. The presence of any of these diagnoses was classified as a somatic diagnosis.

**Psychiatric Diagnosis.** Mood disorders, anxiety disorders, adjustment disorders, and somatoform disorders were included under this category, using the *International Classification of Diseases, 10th Edition*, codes. We excluded post-traumatic stress disorder, obsessive compulsive disorder, bipolar disorder, and body dysmorphic disorder, as our aim was to focus on psychiatric conditions that are within the mandate of Clalit's primary care physicians,<sup>11,45</sup> rather than psychiatrists.

**Medication Type.** Medications were classified into 4 groups: SSRIs, TCAs, other, or a combination of at least 2 of these classes.<sup>11</sup>

**Socioeconomic Status.** Socioeconomic status (low, medium, high) was based on the Israeli Central Bureau of Statistics classification.<sup>46</sup> Although these data are available at the primary care clinic level and not at the patient level, they are considered a good proxy of patient SES.<sup>47,48</sup> The vast majority of patients are registered in neighborhood clinics; thus, the SES of clinics reflects that of the patients' place of residence.

**Population Group.** Individuals were classified as Arabs or Jews based on Clalit Health Services' classification of primary care clinics into locations that serve at least 70% Israeli Jews versus Israeli Arabs. Although these data are available at the primary care clinic level, they are considered a good proxy of patients' ethnicity, given Israel's highly segregated nature.<sup>49</sup>

### Physician-Level Predictors

Physician age, sex, place of birth, number of years in the country, number of years of experience, and specialty (none, family, other) were available from employee records.

### Analysis

We first conducted univariate and bivariate analyses. Next, we conducted multilevel analysis, with patient-level data representing the first level of predictors (eg, patient age, sex, SES) and physician-level data (eg, physician age, sex, number of years in the country) representing the second level of predictors. The outcome variable was whether or not antidepressant medications were purchased for at least 6 months starting in 2006 with no purchases in the last quarter of 2005.

The first step of a multilevel analysis used an empty model with physician random effect. This model estimated the outcome per physician rather than per patient. This analysis yielded an intraclass correlation (ICC) score, which ranged between 0% and 100%. The ICC reflected the degree to which patients of the same physician were more similar to one another than to patients of other physicians. Thus, it reflected the proportion of the total variance that was due to differences between physicians. If the ICC is relatively large, a multilevel analysis is justified. On the other hand, if the ICC is relatively low, a multilevel analysis is unjustified, and analysis should take into consideration only patient-level variables (ie, level 1). As a rule of thumb, ICCs of .05, .10, and .15 represent small, medium, and large effect sizes, respectively.<sup>50</sup>

Given the binary nature of the outcome, we used the linear threshold model to obtain an ICC.<sup>51</sup> Following the calculation of ICC (which was less than 1%), logistic analysis was conducted with the purchase of antidepressant medica-

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tions for at least 6 months as an outcome. Only significant predictors identified in bivariate analyses were entered into the model.

## RESULTS

The final sample consisted primarily of women (63%); most patients were over the age of 46 years (72%). The sample consisted primarily of Jews born in Israel (34.8%) or in East Europe (24%). Most of the sample had no psychiatric diagnosis (69.3%) and most purchased SSRIs (57%). The majority of physicians were female (54.8%) and were born in East Europe or the former Soviet Union (54.8%). Most had a specialty in family medicine (51.4%). See **Table 1**.

Only 23% of the sample was classified as adherent. In bivariate analysis, those purchasing for 6 months or longer were less likely to have a somatic diagnosis, more likely to have a psychiatric diagnosis, and more likely to purchase SSRIs or combined psychotropics. They also were more likely to be of higher SES. See **Table 1**.

Results of logistic regression analysis revealed that those who did not have a somatic diagnosis, had a diagnosis of depression, and were of higher SES were more likely to be classified as adherent. In addition, compared with those purchasing SSRIs, those purchasing TCAs were less likely to be classified as adherent. See **Table 2**.

## DISCUSSION

The present study evaluates patient and provider characteristics associated with adherence to antidepressant medications. This study is unique for several reasons. First, we evaluated patient and provider characteristics simultaneously in an attempt to identify their exclusive roles in adherence. Second, we used a representative sample of patients of the largest managed care organization in Israel, a country that uses a universal healthcare system, thus eliminating financial barriers to patients. As a result, we could evaluate disparities, which may stem from reasons other than patients' financial status. Third, we evaluated purchasing data rather than self-report data concerning nonadherence, and thus were more likely to get an accurate estimation of nonadherence. Finally, the focus on all patients who purchased antidepressant medications rather than only on those diagnosed with depression or anxiety was valuable, given the tendency to underdocument mental illness in primary care.<sup>7</sup>

The most notable finding of the present study is that only 23% of patients purchasing antidepressant medications were classified as adherent. This figure likely represents an under-

estimate of nonadherence, given the fact that patients who were prescribed antidepressant medications, but for some reason did not purchase the medications even once, were not included in our analysis. Findings suggest that even in a country that uses a universal healthcare system, nonadherence is substantial.

Our findings show that those patients who had a documented depression diagnosis were more likely to adhere to their medication regime, whereas those with a somatic diagnosis were less likely to adhere. Possibly, when a psychiatric diagnosis such as depression is documented in a patient's medical record, the patient tends to agree with the psychiatric diagnosis and thus is also more likely to agree with psychiatric treatment. On the other hand, a somatic diagnosis likely is assigned to patients who are less accepting or are less willing to view their problems as psychiatric in nature and thus also are less accepting of psychotropic medications.

An important finding of the present study is the fact that physician characteristics play only a minor role in patients' adherence. Whereas this study contradicts some research that argued for the important role of the provider,<sup>29,30</sup> it does support other studies that found the provider's role to be of lesser importance.<sup>33</sup> This finding may be explained in several ways. First, we focused on purchasing behaviors and not on prescription patterns. Thus, most of the variability associated with purchasing was expected to be associated with patient characteristics rather than provider characteristics. In addition, some patient characteristics that have shown to be associated with adherence are actually determined by the provider (eg, chart diagnosis, class of medication purchased). Hence, providers likely do play an indirect role in patients' purchasing patterns. Finally, lack of variance between physicians may be accounted for by the organizational setting—all worked in a managed care organization that uses specific guidelines for the management of mental illness.

A striking finding of this study is the fact that individuals of higher SES were more likely to purchase their medications for at least 6 months. Although SES may serve as a proxy of education as well as of more accepting attitudes toward mental health treatment, it is still possible that financial constraints limit adherence to antidepressant medications in individuals of lower SES. This finding is particularly surprising given the fact that the healthcare system in Israel is designed to ensure universal access to services, including antidepressant medications.

Finally, our study showed that patients were less likely to purchase TCAs than SSRIs for a period of 6 months or longer. This finding could be explained by the side effect profile of the TCAs and is consistent with findings demonstrating a

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■ **Table 1.** Characteristics of Patients Who Purchased Antidepressant Medications

Characteristics	Total (n = 949)	Purchased for Fewer Than 6 Consecutive Months (n = 722)	Purchased for at Least 6 Consecutive Months (n = 219)	P
<b>Patient</b>				
Female	600 (63.2%)	459 (63.0%)	141 (64.1%)	.41
Age, y				.31
22-45	265 (27.9%)	212 (29.1%)	53 (24.1%)	
46-65	346 (36.5%)	264 (36.2%)	82 (37.3%)	
>65	338 (35.6%)	253 (34.7%)	85 (38.6%)	
<b>Population group</b>				.07
Jews born in Israel	330 (34.8%)	253 (35.4%)	77 (35.2%)	
Arabs	79 (8.3%)	65 (9.1%)	14 (6.4%)	
Jews born in Eastern Europe or the Former Soviet Union	228 (24.0%)	173 (24.2%)	55 (25.1%)	
Jews born in Europe or America	52 (5.5%)	32 (4.5%)	20 (9.2%)	
Jews born in Asia or Africa	244 (25.7%)	191 (26.8%)	53 (24.2%)	
<b>Years in Israel</b>				.35
>10	910 (95.9%)	696 (96.4%)	214 (97.3%)	
<b>Charlson Comorbidity Index score, mean (SD)</b>	2.8 (2.6)	2.85 (2.5)	2.98 (2.6)	.51
<b>Somatic diagnosis</b>	555 (58.5%)	446 (61.2%)	109 (49.5%)	<.01
<b>Psychiatric diagnosis</b>				<.001
None	658 (69.3%)	534 (73.3%)	124 (56.4%)	
Other	9 (.9%)	6 (.8%)	3 (1.4%)	
Depression	157 (16.5%)	102 (14.0%)	55 (25.0%)	
Anxiety	48 (5.1%)	34 (4.7%)	14 (6.4%)	
Combined	77 (8.1%)	53 (7.3%)	24 (10.9%)	
<b>Type of drug</b>				<.001
Combined	83 (8.7%)	56 (7.7%)	27 (12.3%)	
TCA	270 (28.5%)	243 (33.3%)	27 (12.3%)	
SSRI	542 (57.1%)	389 (53.4%)	153 (69.5%)	
Other	54 (5.7%)	41 (5.6%)	13 (5.9%)	
<b>Socioeconomic status</b>				.002
Low	379 (39.9%)	313 (43.4%)	66 (30.1%)	
Medium	396 (41.7%)	291 (40.3%)	105 (47.9%)	
High	166 (17.5%)	118 (16.3%)	48 (21.9%)	
<b>Physician (n = 640)</b>				
Female	351 (54.8%)			
Age, mean (SD)	49.3 (7.3)			
<b>Birth country</b>				
Israel	214 (33.4%)			
Eastern Europe or the Former Soviet Union	351 (54.8%)			
Europe or America	50 (7.8%)			
Asia or Africa	21 (3.3%)			
<b>No. of years in Israel, mean (SD)</b>	30.6 (15.7)			
<b>No. of years of experience, mean (SD)</b>	15.7 (7)			
<b>Specialty</b>				
None	267 (41.7%)			
Family	329 (51.4%)			
Other	44 (6.9%)			

SSRI indicates selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant.

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tendency to use SSRIs in preference to these drugs.<sup>52</sup> It may also be due to the fact that TCAs are also used for the management of other conditions such as pain which may justify a shorter period of use.<sup>53</sup>

The present study has some limitations that should be noted. First, we evaluated purchasing data, but not actual use. Although our method is likely more reliable than solely relying on self-report, purchasing data may still represent an underestimation of adherence as our data did not include patients who may have been prescribed medication but never filled the prescription or patients who purchased medication but failed to take it as prescribed. It is, however, important to note that the purchase of antidepressant medications does indicate an active decision on the part of the patient and involves a financial investment. In addition, once antidepressants have been purchased for 3 months or longer, they are considered a chronic medication. As such, they are listed in all patient-related correspondence. Discontinuation of a chronic medication is not automatic, but instead requires a discussion between patient and provider. In addition, we were unable to distinguish between continuous purchase and sporadic purchase over the study period, because under the current system, patients are allowed to purchase medications for a period of several months in advance. Second, we did not specifically focus on patients diagnosed with depression and/or anxiety, as was the case in the majority of past research. Thus, it is possible that some patients purchased these medications for reasons other than mental illness, such as pain or smoking cessation. Nevertheless, regardless of indication, antidepressant medications should be used for at least 6 months in order to ensure efficacy.<sup>11</sup> Third, we did not evaluate reasons for discontinuation. Hence, it is likely that some patients discontinued treatment because of medication side effects, whereas others discontinued treatment because of the stigma associated with the medication. Finally, this is a cross-sectional study that did not allow assumptions about cause and effect.

Nevertheless, this study has multiple strengths that outweigh its limitations. Our findings suggest that only 23% of all new patients who purchased antidepressant medications in 2006 did so according to clinical guidelines. Our findings further demonstrate that although physician characteristics explain little in terms of the variability associated with adherence, patient characteristics that were determined by their physicians (eg, presence or absence of a chart diagnosis) do play a major role in adherence. Finally, the findings suggest

■ **Table 2.** Results of Logistic Regression Analysis to Predict Medication Purchase for at Least 6 Months<sup>a</sup>

Patient Characteristics	OR	95% CI
<b>Somatic diagnosis</b>		
None	—	—
Yes	0.68	0.49-0.95
<b>Psychiatric diagnosis</b>		
None	—	—
Other	1.52	0.36-6.38
Depression	1.59	1.19-2.67
Anxiety	1.55	0.79-3.05
Combined	1.69	0.98-2.90
<b>Type of drug</b>		
SSRI	—	—
TCA	0.36	0.22-0.57
Combined	1.29	0.77-2.16
Other	0.70	0.35-1.39
<b>Socioeconomic status</b>		
Low	—	—
Medium	1.68	1.17-2.40
High	1.80	1.15-2.81

CI indicates confidence interval; OR, odds ratio; SSRI, selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant.  
<sup>a</sup>Logistic regression  $\chi^2$  (10) = 68.2,  $P < .001$ .

high uniformity among physicians. This may be the result of Clalit's attempt to direct clinical decisions by disseminating clinical guidelines as well as other administrative measures to ensure adequate care of mental health conditions, which are expected to result in reduced healthcare costs.

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**Authorship Information:** Concept and design (LA, RG, AY, RDB, MG); acquisition of data (AY, EF, RDB, MG); analysis and interpretation of data (LA, RG, EF, MG); drafting of the manuscript (LA, MG); critical revision of the manuscript for important intellectual content (LA, RG, AY, MG); statistical analysis (LA); provision of study materials or patients (MG); obtaining funding (LA, RG, AY, MG); administrative, technical, or logistic support (EF, RDB, MG); and supervision (MG).

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■ CLINICAL ■

## REFERENCES

1. Simon G, Ormel J, VonKorff M, Barlow W. Health care costs associated with depressive and anxiety disorders in primary care. *Am J Psychiatry*. 1995;152(3):352-357.
2. Stewart WF, Ricci JA, Chee E, Hahn SR, Morganstein D. Cost of lost productive work time among US workers with depression [published correction appears in *JAMA*. 2003;290(16):2218]. *JAMA*. 2003;289(23):3135-3144.
3. Rovner BW, German PS, Brant LJ, Clark R, Burton L, Folstein MF. Depression and mortality in nursing homes. *JAMA*. 1991;265(8):993-996.
4. Carta MG, Hardoy MC, Kovess V, Dell'Osso L, Carpiniello B. Could health care costs for depression be decreased if the disorder were correctly diagnosed and treated? *Soc Psychiatry Psychiatr Epidemiol*. 2003;38(9):490-492.
5. Tabenkin H, Gross R, Yaphe Y. The general practitioner as physician of first contact with health problems [in Hebrew]. *Harefuah*. 1995;129(9):297-303, 368.
6. Kroenke K, Spitzer RL, Williams JBW, Monahan PO, Löwe B. Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Ann Intern Med*. 2007;146(5):317-325.
7. Ornstein S, Stuart G, Jenkins R. Depression diagnoses and antidepressant use in primary care practices: a study from the Practice Partner Research Network (PPRNet). *J Fam Pract*. 2000;49(1):68-72.
8. Wittchen HU, Kessler RC, Beesdo K, Krause P, Höfler M, Hoyer J. Generalized anxiety and depression in primary care: prevalence, recognition, and management. *J Clin Psychiatry*. 2002;63(suppl 8):24-34.
9. Arroll B, Macgillivray S, Ogston S, et al. Efficacy and tolerability of tricyclic antidepressants and SSRIs compared with placebo for treatment of depression in primary care: a meta-analysis. *Ann Fam Med*. 2005;3(5):449-456.
10. Davidson JR, Feltner DE, Dugar A. Management of generalized anxiety disorder in primary care: identifying the challenges and unmet needs. *Prim Care Companion J Clin Psychiatry*. 2010;12(2).
11. Tabenkin H, Monitz H, Goldfracht M, Peled O. Clinical guidelines for the diagnosis and treatment of depression in the community. Clalit Health Services (in Hebrew). 2006.
12. Bower P, Gilbody S. Managing common mental health disorders in primary care: conceptual models and evidence base. *BMJ*. 2005;330(7495):839-842.
13. Chen SY, Hansen RA, Gaynes BN, Farley JF, Morrissey JP, Maciejewski ML. Guideline-concordant antidepressant use among patients with major depressive disorder. *Gen Hosp Psychiatry*. 2010;32(4):360-367.
14. Davidson JR, Zhang W, Connor KM, et al. A psychopharmacological treatment algorithm for generalised anxiety disorder (GAD). *J Psychopharmacol*. 2010;24(1):3-26.
15. Fairman KA, Drevets WC, Kreisman JJ, Teitelbaum F. Course of antidepressant treatment drug type, and prescriber's specialty. *Psychiatr Serv*. 1998;49(9):1180-1186.
16. Bull SA, Hunkeler EM, Lee JY, et al. Discontinuing or switching selective serotonin-reuptake inhibitors. *Ann Pharmacother*. 2002;36(4):578-584.
17. Hansen DG, Vach W, Rosholm JU, Søndergaard J, Gram LF, Kragstrup J. Early discontinuation of antidepressants in general practice: association with patient and prescriber characteristics. *Fam Pract*. 2004;21(6):623-629.
18. Ofstom M, Marcus SC, Tedeschi M, Wan GJ. Continuity of antidepressant treatment for adults with depression in the United States. *Am J Psychiatry*. 2006;163(1):101-108.
19. Akerblad AC, Bengtsson F, Holgersson M, von Knorring L, Ekselius L. Identification of primary care patients at risk of nonadherence to antidepressant treatment. *Patient Prefer Adherence*. 2008;2:379-386.
20. Sayuk GS, Elwing JE, Lustman PJ, Clouse RE. Predictors of premature antidepressant discontinuation in functional gastrointestinal disorders. *Psychosom Med*. 2007;69(2):173-181.
21. Stein MB, Cantrell CR, Sokol MC, Eaddy MT, Shah MB. Antidepressant adherence and medical resource use among managed care patients with anxiety disorders. *Psychiatr Serv*. 2006;57(5):673-680.
22. Aikens JE, Nease DE Jr, Nau DP, Klinkman MS, Schwenk TL. Adherence to maintenance-phase antidepressant medication as a function of patient beliefs about medication [published correction appears in *Ann Fam Med*. 2005;3(6):558]. *Ann Fam Med*. 2005;3(1):23-30.
23. Brown C, Battista DR, Bruehlman R, Sereika SS, Thase ME, Dunbar-Jacob J. Beliefs about antidepressant medications in primary care patients: relationship to self-reported adherence. *Med Care*. 2005;43(12):1203-1207.
24. Ayalon L, Areán PA, Alvidrez J. Adherence to antidepressant medications in black and Latino elderly patients. *Am J Geriatr Psychiatry*. 2005;13(7):572-580.
25. Hunot VM, Home R, Leese MN, Churchill RC. A cohort study of adherence to antidepressants in primary care: the influence of antidepressant concerns and treatment preferences. *Prim Care Companion J Clin Psychiatry*. 2007;9(2):91-99.
26. McCann TV, Boardman G, Clark E, Lu S. Risk profiles for non-adherence to antipsychotic medications. *J Psychiatr Ment Health Nurs*. 2008;15(8):622-629.
27. Hotopf M, Hardy R, Lewis G. Discontinuation rates of SSRIs and tricyclic antidepressants: a meta-analysis and investigation of heterogeneity. *Br J Psychiatry*. 1997;170:120-127.
28. McCann DP, Blossom HJ. The physician as a patient educator: from theory to practice. *West J Med*. 1990;153(1):44-49.
29. Simon GE, VonKorff M, Wagner M, Wagner W. Patterns of antidepressant use in community practice. *Gen Hosp Psychiatry*. 1993;15(6):399-408.
30. Lin EH, Von Korff M, Katon W, et al. The role of the primary care physician in patients' adherence to antidepressant therapy. *Med Care*. 1995;33(1):67-74.
31. Croghan TW, Melfi CA, Dobrez DG, Kniesner TJ. Effect of mental health specialty care on antidepressant length of therapy. *Med Care*. 1999;37(4)(suppl 1):AS20-AS23.
32. Brook OH, Van Hout H, Stalman W, et al. A pharmacy-based coaching program to improve adherence to antidepressant treatment among primary care patients. *Psychiatr Serv*. 2005;56(4):487-489.
33. Gilbody S, Whitty P, Grimshaw J, Thomas R. Educational and organizational interventions to improve the management of depression in primary care: a systematic review. *JAMA*. 2003;289(23):3145-3151.
34. Wang PS, Patrick AR, Dormuth CR, et al. The impact of cost sharing on antidepressant use among older adults in British Columbia. *Psychiatr Serv*. 2008;59(4):377-383.
35. Shirom A, Gross R. World health systems: Israel. In: Fried BJ, Gaydos LM, eds. *World Health Systems: Challenges and Perspectives*. Ann Arbor, MI: Health Administration Press; 2002:207-225.
36. Sallis JF, Saelens BE. Assessment of physical activity by self-report: status, limitations, and future directions [published correction appears in *Res Q Exerc Sport*. 2000;71(4):409]. *Res Q Exerc Sport*. 2000;71(2)(suppl):S1-S14.
37. Rabinowitz J, Feldman D, Gross R, Boerma W. Which primary care physicians treat depression? *Psychiatr Serv*. 1998;49(1):100-102.
38. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*. 1987;40(5):373-383.
39. Hall WH, Ramachandran R, Narayan S, Jani AB, Vijayakumar S. An electronic application for rapidly calculating Charlson comorbidity score. *BMC Cancer*. 2004;4:94.
40. Clauw DJ. Pharmacotherapy for patients with fibromyalgia. *J Clin Psychiatry*. 2008;69(suppl 2):25-29.
41. Pary R, Tobias CR, Webb WK, Lippmann SB. Treatment of insomnia: getting to the root of sleeping problems. *Postgrad Med*. 1996;100(5):195-198, 201-210.
42. Finocchi C, Villani V, Casucci G. Therapeutic strategies in migraine patients with mood and anxiety disorders: clinical evidence. *Neurol Sci*. 2010;31(suppl 1):S95-S98.
43. Teasell RW, Mehta S, Aubut JA, et al; Spinal Cord Injury Rehabilitation Evidence Research Team. A systematic review of pharmacologic treatments of pain after spinal cord injury. *Arch Phys Med Rehabil*. 2010;91(5):816-831.
44. Lindsay TJ, Rodgers BC, Savath V, Hettinger K. Treating diabetic peripheral neuropathic pain. *Am Fam Physician*. 2010;82(2):151-158.
45. Goldfracht M, Liebermann N, Gross R. Treating mental distress by primary care staff. Health Policy Monitor, October 2006. Available at <http://www.hpm.org/survey/is/a/8/3>.
46. Central Bureau of Statistics. *Classification of Municipalities by the Socio-economic Characteristics of the Population*. Jerusalem, Israel: Central Bureau of Statistics; 2003.

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47. **Gross R, Brammli-Greenberg S, Gordon B, Rabinowitz J, Afek A.** Disparities in obesity temporal trends of Israeli adolescents by ethnic origin *Int J Pediatr Obes.* 2011;6(2-2):e154-e161.
48. **Gross R, Brammli-Greenberg S, Gordon B, Rabinowitz J, Afek A.** Population-based trends in male adolescent obesity in Israel 1967-2003. *J Adolesc Health.* 2009;44(2):195-198.
49. **Falah G.** Living together apart: residential segregation in mixed Arab-Jewish cities in Israel. *Urban Stud.* 1996;33(6):823-857.
50. **Hox J.** *Multilevel Analysis: Techniques and Application.* Mahwah, NJ: Lawrence Erlbaum; 2002.
51. **Snijders T, Bosker RJ.** *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling.* Thousand Oaks, CA: Sage; 1999.
52. **Anderson IM, Tomenson BM.** Treatment discontinuation with selective serotonin reuptake inhibitors compared with tricyclic antidepressants: a meta-analysis. *BMJ.* 1995;310(6992):1433-1438.
53. **Dharmshaktu P, Tayal V, Kalra BS.** Efficacy of antidepressants as analgesics: a review [published online ahead of print March 17, 2011]. *J Clin Pharmacol.* 2011. ■

## Afterword

*Gary Rosenberg*

Research and interventions, designed to understand and address health disparities and social vulnerability in healthcare, in a global context, are among the 21<sup>st</sup> century's most pressing problems. The five articles in this section by Revital Gross and her colleagues are excellent examples of research designed to better understand the factors affecting the obesity epidemic, disease management, diabetes in primary care, patient adherence to antidepressant medicine in primary care, and the effects on women caregivers of parents and other relatives. The subjects of the studies are important as are the methods used to obtain the results, the global implications of the discussions, and the meaning of the findings for social work practice and education, for other psychosocial practice professions, and for social policies designed to better the human condition.

### **Methodology and Global Studies**

The studies on obesity, adherence to antidepressant medicine, and caregivers demonstrate how secondary analysis of large data sets provides a solid understanding of factors that can lead to improved services for people at risk, impact on their lives, and lead to enhanced service outcomes. Translational research in medicine, from bench to bedside, recognizes the need to move scientific findings into the service-delivery system as soon as possible, with maximum safety. Gross and her colleagues provide basic findings that should be applied to programs with special attention to health disparities and social vulnerability. They raise the following questions of universal relevance.

1. In what areas do women who care for others need guidance and support?
2. How can we deepen our understanding of formal support systems for different disabled populations and their influence on the caregivers'?

perceived sense of burden? (*Women caring for disabled parents and other relatives: implications for social workers in the health services*)

3. How do we help people balance adherence to medical regimes with perceived quality of life? (*Determinants of quality of life in primary care patients with diabetes – implications for social workers*)

4. What social policies and psychosocial interventions can address the finding that income inequality has a negative effect on health conditions and obesity even when there are improved standards of living? (Gross, 2009)

5. How do we address the differences in obesity growth rates in different populations? (*Disparities in obesity temporal trends of Israeli adolescents by ethnic origin*)

Gross and her colleagues recognize that comparing national databases where available would be helpful in understanding the cultural, social and biological complexities that explain variations among subgroups and evaluations of intervention programs. Israel, like the United States, provides research capacity building in developing countries and attention should be given to creating comparable databases for use in research and evaluation.

### **Implications for Research, Practice and Education**

There is growing emphasis on prevention and primary care in developing countries as well as in more highly-developed countries. Gross and her colleagues provide us with examples of how useful research can be when focused on primary and secondary prevention. I believe that Gross would agree that adding researchers and research data on the neuroplasticity of the brain – that is” the ability of the nervous system to respond to the intrinsic or extrinsic stimuli by reorganizing its structure, functions and connections” (Cramer et al., 2011) given that the brain structure can be strengthened or weakened depending on how the brain is used – would enhance psycho-bio-social research efforts (Southwick & Charney, 2012). Of special significance to the work of Gross and her colleagues are the findings that environmental and psychosocial factors can change the

epigenome and that some experiences and epigenetic changes can be passed down to more than one generation of descendants (Masterpasqua, 2009)

What a rich opportunity for social work to integrate the “bio” back into the psychosocial model of practice and to test models of intervention that address the associations between socioeconomic status, health vulnerabilities, disparities and the psychosocial factors that influence resiliency in persons at risk. Gehlert (2007, 2011) and her colleagues provide us with a model of how to apply such research and interventions in her work on breast cancer, its genetics and epigenetics in women, and the identification of social factors that influence genetic expression.

Social programs designed to strengthen persons, families and the communities they live in are likely to be most effective in addressing the consequences of social vulnerability and health disparities. Southwick and Charney (2012) identify 10 resiliency factors in persons and families who face high levels of stress from poverty, unemployment, homelessness, illness, separation from loved ones etc., and describe how resiliency can be taught and learned. The evidence from the fields of social work, psychology, sociology, neurobiology and medicine support the notions that strengthening individuals, families and communities can succeed in reducing health disparities and social vulnerability (Southwick & Charney, 2012). Social work, like medicine, must move more quickly into turning research findings into effective social programs, by evaluating the programs as they progress.

Gross and her colleagues provided us a number of studies that raise important questions about those most at risk for health disparities and social vulnerability. Their contributions are part of a global legacy that challenges us to be bold and broad in testing new social programs and in continuing to expand our role in trans-disciplinary research, which can lead to a more just society.

## Footnotes

Cramer, S. C., Sur, M., et al. (2011). "Harnessing Neuroplasticity for Clinical Application," *Brain* 134(6): 1591-1601.

Gehlert, S., Rebbeck, T., Lurie, N., Warnecke, R., Paskett, E., Goodwin, J., Tucker, K.L., & Flack, J. (2007). *Cells to Society: Overcoming Health Disparities*. National Cancer Institute, U.S. Department of Health and Human Services.

McClintock, M.K., Gehlert, S., Conzen, S., Olopade, O., & Krausz, T. (in press). "Overcoming health disparities: The power of a transdisciplinary approach to environmental regulation of gene expression." In L. Maheu & R. A. Macdonald (eds.), *Genes and Social Environment Changing Boundaries: Issues and Challenges*. McGill-Queens Press, Ottawa.

Gehlert, S., Small, E., & Bollinger, S. (in press). "Interventions for African American Women and Breast Cancer." In A. Lemelle, W. Reed, & S. Taylor (eds.), *Handbook of African American Health: Social and behavioral interventions*. Springer Science, New York.

Masterpasqua, F, (2009). "Psychology and Epigenetics." *Review of General Psychology* 13(3): 194-201.

Southwick, S.M., Charney, D.S., (2012). *Resilience – The Science of Mastering Life's Greatest Challenges*. Cambridge University Press, Cambridge.

# Appendices



# Complete List of Revital Gross' Publications

## I. Refereed Publications

### **Chapters in Books**

1. Brammli-Greenberg S., Gross R. (2006). The Private Insurance Health Care Market: Policy Issues. In Bennun G. and Ofer G. (eds.) *Ten Years of National Health Insurance 1995-2005*, pp. 340-375. The Israel National Institute for Health Policy and Health Services Research, Tel Hashomer. (in Hebrew)
2. Gross R. (2006). How Can Data from Consumers Contribute to Promoting Quality of Care in the Health System? In Porat A. and Rosen B. (eds.). *Quality Forum: Strategies for Promoting Quality of Care in Israel*, pp. 177-196. Myers-JDC-Brookdale Institute, Jerusalem. (in Hebrew)
3. Gross R. (2010). Supplemental and Commercial Health Insurance in Israel: Market Structure and Policy Issues. In Bennun G. and Magnezi R. (eds.) *Organizational Economic and Social Issues in the Israeli Health Care System*. pp. 211-228. Ben-Gurion University of the Negev Press, Beer-Sheva. (in Hebrew)
4. Gross, R., Anson, O. (2002). Health Care Reform in Israel. In Twaddle A. (ed.) *Health Care Reform Efforts Around the World*, Greenwood Publishing Group, Westport CT.
5. Gross R., Ashkenazi Y., Schacter L. (2012). To Regulate or Not to Regulate? The Perspective of Policy Makers on Integrating CAM into Primary Care in Israel. In Shuval J.T. (ed.), *Cohabitation or Marriage? Integrative Health Care in Israel*, pp. 175-196. Academic Studies Press, US.
6. Gross R., Brammli-Greenberg S. (2009). Mental Health and Equality. In Doron H. (ed.) *The Health System: To Where?* pp. 112-141. Ben Gurion University of the Negev Press, Beer-Sheva. (in Hebrew)
7. Gross R., Brammli-Greenberg S. (2012). Integrating Private Insurance into the Israeli Health System: An Attempt to Reconcile Conflicting Values. In

Thomson S., Mossialos E., and Evans R. (eds.) *Private Health Insurance: History, Politics, Performance*. Cambridge University Press, Cambridge.

8. Gross R., Brammli-Greenberg S., Matzliach R. (2006). Trends in the Quality of Care in the Israeli Health Plans in the First Decade of National Health Insurance: Consumer Perspectives Highlighting Vulnerable Populations. In Bennun G., and Ofer G. (eds.) *Ten Years of National Health Insurance 1995-2005*, pp. 462-500. The Israel National Institute for Health Policy and Health Services Research, Tel Hashomer. (in Hebrew)
9. Gross R., Brammli-Greenberg S., Slutsky O., Waitzberg R. (2010). Mental Distress among Women and Patterns of Seeking Help: Findings from a Population Survey, 2007. In Cwikel J. et al. (eds.) *Guard Your Soul*. pp. 386-403. Ben-Gurion University, Beer-Sheva. (in Hebrew)
10. Gross R., Herman L.R. (2012). World Health Systems: Israel. In Fried B.J., and Gaydos L.M. (eds.) *World Health Systems: Challenges and Perspectives*. pp. 499-530. Aupha – Health Administration Press, Chicago, Illinois Associates of University Programs in Health Administration, Arlington, Virginia.
11. Gross R., Nirel N., Matzliach R. (2006). Achievements and Challenges of the Health System since Implementation of the National Health Insurance Law: The Perspective of the Senior Managers. In Bennun G., and Ofer G. (eds.) *Ten Years of National Health Insurance 1995-2005*. pp. 607-631. The Israel National Institute for Health Policy and Health Services Research, Tel Hashomer. (in Hebrew)
12. Gross R., Rosen B., Chinitz D. (2002). The Role of Evaluation in Promoting Accountability in the Health Care System. In Chinitz D. (ed.) *The Changing Face of Health Systems*. The Israel National Institute for Health Policy.
13. Gross R., Tabenkin H., Porath A., Heymann A., Porter B., Matzliach R. (2008). The Desired and Actual Division of Labor between Nurses and Physicians in the Care of Chronic Illness: Implications for the Role of Physicians in the 21st Century. In Rosen B., Saltman R., and Shani M. (eds.)

*Health Systems: Are We in a Post Reform Era?* pp. 476-492. The Israel National Institute for Health Policy and Health Services Research, Tel Hashomer.

14. Schwartz-Ilan D., Shvarts S., Gross R. (2006). The Development of the Israeli Health Insurance System: Law, Structure, and Principles. In Bennun G., and Ofer G. (eds.) *Ten Years of National Health Insurance 1995-2005*. pp. 315-339. The Israel National Institute for Health Policy and Health Services Research, Tel Hashomer. (in Hebrew)

15. Shirom A., Gross R. (2002). World Health Systems: Israel. In Fried B.J., and Gaydos L.M. (eds.) *World Health Systems: Challenges and Perspectives*. Health Administration Press, Ann Arbor.

16. Shuval J.T., Gross R. (2012). Integrative Medicine in Family Practice. In Shuval J.T., and Averbuch E. (eds.) *Alternative and Bio-Medicine in Israel Boundaries and Bridges*. pp. 160-174. Academic Studies Press Brighton, U.S.A.

17. Shvarts S., Kaplan A., Ilan-Schwartz D., Gross R. (2011). Health Care System in Israel. In Sekhar-Rout H. (ed.) *Health Care Systems around the World*. pp. 255-279. New Century Publications, New Delhi, India.

### **Articles in Periodicals**

1. Ayalon L., Gross R., Heymann, A., Porath, A., Porter B. (2008). Determinants of Quality of Life in Primary Care Patients with Diabetes – Implications for Social Workers. *Health & Social Work* 33(3): 229-236.

2. Ayalon L., Gross R., Tabenkin H., Porath A., Heymann A., Porter, B. (2006). Correlates of Quality of Life in Primary Care Patients with Hypertension. *International Journal of Psychiatry in Medicine* 36: 483-497.

3. Ayalon L., Gross R., Yaari A., Feldhamer, I., Balicer R., Goldfracht M. (2011). Characteristics Associated with Purchasing Antidepressant or Anti-Anxiety Medications Through Primary Care in Israel. *Psychiatric Services* 62: 1041-1046.

4. Ayalon L., Gross R., Yaari A., Feldhamer I., Balicer R., Goldfract M. (2011). Disparities in Antidepressant Adherence in Primary Care: Report from Israel. *American Journal of Managed Care* 17(9): e340-e347.
5. Ayalon L., Gross R., Yaari A., Feldhamer I., Balicer R., Goldfract M. (2012). Factors Associated with the Type of Psychotropic Medications Purchased for Common Mental Disorders in the Largest Managed Care Organization in Israel. *International Journal of Psychiatry and Medicine* 44: 91-102.
6. Bentur N., Berg A., Gross R., Chinitz, D. (1998). Health System Reform and the Elderly: The Case of Israel. *Journal of Aging and Social Policy* 10(2): 85-104.
7. Bentur N., Gross R. (2001). The Reform of the Israeli Health Care System: A Comparison between Elderly and Young Consumers One Year and Three Years after Its Implementation. *Journal of the American Geriatrics Society* 49: 56-64.
8. Bentur N., Gross R., Berg, A. (1998). Performance of Examinations for the Detection of Breast Cancer in Elderly Women in Israel. *Gerontology* 25(1-2): 75-83. (in Hebrew)
9. Bentur N., Gross, R., Berg, A. (1998). Performance of Examinations for the Detection of Breast Cancer. *Harefua* 134(6): 425-428. (in Hebrew)
10. Bentur N., Gross R., Brammli-Greenberg S. (2004). Satisfaction with and Access to Community Care of the Chronically Ill in Israel's Health System. *Health Policy* 67: 129-136.
11. Bentur N., Gross R., Chinitz D. (1999). The Perceived Impact of the National Health Insurance on the Elderly: Access to Services, Quality of Care and Satisfaction. *Social Security Journal of Welfare and Social Security Studies* 54: 76-91. (in Hebrew)
12. Bentur N., Gross R., Resnitzky S. Brammli-Greenberg S. (2004) Co-Payments and Access to Primary Care Services for Stroke Patients. *Social Security* 66: 63-75. (in Hebrew)

13. Brammli S., Gross, R. (1996). Changes in Commercial Health Insurance Programs Following Enactment of the National Health Insurance Law. *Insurance* 95: 35-40. (in Hebrew)
14. Brammli-Greenberg S., Gross R., Rasouli I., Ashkenazi Y. (2008). Private Nursing Insurance: Consumers, Insurers, and the State - 2005. *Gerontology* 35(3): 33-47. (in Hebrew)
15. Elnekave E., Gross R. (2004). The Healthcare Experiences of Arab Israeli Women in a Reformed Healthcare System. *Health Policy* 69(1): 101-116.
16. Gross R. (2002). The Special Health Needs of Israeli Women: Gender and Culture. Panel Chair, Proceeding of Conference: Health Policy and Services for Women in Israel: Is the Health Care System Meeting the Needs? *Public Health Reviews* 29(2-4): 111-118.
17. Gross R. (2003). Implementing Health Care Reform in Israel: Organizational Response to Perceived Incentives. *Journal of Health Politics Policy and Law* 28(4): 659-692.
18. Gross R. (2004). A Consumer Based Tool for Evaluating the Quality of Health Services in the Israeli Health Care System Following Reform. *Health Policy* 68 (2): 143-158.
19. Gross R., Ashkenazi Y., Tabenkin H., Porath, A., Aviram, A. (2007). The Role of Quality Assurance Programs as a Strategy for Improving Quality in Israel's Health Funds. *Social Security* 73:169-188. (in Hebrew)
20. Gross R., Ashkenazi Y., Tabenkin H., Porath A., Aviram A. (2008). Implementing Quality Assurance Programs in Managed Care Health Plans: Factors Contributing to Success. *International Journal of Health Care Quality Assurance* 21(3): 308-324.
21. Gross R., Baum N., Oved-Or M. (2009). Factors Associated with Seeking Formal and Informal Help for Mental Distress in the General Population in Israel. *Social Security* 79: 111-140. (in Hebrew)

22. Gross R., Ben Bassat J., Nirel, N., Cohen, M. 1992. Quality of Care in Decentralized Primary Care Clinics: A Conceptual Framework. *International Journal of Health Policy and Management* 7: 271-286.
23. Gross R., Bentur, N., Elhayany, A., Sherf, M., Epstein, L. (1996). The Validity of Self-Reports on Chronic Disease: *Characteristics of Under-Reporters and Implications for the Planning of Services*. *Public Health Reviews* 24: 167-182.
24. Gross R., Brammli S. (1997). Alternatives for the Organization of the Supplemental and Commercial Health Insurance Market in Israel Following the Enactment of the National Health Insurance Law. *Social Security Journal of Welfare and Social Security Studies* 50: 40-58. (in Hebrew)
25. Gross R., Brammli-Greenberg S. (2001). Supplemental Insurance in Israel: Changes in Policy and Consumer Behavior. *Social Security* 61: 154-171. (in Hebrew)
26. Gross R., Brammli-Greenberg S. (2004). Evaluating the Effect of Regulatory Prohibitions against Risk Selection by Health Status on Supplemental Insurance Ownership in Israel. *Social Science & Medicine* 58(9): 1609-1622.
27. Gross R., Brammli-Greenberg S., Bentur N. (2003). Women Caring for Disabled Parents and Other Relatives: Implications for Social Workers in the Health Services. *Social Work in Health Care* 37(4): 19-38.
28. Gross R., Brammli-Greenberg S., Gordon B., Rabinowitz J., Afek A. (2009). Population-Based Trends in Male Adolescent Obesity in Israel 1967- 2003. *Journal of Adolescent Health* 44(2): 195-198.
29. Gross R., Brammli-Greenberg S., Gordon B., Rabinowitz J., Afek A. (2011). Disparities in Obesity Temporal Trends of Israeli Adolescents by Ethnic Origin. *International Journal of Pediatric Obesity* 6(2-2): e154-161.
30. Gross R., Brammli-Greenberg S., Remenick L. (2001). Self-Rated Health Status and Health Care Utilization among Immigrant and Non-immigrant Israeli Jewish Women. *Women and Health* 34(3): 53-69.

31. Gross R., Brammli-Greenberg S., Rosen B. (2007). Copayments: The Implications for Access to Services and Equity. *Law and Business* (6): 197-224. (in Hebrew)
32. Gross R., Brammli-Greenberg S. Tabenkin H., Benbassat J. (2007). Primary Care Physicians' Discussion of Emotional Distress and Patient Satisfaction. *International Journal of Psychiatry in Medicine* 37(3): 331-345.
33. Gross R., Chinitz D. (1995). Assessment by the Primary Care Physician of His Influence on the Patient's Hospital Choice and of His Own Ability to Evaluate Hospital Quality. *Harefua* 129(4-3): 90-95. (in Hebrew)
34. Gross R., Elhaynay A., Friedman N., Buetow S. (2008). Pay for Performance Programs in Israeli Sick Funds. *Journal of Health Organisation and Management* 22(1): 23-35.
35. Gross R., Elhayany, A., Zmora, I. (1993). Clinic Decentralization: An Israeli Model and Evaluation Strategy. *Journal of Management in Medicine* 7(5): 11-20.
36. Gross R., Feldman, D., Rabinowitz J., Greenstein M., Berg, A. (1998). Mental Distress as Perceived by the Adult Population in Israel: Characteristics and Patterns of Utilization of Health Services. *Harefua* 134(5): 6-12. (in Hebrew)
37. Gross R., Harrison, M. (2001). Implementing Managed Competition in Israel. *Social Science and Medicine* 52: 1219-1231.
38. Gross R., Harrison M. (2006). Responses of Israeli HMOs to Environmental Change Following the National Health Insurance Law: Opening the Black Box. *Health Policy* 76: 213-232.
39. Gross R., McNeill R., Davis P., Lay-Yee R., Jatrana S., Crampton p. (2008). The Association of Gender Concordance and Primary Care Physicians' Perceptions of Their Patients. *Women and Health* 48(2): 1-22.
40. Gross R., Nirel, N. (1997). Does Budget-Holding Have a Long-Term Effect on Expenditure, Staff and Patients? *Health Policy* 40: 43-67.

41. Gross R., Nirel, N. (1998). Quality of Care and Patient Satisfaction in Budget-Holding Clinics. *International Journal of Health Care Quality Assurance* 11(2): 77-89.
42. Gross R., Nirel N., BousSIDAN S., Zmora I., Elhayany A., Regev S. (1996). The Influence of Budget Holding on Cost Containment and Work Procedures in Primary Care Clinics. *Social Science and Medicine* 43(2): 173-186.
43. Gross R., Rabinowitz J., Feldman D., Boerma, W. (1996). Primary Care Physicians' Treatment of Psychosocial Problems: Implications for the Profession of Social Work. *Health and Social Work* 21(2): 89-95.
44. Gross R., Rosen B. (1992). The Netanyahu Commission Report: Analysis of the Recommendations for Distribution of Authority in the Health Care System. *Social Security Journal of Welfare and Social Security Studies* 38: 27-44. (in Hebrew)
45. Gross R., Rosen B. (1996). Decentralization in a Sick Fund: Lessons from an Evaluation. *Journal of Management in Medicine* 10(1): 67-80.
46. Gross R., Rosen, B., Barnea, T. (1991). Decentralization and Autonomy in Health Service Systems. *Social Security Journal of Welfare and Social Security Studies* 36: 78-91. (in Hebrew)
47. Gross R., Rosen B., Chinitz D. (1998). Evaluating the Israeli Health Care Reform: Strategies, Challenges and Lessons. *Health Policy* 45: 99-117.
48. Gross R., Rosen B., Shirom A. (1999). The Israeli Health Care System Following Implementation of the National Health Insurance Law. *Social Security Journal of Welfare and Social Security Studies* 54: 11-34. (in Hebrew)
49. Gross R., Rosen B., Shirom A. (2001). Reforming the Israeli Health System: Findings of a 3-Year Evaluation. *Health Policy* 56: 1-20.

50. Gross R., Tabenkin H., Brammli, S., Shvartzman, P. (1998). Patients' Opinions of the Role of the Primary Care Physician: Implications for the Organization of Health Services. *Harefua* 134(2): 81-88. (in Hebrew)
51. Gross R., Tabenkin H., Brammli-Greenberg S. (2000). What Primary Care Physicians Think of Israel's Health Policy Reform. *Harefua* 139(1-2): 1-7. (in Hebrew)
52. Gross R., Tabenkin H., Brammli-Greenberg S. (2000). Who Needs A Gatekeeper? Patients' Views of the Role of the Primary Care Physician. *Family Practice* 17(3): 222-229.
53. Gross R., Tabenkin H., Brammli-Greenberg S. (2001). Gatekeeping: A Challenge in the Management of Primary Care Physicians. *Journal of Management in Medicine* 14(4): 283-298.
54. Gross R., Tabenkin H., Brammli-Greenberg S. (2007). Factors Affecting Primary Care Physicians' Perceptions of Health System Reform in Israel: Professional Autonomy Versus Organizational Affiliation. *Social Science & Medicine* 64: 1450-1462.
55. Gross R., Tabenkin H., Brammli-Greenberg S., Benbassat J. (2007). The Association between Inquiry about Emotional Distress and Women's Satisfaction with Their Family Physician: Findings from a National Survey. *Women & Health* 45(1): 51-67.
56. Gross R., Tabenkin H., Greenstein M., Bramli S., Harrison M. (1999). Primary Care Physicians in Israel 1997: Characteristics and Changes. *Social Security Journal of Welfare and Social Security Studies* 54: 169-190. (in Hebrew)
57. Gross R., Tabenkin H., Heymann A., Greenstein M., Matzliach R. (2007). Physicians Ability to Influence the Life-Style Behaviors of Diabetic Patients: Implications for Social Work. *Social Work in Health Care* 44(3): 191-204.
58. Gross R., Tabenkin, H., Heymann A., Porath A., Porter B. (2007). The Effect of Commitment to the Organization on Physicians' Familiarity with

Guidelines for Diabetes in Managed Care Organizations. *Journal of Ambulatory Care Management* 30(3): 231-240.

59. Gross R., Tabenkin H., Porath A., Heymann A., Greenstein M., Porter B., Matzliach R. (2003). The Relationship between Primary Care Physicians' Adherence to Guidelines for the Treatment of Diabetes and Patient Satisfaction: Findings from a Pilot Study. *Family Practice* 20(5): 563-569.

60. Gross R., Tabenkin H., Porath A., Heymann A., Porter, B. (2009). Working Together? Teamwork in Treating Diabetes and Hypertension in Managed Care Organizations in Israel. *International Journal of Health Care Quality Assurance* 22(4): 353-365.

61. Gross R., Tabenkin H., Schoen C., Brammli-Greenberg S., Simantov E. (2006). Health Counseling for Women in the Absence of Financial Barriers: Comparing Reported Counseling Rates of Women in the United States and Israel. *Women and Health* 43: 1-18.

62. Heyman A.D., Gross R., Tabenkin H., Porter B., Porath A. (2011) Factors Associated with Hypertensive Patients' Compliance with Recommended Lifestyle Behaviors. *Israel Medical Association Journal*, 13(9): 553-557.

63. Miller A., Gross R. (2004). Health and Depression in Women from the Former Soviet Union Living in the United States and Israel. *Journal of Immigrant Health* 6(4): 187-196.

64. Nirel N., Gross, R. (1997). Challenges in Implementing a Budget-Holding Program for Primary Care Clinics. *Health Policy and Planning* 12(2): 146-160.

65. Nirel N., Rosen B., Gross, R., Berg, A., Yuval, D., Ivancovsky M. (1998). Immigrants in the Health System. *Social Security Journal of Welfare and Social Security Studies* 51: 96-115. (in Hebrew)

66. Rabinowitz J., Feldman, D., Gross, R., Boerma, W. (1998). Which Primary Care Physicians Treat Depression? *Psychiatric Services* 49: 100-102.

67. Rabinowitz J., Gross R., Feldman D. (1999). Correlates of a Perceived Need for Mental Health Assistance and Differences between Those Who Do and Do Not Seek Help. *Social Psychiatry and Psychiatric Epidemiology* 34: 141-146.
68. Rabinowitz J., Gross R., Feldman D. (2003). Perceived Need and Receipt of Outpatient Mental Health Services: Factors Affecting Access in Israeli HMOs. *Journal of Ambulatory Care Management* 26(3): 160-172.
69. Rosen B., Brammli-Greenberg S., Gross R., Feldman R. (2011). When Co-Payments for Physician Visits Can Affect Supply as Well as Demand: Findings from a Natural Experiment in Israel's National Health Insurance System. *International Journal of Health Planning and Management*. 26(2): e68-84.
70. Rosen B., Nirel N., Gross R., Brammli-Greenberg S., Ecker N. (2008). The Israeli Mental Health Insurance Reform. *Journal of Mental Health Policy and Economics* 11: 201-208.
71. Schoen C., Simantov E., Gross R., Brammli S., Leiman J. (2003). Disparities in Women's Health and Health Care Experiences in the United States and Israel: Findings from 1998 National Women's Health Surveys. *Women & Health*, 37(1): 49-70.
72. Schwartz-Ilan D., Schwartz S., Gross R. (2011). Health Insurance in Israel – From a Pluralistic Model to a Tiered Model. *Social Security* 86: 9-40. (in Hebrew)
73. Shmueli A., Gross R. (2001). Income-Related Inequality in Health in Israel during the 90's. *Social Security* 59: 64-75. (in Hebrew)
74. Shual J.T., Gross R., Ashkenazi Y., Schachter L. (2012) Integrating CAM and Biomedicine in Primary Care Settings: Physicians' Perspectives on Boundaries and Boundary Work. *Quality Health Research* 22(10): 1317-1329.

75. Shvartzman P., Gross R., Tabenkin H., Yuval D., Greenstein M., Boerma W. (1998). Primary Care Physicians in Israel – A Comparison between Europe and Israel. *Harefua* 134(7): 505-510. (in Hebrew)
76. Tabenkin H., Gross R. (2000). The Role of the Primary Care Physician in the Israeli Health Care System as 'Gatekeeper' – The Viewpoint of Health Care Policy Makers. *Health Policy* 52: 73-85.
77. Tabenkin H., Gross R., Brammli, S., Shvartzman, P. (1998). The Patient's View of Direct Access to Specialists – An Israeli Experience. *Journal of the American Medical Association* 279(24): 1943-1948.
78. Tabenkin H., Gross R., Bramli-Greenberg S. (2001). How Do Israeli Primary Care Physicians Perceive Their Role in the Health Care System. *Journal of Ambulatory Care Management* 24(2): 19-29.
79. Tabenkin H., Gross R., Brammli-Greenberg S., Steinmetz D. (2001). Primary Care Physicians in Israel – How Do They Perceive Their Role in the Health Care System? What Do They Think of Health Policy? What Is the Viewpoint of Policy Makers and the Patients on Their Role as Gatekeepers? Summary of Studies. *Israel Medical Association Journal* 3(12): 893-897. (in Hebrew)
80. Tabenkin H., Gross R., Yaphe Y. (1995). The General Practitioner as the Physician of First Contact for Health Problems. *Harefua* 129(5): 1-7. (in Hebrew)
81. Tabenkin H., Yaphe Y., Gross R. (1996). Preventive Medicine in Primary Care in Israel: Findings from a National Survey. *Public Health Reviews* 24: 19-35.

## II. Non-Refereed Publications

1. Ashkenazi Y., Gross R. (2004). *The State of Women's Health in Israel: An Overview of Recent Data*. S-116-03 JDC-Brookdale Institute, Jerusalem.

2. Ashkenazi Y., Gross R., Rockoff Y., Rosen B. (2011). *The ISHA Continuing Medical Education Program at Clalit Health Services: Evaluation Report*. RR-580-11 Myers-JDC-Brookdale Institute, Jerusalem.
3. Ashkenazi Y., Gross R., Tabenkin H., Porath A., Aviram A. (2005). *Mapping Quality Assurance Programs in Israeli Health Plans and Identifying Factors that Contribute to Their Success or Failure*. RR-452-05 Myers-JDC-Brookdale Institute, Jerusalem.
4. Bentur N., Berg A., Gross R., Brodsky J. (1997). *Israel's Health System from the Perspective of the Elderly since Implementation of the National Health Insurance Law*. RR-280-97 JDC-Brookdale Institute, Jerusalem.
5. Berg A., Gross R., Rosen B., Chinitz D. (1997). *Public Perception of the Health System following Implementation of the National Health Insurance Law*. RR-284-97 JDC-Brookdale Institute, Jerusalem.
6. Berg A., Rosen B., Gross R., Chinitz D. (1996). *Public Perception of the Health System following Implementation of the National Health Insurance Law: Selected Preliminary Findings from a Survey of the General Population*. ES-12-96 JDC-Brookdale Institute, Jerusalem.
7. Brammli-Greenberg S., Gross R. (1999). *Supplemental and Commercial Health Insurance, 1998: Changes in Policy, Financing, and Consumer Behavior*. RR-349-99 JDC-Brookdale Institute, Jerusalem.
8. Brammli-Greenberg S., Gross R. (2003). *The Private Insurance Market in Israel, 2001*. RR-403-03 JDC-Brookdale Institute, Jerusalem.
9. Brammli-Greenberg S., Gross R. (2006). Supplemental Insurance in Israel 2005: Trends and Equity [in Hebrew]. *Hadea Harovachat* 41: 16-19.
10. Brammli-Greenberg S., Gross R. (2011). *Supplemental Insurance Plans: Developments in the Service Packages a Decade after – Implementation of the National Health Insurance Law*. RR-570-11 Myers-JDC-Brookdale Institute, Jerusalem.
11. Brammli-Greenberg S., Gross R., Matzliach R. (2007). *Supplemental Insurance Plans Offered by the Health Plans: Analysis and Comparison of*

*Baskets of Services in 2006.* RR-495-07 Myers-JDC-Brookdale Institute, Jerusalem.

12. Brammli-Greenberg S., Gross R., Yair I., Akiva E. (2011). *Public Opinion of the Level of Service and Performance of the Health System, 2009 and in Comparison with Previous Years.* RR-587-11 Myers-JDC-Brookdale Institute, Jerusalem.

13. Brammli-Greenberg S., Rosen B., Gross R. (2006). *Co-Payments for Physician Visits: How Large Is the Burden and Who Bears the Brunt?* Research report: RR-470-06 Myers-JDC-Brookdale Institute, Jerusalem.

14. Brammli-Greenberg, S., Waitzberg, R., Gross, R. (2012). *Private Long-Term Care Insurance in Israel.* RR-575-12 Myers-JDC-Brookdale Institute, Jerusalem.

15. Elroy I., Gross R. (2004). *Lay Leadership Development in Women's Health: Literature Review.* S-101-03 JDC-Brookdale Institute, Jerusalem. Elroy I., Gross R., Itzik D., Lavi-Sahar Z. (2008). *The Women's Voice: Perceptions of Care Provided in Hospitals to Victims of Domestic Violence.* Research report: RR-518-08 Myers-JDC-Brookdale Institute, Jerusalem.

16. Elroy I., Gross R., Rosen B., Akiva E., Jacobson O., Tabenkin H., Maizel R., Birkenfeld S. (2011). *Violence against Staff at Primary Health Clinics in the Community and Comparison with Specialist Clinics.* Research report: RR-590-11 Myers-JDC-Brookdale Institute, Jerusalem.

17. Farfel M., Rosen, B., Berg, A., Gross, R. (1997). *Arabs' and Jews' Perceptions and Use of the Health System following Implementation of the National Health Insurance Law: Findings from a Survey of the General Population.* Research report: RR-274-97 JDC-Brookdale Institute, Jerusalem.

18. Feldman D., Gross R., Nirel, N., Barasch, M. (1996). *Staff Attitudes toward the Reform of the Mental Health System in Israel.* Research report: RR-260-96. JDC-Brookdale Institute, Ministry of Health, JDC-Falk Institute, Jerusalem.

19. Gross R. (2007). Evidence, Guidelines, the Pharmaceutical Industry and Public Health Policy. In Halkin H. and Tal O. (eds). *Patients, Physicians and Pharma Workshop Report*. pp. 33-39. The National Institute for Health Policy and Health Services Research, Tel Hashomer.
20. Gross R., Ashkenazi Y., Elroy I., Shachter L., Shuval J.T. (2011). Perceptions of Physicians, Patients and Policy Makers on Integrating Complementary and Conventional Medicine. Research report: RR-571-11 Myers-JDC-Brookdale Institute, Jerusalem.
21. Gross R., Ashkenazi Y., Hemo B., Ben-Shoham O., Doron D. Nahshon I. (2011). Childhood Obesity: Risk Factors, Associated Morbidity and Service Utilization. RR-583-11 Myers-JDC-Brookdale Institute, Jerusalem.
22. Gross R., Ashkenazi Y., Hemo B., Doron D., Ben Shoham O., Nachshon I. (2011). Childhood Obesity: Risk Factors, Comorbidity and Utilization of Services. RR-583-11. Myers-JDC-Brookdale Institute, Jerusalem
23. Gross R., Brammli S. (1996). *Supplemental and Commercial Health Insurance in Israel - 1996*. Research report: RR-272-96 JDC-Brookdale Institute, Jerusalem.
24. Gross R., Brammli-Greenberg S. (2000). *The Health and Welfare of Women in Israel: Findings from a National Survey*. Research report: RR-361-00 JDC-Brookdale Institute, Jerusalem.
25. Gross R., Brammli-Greenberg S. (2001). *Israel's Health System as Perceived by the Public – 1995, 1997 and 1999*. Research report: RR-362-01 JDC-Brookdale Institute, Jerusalem.
26. Gross R., Brammli-Greenberg S. (2003). *Public Opinion of the Level of Service and Performance of the Health System 2001, Compared to Previous Years*. RR-421-03 JDC-Brookdale Institute, Jerusalem.
27. Gross R., Brammli-Greenberg S. (2005). Supplemental Insurance in Israel 2003, Data and Policy Issues [in Hebrew]. *Zman Harefua* 15: 16-20.

28. Gross R., Brammli-Greenberg S., Matzliach R. (2005) *Public Opinion of the Level of Service and Performance of the Health System 2003, in Comparison with Previous Years*. RR-455-05 Myers-JDC-Brookdale Institute, Jerusalem.
29. Gross R., Brammli-Greenberg S., Rosen B., Nirel N., Waitzberg R. (2009). *Mental Distress and Patterns of Getting Help Prior to the Transfer of Responsibility for Mental Health to the Health Plans: A Service Consumers' Perspective*. Research report: RR-538-08 Myers-JDC-Brookdale Institute, Jerusalem.
30. Gross R., Brammli-Greenberg S., Waitzberg R. (2009). *Public Opinion of the Level of Service and Performance of the Health System, 2007*. RR-541-09 Myers-JDC-Brookdale Institute, Jerusalem.
31. Gross R., Elhayany A., Zmor, I. (1991). *Decentralization of Clinics in Kupat Holim Clalit: Description of the Negev District Model and its Evaluation*. RR-25-91 JDC-Brookdale Institute, Jerusalem.
32. Gross R., Feldman D., Rabinowitz J., Greenstein, M. Berg A. (1997). *Perceived Emotional Distress and Mental Health Problems in the Adult Population in Israel: Characteristics and Patterns of Use of Mental Health Services*. RR-285-97 JDC-Brookdale Institute, Jerusalem.
33. Gross R., Greenstein M., Dubani A., Berg A., Yuval D., Rosen B. (1998). *The Level of Service in Israel's Sick Funds following the National Health Insurance Law: Principal Findings from a 1997 Members' Survey and Comparison with the 1995 Survey*. ES-17-98 JDC-Brookdale Institute, Jerusalem.
34. Gross R., Greenstein M., Matzliach R., Tabenkin H., Porat A., Heyman A., Porter B. (2005). *Implementing Clinical Guidelines in Primary Care Medicine in Israel: Changing Physicians' Behavior*. RR-450-05 Myers-JDC-Brookdale Institute, Jerusalem.
35. Gross R., Nirel N., Boussidan S. (1994). *Decentralization of Kupat Holim Clalit Primary Care Clinics in the Negev: Influence on Cost*

- Containment and Work Procedures (Interim Report)*. RR-42-94 JDC-Brookdale Institute, Jerusalem.
36. Gross R., Nirel N., Boussidan S. (1996). *Decentralization of Kupat Holim Clalit Primary Care Clinics in the Negev 1991-1993: The Influence on Expenditure, Staff, Clinic Services and Patient Satisfaction*. RR-259-96 JDC-Brookdale Institute, Jerusalem.
37. Gross R., Rosen B. (1992). *Decentralization in Kupat Holim Clalit – A Conceptual Framework and Lessons from a Preliminary Evaluation*. RR-36-92 JDC-Brookdale Institute, Jerusalem.
38. Gross R., Yuval D., Yaphe Y., Boerma, W. (1994). *The Role of the Primary Care Physician in Israel: Preliminary Findings from a National Survey*. RR-216-94 JDC-Brookdale Institute, Jerusalem.
39. Nirel N., Gross R. (1995). *Decentralization of Kupat Holim Clalit Primary Care Clinics in the Negev: Evaluation of the Implementation Process (Interim Report)*. RR-238-95 JDC-Brookdale Institute, Jerusalem.
40. Nirel N., Rosen B., Gross R., Berg A., Yuval, D. (1996). *Immigrants from the Former Soviet Union in the Health System: Selected Findings from National Surveys*. RR-269-96 JDC-Brookdale Institute, Jerusalem.
41. Tabenkin H., Gross R., Brammli S., Shrira S. (1999). *The Primary Care Physician as 'Gatekeeper': The Perspectives of Sick Fund Members, Primary Care Physicians and Policymakers*. RR-336-99. JDC-Brookdale Institute, Jerusalem.
42. Tabenkin H., Gross R., Brammli S., Shvartzman P. (1997). *Patient Opinions on Self-Referral to Specialists and the Role of the Primary Care Physician*. RR-270-97 JDC-Brookdale Institute, Jerusalem.
43. Taragin M., Gross R., Yuval D. (1997). *Allocation of Time among Primary Care Physicians in Israel*. RR-298-97 JDC-Brookdale Institute, Jerusalem.

**Policy Analysis Papers, Bertelsmann Foundation Website**

1. Bentur N., Gross R. "End of life care policy". *Health Policy Monitor*, April 2005. Available at <http://www.hpm.org/survey/is/a5/2>
2. Bentur N., Gross R. "Regulations for improving care of stroke patients". *Health Policy Monitor*, April 2006. Available at <http://www.hpm.org/survey/is/a7/2>
3. Brammli-Greenberg S., Rosen B., Gross R. "Copayments for physician visits". *Health Policy Monitor*, May 2005. Available at <http://www.hpm.org/survey/is/a5/1>
4. Cohen A., Rassouli I., Gross R. "Incentivising community rehabilitation for elderly". *Health Policy Monitor*, April 2009. Available at <http://hpm.org/survey/is/a13/4>
5. Dor M., Gross R. "Hospital audit and licensing". *Health Policy Monitor*, October 2005. Available at <http://www.hpm.org/survey/is/a6/5>
6. Dor M., Haver E., Nimrodi A., Guberman D., Ministry of Health, Gross R., Myers-JDC-Brookdale Institute. "Audit of health plan performance". *Health Policy Monitor*, October 2006. Available at <http://www.hpm.org/survey/is/a8/4>
7. Elhayany A., Gross R. "Eliminating co-payments for chronic patients". *Health Policy Monitor*, November 2008. Available at <http://www.hpm.org/survey/is/a12/2>
8. Elroy I., Gross R., Avramov R., Halevy-Levin S., Daltrophe M., Yoran J. "Evaluation of patient information center". *Health Policy Monitor*, April 2010. Available at <http://www.hpm.org/survey/is/a15/3>
9. Goldfracht M., Fleishman S., Yakobson O., Liberman N., Key C., Gross R. "Proactive program for managing clinical quality". *Health Policy Monitor*, April 2009. Available at <http://hpm.org/survey/is/a13/2>
10. Goldfracht M., Liebermann N., Clalit Health Services, Gross R., Myers-JDC-Brookdale Institute. "Treating mental distress by primary care

staff". *Health Policy Monitor*, October 2006. Available at <http://www.hpm.org/survey/is/a8/3>

11. Gross R., Ashkenazi Y., Myers-JDC-Brookdale Institute, Ben Zvi N., Rosenbluth M., Clalit Health Services, Weinstein C.E., Roth L., Cleveland Jewish Community Federation, Keter W., Jewish Agency. "On site e-learning for training physicians". *Health Policy Monitor*, October 2006. Available at <http://www.hpm.org/survey/is/a8/5>

12. Gross R., Ashkenazi Y., Itzik D., Lavi Z., Roth R., Glazer G. "Training for domestic violence committees". *Health Policy Monitor*, October 2007. Available at <http://www.hpm.org/survey/is/a10/1>

13. Gross R., Aviram A. "For-profit sick fund". *Health Policy Monitor*, October 2004. Available at <http://www.hpm.org/survey/is/a4/1>

14. Gross R., Aviram A. "For profit health plan". *Health Policy Monitor*, April 2005. Available at <http://www.hpm.org/survey/is/a5/5>

15. Gross R., Baruch Y. "Responsibility for mental health care". *Health Policy Monitor*, /October 2004. Available at <http://www.hpm.org/survey/is/a4/5>

16. Gross R., Bennun G. "Change in the allocation formula to health plans". *Health Policy Monitor*, October 2005. Available at <http://www.hpm.org/survey/is/a6/2>

17. Gross R., Bennun G., Rosen B. "Change in allocation formula to health plans". *Health Policy Monitor*, March 2005. Available at <http://www.hpm.org/survey/is/a5/3>

18. Gross R., Brammli-Greenberg S. "Disseminating information on LTC insurance". *Health Policy Monitor*, April 2006. Available at <http://www.hpm.org/survey/is/a7/4>

19. Gross R., Brammli-Greenberg S. "Restricting supplemental insurance services". *Health Policy Monitor*, October 2007. Available at <http://www.hpm.org/survey/is/a10/5>

20. Gross R., Brammli-Greenberg S., Bennun G. "Responsibility for mental health care (2)". *Health Policy Monitor*, April 2007. Available at <http://www.hpm.org/survey/is/a9/2>
21. Gross R., Brammli-Greenberg S., Rosen B. "Copayment evaluation: Impact on access and equity". *Health Policy Monitor*, October 2004. Available at <http://www.hpm.org/survey/is/a4/4>
22. Gross R., Brammli-Greenberg S., Rosen B., Matzliach R., Bin nun G. "Evaluation of NHI: The consumers perspective". *Health Policy Monitor*, April 2006. Available at <http://www.hpm.org/survey/is/a7/3>
23. Gross R., Kogen R., Noi S., Ecker N. "Establishing a fifth sick fund". *Health Policy Monitor*, October 2007. Available at <http://www.hpm.org/survey/is/a10/4>
24. Gross R., Maizel R. "Legislative measures to deter violent patients". *Health Policy Monitor*. November 2008. Available at <http://www.hpm.org/survey/is/a12/5>
25. Gross R., Nirel N. "Hospital trusts". *Health Policy Monitor*, November 2004. Available at <http://www.hpm.org/survey/is/a4/3>
26. Gross R., Porath A., Rabinowitz G., Raskin-Segal R. "National primary care quality measurement system". *Health Policy Monitor*, October 2004. Available at <http://www.hpm.org/survey/is/a4/2>
27. Gross R., Porath A., Rabinowitz G. Raskin-Segal A. "Primary care quality measurement system (2)". *Health Policy Monitor*, March 2007. Available at <http://www.hpm.org/survey/is/a9/4>
28. Gross R., Rasooly I., Bennun G. "Transfer of geriatric LTC hospitalisation to SFs". *Health Policy Monitor*, October 2005. Available at <http://www.hpm.org/survey/is/a6/4>
29. Gross R., Rosen B., Kogan R. "Family health centers pilot program". *Health Policy Monitor*, March 2005. Available at <http://www.hpm.org/survey/is/a5/4>

30. Gross R., Tabenkin H. "Multi year budget for update of health basket". *Health Policy Monitor*, May 2008. Available at <http://www.hpm.org/survey/is/a11/1>
31. Gross R., Tabenkin H., Adler D. "National policy for improving women's nutrition". *Health Policy Monitor*, October 2010.
32. Guberman D., Dor M., Gross R. "Preparedness for the N1H1 epidemic". *Health Policy Monitor*, October 2009. Available at <http://www.hpm.org/survey/is/a14/3>
33. Halevy-Levin S., Yoran J., Avramov R., Daltrophe M., Gross R. "Information center on patients' rights & services". *Health Policy Monitor*, April 2008. Available at <http://www.hpm.org/survey/is/a11/3>
34. Kitai E., Vardy D., Margalit A., Brami J., Matz E., Kahan N., Gross R. "Smoking cessation in Leumit Health Fund". *Health Policy Monitor*, April 2009. Available at <http://hpm.org/survey/is/a13/5>
35. Kogen R., Ministry of Finance, Gross R., Myers-JDC-Brookdale Institute. "Hospital trusts: Wolfson hospital test case". *Health Policy Monitor*, October 2006. Available at <http://www.hpm.org/survey/is/a8/1>
36. Nirel N., Cohen A., Rosen B., Gross R. "Update on the hospital community EMR". *Health Policy Monitor*, October 2009. Available at <http://www.hpm.org/survey/is/a14/1>
37. Nirel N., Gross R. "Update on the integrated hospital-community EMR". *Health Policy Monitor*, November 2008. Available at <http://www.hpm.org/survey/is/a12/1>
38. Nirel N., Gross R., Israeli A. "Residents training transferred to the community". *Health Policy Monitor*, October 2005. Available at <http://www.hpm.org/survey/is/a6/3>
39. Nirel N., Rosen B., Gross R., Sherf M., Blondheim O. "Hospital-community electronic medical record". *Health Policy Monitor*, October 2005. Available at <http://www.hpm.org/survey/is/a6/1>

40. Rosen B., Elroy I., Gross R. "Update on the family health centers pilot program". *Health Policy Monitor*, November 2008. Available at <http://www.hpm.org/survey/is/a12/3>
41. Seifan M., Friedman N. Gross R. "Free dental care for kids in Maccabi health plan". *Health Policy Monitor*, April 2008. Available at <http://www.hpm.org/survey/is/a11/4>
42. Wilf-Miron R., Kokia, E. Gross R. "Redesigning primary care services in Maccabi". *Health Policy Monitor*, September 2007. Available at <http://www.hpm.org/survey/is/a10/3>

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