High-Touch Care Leads to Better Outcomes and Lower Costs in a Senior Population

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ABSTRACT

OBJECTIVES: There are several models of primary care. A form of high-intensity care is a high-touch model that uses a high frequency of encounters to deliver preventive services. The aim of this study is to compare the healthcare utilization of patients receiving 2 models of primary care, 1 with high-touch care and 1 without.

STUDY DESIGN: Retrospective cohort study.

METHODS: We conducted a retrospective cohort study of 2 models of care used among Medicare Advantage populations. Model 1 is a high-touch care model, and model 2 is a standard care model. Compared with model 2, model 1 has smaller panel sizes and a higher frequency of encounters. We compared patients' healthcare utilization and hospitalizations between both models using a propensity score–matched analysis, matching by Charlson Comorbidity Index (CCI) score, age, and gender.

RESULTS: We included 17,711 unmatched Medicare Advantage primary care patients and matched 5695 patients from both models of care. CCI scores, age, and gender were similar between both matched groups (P >.05). The median total per member per month healthcare costs in model 1 were $87 (95% CI, $26-$278) compared with $121 (95% CI, $52-$284) in model 2 (P <.01). The mean number of hospital admissions was lower in model 1 (0.10 ± 0.40) compared with model 2 (0.20 ± 0.58). The number of primary care physician visits and preventive medication use were higher in model 1 (P <.05 for both).

CONCLUSIONS: In a propensity-matched sample of Medicare Advantage patients, those receiving high-touch care had lower healthcare costs and fewer hospitalizations. Potential explanations are higher preventive medication use and more frequent visits.

Am J Manag Care. 2018;24(9):e300-e304

In the United States, 46 million people are 65 years or older. The elderly population is expected to double by 2030. Advancing age is associated with increasing number of comorbidities, number of healthcare needs, and costs. Caring for chronic conditions in this age group costs the United States more than $617 billion per year.[1]

Over the past decade, a number of healthcare initiatives, mostly supported via the Affordable Care Act, have been deployed in an attempt to improve quality of care and curtail costs. The Veterans Health Administration and CMS have mandated quality reporting and set up mechanisms to incentivize preventive strategies.[2]

CMS has also encouraged health systems and providers to identify effective models of healthcare delivery. Among those are high-intensity models of care. The National Institute for Health Care Reform defines high-intensity care as "care provided by a multidisciplinary team for patients with complex conditions to improve care and lower healthcare costs."[3] A type of high-intensity care model is one that encourages frequent direct person-to-person interaction between patients and their healthcare providers to optimize the value of care.[4,5] An emerging name for this model subtype is high-touch care.[3] This optimization is achieved by frequent visits to focus on outcomes and an encounter framework that facilitates adherence to treatment plans and behaviors that prevent disease or complications. Although there is some evidence that high-intensity primary care reduces hospitalizations,[6] the interventions evaluated have multiple components, limiting our ability to measure the effectiveness of high-touch primary care. However, clinical trials like the Systolic Blood Pressure Intervention Trial have shown that frequent visits were necessary to achieve aggressive control of blood pressure and in turn reduce mortality in elderly patients with high cardiovascular risk.[7] This was found to be a cost-effective strategy.[8]

The aim of this study was to evaluate the impact of a high-touch model of primary care on healthcare utilization among Medicare Advantage patients compared with a standard practice-based model.

METHODS

Study Design and Population

We conducted a retrospective cohort study to evaluate the clinical and economic effects of 2 models of care: high-touch care versus standard practice. Both models of care included only seniors with Medicare Advantage insurance. The study was approved by Western Institutional Review Board (IRB) and the University of Miami IRB.

TAKEAWAY POINTS

- Studies evaluating the use of high-intensity care have produced inconsistent results.
- We used a retrospective cohort study to evaluate the impact of high-intensity care, defined as a high-touch primary care model, among a Medicare Advantage population in comparison with a standard practice–based model.
- There were differences in healthcare costs, admission rates, and use of preventive medication between both models.

Description of Models of Care

The high-touch model (model 1) is a high-intensity primary care model[4,5] that delivers care through very frequent patient–provider encounters aimed at preventing or delaying the occurrence of complications of chronic conditions. Chen Senior Medical Centers is a multispecialty organization spread over 7 states. Its model of care is based on the following pillars: (1) a preventive cardiovascular program[9,10]; (2) in most states, on-site medication dispensing by providers; (3) smaller patient panels of approximately 450 patients per primary care physician (PCP), allowing providers to spend more time with each patient; (4) very frequent encounters, with a mean of 189 minutes per year of face time[3]; (5) an advanced electronic health record (EHR) system; (6) courtesy transportation for all patients; and (7) walk-in hours. We included all Chen Medical members who had Medicare Advantage plans and were seen in any of the Chen Medical practices between January 2, 2014, and March 27, 2015.

The control model (model 2) delivers care at a frequency consistent with usual marketplace benchmarks. This site is also a multispecialty practice that has a main campus and 2 other satellite offices. Although the control groups' practices offer a traditional model of care at their centers, they do offer (1) preventive services, such as bariatric weight loss surgery; (2) an in-house pharmacy where prescriptions can be filled using an online link; (3) limited laboratory tests and basic x-rays; (4) an EHR system that is accessible to their patients; (5) close PCP follow-up, with mean face time of 90 minutes per year; and (6) access to care that involves walk-in hours and an urgent care center that is open on weekends and holidays. However, model 2 does not offer courtesy transportation to its patients, has larger patient panels, has patients seen less often by their PCPs, and does not have transitional care teams (Table 1).

TABLE 1. Comparisons Between Models of Care

Service	Model 1: High-Touch Care	Model 2: Standard Care
Number of offices	>20	3
Preventive cardiovascular program	Yes	No
Electronic health record	Yes, without patient access	Yes, with patient access
Urgent care	No	Yes
Laboratory and imaging	No	Yes
Onsite medication dispensing	Yes	Yes
PCP panel	450 patients	1000 patients
Average yearly face time with PCP	189 minutes	90 minutes
Transportation	Yes	No

PCP indicates primary care physician.

Outcomes

Our primary outcome was healthcare utilization. We defined healthcare utilization as total healthcare costs and the number of hospital admissions. We collected annual healthcare utilization costs based on the total incurred costs (medical and pharmacy) during a 12-month period. We added the costs from the medical claim files of both models of care. The total healthcare costs represent the costs incurred by the health benefits company and the member's responsibility. We reported per member per month (PMPM) costs.[11]

We also collected hospital admissions during the same 12-month period.[12] We counted all admissions to any hospital.

A secondary outcome was use of medications such as statins, aspirin, β-blockers, angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs), and diuretics. We defined medication use as refilling at least 1 prescription in each of those medication classes during the study period.[13]

Other Variables

Using claims, we collected demographic information, including age and gender, and presence of comorbidities. We calculated the Charlson Comorbidity Index (CCI) score as a measure of disease burden. This is a validated method to assess comorbidity status.[14]

Statistical Analysis

We compared the unmatched baseline characteristics between the 2 models of care using *t* tests and χ^2 tests. In light of model differences between both models of care, we calculated a propensity score using logistic regression. The propensity score calculated the probability of a patient being part of model 1 controlling for CCI score, age, and gender. We then matched by propensity score with a margin of 0.01.[15]

After we completed the propensity matching and to account for the skewed nature of cost data, we conducted several analyses. First, we reported median costs removing 5% of costs on both tails.

TABLE 2. Unmatched Baseline Characteristics of 17,711 Primary Care Patients

Characteristic	Model 1: High-Touch Care	Model 2: Standard Care	*P*
n	8761	8950	
CCI score, mean ± SD	1.56 ± 1.86	0.94 ± 1.59	<.01
Age, years, mean ± SD	67.8 ± 10.1	73.7 ± 9.1	<.01
Female, %	61	57	<.01

CCI indicates Charlson Comorbidity Index.

TABLE 3. Propensity-Matched Baseline Characteristics

Characteristic	Model 1: High-Touch Care	Model 2: Standard Care	*P*
n	2356	3339	
CCI score, mean ± SD	0.33 ± 0.72	0.35 ± 0.72	.06
Age, years, mean ± SD	71.1 ± 3.6	71.2 ± 3.5	.07
Female, %	57	59	.16
Number of PCP patient visits per year, mean ± SD	8.7 ± 4.6	3.8 ± 3.8	<.01

CCI indicates Charlson Comorbidity Index; PCP, primary care physician.

TABLE 4. Medication Use in Matched Models of Care

Medication	Model 1: High-Touch Care	Model 2: Standard Care	*P*
Aspirin, %	41	0	<.01
ACE inhibitor/ARB, %	69	33	<.01
β-Blocker, %	39	17	<.01
Statin, %	64	42	<.01
Diuretic, %	51	24	<.01

ACE indicates angiotensin-converting enzyme; ARB, angiotensin receptor blocker.

TABLE 5. Healthcare Utilization by Model of Care

Characteristic	Model 1: High-Touch Care (n = 2356)	Model 2: Standard Care (n = 3339)	*P*
Median (95% CI) PMPM total costs removing 5% outliers on both tails, $	87 (26-278)	121 (52-284)	<.01
Number of hospital admissions per year, mean ± SD	0.10 ± 0.45	0.20 ± 0.58	<.01
Median (IQR) PMPM total costs removing 5% outliers on lower tail, $	51 (0-184)	84 (25-269)	<.01
Adjusted mean (95% CI) PMPM costs, $	361 (105-956)	435 (206-1356)	<.01

IQR indicates interquartile range; PMPM, per member per month.

Second, we reported median costs removing 5% of the lower-cost tail to account for those who had zero cost over the year.[16] Third, we used generalized linear models to account for residual confounding, adjusting for Elixhauser comorbid conditions identified during the analysis of the baseline characteristics.[17]

For medication use, we calculated in the propensity score–matched groups the differences between those using specific medications in models 1 and 2.

The fitness of the data was assessed using the deviance ratio. Analyses were performed using STATA 14.0 (StataCorp; College Station, Texas), and all significance tests were 2-tailed.

RESULTS

Baseline Characteristics

Tables 2 and 3 show the unmatched and matched baseline characteristics. We included 17,711 unmatched primary care patients. Both groups had significant differences in CCI score, age, and gender (P <.01 for all).

We were able to match 5695 patients from both models of care. The characteristics used for matching—namely, CCI score, age, and gender—were similar when comparing both types of models of care (P >.05 for all). The mean number of primary care visits was higher in model 1 of care compared with model 2 (8.7 ± 4.6 vs 3.8 ± 3.8; P <.01).

Medication Use

Table 4 shows medication use by model of care. Medications were used more frequently in model 1. The absolute differences in percentage points (PPs) were 41 PPs for aspirin, 22 PPs for statins, 36 PPs for ACE inhibitors and ARBs, 26 PPs for β-blockers, and 22 PPs for diuretics when comparing models 1 and 2 (P <.01 for all).

Healthcare Utilization

Table 5 shows healthcare utilization by model of care. The PMPM healthcare costs for model 1 were $87 (95% CI, $26-$278) compared with $121 (95% CI, $52-$284) in model 2 (P <.01). The mean number of admissions was lower in model 1 (0.10 ± 0.40) compared with model 2 (0.20 ± 0.58; P <.01).

DISCUSSION

Our study found that in a propensity-matched sample of seniors insured through Medicare Advantage, those who received high-touch care had lower healthcare costs and fewer hospitalizations than a matched group of patients receiving standard care in a similar value-based model that attracts patients who are clinically high-risk. Care model 1 had a higher number of encounters between patients and providers and was associated with higher use of cardiovascular medications.

We hypothesize that 3 potential mediators may explain the lower costs in the high-touch model of care. First, the greater interaction between patients and providers may allow for better optimization of

medications and promote better adherence, leading to higher use of evidence-based medications. Others have reported that facilitating patient–physician communication can optimize the use of medications[18,19] and help develop an environment of accountability and trust that facilitates behavior modification. As an example, informing patients of their treatment targets after acute coronary syndromes significantly increased adherence to evidence-based therapies.[20] Similarly, clinical inertia is a frequent cause of undertreatment of chronic conditions among the elderly.[21]

A high-touch model that focuses on patient outcomes and establishes a culture of seeing patients as frequently as needed to prevent complications may help providers favor a more aggressive approach toward treatment. Future studies should evaluate this possibility. Nevertheless, our findings support the fact that the high-touch model may lead to higher use of cardiovascular medications known to improve control of blood pressure and cholesterol and reduce cardiovascular outcomes. The fact that the standard-of-care comparison group (model 2) also had on-site dispensing of medications reduces potential confounding related to the ability to fill prescriptions. However, in the case of model 1, medications are usually delivered by the provider during the patient visit, thus facilitating the quality of communication regarding prescribed medications.[13]

A second potential explanation for the healthcare cost reduction seen in the high-touch model is that it may allow the more timely diagnosis of ambulatory care–sensitive conditions (ACSCs), leading to a lower mean number of hospital admissions, an important driver of healthcare costs.[22] Common causes for hospitalization due to common ACSCs include lack of or delayed access to care, suboptimal monitoring, and medication nonadherence. Therefore, recommended strategies to avoid such hospitalizations include those that are intrinsic parts of a high-touch model: easy access to care, monitoring of outcomes and medication adherence, transition teams, and communication among providers.

Third, because patients in the high-touch care model were seen more often than those in the standard care model, they may better adhere to other preventive care strategies, such as vaccination or cancer screening. The role that high-touch models of care can have in avoiding hospitalizations for ACSCs and in preventive care needs to be rigorously studied.

High-touch care can help build the physician–patient relationship, and this in turn could be associated with greater trust.[23] Trust in healthcare relationships is a key ingredient of effective and high-quality care. Although the direct influence of trust on healthcare outcomes has long been recognized, it only recently has been proven to enhance behavior change and medication adherence.[24]

Our study also offers insights regarding which components are pivotal for high-intensity primary care programs. Those programs were proposed to manage medically complex and high-cost patients in an effort to decrease costs and provide better quality of care. A systematic review of the literature[6] that included 379,745 participants and defined high-intensity care as primary care replacement (home-based care or clinic-based replacement) or primary care augmentation (by adding an interdisciplinary team) found varying degrees of effectiveness in reducing hospitalizations and limited evidence of improving mortality. The premier example of those high-intensity primary care initiatives is the Veterans Affairs Patient Aligned Care Teams model, which provides an integrated care team approach but found a modest increase in costs. A potential explanation is that veterans averaged 2.3 primary care visits per year, which may be insufficient to offset the costs of the program.

To our knowledge, there is no literature evaluating the effectiveness of a high-touch model of care. This may be explained by the recent emergence of the term "high-touch." However, there is evidence that increasing primary care visits improve colorectal cancer screening rates,[25] hypertension diagnosis,[26] reduction in dialysis-related hospitalizations,[27] and cardiovascular risk factor control,[28] which supports our findings.

Our study contributes to the literature by comparing 2 models of delivering care to Medicare Advantage patients and revealing that among elderly patients, a higher frequency of patient–provider encounters can facilitate more effective care. Evaluating patients more often increases preventive and therapeutic opportunities and may improve the patient–physician relationship. It also provides concrete guidelines for practices seeking to implement high-touch care with respect to panel size, frequency of visits, and services provided.

Limitations

Our results should be viewed in the context of the following limitations. First, we matched for a limited number of factors known to affect the outcomes and could not match for other variables such as cardiovascular risk, social determinants of health, and principal diagnosis. However, we did match for the most important contributors to costs, such as comorbidity burden and age. Second, we had access only to claims data for both models of care; therefore, our analysis is subject to information bias. For this reason, we could not report on intermediate clinical outcomes, such as blood pressure or diabetes control, limiting our ability to test mediators of reduced costs. Third, the generalizability of the results is applicable only to at-risk practices that care for Medicare Advantage populations. Fourth, as in other high-intensity models, the high-touch primary care model tested in this study has components other than visit frequency that may play a role in outcomes, such as provider delivery of medications, in-house specialty care, and patient transportation.

CONCLUSIONS

Our study provides evidence that a high-touch preventive model providing frequent and easy access to primary, specialty, pharmacy, and ancillary care can improve healthcare utilization and reduce healthcare costs in spite of higher frequency of outpatient visits in a senior population. Future studies should evaluate the impact of this model on outcomes such as patient experience, medication adherence, and clinical outcomes. ■

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Source of Funding: None.

Author Disclosures: Dr R. Ghany, Ms Dawkins, Dr A. Ghany, Ms Forbes, and Mr Tajiri are employed by Chen Senior Medical Centers. Dr Chen is a board member and employee of Chen Senior Medical Centers. The remaining authors report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

Authorship Information: Concept and design (RG, LT, GC, AG, AP); acquisition of data (RG, LT, AG, TT); analysis and interpretation of data (RG, LT, ED, TT, AP); drafting of the manuscript (RG, LT, ED, AG, AP); critical revision of the manuscript for important intellectual content (RG, GC, ED, AG); statistical analysis (LT, TT); provision of patients or study materials (RG, GC, EF, TT); administrative, technical, or logistic support (ED, EF, TT); and supervision (GC, EF).

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