Geisinger Medical Home Pilot Demonstrates Success

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Study Overview

Objective. To evaluate the ability of the Geisinger medical home model to improve the efficiency of care for Medicare beneficiaries.

Design. Observational study with pre- and postintervention comparison to a propensity-matched control cohort.

Setting and participants. Geisinger Health System is a not-for-profit integrated health care system composed of the Geisinger Clinic (over 800 employed physicians), 2 hospitals, and a health plan serving over 200,000 members through Geisinger and non-Geisinger providers in central Pennsylavia. Geisinger introduced ProvenHealth Navigator (PHN), a multidimensional medical home model to reform care delivery and financing though 5 functional components: expanded patient-centered primary care team practices, integrated population management, new micro-delivery systems (value-based referrals and care redesign outside the primary care setting), robust quality outcomes programs, and value-based reimbursement systems. The PHN was introduced in a staggered fashion into 11 different primary care practices starting in 2006. Geisinger staff targeted implementation toward recipients of Medicare Advantage plans administered through the health plan.

The goals of this program were to improve the quality, efficiency, and patient experience of care. Geisinger embedded case managers (1 for every 800 Medicare Advantage patients) into practices and provided clinicians with utilization and predictive hospitalization reports in order to reduce utilization of emergency and hospital care. Recently discharged patients were intensively monitored postdischarge and provided medication, social, and follow-up care support in the clinic and at home. Meetings were set up to coordinate care across multiple acuity settings, and pharmacy management initiatives strove to assist patients with obtaining prescribed medications. The electronic health record and registry functionalities were used to provide proactive population management of chronic and preventive conditions.

Main outcome measures. Four years of claims data for Medicare patients at the 11 intervention sites and 75 control practices were analyzed to compute hospital admission and readmission rates, along with the total cost of care (excluding pharmaceutical costs) per 1000 members. The investigators used regression modeling to establish predicted rates and costs in the absence of the intervention. Specifically, to understand the effect of implementing the PHN within the clinics of interest, they examined both pre- and postintervention monthly patient data, using general estimating equations to model the adjusted effect of the PHN intervention controlling for sociodemographic, time, and comorbidity variables. PHN status was broken down into the proportion of study period time that the practice implemented PHN and whether the PHN was in effect during each monthly observation period. Because the former could be biased by date of PHN implementation, the latter variable isolated the actual effect of PHN on the patients in each period. Actual admission rates and costs incurred were compared with predicted results to compute changes attributable to the PHN model.

In order to account for overall secular time trends, the investigators also compared the intervention clinics to non-Geisinger control practices not involved with the program but matched for similarity using propensity scores. The propensity score model for matching clinics included 2005 data for mean patient age, percentage male patients, total per member spending, inpatient admissions, readmissions, and mean hierarchical condition categories (a form of comorbidity scoring).

Main results. There were a total of 8634 patients in the intervention cohort and 6676 in the matched comparison cohort. At baseline, the intervention cohort was significantly younger (73.5 years vs. 74.1 years, $P < 0.001$) and had higher spending per member per month ($93 vs. $89, $P = 0.04$), though these differences were adjusted for in the overall regression models. Gender, comorbidity scores, admission rates, and readmission rates were similar. Comparing actual results to the predicted models in the absence of the intervention, the PHN was associated with an attributable total reduction of 56 admissions per 1000 members per year (–18%; 95% confidence interval [CI], –30% to –5%; $P < 0.01$). The investigators estimated that the PHN also was associated with 21 fewer readmissions per 1000 members per year (–36%; 95% CI, –55% to –3%; $P = 0.02$). Finally, the model computed that

the PHN intervention reduced cumulative total spending by 7%, though this finding was not statistically significant (95% CI, −18% to 5%; $P = 0.21$). Notable temporal variation by year was evident for each of these outcomes, with admission and readmission rates initially falling steeply before rising and then falling again. Total spending initially increased, fell, and then plateaued.

Conclusion. A multidisciplinary coordinated model of team-based case management within an integrated delivery system was associated with reduced hospital admissions and readmissions.

Commentary

Given unsustainable health care cost growth, the search for better value, defined as outcomes per unit cost, has become a mantra for health care executives and policymakers. The patient centered medical home (PCMH) model has emerged as a key innovation in the search for better care at lower costs. The PCMH can be envisioned as a home team of providers centered around a patient's needs and coordinated through highly functional electronic health records. Payment reform to move beyond the misaligned incentives of fee for service care is another key component. Already over 5 million patients are involved in 26 PCMH demonstration pilots across the country, and almost every state has a current or planned demonstration in place [1]. The PCMH model has energized a diverse body of stakeholders, including primary care providers, payers, purchasers, integrated delivery systems, and the government, to work toward reinvigorating primary care.

This study sought to determine whether the Geisinger PHN medical home model improved the value of care provided for Medicare Advantage enrollees. After implementation of this complex multidimensional model both in and around 11 primary care clinics, the investigators found significant reductions in inpatient admissions, and in particular, readmissions. Total costs of care (excluding pharmacy costs) trended toward a decline, but results were statistically insignificant. A major strength of the study was a robust design including both within-clinic time-varying comparisons and propensity-matched control clinic comparisons. These techniques minimized confounding and increased the ability of the study to provide causal inference. Further, the focus on robust cost outcomes, and the major drivers thereof, distinguish this study from many other PCMH evaluations.

A number of limitations to this study exist. First, the study excluded pharmacy costs, which may have impacted overall costs in unpredictable ways. Second, a real question exists around the generalizability of the results reported. Geisinger is a high-performing integrated delivery system with a health plan, making it an outlier among most delivery systems in the United States. Further, it is clear that the PHN model required major resource commitments at the system level to provide better case management, proactive population health management, and changes in payment to promote value. To what extent the systemic changes were responsible for the outcomes reported, as opposed to the clinic-level changes, remains unanswered for now. Further, the effects of the PHN on important quality, patient experience, and staff outcomes are not yet available.

Applications for Clinical Practice

As the PCMH model spreads, a key question is whether less integrated and innovative primary care practices can replicate these impressive Geisinger results in the more fragmented and competitive clinical network environments found more commonly across the country. It is important to note that the capacities enabled through Geisinger's highly functional electronic health records (including registries, clinical decision support systems, and remote monitoring systems) are not found in most commercial electronic record systems currently available [2]. Improving these functionalities, hopefully through the process of meaningful use standards for the adoption of electronic records, is a critical milestone in PCMH development. What is clear from this study is that, at a minimum, functional electronic health records providing actionable real-time data coupled with embedded nonphysician care managers are an important baseline component of success in a medical home model.

Better electronic records and new staff are necessary but alone are insufficient to achieve the results seen at Geisinger. Transformation often requires wholesale culture change at the practice level as providers learn to work together in teams, occupy new roles to practice "at the top of their licenses," and reorient care toward proactive population management. The Geisinger experience also suggests that the delivery network around the clinic, also known as the "medical neighborhood," is a further key driver of value creation in the PCMH model. Thus, in order to achieve the true potential of PCMH, embedding and linking these transformed clinics within accountable care organizations will be necessary given the current fragmented and chaotic networks of care currently available.

—Review by Asaf Bitton, MD, MPH

References

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