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Attracting Medical Residents to the Periphery and to Medical Specialties in Crisis following the 2011 Collective Agreement

Yael Ashkenazi ✦ Michal Gordon ✦ Ariel Yankellevich ✦ Bruce Rosen

The study was conducted in partnership with the Ministry of Health and the Israel Medical Association

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Editor: Ronit Ben Nun

English translation (executive summary): Naomi Halsted

Layout and print production: Leslie Klineman

Myers-JDC-Brookdale Institute
Smokler Center for Health Policy Research
P.O.B. 3886
Jerusalem 9103702, Israel

Tel: (02) 655-7400
Fax: (02) 561-2391

Website: http://brookdale.jdc.org.il/
e-mail: brook@jdc.org.il

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Executive Summary

Like many other countries, Israel has to contend with the problem of unequal geographic distribution of physicians, with a substantially higher rate of physicians per capita in the center of the country than in the periphery. An additional problem is that certain medical specialties are failing to attract residents, leading to a severe staffing shortage. These so-called "specialties in crisis" include internal medicine, general surgery, and anesthetics.

These problems have been on the health policy agenda for many years, during which time various solutions have been proposed. In 2011, the physicians and employers signed a new collective agreement that will remain in force until 2019. It contains clauses designed to respond to these two staffing problems. The agreement established incentives to attract specialists and new residents to specialties in crisis and to hospitals in peripheral areas. The incentives include one-time grants and an increase in salary. The grants are NIS 300,000 for residents choosing to work in the periphery or in a specialty in crisis and NIS 500,000 for residents in specialties in crisis, within hospitals in the periphery. In addition, the agreement pledged an additional 1,000 positions for physicians in public hospitals, with priority given to hospitals in the periphery.

Data from the Ministry of Health and the Clalit health plan show that between the 2011 agreement and 2013, an additional 561 residency positions were approved, of which 230 were in the periphery and 331 in the center of the country. Apparently, almost all these positions have been filled.

The study was conducted in partnership with the Ministry of Health and the Israel Medical Association (IMA).

Study Goals

1. To examine the impact of financial incentives on the choice of specialty and location
2. To examine the overall considerations and the reasons why residents choose their specialty and location
3. To identify additional ways of attracting more young physicians to the periphery and to specialties in crisis.

Study Method

The study was based on two main sources of information:

- ***An administrative data file from the Scientific Council of the IMA*** that includes information about all new residencies in basic specialties from 2005-2014. The file includes data about residency location and specialty, with background information about the residents, such as year of birth and the places where they studied medicine and did their internship. The file includes 8,138 residencies, which were started by 7,027 residents. Our examination of the file focused mainly on a comparison of the years prior to the 2011 agreement with subsequent years.

- ***A national survey conducted at MJB in 2015 of residents in basic specialties who began their specialization in 2013-2014***. The sample included a total of 1,042 hospital residents. This included all the residents in hospitals in the periphery[1] (352 residents) – – and a random sample of residents in hospitals in the center of the country (690 residents). The data on the sample of residents in hospitals were weighted according to the ratio of the sample in each of the strata, and the weighted sample accurately represented the total residents.

  The survey sample also included all 144 residents specializing in family medicine. The survey questionnaire for the family medicine residents was shorter than the questionnaire for hospital residents. It was analyzed separately and the results are presented separately.

  The data were collected via an Internet survey with telephone backup. The response rate for the hospital residents was 71% and for the family medicine residents, 74%.

Main Findings

Administrative Files

Between 2005 and 2014, the number of new residencies increased by 66%. The annual increase was gradual until 2010. In 2011, there was a surge in the number of new residencies, due to a sharp increase in the number of new residencies filled by graduates of medical studies abroad (hereafter: overseas graduates). This increase is reflected in an increase in the number of new residencies in both the periphery and center of the country and in medical specialties in crisis as well as those that are not in crisis.

Over the years until 2010, the percentage of new residencies in the periphery ranged from 16% to 20% of all new residencies. In 2011, the percentage of new residencies in the periphery was 19% of all new residencies and in 2012, the percentage rose to 23%.

Between 2009 and 2013, there was an increase of 30% in the number of overall new residencies. At the same time, there was an increase of 60% in the number of new residencies in the periphery. Regardless of the reason for the increase in the periphery (which could be due to several factors and not just the incentives), it is clear that there has been a very considerable change in the situation on the ground.

Over the years until 2010, new residencies in specialties in crisis accounted for 37%-40% of all new residencies. In 2011, the year of the agreement, they accounted for 39%, in 2012 for 40%, and the following year, 42%.

Over the years, the share of the periphery in new residencies has been higher for overseas graduates than for graduates of Israeli medical schools (hereafter: Israeli graduates). The same is true for new residencies in distressed specialties.

[1] The hospitals designated in the 2011 agreement as hospitals in the periphery, in which a grant was given.

The increase in the percentage of residencies in the periphery was due mostly to the increase in the percentage of overseas graduates in the periphery. Along with this, there was a very small increase among Israeli graduates. With regard to residencies in specialties in crisis, there was a gradual and steady increase in the percentage of residencies of Israeli graduates; this dates from 2007 and is apparently not connected to the agreement signed in 2011.

Survey of Residents

Residents in Hospitals

Characteristics of the residents: Approximately 75% of the residents were born in Israel and over half of them are aged 30-34. Approximately 30% of the residents are Arabs and 40% are women. Over 50% of the residents studied medicine abroad; most in the former Soviet Union and other Eastern European countries. Almost 50% are doing their residency in specialties in crisis and over 25% are doing their residency in the periphery.

Preferred choice of specialty: Most of the respondents (85%) reported that they were specializing in their first choice of specialty; this was reported by fewer overseas graduates than Israeli graduates (79% vs. 93%, respectively). For many more overseas graduates (43%) than Israeli graduates (8%) who are not specializing in their first choice, this is because they were unable to find a place to do their residency in their preferred specialty.

Most of the residents (67%) decided on their choice of specialty during their clinical years at medical school or during their internship. A higher percentage of overseas graduates than Israeli graduates, and residents in specialties in crisis than in other specialties, decided on their choice of specialty after completing their internship.

Factors influencing the residents' choice of specialty: We asked the residents to grade the degree of positive or negative influence that several factors had had on their choice of specialty. The main factors that were noted positively by more than 80% of the respondents were the intellectual challenge of the specialty, the opportunities for professional development and advancement, the type of patients and medical problems, the clinical diversity, and direct and meaningful contact with patients. Other important factors noted by at least 60% of the respondents were their internship experience, inspiration of physicians who were role models, the quality of the residency in that specialty, and the possibility of combining work in the community with work in hospitals.

Fewer respondents doing their residency in specialties in crisis than those in other specialties noted the following factors as having a positive influence on their choice of specialty: the possibility of combining work in the community with work in hospitals; the ability to work in private medicine, and the expected income as a specialist.

Impact of the incentives to choose specialties in crisis:

Residents in specialties in crisis: One of the main goals of the study was to try to understand the impact of the incentives set out in the agreement with the physicians. The respondents doing their

residencies in specialties in crisis were asked about the impact of these incentives. Twenty-eight percent of them reported that the incentives influenced their choice of specialty to a great or very great extent. Overseas graduates and Arab residents were more likely than others to report that the incentives influenced them (40% of the Arab residents vs. 21% of the Jewish residents; 37% of the overseas graduates vs. 14% of the Israeli graduates).

Residents in other specialties were asked if they considered specializing in specialties in crisis due to the incentives. Seventeen percent responded that they considered it. Sixty percent reported that no incentive would have influenced them to choose a specialty in crisis.

Characteristics of the residents in specialties in crisis: The percentages of Israeli graduates and of women are lower among the residents in specialties in crisis than among residents in other specialties. The percentages of Arabs, young residents (up to age 29), and older residents (35+) are higher among them.

Preferred choice of hospital for residency: Seventy-nine percent of the respondents are doing their residency in their first choice of hospital; more residents in the center than in the periphery (82% vs. 71%, respectively) and more Israeli than overseas graduates (85% vs. 73%, respectively) are residents in hospitals that were their first choice.

Early preferences about geographic area for residency: We asked the residents in which area of the country they had thought, when they first began to study medicine, that they would like to work on completion of their studies (before the grants were offered). 40% had not had a preference at that time; 44% had wanted to work in the center and 16% in the periphery. Today, most are working in the area where they wanted to be initially; in other words, most of the respondents currently doing a residency in the center of the country wanted to be there initially and most of those in the periphery wanted to be there initially.

Current preferences about geographic area for work after completing residency: Approximately 65% of the residents are interested in remaining in the same geographic area after completing their residency; most of the others have not yet decided.

Factors influencing the choice of hospital for residency: We gave the residents a list of characteristics of hospitals and departments and asked them to grade to what extent each of the factors had affected their decision, positively or negatively, to choose the hospital where they were doing their residency. The quality of the specific department in which they were doing their residency was noted as having the largest positive influence on the choice of location (this characteristic was noted by 87% of the residents). Other factors noted by over 70% of the respondents were: the attitude towards residents, opportunities for professional development, the quality of the training given to residents, and the identity of the head of department.

We also asked about characteristics of the area in which the hospital was located that had influenced their choice to go there. In general, it was found that the characteristics of the area had less influence on their decisions than the characteristics of the hospital itself. The area characteristics noted by over 40% of the respondents were the proximity to the locality where the respondents grew up, relatives in a nearby locality, employment opportunities for the respondents' spouses, and the future earning potential.

Impact of the incentives on the move to the periphery: We asked the residents in the periphery to what extent the incentives had influenced their decision to do their residency in a hospital in the periphery. Forty-nine percent responded that the incentives had influenced their decision to a great or very great extent. The percentage was similar among Israeli graduates and overseas graduates, and among Arabs and Jews.

The responses to a separate question revealed that a considerable percentage (approximately 40%) of the residents in the periphery who reported that the incentives had influenced their decision to a great or very great extent, thought when they started medical school that they would want to work in the periphery. In other words, 20% of all the residents in the periphery noted that the incentives had influenced them to a great extent, but they had initially intended to work in the periphery anyway. This analysis also indicates that 30% of all the residents in the periphery noted that the incentives had influenced them to a great or very great extent, even though they had not at first intended to work in the periphery.

We asked the residents in hospitals in the center if they had considered doing their residency in the periphery due to the incentives. Twenty-seven percent noted that they had considered it. Twenty-eight percent reported that no incentive would convince them to move to the periphery.

The connection between where the parents live and the area of residency: The respondents' responses about where their parents currently live were used as a proxy for where the respondents grew up and we refer to it as the region that they "came from" – which the international literature suggests can be an important factor in residency location choice. Note that where the parents live can also influence residency location choice for additional reasons, as residents might want to live near their parents, not least because in Israel grandparents are a very significant source of childcare.

Almost all residents from the center of the country have remained there. Approximately 50% of those from the south have remained in the south and the remainder moved to the center; approximately 40% of those from the north have remained in the north, a few have moved to the south and the remainder have moved to the center.

Approximately 70% of the residents in the center come from there. Eighty percent of the residents in the north are from the north and 40% of those in the south are from the south (a similar percentage of those in the south are from the center and the rest come from the north).

Examination of the percentage of residencies in each of the areas (out of total residencies) and the percentage of residents from each of the areas shows that a higher percentage of residents come from the north in relation to the percentage of residency positions in that area (out of all residency positions in the country). The situation is reversed in the center and south. The north "creates" a larger amount of residents than residencies in the area, while the center and south "create" fewer residents than residencies, so that the north "exports" residents while the south and center "import" them. In addition, an association was found between the place of residence and the place of medical studies – a higher percentage of residents who grew up in the periphery (64%) than those from the center (43%) studied medicine abroad.

Characteristics of the residents in the periphery: There are two notable differences in the background characteristics of residents in the periphery and those in the center: 1. A much higher percentage of residents in the periphery than in the center (76% vs. 48%, respectively) graduated medical school abroad. 2. The percentage of Arab residents in the periphery is much higher than in the center (53% vs. 24%, respectively).

Satisfaction with the residency: Seventy-seven percent of the residents are satisfied with their residency in general. Seventy percent or more are satisfied with the following: interest in their work; the attitude of senior physicians; the atmosphere in the department; the opportunity to work independently; and the diversity of clinical problems and procedures to which they are exposed. Fewer residents are satisfied with the following aspects: the salary; management support for the residents; and the amount of on-call duty they have to do.

Residents in the center of the country are more satisfied than residents in the periphery with the diversity of problems and procedures they encounter, the atmosphere in the department and the quality of training they are receiving. Those in the periphery are more satisfied than those in the center with the salary. Residents in specialties in crisis are more satisfied than are residents in other specialties with management support, with opportunities to work independently, with the quality of their training, with the attitude of the senior physicians, and with the salary. They are less satisfied with the amount of interest in the job.

Residents in Family Medicine

The questionnaire to family medicine residents was shorter and was more about the choice of specialty than about the area chosen. In the following summary of findings regarding residents in family medicine, we also indicate the topics in which there were sizable differences between them and hospital residents.

Characteristics of the residents: About 75% of the residents were born in Israel; about 50% are women; about 40% are Arabs; and 60% studied medicine abroad. Compared with the residents in hospitals, among those in family medicine there is a somewhat higher percentage of overseas graduates, women and Arabs.

Preferred choice of specialty: Seventy-five percent of the residents reported that they are doing their residency in their chosen specialty. Seventy-five percent of the residents chose their specialty during or after their internship.

Factors influencing the residents' choice of specialty: The residents were asked to grade the influence that several factors had had on their choice of specialty. The factors noted by more than 85% of the respondents as having a positive influence on their choice of specialty were: the ability to combine work, family, and free time; direct, meaningful contact with patients; the variety in the specialty; and working conditions during residency. The low prestige of this specialty was mentioned as a consideration against choosing the specialty of family medicine by 22% of the respondents.

Influence of the incentives to choose specialties in crisis: At the time when the survey was conducted, family medicine was not included among the specialties in crisis for which grants were awarded. We asked the family medicine residents if they had considered residency in a specialty in crisis because of the incentives. Eighteen percent reported that they considered it. Forty-five percent reported that no incentive would have convinced them to do so.

Early and current location preferences: The residents were asked about the area of the country where they had thought, when they began studying medicine, that they would like to work after completing their studies. Some had not had a preference at that time; 38% had wanted to work in the center and 28% in the periphery. Most of the respondents are now doing their residency in the areas they had originally chosen.

Among those who now have a preference about where they would like to work after their residency, about 50% would like to work in the center and about 50% in the periphery. When the responses to the two questions were cross-tabulated, it was found that the great majority had remained with their initial preferences even for the post-residency period.

Satisfaction with the residency: Satisfaction is somewhat higher among the family medicine residents than among the residents in hospitals. Eighty percent are satisfied with the residency in general. Approximately 75% or more expressed a high level of satisfaction with almost every aspect of the residency about which they were asked. Their satisfaction is relatively low with regard to two aspects: 51% are satisfied with the amount of on-call duty (this clause relates to the hospital part of the residencies) and only 30% are satisfied with the salary.

Incentives that the health plans could offer to attract residents to family medicine: In an open question, the residents were asked what incentives the health plans could offer to attract more residents to family medicine. The main suggestions were additional money (e.g., a higher salary, incentives for the specialty), which was noted by 57% of those who responded, and improved working conditions (e.g., fewer hours, a reduced amount of on-call duty, reduced burden), which was noted by 36% of those who responded. Additional key areas were the quality of the residency, opportunities for professional development, location of the clinics, and increased prestige for the specialty.

Discussion

To achieve an increase in the number of residents in the periphery requires both an increase in the number of residents interested/willing to work in the periphery (i.e., the supply of residents) and an increase in the number of residency positions (i.e., the demand for residents). The 2011 agreement sought to address both the supply and the demand aspects of the issue. It sought to address the supply by introducing financial incentives to work in the periphery. It sought to address the demand by creating a large number of new residency positions, with priority given to hospitals in the periphery.

In retrospect, it is clear that the 2011 agreement made an essential contribution to the growth in the number of residents in the periphery, through its effect on the demand for residents via the creation of new residency positions. The agreement also contributed to an increase in the number of residents in the periphery through the incentives designed to increase the supply of residents, but there is less clarity regarding the magnitude of that contribution. It is possible that the incentives also contributed to the increase in the overall number of residents, by encouraging doctors who graduated abroad, who for various reasons had not yet begun their residency, to begin their residency in Israel.

We know that the number of new residencies in the periphery increased by 60% between 2009 and 2013. We also know that there was a 30% increase in the number of new residencies overall, and – all else being equal – this alone would have brought about a supply increase of 30% in the periphery. This figure increases to 36% if we take into account the composition of the new residents and the high proportion among them of physicians who studied abroad. The remaining 24% is apparently due to some mix of factors, including the incentives introduced in the 2011 agreement and the turning of young physicians to the periphery as a fallback after all available residency slots in the center had been filled; it is not possible to parcel out the exact contribution of each of these two factors.

Some 50% of the residents in the periphery indicated that the incentives were a major or very major factor in their decision to work in the periphery. There is a disconnect between that figure and the fact that the number of residencies in the periphery increased by 60%. If the incentives indeed accounted for 50% of the supply then – in the absence of a demand constraint – we would have expected to find that the number of residents in the periphery had increased by 100%. Moreover, as indicated above, it is quite likely that at least half of the increase was due to the shear growth in the number of new residents overall and their composition, rather than the incentives. Thus, it appears that many of those who indicated that the incentives had a significant impact on their location decisions would have been working in the periphery even in the absence of those incentives.

We should also distinguish between two important, but somewhat different questions:

1. To what extent would the incentives have led to an increase in the number of new residencies in the periphery in the absence of the rise in the overall number of residents (a factor apparently unforeseen at the time that the 2011 agreement was signed)?
2. To what extent did the incentives lead to an increase in the number of new residents in the periphery in practice, given the rise in the overall number of residents?

While it is not possible to provide exact quantitative responses to either of those questions, it seems clear that the apparently unforeseen increase in the overall number of residents decreased the need for financial incentives to bring the number of residencies in the periphery to a satisfactory level. It may also have reduced the proportion of residents in the periphery who were there primarily because of the incentives and as such may have reduced the benefit/cost ratio of the incentives (by increasing the number of residents who received the incentive payments even though they would have chosen to work in the periphery anyway).

One of the interesting findings of the study is that 65% of residents in the periphery would like to continue working there after completing their residencies. It may be that the incentives contributed to this high level of interest in continuing to live in the periphery – both because they enabled more new residents to feel that they were in the periphery by choice and because it made their residency years in the periphery more comfortable economically.

The increase in the number of residents in recent years, in part due to the incentives and the creation of new positions, may make it easier to attract residents in the future. Previously, there was a vicious cycle of a shortage of residents leading to work overload, which in turn led to fewer physicians seeking work in the periphery. The recent increase in the number of residents in the periphery has apparently led to more reasonable workloads, thereby breaking that vicious cycle.

With regard to the specialties in crisis, there was only a very small increase in the percentage of new residencies in those specialties. Fewer residents in specialties in crisis than residents in the periphery reported that their choice was influenced by the incentives. However, it is possible that the incentives made an important contribution to the work of certain specialties or departments where a small increase in the number of individual residents has a considerable practical importance, even though that contribution is not reflected in the overall numerical analysis. The main reason for the small influence of the incentives on specialty choice overall could be the fact that the choice of specialty is usually a long-term decision (albeit, just one stage in a long process of professionalization) while the choice of location may be temporary.

It is possible that the fact that two incentives were offered simultaneously influenced the percentage of residents who chose each one of them. If there were reciprocal influences between the incentives, it is hard to know the extent of them, but the data suggest that they did not have a substantial influence on the geographic distribution of the residents.

The residents noted several factors that were important to them when they came to choose the location for their residency, particularly the quality of the department, the attitude towards residents, and the fact that would it help with their professional development and advancement. The hospitals and departments can influence these factors and they indicate possible directions for departments that wish to increase their attractiveness.

The study also generated information about factors that are important to residents when choosing their specialty. The factors found to be particularly important were the intellectual challenge, the type of patients and medical problems, the clinical variety within the specialty, and the extent that the specialty offers direct contact with the patients. These characteristics are inherent in the specialty and it may be difficult to change them. However, regarding the question of choice of specialty, professional development and advancement is a key factor, and in that area, intervention may be possible.

The findings indicate a connection between the place where the residents' parents live and the place of residency, and residents from the periphery tend to do their residency in the periphery more than others do. Other forms of previous exposure to the periphery are also important. That said, there is a clear difference between the north and south, with a much higher percentage of the residents in the north than those in the south who come from the area where they are doing their residency. A partial explanation is that the number of residents who come to the north is greater than the number of residency positions, whereas the reverse is true in the south.

The family medicine residents are somewhat more satisfied with the residency itself than those in hospitals are, and the main factors that attract them to the specialty are those characteristic of family medicine: the possibility of balancing working life with family life and free time, the meaningful relationship with patients and the diversity of the work. A characteristic that reportedly had a negative influence on the choice was the low prestige of the specialty and thought should be given to finding a way to change the situation.

Most of the family medicine residents chose the specialty during or after their internship, as distinct from the residents in hospitals, many of whom had chosen their specialties earlier – during their years of clinical work in medical school, as well as during the internship. One reason for this may be that during the clinical years there is less exposure to family medicine, so students tend to think less about it as an option. Thought should also be given to this situation.

The survey reveals that there is a high percentage of Arab physicians (32% among hospital residents and 39% among family medicine residents) among the new residents. This is an important and encouraging finding since it shows that the medical profession is serving as a tool for social mobility and enhancing equality, and since Arab doctors can provide culturally suitable treatment and service to the Arab population. In the context of the geographical spread, this finding is important as a large proportion of the Arab physicians come from the periphery (mainly the north) and as the study findings show, physicians who come from the periphery tend to go back and work there. The trend for an increase in the percentage of Arab physicians in Israel may also have an impact on the geographical spread of physicians in Israel.

Programmatic Directions

The study findings suggest a number of programmatic directions:

- The matter of incentives is still relevant, the practical question being whether they should be continued and if so, in what form. In this context, it is important to note the fact that the situation on the ground with regard to the shortage of physicians is dynamic. Hence, consideration as to whether to continue the incentives in the coming years and include them in the agreement to be signed in 2019, and if so, in what form, should be in the context of real-time challenges and not in the context of the challenges that existed back in 2011. Several questions arise in this context, among them, given the increase in the overall number of medical graduates who began their residency in recent years: Is there still need for financial incentives? Are the current challenges facing the periphery and with the specialties in crisis the ***number*** of new residents each year or the ***quality*** of the new residents (e.g., the percentage of Israeli graduates) or both? In addition – is there a need to increase the number of ***senior physicians*** in the periphery?
- Hospital and health plan directors should be consulted as to what they consider the key medical workforce problems and their preferred way of addressing them, including whether incentives should be used and, if so, how. Consideration should also be given to allowing the hospitals to decide for themselves how to allocate the incentives within their own hospitals.
- Since doctors from the periphery tend to do their residencies in the periphery more than others do, it is worth considering ways of training more physicians from the periphery in Israel, e.g., by opening specialized preparation courses located in those areas.
- Discussions with professionals in the field as well as the survey findings indicate that one way to attract residents is to create excellent departments. It is worth considering various ways of achieving this, e.g., by investing resources in attracting outstanding department heads who can attract specialists and residents and/or to use the new full-timer plan in order to bring strong senior physicians to the periphery.
- Another solution that is worth examining is to broaden collaboration among smaller hospitals and those in the periphery with large medical centers. This would give residents in the periphery exposure to the wider variety of cases and treatment methods implemented in the large centers.
- When examining solutions to the difficulty of recruiting residents, it is necessary to consider the difference between the north and south of the country – both regarding their characteristics and the characteristics of residents to go there – and to provide the appropriate solution to each of them.

Table of Contents