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# Estimating the Impact of Maccabi's Transitional Care Program

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# Abstract

## Background

The US, Israel and other countries have increasingly recognized the importance of improving the coordination of care for patients as they transition from hospitals to the community. The Maccabi Transitional Care Program (MTCP) was established in 2015 by Maccabi Health Services, Israel's second largest health plan. MTCP is a large-scale effort to improve hospital-community health services coordination. Under the auspices of MTCP, specially trained nurses communicate with Maccabi patients in order to assess their post-hospitalization care needs and to facilitate referrals to community-based providers.

## Objectives

The objectives of the study were to assess the impact of MTCP on promptness of post-discharge access to primary care physicians, the number of re-admissions over the ensuing 30 days, emergency department visits, the use of community-based health services, and health care expenditures.

## Methods

The primary source of study data was Maccabi's digitized system of patient records. In its primary approach, the research team used an intention to treat (ITT) analysis to compare the study's outcome variables for patients discharged from hospital care prior to, and after MTCP's implementation. The team then performed two secondary analyses using alternative study designs. The first of these used an "as treated" design and focused on patients discharged after MTCP's implementation; it compared patients contacted by an MTCP nurse with those not contacted. The second analysis employed a hybrid approach – a pre-post comparison using an "as treated" design. We note that under certain conditions, the ITT analysis can be limiting because it does not adjust for differences between program design and implementation.

## Findings

The ITT approach revealed that MTCP did not have significant effects on most of the outcome variables under study, programmatically or statistically. In contrast, the study's secondary analysis using an "as treated" design (among patients discharged after MTCP implementation) revealed substantial differences in key process and

outcome measures between patients contacted and those not contacted by MTCP nurses. The hybrid approach revealed a 7% increase in the proportion of patients who visited a primary care physician within a week of hospital discharge, but no change in the hospital re-admission rate.

## **Conclusions and policy recommendations**

The study raises questions about the effectiveness of the MTCP program during the study period. The findings suggest that in order to improve MTCP's effectiveness, structures and processes need to be modified. Modifications might include greater focus on patients with multiple chronic illnesses, those over age 75, and other populations that are less likely to visit primary care physicians without a call from an MTCP nurse, as well as improved procedures to increase the incidence of MTCP nurse contact with patients soon after hospital discharge.

# Executive summary

## Background

In recent years, the US, Israel and other countries have increasingly recognized the importance of improving the coordination of care for patients as they transition from hospitals to the community. It is widely believed that smoother transitions can contribute to lower costs and other benefits through decreased hospital readmissions, fewer emergency department visits, better and more patient-centered care, and higher patient satisfaction. However, efforts to improve transitional care in the US, Israel, and other countries have achieved only mixed success. In Israel, there is little data concerning the impact of large-scale efforts to enhance continuity and coordination of care after hospital discharge. One large-scale effort is the Maccabi Transitional Care Program (MTCP), established in 2015 by Maccabi Health Services, Israel's second largest health plan. Specially trained MTCP nurses communicate with Maccabi patients in order to assess their post-hospitalization care needs and to facilitate referrals to community-based physicians, nurses, therapists, social workers, and other health providers.

## Objectives

The objectives of the study were to assess the impact of MTCP on the promptness of post-discharge access to primary care physicians, the number of re-admissions over the ensuing 30 days, emergency department visits, the use of community-based health services, and health care expenditures.

## Methods

The primary source of study data was Maccabi's digitized system of patient records.

In its primary approach, the research team used an intention to treat (ITT) analysis to compare outcomes for patients discharged from hospital care prior to, and after MTCP's implementation, excluding the year the program was introduced, which was considered a "washout" period. Thus, the main comparison was between Maccabi patients discharged in winter 2014-15 (pre-MTCP) with those discharged in winter 2016-17 (MTCP). Multivariate regression was used to control for observed differences in the characteristics of the two groups.

A key assumption of this analysis is that there were no secular trends occurring during the study period that might explain outcomes aside from the impact of the MTCP program. We note that under certain conditions, ITT analysis can be limiting because it does not adjust for differences between program design and implementation.

The team then performed two secondary analyses using alternative study designs. The first analysis focused only on patients discharged in the winter 2016-17 MTCP period, comparing patients contacted by an MTCP nurse with those not contacted. To control for differences in the characteristics of the two groups, propensity score modeling was used to create matched samples.

The second analysis employed a hybrid approach – a pre-MTCP v. MTCP comparison using an “as treated” design.

## **Findings**

In the winter 2016-17 MTCP period, 69% of discharged patients were contacted by phone by an MTCP nurse during the 10-day period after hospital discharge, and approximately half of the patients were contacted within three days of discharge. No phone contact was made with 31% of the patients.

The study’s main approach, the pre-MTCP v. MTCP comparison using ITT analysis, revealed that MTCP did not have significant effects on most of the outcome variables under study, programmatically or statistically. These included the likelihood of visiting a primary care physician within 7 days of hospital discharge, readmission within 30 days, the number of emergency department visits, and expenditures on community-based health services. These findings were true both for the study population as a whole as well as almost all sub-groups. An exception to the lack of significant pre-MTCP v. MTCP differences was found regarding the number of visits to community-based health professionals within 30 days of discharge, for which visits were 5% higher after MTCP was established. We note, however, that the ITT analysis may be overly limiting in the context of this study because it did not take into account that (a) 13% of patients in the pre-MTCP period received the treatment (via a program pilot), and (b) only 69% of patients in the MTCP group received the intended treatment.

In contrast, the study’s secondary analysis which used an “as treated” design to compare outcomes for patients contacted by an MCTP nurse with those not contacted, in the period after MTCP implementation, revealed substantial differences in key process and outcome measures between the two groups. For example, the contacted group was substantially more likely to visit a physician within a week of hospital discharge (67% v. 48%). In addition, the rate of hospital readmissions within 30 days of discharge was substantially lower among those contacted (13% v. 20%). Significant differences between the two groups remained after controlling for observed differences in patient characteristics by means of regression analysis and matching.

The findings of the study’s hybrid approach (the pre-MTCP v. MTCP “as treated” analysis), were intermediate between the findings of the pre-MTCP v. MTCP ITT analysis and the MTCP period “as treated” analysis. The hybrid approach indicated that after the establishment of the MTCP program, there was a 7% increase in the

proportion of patients who visited a primary care physician within a week of hospital discharge. However, the hybrid approach did not find any change in hospital readmission rates.

## **Conclusions**

The study raises questions about the effectiveness of the MTCP program in 2016/17, as the most rigorous of the three methods used, indicated that MTCP had almost no important program effects on the outcome variables.

These results suggest that in order to increase MTCP's effectiveness, structures and processes need to be modified. Modifications might include greater focus on patients with multiple chronic illnesses, those over age 75, and other populations that are less likely to promptly visit a primary care physician without a call from an MTCP nurse. In addition, improved procedures should be implemented to increase the incidence of MTCP nurse contact with patients soon after hospital discharge. Such modifications should be tested in a randomized controlled trial to generate evidence concerning effectiveness.

Given the study's limitations, future study is warranted to examine MTCP's effects on patient satisfaction, hospital readmissions within 7 days of discharge, and selected clinical measures. Future work should also assess the magnitude of potential biases introduced when certain types of patients are excluded from the study. In the event that better data concerning the timing of hospital expenditures become available, it is recommended that a full cost-benefit analysis of the MTCP program be conducted.