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Measuring the cost of the Patient-Centered Medical Home: A cost accounting approach

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Abstract

To explore the cost for individual practices to become more patient-centered, we inventoried and calculated the cost of costly activities involved in implementing the Patient-Centered Medical Home (PCMH) as defined by NCQA. There were three key findings. The cost of each PCMH-related clinical activity can be classified in one of three major categories. Cost offsets can be used to defray part of the cost recognition. The cost of PCMH transformation varied by practice with no clear level or pattern of costs. Our study suggests that small and medium sized practices may experience difficulty with the financial burden of PCMH recognition.

Keywords

Health Care Economics and Organizations; Patient-Centered Care; Health Care Systems; Health Policy; Medical Home

Introduction

Background on the Patient-Centered Medical Home

Primary care has been identified as an area where waste and inefficiency can be improved due to its role as an entry point for care (Fineberg, 2012). The Patient-Centered Medical Home (PCMH) is a well-investigated model that holds potential to increase value in healthcare by increasing efficiency and reducing waste (Jaén et al., 2010; Stange et al., 2010). The PCMH focuses on team-based health care that is led by a primary care clinician and coordinated throughout a patient's lifetime.

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Recognized standards also exist for the use of the PCMH model as represented in consensus statements by major professional societies such as the American Academy of Family Practice and recognition bodies such as the National Committee for Quality Assurance (NCQA) (NCQA, 2014; Patient-Centered Primary Care Collaborative, 2007). The importance of the PCMH as part of health policies that promote value in healthcare has been demonstrated through such laws as the Patient Protection and Affordable Care Act and state-based initiatives such as Pennsylvania's Chronic Care Initiative (CCI) (Davis, Abrams, & Stremikis, 2011; Gabbay, Bailit, Mauger, Wagner, & Siminerio, 2011).

A review of the economics of PCMH

A number of prior studies have found mixed results when measuring whether the PCMH increases efficiency, as measured by reduced utilization or total spending within the primary care setting or throughout the healthcare system. Two recent reviews of the literature are instructive, offering conflicting results on whether PCMH has demonstrated impact on economic outcomes with similar results as to the relatively inadequate design of prior studies in terms of such outcomes (Hoff, Weller, & DePuccio, 2012; Jackson et al., 2013). Studies that evaluated impact on quality and the patient experience have also found mixed results (Hoff et al., 2012).

An emerging literature analyzes the PCMH from an economic point of view by focusing on the cost of the model. The literature has demonstrated that practice transformation is a costly process from the point of view of the primary care practices. These costs are generally born either by the practice itself, payers, or policymakers (Nutting et al., 2009). Prior research on the cost of PCMHs has tended to focus on directly identifiable costs—the amounts paid to recognition bodies such as NCQA for their “seal of approval”, increased reimbursements provided to recognized practices by payers, and for PCMH-specific training programs. Far less research has been done to explore the costs of PCMH from the practice point of view.

Two recent examples of such a cost analysis are recent studies by Halliday et al. and Martsolf et al. Halladay et al. found that the cost to apply for level 3 PCMH recognition in a sample of small to medium sized practices in North Carolina were “\$11,453–15,977 pFTE provider.” (Halladay et al., 2016) Martsolf et al. found that the cost of transformation was “\$9,814 per clinician” in the year of transformation and “\$64,768 per clinician” on an ongoing basis in a sample of twelve small to medium sized practices in southeast Pennsylvania that participated in Pennsylvania's Chronic Care Initiative (CCI) (in their study, “ongoing” costs are defined as those costs “...which (practices) continued to incur yearly as a consequence of each change”) (Martsolf, Kandrack, Gabbay, & Friedberg, 2015).

Motivation—identifying the costly activities associated with PCMH

Our study's goal was to enhance the literature regarding the cost for primary care practices to implement the PCMH model. This study was designed to measure the incremental cost of becoming a PCMH within the larger set of activities routinely conducted by a primary care practice from the practice's point of view. The study focused on the experience of small and medium sized practices as these practices would most likely benefit from evidence on cost,

and because such practices currently represent a large number of primary care practices in the U.S. (Liaw, Jetty, Petterson, Peterson, & Bazemore, 2016)

Methods

Accounting for the costs of the PCMH model

Cost analysis is a generalizable technique used in the financial management of health services organizations. This methodology can be applied to primary care practices by assessing the inputs required to run the practice. Practices typically use cost analysis to account for the cost of care that they provide, while not implementing cost analysis to the extent used in larger, more complex organizations, such as hospitals (Cleverley, Cleverley, & Song, 2010). Distinct inputs for the primary care practice include the time that physicians and other staff spend delivering care, the capital such as examination rooms required to deliver care, and the cost of administrative staff that run a primary care practice. The value of each of these inputs can be accounted for through their cost e.g. salary and benefits for labor costs or the rent for office space as an example of a capital cost.

One challenge associated with the traditional approach to product costing in healthcare is that patient-centeredness may not be separable from other aspects of practice management. Indeed, this is the core of the PCMH model, which is based on wholesale practice transformation (Gabbay et al., 2011). In contrast, a new piece of capital equipment like an X-ray machine is a discrete purchase with a cost that is separable from the other costs of running the practice. Thus, our application of cost analysis to PCMH transformation and sustaining the model required a more granular view of practice management than may be typically implemented in a practice's financial statements.

The study team addressed the unique challenges of cost analysis for PCMH by designing, piloting, and utilizing a novel cost collection tool that allowed practices to inventory the costly activities associated with PCMH. This approach allowed us to identify the costly aspects of production required to become and remain a PCMH, which were almost entirely related to the labor costs of running a practice. For example, a medical assistant's role was expanded to *track and coordinate* care, a factor associated with NCQA recognition, through the addition of paid work hours and the implementation of a new practice policy to better coordinate the care of certain patient. The cost of this aspect of PCMH would be the one time cost of developing and implementing policies around the change in practice management and the ongoing cost of the extra pay for the medical assistant.

One other challenge in cost analysis is calculating the net costs of care. The net costs would include both the financial costs of any aspect of practice management along with any direct benefits. Net costs fall short of a full accounting for the financial management of the practice, such as an income statement. In the case of PCMH, net costs include the offsetting financial benefits of PCMH from the practice's point of view. The major financial incentives for PCMH recognition are quality payments, pay for performance bonuses, and incentive payments for implementing the PCMH model. Efficiency gains resulting from practice transformation are considered an indirect offsetting benefit of the model if a practice is better run as a PCMH. For example, open access scheduling may be costly to implement, but

it may also lower ongoing costs associated with fewer no-shows and make it easier to cancel or shift appointments as needed.

Data for creating a cost collection tool

Our study was based on primary data collection from a convenience sample of NCQA recognized primary care practices. We recruited eleven small and medium sized—less than ten full time equivalent [FTE]—practices to participate. All eleven had previously transformed to the PCMH model and sustained the change. Most of the eleven practices received a financial incentive through an initiative to transform primary care practices into PCMHs, the Pennsylvania Chronic Care Initiative. The participants were chosen for inclusion in this study due to their adoption of the PCMH model and the ability to sustain the model over time. The study was approved by the university Institutional Review Board (IRB) on condition that the names of the participating practices be kept confidential to protect proprietary financial data. All participating practices consented to participate in the study.

We surveyed all practices to determine the costly clinical activities involved in transforming and sustaining a PCMH-based primary care practice. The survey tool was based largely on the 2011 NCQA requirements for recognition as a medical home, and is available from the authors on request. The six 2011 NCQA activity categories used to design the survey were: *access and continuity, identify and manage patient populations, plan and manage care, provide self-care support, track and coordinate care, and measure and improve performance*. The survey included basic background information about practices, such as their practice type, number of providers and staff, and patient population, summarized in a separate manuscript (also available from the authors upon request). While the 2014 activities differ slightly than the 2011 categories although the overall spirit of the categories are the same (NCQA, 2014).

We applied the general methodology for cost accounting to the clinical activities data gathered from our sample to create a taxonomy of costs, cost offsets, and revenue increases related to the PCMH model. We first created a taxonomy as a multilevel representation of the cost of providing primary care within a PCMH. The representation allowed us to isolate PCMH specific activities and to classify these activities based on principles of costing. We then used this taxonomy along with a list of clinical activities associated with PCMH provided by the practices to create a cost inventory tool that would translate hours spent achieving different aspects of PCMH designation into costs. Finally, we sent these tools to practices to collect data that we could analyze to calculate the cost of PCMH transformation and sustaining the model.

Data for cost analysis

Three physician practices supplied the data using the cost collection tool, while three NP led practices supplied a more limited set of data. Thus, of the eleven practices enrolled in our study, six were able to supply us with data to perform a cost analysis. The three physician practices completed the full version of the cost tool, while the three nurse led practices

provided a more limited set of data. The data for the three physician practices and three NP led practices was used to calculate the cost of transformation.

All six practices that provided cost data provided that data for the years 2008 – 2011. We then reported this data based on the year of PCMH implementation, i.e. “year 0”, to adjust for the differences in the year that each practice achieved NCQA recognition. Our analysis includes data for all practices from the year before the implementation of PCMH (“year –1”) and going through one year after PCMH recognition was achieved (“year 1”). We then analyzed other data as available from the practices, whether the costs were reported for years before PCMH recognition (i.e. years –3 and –2) or after recognition (i.e. years 2 and 3). Three other practices, all of which were nurse-practitioner (NP) led and affiliated in the same larger organization, gave a much more limited set of data that was used to calculate a similar, but less rigorous, version of the costs of PCMH in NP led practices.

Analysis

We assessed the cost of implementing the PCMH model using the cost collection tool described above. The analysis here reflects the three practices that returned the tool for the assessment of cost data as well as the three NP led practices. One of the practices underwent transformation to an NCQA recognized PCMH during the last year of our study (2011). Two of the practices underwent transformation to an NCQA recognized PCMH during the first year of our study (2008). We assessed cost data for the years 2008–2011 and pre-2008 cost data. As a result, there are only two points where the practice costs overlap in our data set—the year prior to transformation (year –1) and the transformation year (year 0).

We present the cost of PCMH normalized by the number of full time equivalent (FTE) providers in the practice. This strategy allowed us to combine the costs for three practices, each of which had a different size. We then averaged the cost of transformation in two ways. One method was to take an average of the cost of transformation per FTE in each practice, and then to average costs across practices in a straight (unweighted) fashion. Our second method was to weight the average cost of transformation in each practice by the number of FTE providers, to give relatively more weight to the larger practices.

We separated the cost of transformation into four categories: the cost of NCQA patient centered recognition activities, the cost of obtaining recognition itself, the cost of changes to practice culture, and the cost of the CCI collaboration that all practices were involved in. We further segmented the cost of NCQA patient centered activities by activity. This allowed for results of total costs net of offsets, as well as an estimate of the costs of achieving each of the six NCQA areas for recognition. This type of data may be particularly useful for practices who aim to achieve PCMH recognition, but not at the highest level, i.e. level one or two rather than level three in the case of NCQA recognition.

Results

Categorizing the costly activities required for PCMH

Our approach to estimating the cost of production within the PCMH led to a conceptual map of PCMH activities’ costs (Figure 1). The broadest level of economic analysis is to consider

the entire practice as producing multiple types of outputs. This is concordant with our review of the literature and survey data from practices, which provide both specific intervention (procedures) as well as more general care management (evaluation and management). The next level of our taxonomy separated the specific activities that constitute a PCMH-based practice from a traditional primary care practice. Both types of practices deliver services to receive compensation. A PCMH intentionally and measurably engages in PCMH-specific activities. Thus, the first step in accounting for the cost of the PCMH model is to isolate PCMH activities that are separate from those undertaken to receive reimbursement.

The third, most granular, level of our taxonomy differentiates PCMH-specific activities using three categories that we identified as important through our survey data: 1) patient-centered activities that are specific to the PCMH model; 2) NCQA recognition activities; and 3) practice management tasks undertaken to become and to sustain a PCMH, which we termed “practice culture activities”. Table 1 shows how different types of activities relate to our three categories within the cost taxonomy.

We categorized each activity using cost concepts derived from our taxonomy to determine how the cost of a clinical activity is related to a PCMH-specific activity, recognition, or practice culture. Figure 2 includes examples of costly activities and how their costs are categorized based. Each activity was classified in terms of attribution, type, timing, and activity category. We also assessed the potential for cost offsets for all activities to create a model that accounts for the net costs of PCMH recognition.

Costly inputs for PCMH

Our survey led us to focus on labor costs, allocation of effort, and allocation of capital expenditures as key inputs needed to identify and differentiate the costs of PCMH production. All practices reported that the medical director, practice administrator, and others spent compensated and uncompensated time to achieve PCMH designation. Such time spent was a direct labor cost, incurred on a one-time basis to transform a practice as a recognition activity. Our analysis found that practices also needed to allocate the cost of a small number of individuals across a large number of activities at the small and medium sized practices enrolled in our study. One individual nurse care manager or a newly hired medical assistant could be responsible for achieving activities in a number of patient-centered activities, as well as for costs related to changes in practice culture. Thus, accounting of PCMH costs for our small and medium sized practices required the allocation of the effort of multiple types of clinicians to NCQA recognition categories, the cost of recognition, and practice culture activities.

We found that certain important types of inputs cut across multiple activity domains: office space, equipment, training, and activities specific to each type of clinical staff, including physicians, nurses, nurse care managers, and medical assistants. Thus, while some clinical activities could be related directly to an NCQA established PCMH standard—e.g. identify and manage patient populations, or plan and manage care—these “cross cutting” inputs affected several categories of cost, or affected clinical activities and practice culture.

Cost of PCMH in practices

The cost of the PCMH on a per FTE provider basis for the three physician led practices that provided cost data is shown in Table 2. The unweighted average cost of transformation was \$56,457 per FTE provider in the year before NCQA PCMH recognition and \$60,978 in the year recognition was achieved. The weighted average cost of transformation was \$35,508 per FTE provider in the year before recognition was achieved and \$38,218 in the recognition year. These costs are net of all incentive payments received by practices from payers and the CCI collaborative. Our results suggest that the net costs of PCMH are positive and substantial—physicians in these practices earned between \$90,000 and \$150,000 per year including benefits. For comparison, these cost estimates are also higher than the Halliday et al. and Martsolf et al. results in the transformation year. If these costs continued, they would be broadly consistent with the Martsolf et al. results in terms of ongoing costs.

NCQA recognition activities and the cost of managing changes in practice culture accounted for the majority of PCMH costs, while the recognition process and the CCI collaborative were the main sources of revenue as shown in Table 2. Practices spent costly time and devoted resources to achieving the standards required for PCMH recognition. They also spent costly time and devoted resources to transforming their practices from traditional practices into patient-centered practices. Recognition and collaboration reduced the cost of transformation through financial incentives and led to enhanced reimbursement from insurers through the incentive payments for participation in CCI. The cost of patient centered activities increased substantially between the year prior to transformation and the transformation year.

The cost of patient centered activities varied by year and by method of averaging costs (weighted versus unweighted). The costliest area in the pre-transformation year was *providing self-care support*. The costliest area in the transformation year was *tracking and coordinating care* when averaging across practices in an unweighted fashion. The costs of patient-centered recognition activities were much more homogeneous when practice costs were weighted based on practice size. This result may suggest that larger practices were able to spread their effort across patient-centered activities, while smaller practices focused their efforts on a smaller number of patient-centered activities.

Figure 3 shows the net cost of PCMH per FTE provider by year for each of the three physician led practices that provided cost data. The horizontal axis is the PCMH year—the year of transformation is indexed as year 0. The vertical axis is the net cost of PCMH for the practice normalized by the number of FTE providers.

The three practices show three distinct patterns in terms of PCMH costs. Practice 1 transformed in 2008, such that costs reflect mainly the cost of sustaining PCMH. Practice 1 also provided data for the years 2012 and 2013. As such, we were able to analyze the costs of PCMH for several years after NCQA recognition was achieved. For this practice, costs continued to climb as the practice worked to sustain the PCMH model. Practice 2 transformed in the last year of our study, 2011, such that costs represent the cost of PCMH activities before recognition was achieved. For this practice, the costs of PCMH were essentially zero until the year before achieving recognition. Then, costs increased markedly

both for the pre-recognition year and for the year recognition was achieved. Practice 3 transformed in the first year of our study, 2008, such that costs reflect mainly the cost of sustaining PCMH. Practice 2 was able to transform itself into a PCMH in the most economical fashion out of the three practices.

The cost of the three NP led practices that provided cost data is shown in Figure 4. The data is more limited due to both the simpler data submitted by these practices and the consolidated financial basis used to manage all three practices. One aspect that differs for the NP practices is that gross cost of transformation is always positive because these practices did not report any incentives or offsets. The trend in costs of these practices are most similar to “practice 3” in Figure 3, ramping up from pre-transformation year to the transformation year, and then decreasing. One NP led practice, “practice 2” in Figure 4, has lower costs per FTE because they hired another provider during the recognition process without increasing the overall costs of practice management as measured in this study. All NP led practice put in the same amount of effort for PCMH transformation in terms of hours, so the cost per provider was highest in the smallest practice, “practice 3”.

Discussion

Implications for analyzing the cost of practice transformation

We found that many PCMH-specific activities may include indirect costs or cannot be captured through direct financial outlays. Direct costs that can be captured generally fall in the category of amounts paid for recognition, amounts paid for outside consultants and experts to facilitate the recognition and re-recognition process, and amounts paid for outside experts to provide PCMH-related training. The activities required for NCQA recognition by our sample of practices went well beyond the cost of the application process, encompassing many costly activities in the form of staff time spent that enhanced patient care without contributing to recognition or reimbursement.

The results also suggest that many of the costs for transformation are incurred in preparation for recognition, since the cost in the year prior to recognition was almost as high as the cost in the year that recognition itself was achieved. Our results also suggest that there are economies of scale in adopting PCMH, since the weighted average cost of transformation was less than the straight average. In other words, larger practices tended to have lower per physician costs. That may make PCMH transformation particularly challenging for the smallest practices, and policymakers and payers may want to focus attention and resources on transformation for these practices. For NP led practices, the average pre-recognition year costs are also much lower, while the average recognition year cost is almost as high. That suggests that they were practicing in a more patient-centered way, or at least in a way that was more concordant with NCQA recognition standards, before transformation. However, the amount of work to actually achieve recognition did not differ between practices with different cost structures in our sample (i.e. NP run practice versus private, MD run practices).

Limitations—study design, validity and generalizability

Our study is based on a self-selected cohort of small and medium sized practices whose experience with implementing the PCMH was assessed retrospectively. In particular, we utilized experience beginning in 2008 for the practices that participated in the study. We allowed the practices to determine who would fill out our survey instruments and participate in our focus groups. It would be valuable to investigate and prospectively apply our conceptual model to practices as they undergo transformation and to assess inter-rater reliability.

One major limitation of our study from the point of view of cost analysis is the use of data from six practices in order to calculate the costs of transformation and sustain PCMH. The data collected from these practices includes four calendar years, 2008–2011, which covered different stages of transformation for those six practices that did provide cost data. This limitation also prevented us from performing more rigorous statistical analysis of the cost of PCMH, such as testing the possible differences in practice costs pre and post transformation, as well as testing differences in PCMH costs related to practice size (number of providers or number of patients served).

The validity and generalizability of our tool is limited based on the size of our sample. We collected a pilot sample of practices and used semi-structured interviews as an investigational tool to assess their experience. A larger sample would allow for a more rigorous approach to cost accounting, such as statistical sampling, to validate the findings presented here. Another limitation of our study was the exclusion of costs related to implementation of or change to practice EMR systems. EMR utilization has been noted as a key element of PCMH implementation (NCQA, 2014), but was beyond the scope of costs assessed in this study. Given that this was a pilot study whose approach was based on the NCQA and AAFP recommended guidelines for the PCMH model, these limitations represent a call for more in-depth research on this important issue. Large primary care evaluation programs such as the Agency for Healthcare Research and Quality's EvidenceNOW program that added a cost analysis arm would serve to increase the evidence on the cost of running a primary care practice in a larger sample of practices (Agency for Healthcare Research and Quality, 2016).

Implications for primary care practice and policy

For a primary care practice to stay in business, revenue must exceed costs over the short term and the long term. Until now, practices were challenged to implement and to continue the use of the PCMH model due to questions about its financial viability. Committed small and medium sized practices that wish to plan for the transition to the PCMH model can use our taxonomy and classification of activities, as well as the estimated cost of PCMH, as a guide for understanding and assessing the costs of implementing and sustaining the PCMH model. Although practices are aware that some costs may be offset by additional incentives from payers, practices may wish to elicit additional payments based on the cost of the PCMH model that goes beyond the formal recognition process. Additionally, scale economies may allow larger practices to implement PCMH at lower per provider cost, a

conclusion we were unable to test in this analysis but which we found in a separate mixed methods analysis of the eleven practices enrolled in this study (Lieberthal, et al., n.d.).

Our analysis of the cost of PCMH in these practices has implications for implementation of related value-based health policy changes, such as the Medicare Access and CHIP Reauthorization Act (MACRA) (Centers for Medicare and Medicaid Services, 2017). Extrapolating from our analysis suggests that undertaking practice transformation in order to participate in MACRA, especially in Advanced Alternative Payment Models (APMs), will represent a significant expense for practices in the short term. Further, practices that do transform may find that their cost of operating continues to be higher over the long term, which would mean that APMs would only be worthwhile for those practices that can attain significant additional revenue through participating in this program. Economies of scale that can help practices succeed in PCMH transformation may also be key to success under MACRA.

While improved data on the PCMH model may enhance diffusion of this model in smaller practices, adequately recognizing and lowering the cost of transformation is key to the improvement of primary care through application of the PCMH model. Such an outcome will require a payment structure that matches the costs of inputs required for the PCMH model in amounts that are at least equal to the cost of PCMH. Designing such a system is consistent with the model of PCMH, where payment reform is a major pillar (Lipson, Rich, Libersky, & Parchman, 2011).

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Abbreviations

NCQA	National Committee for Quality Assurance
PCMH	Patient-Centered Medical Home
NP	nurse-practitioner
CCI	Pennsylvania's Chronic Care Initiative
MACRA	The Medicare Access and CHIP Reauthorization Act.

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Figure 1.
Determination of the cost of production of primary care due to application of the PCMH model

Non-PCMH costs and offsets	<ul style="list-style-type: none"> • Gross cost: Provider compensation • Offset: Reimbursements for visits
Attribution	<ul style="list-style-type: none"> • Direct costs: Generating letters to patients (<i>track and coordinate care</i>) • Indirect cost: Sustaining open access scheduling (<i>access and continuity</i>)
Type of input	<ul style="list-style-type: none"> • Capital cost: Language line for translation (<i>access and continuity</i>) • Labor costs: Increased hours (<i>access and continuity</i>)
Timing of input	<ul style="list-style-type: none"> • One time costs: Retina scanner purchase (<i>track and coordinate care</i>) • Ongoing costs: Transitions of care changes (<i>plan and manage care</i>)
Net costs	<ul style="list-style-type: none"> • Gross costs – offsetting gains: Cost of implementing open access scheduling – gains due to fewer no-shows (<i>access and continuity</i>)
Recognition costs	<ul style="list-style-type: none"> • Costs paid to outside organization + cost of time spent completing application + cost of maintaining recognition
Practice culture costs	<ul style="list-style-type: none"> • Cost of staff dissatisfaction + cost of disruption – gains from enhanced staff satisfaction with the PCMH model (<i>changes to practice culture</i>)

Figure 2.
Examples of how to allocate the cost of PCMH activities using an economic taxonomy

Figure 3.
Cost of PCMH by year for each practice

Figure 4.
PCMH cost per FTE provider

Table 1

Structure for inventory of the cost of clinical activities related to PCMH

Activity category	Explanation
Patient-centered activities	PCMH specific clinical costs
• Access and continuity	NCQA area
• Identify and manage patient populations	NCQA area
• Plan and manage care	NCQA area
• Provide self-care support	NCQA area
• Track and coordinate care	NCQA area
• Measure and improve performance	NCQA area
Recognition process	Cost of applying to NCQA, obtaining recognition, and maintaining recognition
Practice culture	Cost of change in philosophy, management approach, provider/staff satisfaction/dissatisfaction

Table 2

Cost of PCMH by component

Activity category	Average across practices		Weighted average across practices	
	Year prior to recognition	Recognition year	Year prior to recognition	Recognition year
Patient centered activity				
1	−\$3,270	\$2,367	−\$2,917	\$2,225
2	\$3,075	\$9,305	\$1,692	\$8,908
3	\$3,290	\$7,143	\$2,091	\$7,093
4	\$7,094	\$9,185	\$4,863	\$8,605
5	\$5,399	\$11,093	\$3,036	\$8,920
6	\$5,485	\$9,054	\$3,864	\$9,503
Patient centered subtotal	\$21,073	\$48,147	\$12,629	\$45,254
Recognition	−\$2,533	\$878	−\$1,788	\$1,862
Culture	\$35,502	\$41,403	\$23,350	\$26,723
Collaboration	\$2,415	−\$29,450	\$1,317	−\$35,621
Total	\$56,457	\$60,978	\$35,508	\$38,218