Patient-Centered Medical Home

Developing the business case from a practice perspective

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National Committee for Quality Assurance

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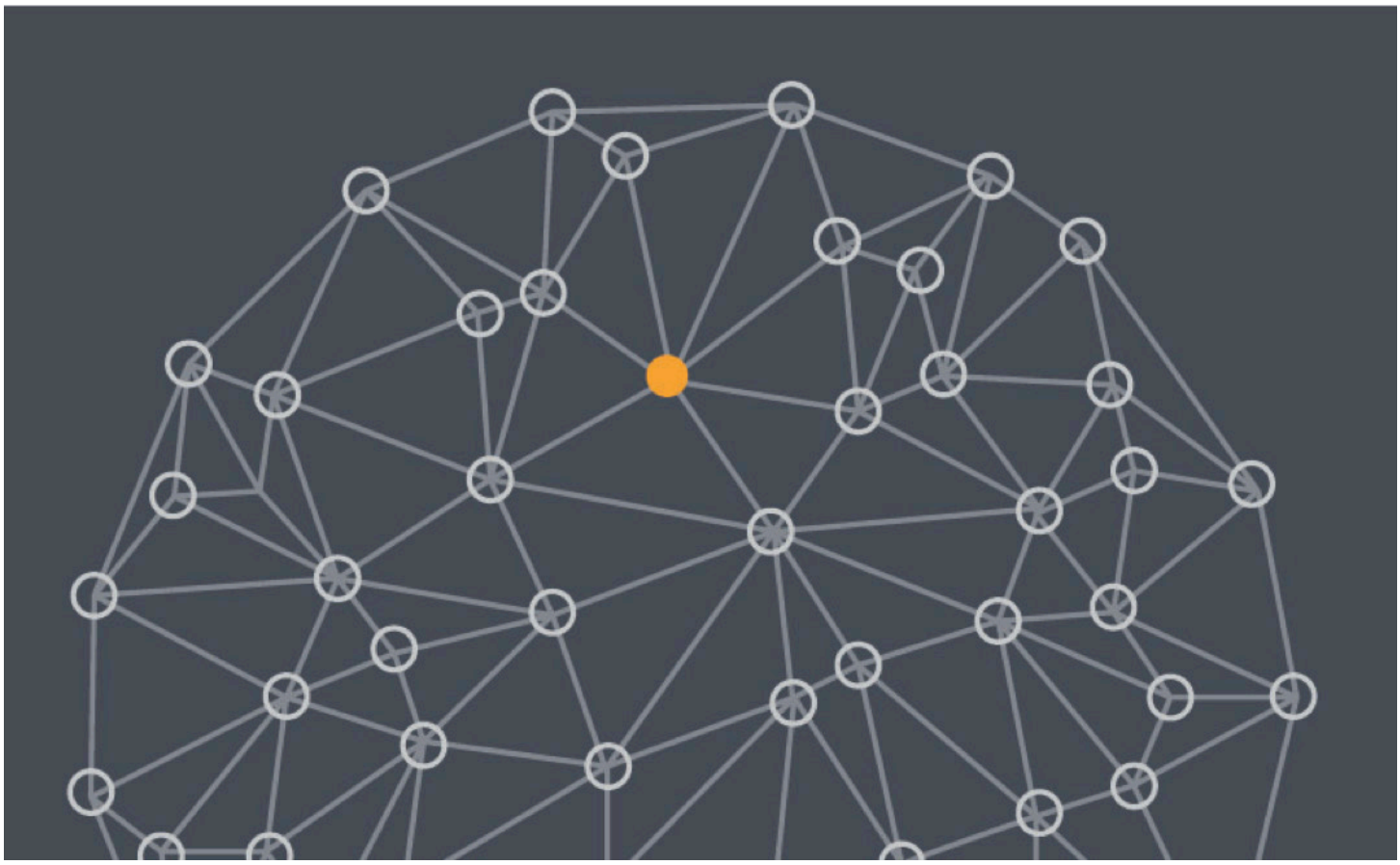

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Caveats and Limitations

This work is subject to the terms and conditions of the Independent Contractor (Consulting) Agreement effective December 15, 2017, between the National Committee for Quality Assurance (NCQA) and Milliman, Inc. (Milliman).

The information presented herein was developed with reliance on information provided by NCQA, interviews Milliman conducted with content experts and implementers of PCMH Recognition, scientific and academic literature, and publicly available sources. Except as described herein, we have not verified this information. If the underlying data or information is inaccurate or incomplete, the results of our review may likewise be inaccurate or incomplete. Information included in this herein reflect information current as of the writing of this report. It is possible that other data sources or relevant articles have been published since May 2018 but were not available in time to be reflected in this report. Interviewees we contacted represent a convenience sample of PCMH implementers and content experts. Experiences may not be representative or generalizable to the experience of all PCMH implementers or practices.

Estimates provided for the costs and revenues attributable to PCMH Recognition are hypothetical estimates based on a sample of data from implementers of PCMH Recognition and from scientific and academic literature. Differences between our estimates and actual costs and revenues will depend on the extent to which each implementer's experience conforms to the assumptions made for this white paper. It is certain that actual experience will not conform exactly to the assumptions used in this white paper. Actual amounts will differ from estimated amounts to the extent that actual experience deviates from expected experience. For example, estimates of costs and revenues may vary depending on:

- Location and size of the practice
- Payer mix and payment models of the practice
- Medical complexity of patient population
- Amount and complexity of change required for practice processes, procedures, functions, and reporting to align with PCMH Recognition standards and requirements
- Ability of the practice to meet quality measurement targets
- Program rules and payer incentives for PCMH Recognition

This work product was prepared solely to provide assistance to NCQA. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends any recipient of this white paper be aided by its own actuary or other qualified professional when reviewing the Milliman work product. Practices should consult with their legal and financial advisors when contemplating contractual arrangements and developing pro formas to consider their unique circumstances, legal and regulatory environment, and financial situation.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. Susan Pantely, FSA, MAAA, is a member of the American Academy of Actuaries, and meets the qualification standards for performing the analyses in this report.

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Introduction and background

Primary care activities targeting disease prevention and management, population health improvement, and care coordination are important levers for controlling costs and improving outcomes in the U.S. healthcare system. The patient-centered medical home (PCMH) is regarded as a model of care with potential to further these goals.[1,2,3] The National Committee for Quality Assurance (NCQA) Patient-Centered Medical Home Recognition program is the most widely adopted medical home model for primary care practices in the country.[4] Nearly 20% of primary care physicians in the United States are in NCQA-recognized PCMHs, and more than 100 payers currently support NCQA PCMH Recognition through financial incentives, contracting arrangements, or by providing technical assistance, such as the services of a PCMH-certified content expert.[5] PCMH provides a foundational model for the organization and transformation of primary care that aims to improve quality of care, patient outcomes, patient experience, staff satisfaction, and healthcare efficiency—while at the same time reducing costs. Successful PCMH programs can accomplish these aims by establishing processes and systems that enable stronger relationships between clinicians and patients, clinical care teams, and across care sectors; increasing care coordination and integration; and decreasing care fragmentation.[6]

NCQA engaged Milliman, Inc. (Milliman) to develop this white paper outlining the operational and financial considerations for healthcare practices considering obtaining or maintaining PCMH Recognition through NCQA. This white paper addresses the question: *What are the operational and financial considerations for becoming a PCMH-recognized entity from the perspective of a primary care practice?*

This white paper first considers the key operational and financial motivations and considerations to undertake PCMH Recognition efforts from a practice perspective. Next, we examine revenue sources and estimate revenues potentially attributable to PCMH Recognition under various payment models, including traditional fee-for-service (FFS) and value-based payment models. Finally, we discuss costs associated with PCMH Recognition efforts using two different costing methods. **Ultimately, leadership must determine whether the total business case outweighs the investment costs for PCMH Recognition and whether there are other motivations to undergo PCMH Recognition. We outline components of a pro forma useful from a practice leader or chief financial officer (CFO) perspective and lay out considerations for developing a business case.**

Our Appendices contain important information for the reader's consideration: Appendix A contains the sources and methods used to develop this white paper. Appendix B presents information on evaluating the effects of PCMH Recognition as well as a summary of the literature on PCMH effectiveness and outcomes.

MEDICAL HOME MODEL

The American Academy of Pediatrics introduced the concept of the medical home in the late 1960's, and in 2007 the Joint Principles of the PCMH were published jointly by primary care-oriented medical professional societies.[7] The Patient-Centered Primary Care Collaborative (PCPCC), a non-profit that brings together stakeholders in healthcare, has been advocating for the adoption of the PCMH by public and private payers since 2006.[8] Today, there are a number of medical home models of care with corresponding certifications, accreditations, or recognition programs. Some medical home models are built from models developed by national organizations such as NCQA's PCMH Recognition program, while practice networks, health systems, payers, and some states have developed their own models. The Joint Commission, the Accreditation Association for Ambulatory Health Care (AAAHC), the Utilization Review Accreditation Committee (URAC), and NCQA each has its own assessment instruments and medical home accreditation processes and requirements.[9] In Oklahoma, the legislature passed a resolution and encouraged health systems in that state to implement principles

1 Abrams, M., Nuzum, R., Zezza, M., et al. (2015) The Affordable Care Act's Payment and Delivery System Reforms: A Progress Report at Five Years. Commonwealth Fund. Retrieved April 25, 2018, from http://commonwealthfund.org/publications/issue-briefs/2015/may/aca-payment-and-delivery-system-reforms-at-5-years.
2 Peikes, D., Zutsi, A., Genevro, J., et al. (February 2012). Early Evidence on the Patient-Centered Medical Home. AHRQ. Retrieved April 25, 2018, from https://pcmh.ahrq.gov/sites/default/files/attachments/Early%20Evidence%20on%20the%20PCMH%202%2028%2012.pdf.
3 Zutsi, A., Peikes, D., Smith, K., et al. (February 2014). The Medical Home What Do We Know, What Do We Need to Know? A Review of the Earliest Evidence on the Effectiveness of the Patient-Centered Medical Home Model. AHRQ. Retrieved April 25, 2018, from https://pcmh.ahrq.gov/sites/default/files/attachments/the-medical-home-what-do-we-know.pdf.
4 NCQA. Patient-Centered Medical Home (PCMH) Recognition. Retrieved April 25, 2018, from https://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh.
5 From personal interviews with Barr, M. (March 2, 2018), Harkins, M. & Kaufman, L. (February 26, 2018), and Cotton, P. & Thurston Toppe, K. (March 5, 2018).
6 NCQA. Overview of PCMH. Retrieved April 25, 2018, from https://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/why-pcmh/overview-of-pcmh.
7 NCQA. Why PCMH? Retrieved July 3, 2018, from: http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/why-pcmh.
8 https://www.pcpcc.org/about

of patient-centered medical homes, and in 2009, the Oklahoma Health Care Authority expanded SoonerCare Choice, the state's primary care case management program for its Medicaid members.[10,11] In 2007, Missouri passed the Missouri Health Improvement Act, which required that all Medicaid beneficiaries have a healthcare home; however, what constitutes a healthcare home was left undefined by the legislation.[12,13] Later in 2011, Missouri obtained approvals through its Medicaid state plan amendments to establish medical homes for enrollees with chronic conditions and required NCQA recognition for eligible providers to participate in the program.

While consensus exists around the basic components of the medical home, not all models look alike or use the same tactics to improve healthcare quality and control costs. The focus of this white paper is the NCQA Patient-Centered Medical Home Recognition program (hereafter referred to as "PCMH Recognition").

According to NCQA, its recognition program is defined by a model of care that puts patients and families at the forefront of care, building relationships between people and their clinical care teams. NCQA has specific standards and guidelines structured around six concepts of PCMH transformation: [14]

1) Team-based care and practice organization: Provides structure for practice leadership, care team responsibilities, and partnerships with patients, families, and caregivers.
2) Know and manage patients: Sets standards for data collection, medication reconciliation, evidence-based clinical decision support, and other activities.
3) Patient-centered access and continuity: Provides patients with convenient access to clinical advice and helps ensure continuity of care.
4) Care management and support: Helps clinicians set up care management protocols to identify patients who need more closely managed care.
5) Care coordination and care transitions: Ensures that primary and specialty care clinicians are effectively sharing information and managing patient referrals to minimize cost, confusion, and inappropriate care.
6) Performance measurement and quality improvement: Helps practices develop ways to measure performance, set goals, and develop activities to improve performance.

By 2017, more than 14,000 primary care practices (with more than 60,000 clinicians) have achieved NCQA PCMH Recognition.[15] Interestingly, 86% of primary care practice sites that use one of the available third-parties for PCMH recognition, go through NCQA.[16]

METHODS

To better understand and outline the motivations for PCMH Recognition, the costs associated with PCMH Recognition efforts, the potential revenue streams, and key considerations for developing a business case for healthcare practices considering obtaining or maintaining PCMH Recognition through NCQA, Milliman undertook three primary activities: (1) conducted a literature search of systematic reviews, meta-analyses, and recent evaluations of individual NCQA PCMH initiatives; (2) with assistance from NCQA, held discussions with 15 NCQA PCMH experts, including researchers, consultants, industry experts, and NCQA personnel; and (3) conducted nine key informant interviews with implementers of NCQA PCMH Recognition. To gain varying perspectives, we also included a subset of interviewees who had PCMH Recognition but decided to no longer maintain recognition status. For a detailed description of our research methods, please see Appendix A.

9 Burton, R., Devers, K., & Berenson, R. (March 1, 2012). Patient-Centered Medical Home Recognition Tools: A Comparison of Ten Surveys' Content and Operational Details. Urban Institute. Retrieved April 25, 2018, from https://www.urban.org/research/publication/patient-centered-medical-home-recognition-tools-comparison-ten-surveys-content-and-operational-details/view/full_report.
10 Patient-Centered Primary Care Collaborative (2018). Oklahoma. Retrieved April 25, 2018, from https://www.pcpcc.org/initiatives/Oklahoma.
11 Oklahoma HealthCare Authority. SoonerCare Choice. Retrieved April 25, 2018, from http://okhca.org/individuals.aspx?id=548&menu=42.
12 National Academy for State Health Policy. (April 2014). Missouri – Medical Homes. NASHP, Washington D.C.: https://nashp.org/missouri/.
13 Missouri Health and Human Services (April 2016). Health Home State Plan Amendment. Retrieved April 25, 2018, from https://dss.mo.gov/mhd/cs/health-homes/pdf/pchh-state-regulation.pdf.
14 NCQA. NCQA PCMH Recognition: Getting Started. Retrieved April 25, 2018, from http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/getting-recognized/get-started.
15 NCQA. Why PCMH? Retrieved August 17, 2018, from: http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/why-pcmh.
16 Estimated based on review of publicly available sources of the number of accredited or recognized sites by NCQA, URAC, Joint Commission and AAHC.

Operational motivations for PCMH

Leaders of practices understand that decisions with the potential to affect operational and financial performance need to be based on accurate and comprehensive information.

LEVERAGING PCMH RECOGNITION TO DRIVE TRANSFORMATION AND OPERATIONAL CHANGE

Practices and organizations interested in transforming their primary care delivery model do not have to reinvent the wheel. The NCQA PCMH model provides a well-vetted and respected foundation for the organization and transformation of primary care. The key changes involve establishing practice leadership, advanced teamwork, EHR optimization, analytics, patient and caregiver engagement, population health management, and community and network integration. A universal theme resulting from our research—aside from being the "right thing to do"—was that the PCMH model provided organizations a clear "roadmap" for primary care transformation. **PCMH Recognition was particularly helpful for those organizations that had less experience with the concepts of the advanced primary care model prior to recognition.**

> *"For us, PCMH in and of itself creates a structure, so we know what we need to be focusing on to do population health better. Value-based care is the future for our organization. Using the PCMH structure as a map is valuable. When you have 87 recognized clinics, the benefit for us is that it gives us an accountable process that is structured and not debated. There is a lot of benefit for a large organization like ours: it provides standardization and a check-in process that is driven externally. I think if we do this right, we'll make an impact on the population."*
>
> — Carey Sharp Le Mener, MD, Practice Administrator, Baylor Scott & White Health

> *"If a practice has not been exposed to or is getting ready for value-based reimbursement, PCMH is a very valuable tool. It gives a specific pathway of how to transform operational infrastructure through the six domains, with a very practical approach on how to get there."*
>
> —Dawn Tice, BSN, MBA, Executive Director, Clinical Operations, Main Line HealthCare

The PCMH model of care can also have positive effects on quality of care. One of the requirements for PCMH Recognition is adherence to evidence-based guidelines. Increased adherence to guidelines leads to increased use of recommended preventive services, reduced inappropriate referrals to specialty care providers, and increased accountability for whole-person care. For further discussion on the effects of PCMH on quality of care, see Appendix B.

PCMH Recognition provides the architecture for team-based care by outlining and helping practices develop leadership structures, care team responsibilities, and partnerships with patients, families, and caregivers.[17] Properly applied team-based care can improve comprehensiveness, coordination, efficiency, effectiveness, and value of care, and increase the satisfaction of patients and providers.[18,19] Team-based care facilitates full use of the training and skills of the care team, and allows clinicians to practice at the top of their licenses. With clearly defined care team roles and responsibilities, tasks that do not require high-level medical skills can be performed by non-professional team members. Practices can examine their appointment and scheduling procedures to optimize use of the primary care visit, for example, by using medical assistants to conduct initial intake and recording of vitals while the clinician focuses time with the patient to address the reason for the visit. Large practices and health systems, in particular, may benefit from better use of the care team and allocation of resources. One health system stated it was better able to use each scheduled time slot and was able to fill

17 NCQA. NCQA PCMH Recognition: Getting Started. Retrieved April 25, 2018, from http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/getting-recognized/get-started.

18 Mitchell, P., Wynia, R., Golden, B., et al. (2012) Core principles and values of effective team-based health care. Discussion Paper. Retrieved from Institute of Medicine: https://www.nationalahec.org/pdfs/VSRT-Team-Based-Care-Principles-Values.pdf.

19 Coleman, K., & Reid, R. (2013) Safety Net Medical Home Initiative Implementation Guide Series, Continuous and team-based healing relationships: improving patient care through teams. Seattle WA: Qualis Health and The MacColl Center for Health Care Innovation at the Group Health Research Institute.

more time slots. This, coupled with increased use of phone and e-mail visits, can result in larger, but more manageable panel sizes—effectively increasing primary care capacity. [20, 21]

PCMH Recognition also provides a clear roadmap for better understanding the patient population, improving access to care by improving convenience and availability of office hours and better engaging populations that are in need of care management. One operational implication of improved contact and relationships between the primary care teams and patients and caregivers is the effect on no-show rates. No-shows have real financial impact on a practice since those are times allocated to a visit that cannot be billed. Estimates of no-shows and cancellations reportedly lead to 3% – 14% revenue shortfalls for family practice clinics,[22, 23] though estimates can vary widely depending on the provider type and visit type.

Increase in PCP capacity, more efficient use of the care team, increased use of scheduled time slots and reduction of no-shows, and increase in preventive care utilization will effectively lead to an increase in primary care utilization. Increase in primary care capacity could allow a practice to increase its patient panel size, assuming there is sufficient demand in the market. Increase in the volume of primary care visits can have real financial implications. We discuss this in more detail in the Revenue Potential section and provide illustrations of how an increase in primary care utilization can directly result in increased revenue in a FFS environment or under value-based / alternative payment arrangements.

Besides these direct operational motivations, there were other implications of PCMH Recognition that practices, and health systems raised during our interviews:

- Improve relationships with specialty care physicians to whom the primary care clinician refers patients: One practice noted that before it began PCMH Recognition it had virtually no relationship with the specialty care practices to which it regularly referred patients. However, the PCMH transformation and recognition process—especially the care coordination and care transition standards—allowed it to build better connections within the community and work collaboratively with other practices. Further, reducing inappropriate referrals to specialty care providers—referrals for services an advanced primary care team ought to be able to provide—can potentially allow specialty care providers to practice at the top of their license (and thus bill for higher-intensity services).
- Improve awareness of and referral to community based resources: Vermont's all-payer medical home model increased utilization of both social and community-based support services in Medicaid patients attributed to medical homes.[23]Furthermore, while expenditures for these services increased by a small amount, expenditures for other services, such as for inpatient and outpatient hospital services, decreased significantly. In addition, practices we spoke with indicated they had stronger connections with the healthcare "neighborhood" after implementing the PCMH model of care.
- Improve reputation: Our research showed that the role of reputation may be a factor for seeking PCMH Recognition, but only as it relates to reputation among other practices in the market. Practices reported that patients are largely unaware of the PCMH Recognition, nor was it a factor for selection per se. However, in some competitive markets the PCMH "seal" may be a signal to other providers, as well as payers, that they are high performing primary care practices with the systems and processes in place to provide high-quality, efficient care.
- Possible improvements in patient adherence to care plans: Some research indicates PCMH increases care planning and can improve medication adherence.[25,26] One recent study, which attempted to control for variation in PCMH

20 Bodenheimer, T & Pham, H. (2010) Primary care: current problems and proposed solutions. Health Affairs. 799-805.
21 Raffoul, M., Moore, M., Kamerow, D., et al. (2016) A primary care panel size of 2500 is neither accurate nor reasonable. Journal of the American Board of Family Medicine. 496-499.
22 Moore, C., Wilson-Witherspoon, P., & Probst, J. (2001) Time and money: effect of no-shows at a family practice residency clinic. Family Medicine. 522-527.
23 Kheirkhah, P., Feng, Q., Tavakoli-Tabasi, S., et al. (2016) Prevalence, predictors, and economic consequences of no-shows. BMC Health Services Research. doi: 10.1186/s12913-015-1243-z.
24 Jones, C., Finison, K., McGraves-Lloyd, K., et al. (2016) Vermont's community-oriented all-payer medical home model reduces expenditures and utilization while delivering high-quality care. Population Health Management. 196-205.
25 Lauffenburger, J., Shrank, W., Bitton, A., et al. (2016). Association between Patient-Centered Medical Homes and adherence to chronic disease medications: a cohort study. Annals of Internal Medicine. 81-93.
26 Reiss-Brennan, B., Brunisholz, K., Dredge, C., et. Al. B. (2016). Association of integrated team-based care with health care quality, utilization, and cost. Journal of the American Medical Association. 826-834.

implementation efforts, found that the PCMH model was associated with a greater than 2 percentage point increase in adherence, especially for specific medications such as lipid control agents, beta blockers, anti-depressants and ACE inhibitors. Adherence to care plans and medication will be highly dependent on practice and patient characteristics. [27]

- Bolsters population health management and improvement efforts: Systems and practices reported that PCMH activity is well aligned with and bolsters an organization's capacity to conduct population health management. This includes the array of primary care activity, associated with PCMH, including care coordination, care management, care planning, analytics, and patient engagement.
- Potentially reduce medical liability insurance: The PCMH model emphasizes systems of care, documentation improvements, communication and access, and defined roles and responsibilities. Alignment with these expectations can improve patient safety and reduce medicolegal risk. It is possible that certain medical insurance carriers offer discounts for being PCMH recognized. One interviewee spoke of liability insurance discounts that were made available through certain regional medical societies. While we were unable to validate whether such discounts were widely available in the market, business leads should conduct research in their regions to determine whether malpractice insurance-related savings are a possibility.

> *"We were the top performing pediatric practice in our IPA this last year. The NCQA PCMH process definitely helped us achieve that."*
>
> — Jennifer Gruen, MD, Practice Owner, Village Pediatrics, on the net cost of PCMH Recognition
>
> *"According to leadership, the biggest value of PCMH is a concise checklist of quality improvement activities that all of the physicians agree to work on together. With PCMH structure, the physician leadership can develop their entire year quality improvement plan in one hour. Infrastructure supports cultural change and makes decision-making clear and easier."*
>
> — Charla Parker, MPA, NCQA PCMH CCE, PCMH Manager, Dignity Health Medical Foundation

CONDUCT AN ORGANIZATIONAL ASSESSMENT TO DETERMINE GAPS AND INVESTMENT COSTS

Not all practices will start from the same place in terms of people, processes and systems required to deliver patient centered care. Practice leadership—including the CFO and the chief medical officer (CMO)—will need to assess the starting point of the primary care delivery model, the practices' capabilities and resources to support and maintain transformation, and the payment environment in which the practice operates. Careful planning is necessary to optimize and reap the rewards of transformation and PCMH Recognition.

PCMH readiness assessment entails reviewing the people, processes, and systems currently in place and what it will take to meet PCMH Recognition. For example, a key success factor is whether the organizational leadership and culture support the key principles of the PCMH including "patient centeredness" and continuous quality improvement. All of the practices and health systems we interviewed reported that their leadership and culture supports "true" transformation and not just a "check the box" mentality. Several reported having physician champions who "set the tone" for strong primary care, a patient-centeredness approach, and team-based care.

Processes and systems that support key capabilities for PCMH may require real upfront investment and ongoing costs (as we will discuss in the Cost section of this report). Practices are more likely to be able to financially support PCMH Recognition and maintain it when they are part of a larger network or health system. This is because larger networks and health systems can draw on economies of scale, share human and technology resources, and capitalize on comprehensive change management efforts. For example, small practices struggle to support the cost of full-time care managers. [28] Larger networked practices and health systems were able to share care managers, and thus each practice contributed a portion of the cost of the full-time equivalent resource. Small practices also struggle with developing

27 David G., Saynisch P., Luster S., et al. (2018) The impact of patient-centered medical homes on medication adherence?. Health Economics.1–16.
28 Berry, C., Mijanovich, T., Albert, S., et al. (2013). Patient-Centered Medical Home among small urban practices serving low-income and disadvantaged patients. Annals of Family Medicine, pp. 82-89.

standardized policies, procedures, and the documentation and reporting capabilities to support high-functioning care teams. [29] Implementers we spoke with at networks or health systems had committed resources within a population health management department or unit that was responsible for policy and procedure development, and policy implementation and education. Often, analytics or informatics departments had committed resources to support activities related to PCMH data collection, analysis, and reporting. T*his is not to say that only large practices reap real benefits from PCMH transformation and recognition.* There is evidence to show that small practices can achieve quality of care improvements if they already have electronic health record (EHR) systems in place. [30] In addition, alternative practice structures, such as virtual groups [31] and independent physician associations,[32] offer ways in which small practices can pool resources to obtain necessary capabilities. Small practices can also drive quality-of-care improvements for their patients with chronic conditions.[33] However, revenues required to offset up front investments and ongoing costs generally require scale and sufficient patient base. Some practices may consider sharing resources, similar to practice networks and larger systems, in order to achieve transformation economies of scale.

29 Berry, C. et al., ibid.

30 For practices requiring new EHR and related solutions, NCQA has a prevalidation program that identifies EHR systems and other technology solutions that have PCMH functionality and that help practices meet recognition requirements. See NCQA. NCQA Prevalidation Program. Retrieved July 7, 2018, from: http://www.ncqa.org/programs/recognition/prevalidation-program.

31 Virtual groups are two or more small or solo physician practices that have agreed to come together and pool resources. Medicare, has specific definitions for virtual groups defined under MACRA: a combination of two or more Taxpayer Identification Numbers (TINs), representing solo practitioners and groups of ten or fewer clinicians (who has at least one MIPS-eligible clinician) who come together to participate in MIPS. See: CMS. Overview of Virtual Groups. Available at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/Virtual-Groups-Public-Webinar-slides.pdf.

32 Independent physician associations (IPAs) are arrangements in which physicians practice independently but have contracted together to negotiate payments from insurers. They may also agree to share other resources such as claims and revenue cycle management systems, and practice management systems.

33 Berry, C. et al., ibid.

Financial motivations for PCMH

Payment models—which define payment amounts, payment units, and conditions on which payments are made—directly affect practices' bottom lines. The revenue potential that may be attributable to PCMH is highly dependent on the payment model under which the practice operates. Payment models can vary by base payment rates, additional payments, and adjustments:

- Base payment rates are the applicable method of payment for services and the applicable fee schedules.
- Any additional payments are those designed to improve performance, drive primary care transformation, and/or encourage the adoption of care management capabilities. PCMH Recognition can serve as a proxy measure to assess whether payments are encouraging desired goals for delivery system improvement.
- Adjustments can be made for demographics and for the underlying risk-mix of the population, especially for those with chronic or complex conditions.

A traditional FFS model is one in which payments are made for specific procedures or services. FFS models tend to encourage the provision of more services, since revenue is commensurate with volume. Value-based payment models are those models which encourage improving quality and efficiency of care, rather than volume of services. Value based payment models are proliferating as a result of policy changes and demand from Medicare and other large healthcare purchasers. [34] However, most healthcare dollars are still paid under FFS. According to the Health Care Payment Learning & Action Network's survey of payments made in CY 2017 (representing 63%, 70%, 100%, and 50% of the national commercial, Medicare Advantage, Medicare FFS, and Medicaid markets, respectively), 41% of payments to providers were made under a FFS model with no link to quality or value; 25.4% were made under a FFS with some link to quality; 29.8% were made under an alternative payment method built on a FFS structure, and 3.8% were made under population-based payment models. [35]

Figure 1 illustrates payment models associated with practices that have undergone PCMH Recognition, including traditional FFS models and alternative payment or value-based payment models. Note that these models are by no means an exhaustive portrayal of every payment arrangement that exists in the market. In addition, there are some cases of non-financial payer support that can benefit a practice, such as physician tiering, preferred provider status, patient steering, behavioral health support, and care management support, to name a few.

FFS ENVIRONMENT

As discussed, practices engaging in PCMH Recognition activities can experience increases in primary care utilization. (See Appendix B for further discussion on the evidence base related to PCMH-related outcomes) For practices that are operating in a FFS environment, this increase in utilization leads to a direct increase in revenue. Reasons for increased primary care utilization include:

- Increased preventive care and screenings for all relevant patients: Discussions with practices and health systems, and current research shows PCMH is associated with increases in screenings for some types of cancer and diseases, and preventive care services.
- Timely patient follow-up: Practices indicated timely follow-up with patients with lab/test results and appointment outcomes improved coordination with patients, and resulted in increased primary care utilization.
- Optimized scheduling: One health system stated it was better able to use scheduled time slots and was filling more time slots after PCMH Recognition.
- Reduced number of appointment no-shows: Improved contact and relationships between the primary care team and the patient can affect no-show rates.
- More efficient use of care team: PCMH Recognition encourages primary care clinicians to operate at the top of their licenses, often increasing not only the amount of services provided, but the array of services provided (particularly by non-clinical support staff).

34 Ryan, A. (December 2013) Will Value-Based Purchasing Increase Disparities in Care? Retrieved from the New England Journal of Medicine, Perspective: https://www.nejm.org/doi/full/10.1056/NEJMp1312654.

35 Health Care Payment Learning & Action Network. (2018) APM Measurement Effort. MITRE Corporation, McLean VA: http://hcp-lan.org/workproducts/apm-infographic-2018.pdf

VALUE BASED PAYMENT MODELS

For primary care practices, it can seem a daunting task to prepare for the value-based payment environment and all it entails. However, PCMH can help increase practices' readiness for and alignment with value-based payment arrangement prerequisites. For example, to achieve success in a value-based payment environment, a practice should (1) know its patient populations, including those that have the highest risk for high healthcare costs and fragmented care; (2) develop care models that are evidence based; (3) collaborate with hospitals, practices, urgent care, specialty care, and other facilities where transitions of care occur; (4) drive appropriate utilization of care and manage patients' chronic conditions with team-based care; and (5) monitor and quantify the impact the practice has on the target patient populations. [36] Each of these prerequisites overlaps with PCMH Recognition requirements and better enables a practice to manage risk.

Several practices that reported financial success as a PCMH stated they were able to do so because they had operated under payment models that incentivized, encouraged, or aligned with PCMH Recognition. An example of payment models that directly encouraged PCMH Recognition include traditional FFS base payments with an additional per-member-per-month (PMPM) payment tied to PCMH Recognition. Alternative payment models, such as those that tie payments to quality of care measure targets that are aligned with recognition standards also can encourage PCMH Recognition. Health systems and networks we interviewed stated that there might be a "tipping point" for seeking PCMH Recognition, but it is hard to define exactly. One large health system noted that more than half of its population fell under some value-based payment arrangement that encourages or is aligned with the PCMH model. Sustaining PCMH transformation and recognition also requires aligned financial incentives. Recent research that used a microsimulation model that incorporated data from nearly 1,000 U.S. practices indicated that as much as 63% of practice revenue is required to be made in the form of capitated payments in order to sustain primary care transformation efforts to team-based and non-visit-based care.[37] Practices and health systems that participate in accountable care organizations (ACOs) seem to have incentives to achieve primary care transformation and obtain PCMH Recognition. A 2013 national survey of ACOs showed that in 87% of ACOs, at least one practice in the ACO has experience as a PCMH.[38] The same survey shows that about 56% of commercial ACOs receive PMPM fees to support care management efforts such as those encouraged by PCMHs. A recent quantitative analysis from the PCPCC showed that MSSP ACOs with a greater share of PCPs who practiced in NCQA PCMHs had higher quality and were more likely to generate savings.[39]

> *"We are in full risk contracts with Medicare and commercial payers, and we have shared savings contracts with Medicaid too."*
>
> — Megan Reyna, MSN, RN, Director of Process Improvement, Advocate Physician Partners

36 Terrell, G. (2017) Prepare Your Practice for Value-Based Care. American Medical Association, Chicago IL: https://www.stepsforward.org/Static/images/modules/35/downloadable/Preparing_your_practice_for_value_based_care.pdf.

37 Basu, S., Phillips, R., Song, Z., et al. (2017). High levels of capitation payments needed to shift primary care toward proactive team and nonvisit care. Health Affairs. Retrieved April 25, 2018, from https://doi.org/10.1377/hlthaff.2017.0367.

38 Colla, C., & Fisher, E. (2014). Beyond PCMHs and Accountable Care Organizations: Payment reform that encourages customized care. Journal of General Internal Medicine. 1325-1327.

39 Jabbarpour, Y., Coffman, M., Habib, A., et al. (2018). Advanced Primary Care: A Key Contributor to Successful ACOs. Retrieved August 17, 2018 from https://www.pcpcc.org/resource/evidence2018.

FIGURE 1: EXAMPLES OF PAYMENT MODELS ASSOCIATED WITH PRACTICES THAT HAVE UNDERGONE PCMH RECOGNITION

BASE PAYMENT	PAYMENT TIED TO PERFORMANCE / PCMH RECOGNITION	ADJUSTMENTS
TRADITIONAL FFS		
Traditional FFS Fee Schedule	• No additional payment tied to performance / PCMH Recognition	Fee schedules may be adjusted by certain factors such as time and intensity of the service or procedure, and area factors (such as average unit costs associated with a specific geographic location)
TRADITIONAL FFS WITH PCMH PMPM		
Traditional FFS Fee Schedule	• PMPM paid to eligible PCMH recognized practices. • Examples: $4.00 PMPM; $28.00 PMPM	• PMPM payments may be adjusted based on demographics • PMPM payments may be risk-adjusted to pay for patients with complex care needs • PMPM were adjusted based on PCMH levels
ENHANCED FFS WITH PCMH PMPM		
Specific primary care procedure codes are eligible for enhanced payments. All other procedures are traditional FFS	• PMPM paid to eligible PCMH recognized practices • Examples: $0.70 PMPM; $15.00 PMPM • Examples: 1.10 x traditional FFS payment; 1.25 x traditional FFS payment	• PMPM payments may be risk-adjusted to pay for patients with complex care needs • PMPM payments were adjusted based on PCMH levels
REDUCED FFS WITH PCMH PMPM AND PROSPECTIVE PERFORMANCE INCENTIVE PAYMENTS		
Reduced FFS Fee Schedule	• PMPM paid to eligible PCMH recognized practices. • Prospective Performance Incentive Payments. Example: Quarterly payments based on historical payments for specific primary care services multiplied by a factor of 1.10.	• PMPM payments may be risk-adjusted to pay for patients with complex care needs
FFS WITH SHARED SAVINGS		
Traditional FFS Fee Schedule	• **MSR:** Eligible practices may obtain a portion of savings beyond a minimum savings rate (MSR), which is the threshold providers must achieve to be considered eligible for savings payments; Defined as a percentage of points from the benchmark. MSRs may vary depending on shared savings model. Examples: 2 to 3.9%; 2 to 5%. • **Savings Distribution:** • Eligible savings or losses: Once the MSR is met, the first dollar of savings is typically eligible for shared payment. • Distribution of shared savings or losses: Provider and payer distribution of the savings or losses vary, with provider sharing rates ranging from 20% to 80%. • Shared savings cap: Caps of the shared savings payout vary. Examples include: 10% of the benchmark as the sharing cap in one-sided model; 15% percent of the benchmark as the sharing cap in two-sided model. • Shared losses limit: Limits on losses are useful, particularly in the early years. Examples includes: Losses capped in first year to 5%; in later years to 10%.	• Risk adjustment to the savings calculations may be required to adjust for demographics and to pay appropriately for patients with complex care needs
BLENDED FFS WITH PRIMARY CARE CAPITATED PAYMENTS		
Capitated PMPM payments made prospectively based on historical claim costs for certain primary care services. All other procedures are traditional FFS.	• Capitated payments for primary care may be adjusted based on demographics and risk-adjusted to pay for patients with complex care needs	
CAPITATED PAYMENTS		
Comprehensive capitated PMPM payments made prospectively based on historical claim costs for primary care services	• Capitated payments for primary care may be adjusted based on demographics and risk-adjusted to pay for patients with complex care needs	
LUMP SUM INFRASTRUCTURE PAYMENTS		
Practice level payment to support infrastructure and initial PCMH operational transformation efforts to defray some initial investment costs.		

Examples of payment models are based on Milliman experience and expertise, and information obtained during key informant interviews.

Revenue sources and revenue potential

Actual revenue will depend on the payer source and the payment model. In this section, we provide some examples of payment models that encourage or are aligned with PCMH Recognition and we illustrate revenue potential, including under a traditional FFS model. A compendium of payer PCMH support can be found on NCQA's website.[40]

COMMERCIAL EXAMPLES

- Through its 2019 PCMH program, Arkansas Blue Cross Blue Shield pays NCQA-Recognized practices in the areas of family medicine, general medicine, geriatrics, internal medicine, or pediatrics, a PMPM care management fee. Payments are made for patients enrolled in fully insured plans.[41]

- The CareSource Medicaid plan in Georgia offers tiered financial incentives for providers who have NCQA PCMH recognition. To support providers working to attain NCQA PCMH recognition, CareSource also offers free consultative assistance.[42]

- Meridian Health Plan in Michigan provides three levels of PMPM payments for PCMH recognized practices: [43]
  1. PCMH Bronze, $.75 PMPM and eligible for Meridian HEDIS® Bonus Program: Must have level 1 NCQA PCMH Recognition or URAC and 100 or more Meridian members.
  2. PCMH Silver, $1.50 PMPM and eligible for Meridian HEDIS® Bonus Program: Must have level 2 NCQA PCMH Recognition or PGIP (their Physician Group Incentive Program) and 100 or more Meridian members.
  3. PCMH Gold, $2 PMPM and eligible for Meridian HEDIS® Bonus Program: Must have level 3 NCQA PCMH recognition and 100 or more Meridian members.

MEDICAID EXAMPLES

- In the state of Connecticut, practices that achieve the Connecticut Advanced Medical Home designation, which includes 2017 NCQA PCMH Recognition, become eligible for enhanced Medicaid fees.[44,45] Practices also receive state-funded practice transformation support for up to 12 months, and discounted NCQA PCMH Recognition application fees. Practices must serve a minimum of 2,500 attributed members to be eligible. Additional $4.50 PMPM payments are made to eligible Federally Qualified Health Centers (FQHCs) above the enhanced Medicaid fees. Connecticut also provides incentives through its HUSKY Health program. [46]

- The Idaho Healthy Connections program incentivizes primary care providers to expand the Patient-Centered Medical Home (PCMH) model of care. Participating primary care providers will continue to receive Fee For Service (FFS) payments as usual, and Healthy Connections providers will receive a per member per month (PMPM) payment based on Medicaid participants enrolled at that location. The PMPM is tiered based on the location's ability to deliver services in the PCMH model of care. PCMH Recognition is required for Tier 4. Basic plan participants receive $9.50 PMPM and enhanced plan participants receive $10 PMPM at Tier 4. [47]

- The state of Florida allows for Medicaid Managed Care Plans to reimburse NCQA PCMH recognized pediatric practices at 100% of the Medicare rate.[48]

40 Compendium of payer support available here: http://ncqa.org/pcmhsupport.
41 Arkansas BlueCross BlueShield (2019). Patient-Centered Medical Home (PCMH) Program Manual. Retrieved April 14, 2019 from: https://www.arkansasbluecross.com/doclib/documents/providers/pcmh/2019 pcmh program manual 1.23.19 508.pdf
42 CareSource (2019). Primary Care Provider Roles & Responsibility. Retrieved April 13, 2019 from: https://www.caresource.com/ga/providers/education/patient-care/pcp-roles-responsibilities/medicaid/
43 Meridian (2018). Michigan Provider Orientation. Retrieved April 3, 2019 from: https://corp.mhplan.com/ContentDocuments/default.dddaspx?x=Ho7oAR8OGSyX2wCXyli1jat0zkN8f7hlDPqX1AreaGHlR6CyVtoGYf7uUvFYwFN8Zk9XZ55jQtiaLor0udDxZQ==
44 State of Connecticut (2018). Member Information Guide. Retrieved May 23, 2019 from: https://portal.ct.gov/-/media/Departments-and-Agencies/DSS/Health-and-Home-Care/PCMH-Plus/PCMHplus_MEMBER_Information_2016.pdf?la=en
45 State of Connecticut (2018). Person-Centered Medical Home Plus (PCMH+): Overview. Retrieved April 25, 2018, from http://portal.ct.gov/dss/Health-And-Home-Care/PCMH-Plus.
46 Community Health Network of Connecticut, Inc. (State of Connecticut's Medical Administrative Services Organization for the HUSKY Health Program) (2018) HUSKY Health Person-Centered Medical Home. Retrieved August 20, 2018 from http://www.huskyhealthct.org/providers/pcmh.html#
47 Healthy Connections. Patient Centered Medical Home (PCMH) Non-DHW Users FAQs. Idaho Department of Health and Welfare. Retrieved April 25, 2018, from http://healthandwelfare.idaho.gov/Portals/0/Medical/MedicaidCHIP/Healthy%20Connections/PCMHFAQs.pdf.
48 Florida Agency for Health Care Administration. MMA Physician Incentive Program (MPIP). Retrieved April 14, 2019 from: http://ahca.myflorida.com/medicaid/statewide_mc/mma_physician_incentive.shtml

- The Maine Health Home Program requires Health Home Practices to achieve PCMH Recognition within one year of the program start date. Practices participating in MaineCare's Health Home Model receive $12 PMPM for eligible members. [49]
- The New York State Department of Health collaborated with NCQA to launch New York State PCMH (NYS PCMH) in 2018. The state provides transformation assistance and pays for initial NCQA recognition fees. Practices that earn NYS PCMH are eligible to receive supplemental payments through the state's Medicaid PCMH Incentive Program. [50]

MEDICARE EXAMPLES

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) adjusts Part B reimbursement based on participation in the Quality Payment Program (QPP). QPP establishes two tracks: Merit-Based Incentive Payment System (MIPS) and Advanced Alternative Payment Models (Advanced APMs). The MIPS program ties Medicare payments to provider performance within the fee-for-service chassis. Payments are based on performance in four categories: Quality, Cost, Improvement Activities, and Advancing Care Information (this category is now re-named "Promoting Interoperability" in the rule for 2019). Improvement Activities seek to encourage clinicians to conduct and improve upon care coordination, patient safety, and patient engagement activities.

PCMH-recognized practices from any of the following accredited bodies would automatically earn a practice full credit (the highest possible score) toward the Improvement Activities category:

- National Committee for Quality Assurance
- Joint Commission
- Utilization Review Accreditation Commission
- Accreditation Association for Ambulatory Health Care

The Improvement Activities category is weighted at 15% of the total MIPS score, which means that a NCQA-recognized PCMH will earn MIPS-eligible clinicians or their practices 15 points toward their total MIPS Composite Performance Scores. Based on the MIPS Composite Performance Score, eligible clinicians will receive additional adjustments up to 4% or reductions up to 4% in 2019, based on 2017 performance. Payment adjustments scale up over time to reach up to 9% in 2022 and beyond. In addition, MACRA allows for an "exceptional performance adjustment." This adjustment (as well as a scaling factor, which is an adjustment to ensure budget neutrality of the program) can result in a wide range of MIPS payment adjustments, as illustrated in the table in Figure 2.[51, 52] Although no explicit agreement exists between NCQA and CMS, requirements and activities for PCMH Recognition may also support the Quality, Cost, and Advancing Care Information categories as well.

49 MaineCare Services (December 2014). MaineCare Health Home Practices: Stage A Enrollment and Payment Checklist and FAQ. Retrieved April 25, 2018, from http://www.maine.gov/dhhs/oms/pdfs_doc/vbp/HH/Behavorial%20HH/HHStageAFAQ_Dec2014_FINALFINAL.pdf.

50 Idaho Department of Health and Welfare. Healthy Connections. Retrieved April 14 2019 from: http://healthandwelfare.idaho.gov/Default.aspx?TabId=216

51 Huizinga, M. & Pelizzari, P. (August 18, 2016). MIPS Adjustment Overview. Milliman White Paper. Retrieved April 25, 2018, from http://www.milliman.com/insight/2016/MIPS-adjustment-overview/.

52 Kunkel, C., Norris, C., & Dong, L. (August 9, 2016). MACRA: Key Issues for Providers. Milliman White Paper. Retrieved April 25, 2018, from http://www.milliman.com/insight/2016/MACRA-Key-issues-for-providers/.

FIGURE 2: MIPS PAYMENT POTENTIAL

PERFORMANCE YEAR	PAYMENT YEAR IN WHICH MIPS ADJUSTMENT IS MADE	MINIMUM ADJUSTMENT	MAXIMUM ADJUSTMENT*
2018	2020	- 5%	5% (0% - 15%)
2019	2021	- 7%	7% (0% - 21%)
2020	2022 TO 2024	- 9%	9% (0% - 37%)
2023, ONWARD	2025, ONWARD	- 9%	9% (0% - 27%)

** The maximum adjustment may be scaled by a factor of up to 3 to achieve budget neutrality.*

There are also a wide variety of non-MACRA commercial models that have substantial revenue potential tied to PCMH Recognition. Figure 3 illustrates the maximum potential revenues that may be gained by a hypothetical practice that has undergone PCMH Recognition efforts, depending on the proportion of members that are attributed to the payment model in question—90%; 60%; or 30%. There are a number of assumptions and caveats to note: First, we assume that the PCMH model will increase the number of primary care visits while decreasing the number of specialty care visits. This takes place for a variety of reasons discussed in more detail at the beginning of this section, and as evidenced by the literature. This key assumption is based on evidence from implementers, and evidence from well-designed studies that demonstrates specialty care utilization is likely to decrease by 1.5%, and that certain preventive services, such as cancer screening, increase after PCMH Recognition.[53] For primary care practices that operate in a FFS environment, increases

"I believe that having PCMH infrastructure has helped out overall Medicare Stars ratings. We just barely missed the 4-star rating two years ago, and this past year we made the 4-star rating. The areas we have improved the most on are hypertension management, colon cancer screening, and breast cancer screening."

— Shauri Kagie, MSN, RN, Clinical Manager, PCMH CCE, Clinical Manager, Intermountain Medical Group

"We saw improvement in all preventive screening metrics. Our ability to use the PCMH infrastructure to expand process improvements allows us to earn additional bonuses from payers, such as our Medicare Advantage contracts"

—Charla Parker, MPA, NCQA PCMH CCE, PCMH Manager, Dignity Health Medical Foundation

in revenue would result from increase in primary care utilization. In addition, practices that have payment arrangements that encourage PCMH Recognition may reap additional revenues. Estimates below assume that the PCMH Recognition efforts are closely aligned with or satisfy the requirements of the payment program. For example, the hypothetical practice participates in a Medicare Shared Savings Program (MSSP) ACO and that ACO allows PCMH Recognition as a "deeming" measure for meeting process and primary care transformation measures to qualify for shared savings payments. We also assume that the practice meets all the program requirements, such as quality or efficiency targets, as noted in the assumptions column below.

53 Sinaiko, A., Landrum, M., Meyers, D., et al. (2017). Synthesis of research on Patient-Centered Medical Homes brings systematic differences into relief. Health Affairs. pp. 500-508.

FIGURE 3: PAYMENT MODELS ASSOCIATED WITH PRACTICES THAT HAVE UNDERGONE PCMH RECOGNITION.
Hypothetical practice has 10 primary care clinicians and 20,000 unique commercial members. Percentage of total members attributed to payment model varies by 90%, 60% and 30%.

Payment Model	Assumptions / Calculations	Revenue Potential: 90%	Revenue Potential: 60%	Revenue Potential: 30%
TRADITIONAL FFS	• Payer does not require PCMH for standard FFS payments	• Pre-PCMH total $11.1 Million • Post-PCMH total $11.3 Million • $0.2 Million (2% increase in revenue)	• Pre-PCMH total $9.6 Million • Post-PCMH total $9.8 Million • $0.2 Million (2% increase in revenue)	• Pre-PCMH total $8.2 Million • Post-PCMH total $8.3 Million • $0.2 Million (2% increase in revenue)
Traditional FFS with PCMH PMPM	• Payer requires PCMH Recognition to qualify for additional PMPM • PCMH care management fee: $4 PMPM	• Pre-PCMH total $11.1 Million • Post-PCMH total $12.2 Million • $1.1 Million (10% increase in revenue)	• Pre-PCMH total $9.6 Million • Post-PCMH total $10.4 Million • $0.8 Million (8% increase in revenue)	• Pre-PCMH total $8.2 Million • Post-PCMH total $8.6 Million • $0.5 Million (6% increase in revenue)
Enhanced FFS with PCMH PMPM	• Payer requires PCMH Recognition to qualify for additional PMPM and for enhanced FFS for eligible primary care service procedures • PCMH care management fee: $4 PMPM • Enhanced FFS fee factor 1.10	• Pre-PCMH total $11.1 Million • Post-PCMH total $13.3 Million • $2.2 Million (20% increase in revenue)	• Pre-PCMH total $9.6 Million • Post-PCMH total $11.4 Million • $1.7 Million (18% increase in revenue)	• Pre-PCMH total $8.2 Million • Post-PCMH total $9.5 Million • $1.3 Million (16% increase in revenue)
Reduced FFS with PCMH PMPM and Prospective PERFORMANCE INCENTIVE PAYMENTS	• Payer requires PCMH Recognition to qualify for additional PMPM and for prospective capitated payments for primary care services procedures • PCMH care management fee: $4 PMPM • Reduced FFS Fee factor 0.9 • Prospective capitated payment annualized rate 0.1	• Pre-PCMH total $11.1 Million • Post-PCMH total $12.1 Million • $1.1 Million (10% increase in revenue)	• Pre-PCMH total $9.6 Million • Post-PCMH total $10.4 Million • $0.7 Million (8% increase in revenue)	• Pre-PCMH total $8.2 Million • Post-PCMH total $8.6 Million • $0.4 Million (5% increase in revenue)
FFS with Shared Savings	• Payer requires PCMH Recognition to qualify for shared savings payments • Upside payment only • Quality and process measures are required and these are through QI programs enabled by PCMH-related efforts • Benchmark Total Cost of Care PMPM: Varies by proportion of attributed members • Minimum Savings Rate: 2% • Savings Distribution to Practice: 6%	• Pre-PCMH total $11.1 Million • Post-PCMH total $11.4 Million • $0.3 Million (3% increase in revenue)	• Pre-PCMH total $9.6 Million • Post-PCMH total $9.9 Million • $0.3 Million (3% increase in revenue)	• Pre-PCMH total $8.2 Million • Post-PCMH total $8.4 Million • $0.2 Million (2% increase in revenue)

Notes to Figure 3:
Members refers to insured individuals. Total members refer to all the insured individuals receiving care at the practice.
All dollar amounts have been rounded to the nearest $100,000.
All estimates are derived using proprietary data and cost attribution methodologies based on the Milliman Health Cost Guidelines. Further details are below.
Revenue Potential 90%: We estimate a monthly average total cost of care (TCOC) of $495.86 per patient across the total population, including both attributed and non-attributed members.
Revenue Potential 60%: We estimate a monthly average TCOC of $430.94 per patient.
Revenue Potential 30%: We estimate a monthly average TCOC of $366.02 per patient.
For each payment model, we estimate that during the pre-PCMH Recognition period approximately 9.3% of the pre-PCMH TCOC is for primary care professional services, and is attributable to the hypothetical primary care practice.
For each payment model, we assume that during the post-PCMH Recognition period 9.5% of the post-PCMH TCOC is for primary care professional services, and is attributable to the hypothetical primary care practice.
The pre-PCMH revenue is equal to the total number of members, multiplied by the portion of the TCOC for primary care professional services, which is then multiplied by 12 months. For example, under the traditional FFS model with 90% attributed members, the pre-PCMH total is equal to the total number of members (20,000), multiplied by the portion of the blended TCOC for primary care professional services ($495.86 x 9.3% = $46), multiplied by 12 months. Pre-PCMH revenue = 20,000 x $46 x 12 = $11.1 million. The post-PCMH revenue is calculated similarly to the pre-PCMH method, except we use the post-PCMH portion of TCOC attributed to primary care professional service (9.5%). In addition, we include the additional PCMH revenue (where applicable). For example, under the traditional FFS model with PCMH PMPM and 90% attributed members, we also add the PCMH PMPM revenue ($4 PMPM care management fee), multiplied by the total number of attributed members (18,000) multiplied by 12 months. Therefore, the total post-PCMH revenue = [(20,000 x $47 x 12) + (18,000 x $4 x 12)] = $12.2 million.

Investment and maintenance costs

Practices considering PCMH Recognition need to consider the initial investment costs, as well as ongoing maintenance costs. Defining the "investment period" is somewhat challenging because various practices have different starting points. For example, some may already have referral tracking systems in place, while others may need to establish this capability as part of their PCMH transformation journeys. However, for discussion purposes, we define the initial investment period as the time when practices start to learn about the NCQA PCMH concepts and begin to apply them, through the transformation to and recognition of their practices as PCMHs. Practices can expect the initial investment period to last anywhere from nine months to more than a year depending on the amount and complexity of change required for transformation and recognition. Maintenance costs are those costs required to maintain recognition status and incurred after the practice has achieved initial recognition. Some costs are easy to quantify and attribute to PCMH. However, other requisite capabilities and transformation costs are not as easily attributable to PCMH.

In the peer-reviewed published literature, PCMH Recognition and maintenance costs are often calculated using activity-based costing methods.[54, 55, 56, 57] In activity-based costing, PCMH-related activities, the amount of time it takes to perform the activities, and the cost of that time are identified and calculated as part of the PCMH-attributable costs. This approach provides valuable information about the total time and effort related to primary care transformation and PCMH Recognition. However, it may be less appropriate for informing a practice's financial decisions.

> *"The EHR is 'a must' to support PCMH. But, at the same time, it is not fair to assign all of the EHR costs to PCMH. There are multiple other factors that are driving that EHR upgrade and investment, like CMS standards to meet, etc."*
>
> — Shaurie Kagie, MSN, RN, PCMH CCE, Clinical Manager, Intermountain Medical Group, on whether she considered the cost of EHR as a PCMH-attributable cost

For a CFO or the organizational business lead, a different costing method may be more appropriate. Consider an incremental costing method that can more directly inform financial and operation decision-making: The test for including the cost into the PCMH attributable costs would be, "If I were not to undertake PCMH Recognition, would I still incur this cost?" In many cases, the answer is yes. For example, practice administrators and other office staff are often paid on a salaried basis. Although their time may be diverted to PCMH Recognition activities, there is no additional cost related to that time from a purely budgetary perspective, as those costs exist independent of PCMH Recognition. If PCMH-activities required new staff to be hired, that would be a PCMH-attributable cost using the incremental costing method. Rather than assigning a dollar value to an hour of a physician's time based on a hypothetical hourly wage, physician costs can be calculated based on reduced productivity. For instance, if four hours of a physician's time per week is diverted from providing patient visits and re-allocated to PCMH-related activities, the cost for that time would be equal to the number of visits the physician is not able to provide and the reimbursement for those visits.

Each costing strategy provides useful information, and it is for each practice's financial lead to decide which method best suits the needs of the practice. To help practices tease out costs attributable to recognition, Figures 4 and 5 provide illustrations of a hypothetical practice and the costs it would face for PCMH Recognition, using an activity-based costing method and an incremental costing method. They list the cost elements that may be attributable to PCMH Recognition and maintenance and provide a summary description of each element. Figure 4 provides an illustration of a hypothetical practice and the costs it would face for PCMH Recognition using an activity-based costing method. Figure 5 provides an illustration of the same hypothetical practice and the costs it would face for PCMH Recognition, using an incremental

54 Fleming, N., da Graca, B., Ogola, G., et al. (2017). Costs of transforming established primary care practices to Patient-Centered Medical Homes (PCMHs). Journal of the American Board of Family Medicine. 30:460-471.
55 Halladay, J., Mottus, K., Reiter, K., et al. (2016). The cost to successfully apply for level 3 medical home recognition. Journal of the American Board of Family Medicine. 29:69-77.
56 Magill, M., Ehrenberger, D., Scammon, D., et al. (2015). The cost of sustaining a Patient-Centered Medical Home: Experience from 2 states. Annals of Family Medicine. 429-435.
57 Martsolf, G., Kandrack, R., Gabbay, R., et al. (2015). Cost of transformation among primary care practices participating in a medical home pilot. Journal of General Internal Medicine. 31(7): 723-731.

costing method. In each figure, we provide examples of how costs may be calculated for each element, with hypothetical examples of each.

In addition, costs will vary dramatically depending on the size of the practice, the amount and type of resources available to the practice, the goals of the practice, and the changes required of the practice for alignment with NCQA PCMH standards. Where appropriate, we provide examples of how specific cost elements would be quantified. In addition, there are many costs that can be incurred for primary care transformation that are not explicit to PCMH. For example, care management, team huddles, quality improvement documentation, and having an integrated EHR system reflect best practices in primary care. A practice will likely want to have these things in place regardless of PCMH Recognition in order to reap quality of care and workflow efficiency gains.

DIRECT LABOR COSTS

During both the initial investment period and the maintenance period, using an activity-based costing methodology, a practice is likely to incur direct labor costs for administrative activities. In both figures, costs associated with staff time are greater during the initial investment period, compared with the maintenance period. This is because, once change is implemented, some recognition activities do not need ongoing staff time for maintenance. During our interviews with implementers and content experts, we learned that various staffing arrangements could be employed to carry out these activities with varying effects on costs. Simply put, the more a practice is able to use lower-cost personnel for both administrative and care management activities, the less direct labor costs it will incur.

> *"For many of our practice sites, care management was already in place because of our capitated HMO contracts. We did not necessarily increase care management for PCMH support."*
>
> — Charla Parker, MPA, NCQA PCMH CCE, PCMH Manager, Dignity Health Medical Foundation

As mentioned previously, it is also important to consider the starting point of the practice. One salient example from our interviews is related to care managers / coordinators: several practices had hired care managers / coordinators before undergoing PCMH Recognition. In Figures 4 and 5, we assume the practice is less mature in terms of providing care management/coordination, and we include the full cost of hiring two care managers/coordinators in each example. For practices who already employ care managers/coordinators, the initial investment and maintenance period costs will be significantly less using either costing method. For example, for Figure 4, if a practice already has care manager /coordinators, the only cost incurred for care management and coordination would be the cost of the time care manager /coordinators explicitly devote to PCMH functions. Using an incremental costing method, as in Figure 5, the costs for care managers/coordinators would be eliminated and recognition and maintenance costs would be substantially smaller ($6,280 per clinician vs. $16,360 per clinician, and $2,596 per clinician vs. $13,392 per clinician, respectively).

Note that if using activity-based costing, it is also important to consider that staffing estimates should include additional time for finance staff to create pro formas, reconcile incentive payments, ponder financial risks, and engage in sound financial planning. CEO or contract management time is also necessary to ensure that practices have contracts that are well aligned and to enable them to reap sufficient revenues to cover investment (at minimum) and maintenance costs. These functions could be absorbed by existing financial staff or analytic staff charged with evaluating revenue potential and projecting revenue under various payment models.

> *"Did I measure how much that cost? No, because we would have still needed that infrastructure to move into the population health space."*
>
> — Dawn Tice, BSN, MBA, Executive Director, Main Line HealthCare, on whether she considered the cost of new EHR as a PCMH-attributable cost

OTHER DIRECT COSTS

For both the initial investment period and the maintenance period, the most straightforward costs to anticipate are NCQA

> *"There were some small training costs. We had a couple of meetings, but they were really collapsed into our regular meetings. [It cost] maybe a few hundred dollars extra to do that, but nothing significant."*
>
> — Jennifer Gruen, MD, Practice Owner, Village Pediatrics, on PCMH-attributable training costs in small practice

PCMH Recognition fees. Any practice considering recognition or renewing recognition will incur annual fees and the amount is determined by practice size. [58]

There are other direct non-labor/staff time costs that can be incurred during both the initial investment period and the maintenance period; however, these costs are not necessarily incurred by every practice undergoing recognition. Initial investment period direct costs can include the costs of renovating or purchasing facilities and new equipment; hiring trainers or purchasing training materials; and upgrading software and systems. Implementers we interviewed did not discuss equipment and facilities costs as consequential initial investment period costs, as most already had the equipment and facilities needed for medical home activities and recognition. We did not quantify these costs in our figures, as they are highly practice-dependent. Nonetheless, practices should still consider the equipment and facilities they might need for recognition and their corresponding costs.

Like other initial investment costs, there is substantial variation in the costs of PCMH-related training, making estimating average training costs infeasible. We include a lump sum for training costs in our examples, because the majority of implementers we interviewed incurred some amount of training costs. Direct costs for training are generally smaller during the maintenance period compared with the initial investment period. Some implementers we interviewed did not invest in ongoing training after the initial investment period, while others did. We have included a substantially smaller cost for annual "refresh" training for the hypothetical practice. Practices may also face training costs resulting from normal staff turnover, as new staff would need some onboarding.

> **On indirect costs attributable to PCMH Recognition:**
>
> *"Absolutely, there is a loss of productivity during that [PCMH] transition. We've seen some turnover of staff as you start to apply more expectations. The turnover rate of staff increased."*
>
> — Shaurie Kagie, MSN, RN, PCMH CCE, Clinical Manager, Intermountain Medical Group

Finally, some practices choose to hire a consultant who facilitates change processes and completes many of the tasks required for recognition, rather than incurring many of the individual costs discussed above. The cost of a consultant is not included in our estimate of the costs of obtaining and maintaining PCMH Recognition, because it is an entirely optional cost. Practices that decide to hire an outside consultant can expect to have decreased direct labor costs and decreased costs associated with lost productivity, and increased direct non-labor costs, compared with practices that do not hire an outside consultant.

INDIRECT COSTS

Indirect costs associated with recognition may come in the form of lost productivity. For example, loss in physician productivity may be measured by relative value units (RVUs). Implementers we interviewed experienced lost productivity related to PCMH activities for varying lengths of time and at varying intensities. New activities that resulted in lost productivity during the initial investment period, however, were less of an issue during the maintenance period. After new activities became part of regular workflows, implementers often found members of the care team were more productive than they had been prior to recognition or during the initial investment period.

58 NCQA PCMH pricing can be found on its website at: http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/getting-recognized/get-started/pcmh-pricing.

On indirect costs attributable to PCMH Recognition:

"Change is hard. The doctors we were working with were fine leaving post-its on the fridge for 20 years and not using their EHR. That's life. They have their own office and they know their patients like the back of their hand. Technically they signed up for PCMH, but it doesn't mean it's easy when we sit down with them and tell them they really need to do things like have huddles and document information in a certain way."

— PCMH Coordinator for a group of small primary care practices in the Northeast

FIGURE 4: PCMH ATTRIBUTABLE COSTS FOR A HYPOTHETICAL PRIMARY CARE PRACTICE – ACTIVITY BASED COSTING
Hypothetical practice has 10 primary care clinicians, two care managers/coordinators, two administrative support staff, and 20,000 unique commercial patients.

COST ELEMENT	DESCRIPTION	INVESTMENT PHASE EXAMPLES	HYPOTHETICAL ANNUALIZED ESTIMATE FOR INVESTMENT PHASE	MAINTENANCE PHASE EXAMPLES	HYPOTHETICAL ANNUALIZED ESTIMATE FOR MAINTENANCE PHASE
DIRECT LABOR COSTS					
CLINICAL LEAD	Time spent on a monthly basis to serve as champion to set the tone for how the practice will function as a medical home	10 hours/month @ $120/hour1 + fringe	$17,280	4 hours/month @ $122/hour + fringe	$7,050
PCMH MANAGER LEAD	Time spent on a monthly basis assembling/monitoring program structure, documenting guidelines, protocols, and processes, performing reporting functions, preparing application documents, training staff on PCMH functions	20 hours/month @ $40/hour2 + fringe	$11,520	10 hours/month @ $41/hour + fringe	$5,875
OTHER CLINICIANS	Time spent on a monthly basis for huddles and documenting QI activity	10 hours/month @ $55/hour3 + fringe	$7,920	5 hours/month @ $56/hour + fringe	$4,847
CARE MANAGERS / COORDINATORS	Time spent on a monthly basis confirming gaps in preventive care and scheduling appointments to address gaps in care	2 care managers@ 175 hours/month @ $20/hour4 + fringe	$100,800	2 care managers@ 175 hours/month @ $21/hour + fringe	$107,957
ADMINISTRATIVE / ANALYTIC SUPPORT	Time spent on a monthly basis analyzing data, creating required reports, coordinating changes to EHR, and performing other administrative tasks related to PCMH	15 hours/month @ $40/hour5 + fringe	$8,640	5 hours/month @ $41/hour + fringe	$2,938
OTHER DIRECT COSTS					
TRAINING	Costs for purchasing training, including new EHR functionality training, care management training, and PCMH guidelines training	One-time costs for training	$5,000	Annual cost for refresh trainings	$1,000
SYSTEMS	Costs for purchasing new software or EHR systems		Not clearly attributable to PCMH		Not clearly attributable to PCMH
FACILITY / EQUIPMENT	Costs for purchasing new computer or communication equipment		Not clearly attributable to PCMH		Not clearly attributable to PCMH
NCQA RECOGNITION FEES	Costs for recognition fee and reporting fees	Recognition Fee = $500/clinician	$5,000	Annual Reporting fee = $120/clinician	$1,200
PER PRACTICE COSTS			**$156,160**		**$130,867**
PER PRIMARY CARE CLINICIAN COSTS			**$15,616**		**$13,087**

Notes to Figure 4:
We derive our hypothetical practice size, including number of clinicians, care coordinators, administrative support staff, and patient population using a review of published estimates from: Altschulder, J., Margolius, D., Bodenheimer, T., et al. (2012). Estimating a reasonable patient panel size for primary care physicians with team-based task delegation. Annals of Family Medicine. 396-400. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3438206/.

Costs include both costs for new hires and enhanced activities and training for existing staff.

For practices who already employ care managers / coordinators, the initial investment and maintenance period costs will be significantly less using the activity-based costing method. If a practice already has care managers / coordinators, the only cost incurred for care management and coordination would be the cost of the time care managers / coordinators explicitly devote to PCMH functions.

Estimates for hours per staff type and set of activities come from a synthesis of literature and interviews with PCMH implementers. Practices we interviewed had a variety of characteristics and experienced a wide range of initial investment and maintenance costs. We attempt to model costs using the higher end of the cost continuum so as not to underestimate costs.

Wages include base hourly wages plus 20% fringe for benefits such as health, dental, and life insurance.

Wages in year 2 have been trended forward and increased by 2%.

Dollar amounts in Maintenance Phase Examples have been rounded to nearest dollar. Dollar amounts used to calculate Annualized Estimate for Maintenance Phase were exact dollar amounts.

1. According to the Bureau of Labor Statistics, in 2017 family and general practitioners earned approximately $100 per hour. See https://www.bls.gov/oes/current/oes291062.htm. To calculate the clinical lead hourly wage we estimated an average wage based on Bureau of Labor Statistics data and data from peer-reviewed literature. We recognize that the clinical lead is not always a physician, and can be a nurse practitioner, doctor of osteopathy, or another practitioner type. Based on the clinician type of the clinician lead, hourly wages will vary.
2. We estimate the hourly wage for the PCMH manager lead as the median hourly wage for a healthcare clinic manager in the United States. See https://www1.salary.com/Clinic-Manager-I-hourly-wages.html.
3. According to the Bureau of Labor Statistics, in 2017 nurse practitioners earned approximately $52 per hour, and physician assistants earned approximately $50 per hour. See https://www.bls.gov/oes/current/oes291171.htm, https://www.bls.gov/oes/current/oes291071.htm.
4. We estimate the hourly wage for a care manager/coordinator as $20 per hour. In the United States, the median hourly wage of care coordinators is $16 per hour. See https://www.payscale.com/research/US/Job=Patient_Care_Coordinator/Hourly_Rate.
5. The hourly wage for administrative and analytic support staff consists of hourly wages for healthcare analysts and administrative support staff. In the United States, on average healthcare analysts earn approximately $45 per hour. See https://learn.org/articles/Health_Care_Analyst_Career_and_Salary_FAQs.html. In the United States, on average medical administrative assistants earn approximately $20 per hour. See https://learn.org/articles/What_is_the_Average_Salary_for_a_Medical_Administrative_Assistant.html. We assumed an average hourly wage of $40 per hour, because we estimate more time for PCMH activities is attributable to the healthcare analyst compared with the administrative assistant.

FIGURE 5: PCMH ATTRIBUTABLE COSTS FOR A HYPOTHETICAL PRIMARY CARE PRACTICE – INCREMENTAL COSTING
Hypothetical practice has 10 primary care clinicians, two care managers/coordinators, two administrative support staff, and 20,000 unique commercial patients.

COST ELEMENT	DESCRIPTION	INVESTMENT PHASE EXAMPLES	HYPOTHETICAL ANNUALIZED ESTIMATE FOR INVESTMENT PHASE	MAINTENANCE PHASE EXAMPLES	HYPOTHETICAL ANNUALIZED ESTIMATE FOR MAINTENANCE PHASE
LOST PRODUCTIVITY COSTS					
CLNICAL LEAD	Lost visit time on a monthly basis to serve as champion to set the tone for how the practice will function as a medical home	20 visits per month @ $110 per visit	$26,400	8 visits per month @ $110 per visit	$10,560
PCMH MANAGER LEAD	Time spent on a monthly basis assembling/monitoring program structure, documenting guidelines, protocols, and processes, performing reporting functions, preparing application documents, training staff on PCMH functions	20 hours/month	$0	10 hours/month	$0
OTHER CLINICIANS	Time spent on a monthly basis for huddles and documenting QI activity	20 visits per month @ $110 per visit	$26,400	10 visits per month @ $110 per visit	$13,200
CARE MANAGERS / COORDINATORS	Time spent on a monthly basis confirming gaps in preventive care and scheduling appointments to address gaps in care	2 care managers@ 175 hours/month @ $20/hour4 + fringe	$100,800	2 care managers@ 175 hours/month @ $21/hour + fringe	$107,957
ADMINISTRATIVE / ANALYTIC SUPPORT	Time spent on a monthly basis analyzing data, creating required reports, coordinating changes to EHR, and performing other administrative tasks related to PCMH	15 hours/month	$0	5 hours/month	$0
OTHER DIRECT COSTS					
TRAINING	Costs for purchasing training, including new EHR functionality training, care management training, and PCMH guidelines training	One-time costs for training	$5,000	Annual cost for refresh trainings	$1,000
SYSTEMS	Costs for purchasing new software or EHR systems		Not clearly attributable to PCMH		Not clearly attributable to PCMH
FACILITY / EQUIPMENT	Costs for purchasing new computer or communication equipment		Not clearly attributable to PCMH		Not clearly attributable to PCMH
NCQA RECOGNITION FEES	Costs for recognition fee and reporting fees	Recognition fee = $500/clinician	$5,000	Annual reporting fee = $120/clinician	$1,200
PER PRACTICE COSTS			**$163,600**		**$133,917**
PER PRIMARY CARE CLINICIAN COSTS			**$16,360**		**$13,392**

Notes:
We derive our hypothetical practice size, including number of clinicians, care coordinators, administrative support staff, and patient population using a review of published estimates from: Altschulder, J., Margolius, D., Bodenheimer, T., et al. (2012). Estimating a reasonable patient panel size for primary care physicians with team-based task delegation. Annals of Family Medicine. 396-400. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3438206/.

Costs include both costs for new hires and lost reimbursement from reduced clinician productivity. Costs do not include those for current staff time diverted to PCMH activities.

For practices who already employ care managers / coordinators, the initial investment and maintenance period costs will be eliminated using the incremental costing method.

Recognition and maintenance costs will be substantially lower ($6,280 per clinician vs. $16,360 per clinician, and $2,596 per clinician vs. $13,392 per clinician, respectively).

We assume each visit is approximately 30 minutes in length, and a clinician can see two patients per hour.

Per visit average costs were derived using Milliman's Consolidated Health Cost Guidelines, Attribution Cost Model for Professional Services: office/home visits, preventive well-baby exams, and preventive physical exams

FUTURE PCMH RECOGNITION EFFECTS

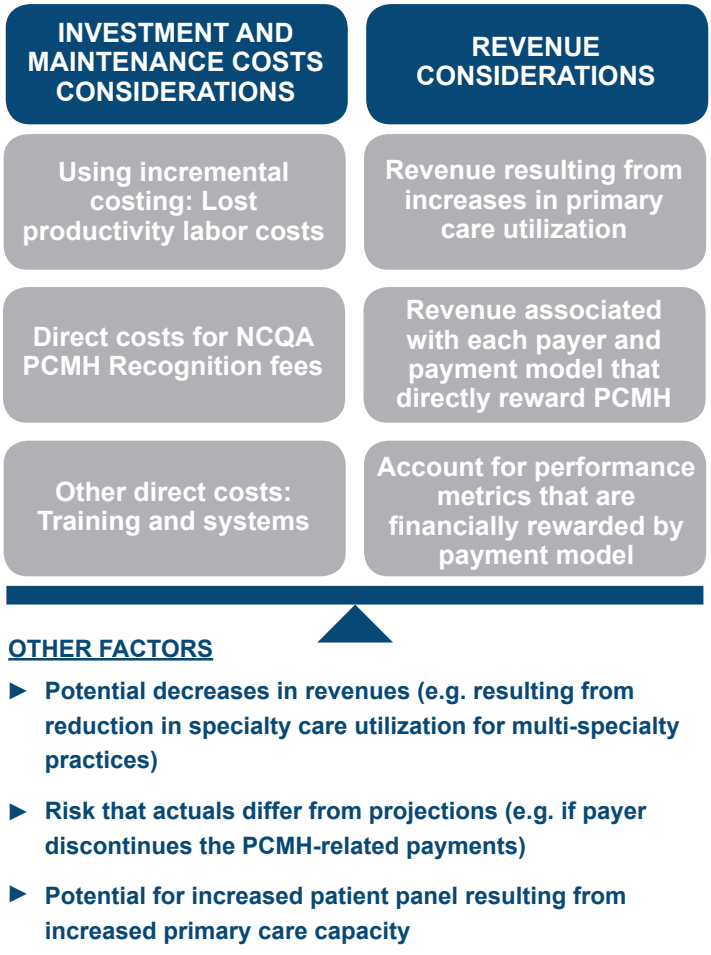
NCQA PCMH Recognition standards and requirements have changed over the years since their initial development. The majority of the practices we spoke with were still operating under the 2014 PCMH Recognition standards and requirements, although a few were operating under the new 2017 requirements. Two of the substantial 2017 requirement changes included eliminating the three tiered levels of PCMH Recognition, and changing from triennial renewals to annual reporting after the initial recognition, with a transition strategy for practices recognized prior to 2017. Practices are still assessing how these changes will affect costs. Interestingly, practices we spoke with shared differing views on how these recognition and renewal changes would affect their bottom lines. The majority of practices believed the new design would simplify the recognition and renewal process, and would result in fewer costs associated with maintaining recognition status. Although one health system interviewed expected its costs would increase, this health system also believed the reporting cycle and reporting content changes were important for continued quality improvement, and that the changes would further improvements within its practices and systems.

Developing the business case

Ultimately, leadership must determine whether the clinical benefit and revenue potential outweigh the investment costs for PCMH Recognition and whether there are other motivations to develop a business case for PCMH Recognition. To assist a CFO, we outline components of a pro forma necessary and lay out considerations for developing a business case.

An important step is for the CFO or business lead to develop a pro forma that projects costs and revenues, taking into account:

- Each of the cost elements required to undertake PCMH Recognition and maintain it. Projected related to labor will depend on whether one uses an incremental costing method to calculate the loss in productivity associated with PCMH efforts or if one uses a direct labor costing method that calculates the share of time (measured by salary and fringe benefits) associated with PCMH efforts.
- Payer mix (percentage Medicaid, Medicare, Commercial)
    - Medicaid managed care
    - Medicare FFS and Medicare Advantage
    - Commercial HMO, PPO
- Payment models directly related to or closely aligned with PCMH Recognition. Each entity would have to weigh the costs and benefits of engaging in particular payment arrangements and whether it should invest effort and dollars in PCMH versus other competing alternative payment contracts available in the market if they are not well aligned.
- Potential changes in revenue resulting from increased in primary care utilization. If a practice is a multi-specialty practice, potential decreased revenues resulting from reduction in specialty care practices should also be taken into account.
- Projected revenue streams associated with each payment arrangement, accounting for nuances in quality of care gains and performance metrics that are financially rewarded by the contact.
- Projected operational or administrative costs or saving



Contractual arrangements that encourage or require PCMH Recognition in specific terms are likely to drive provider behavior. A preponderance of practices we interviewed reported that the dominant payers in the market require PCMH Recognition and that requirement was a key driver for obtaining recognition. For example, 98 practices (332 physicians) participating with the Baylor Scott & White Quality Alliance (BSWQA) ACO required to be PCMH recognized. [59,60] Conversely, Main Line Health, located in the Philadelphia region of Pennsylvania, stated that it would no longer seek PCMH Recognition for a variety of reasons, including that it was no longer required by the dominant commercial carrier in the state and that it was devoting resources to quality improvement efforts under Medicare's Comprehensive Primary Care Plus (CPC+) program. [61,62] A CFO interested in making a business case for PCMH Recognition may not necessarily have contracts that directly reward PCMH Recognition. In that case, it is important to raise the following questions to determine whether there is sufficient alignment with recognition:

1. Does the contract reward key elements of PCMH Recognition, such as team-based care, care coordination and care transition tracking and management, or same-day appointments for routine and urgent care? Is there a sufficient overlap between the payer's requirements and those requirements under PCMH Recognition, such that obtaining recognition will satisfy the agreements with the payers and make the practice financially eligible for additional payments?
2. Assuming a practice or health system contracts with multiple payers, can economies of scale and value be achieved from being able to implement one standard across multiple payers? To the extent the same standard is accepted by multiple payers, its value is enhanced because multiple revenue streams can be captured through one investment in a single standard. If each payer has its own slightly different standard then efforts at the practice level would vary by contract. One standard could be more efficient, even if each payer must compromise on some goals in order to accept it. Depending on the size and bargaining power of the health system or network and efforts to negotiate a multi-payer approach, implementing PCMH standards may be worthwhile.
3. Will the payer agree to "deem" the practice compliant with the payer's agreements if the practice has PCMH Recognition?
4. How does the payer contract or payment arrangements reward improvements that are borne by the system as a result of better primary care management? For example, for a commercial ACO contract, does a practice gain a portion of savings resulting from a reduction in ED visits, specialty visits, or total cost of care?
5. Are there penalties that are avoided as a result of the practice's activity; for instance, if the larger health system that the practice is part of avoids hospital readmission penalties?

> *"We have plans for Dignity Health Medical Foundation to move toward an enterprise-wide approach accompanied by standardized reporting across all sites. This enterprise wide approach can help us reap some economies of scale and minimize disruption."*
>
> — Charla Parker, MPA, NCQA PCMH CCE, PCMH Manager, Dignity Health Medical Foundation

6. Does a contract hold a practice at-risk for delivering a minimum threshold of quality of care? If so, what are the measures? Do those measures align with PCMH measures, the target population, and goals for the practice?
7. How do payment arrangements "attribute" members to the practice? The selected attribution methodology can affect which patients are the provider's responsibility to manage, at least from a financial incentive perspective.

59 Communication with C. Lemener, MD, and L. Benavides on March 30, 2018. Currently 87 of the 98 BSWQA practices are PCMH-recognized. The remaining 11 practices are working toward recognition, and are planning to submit recognition applications at the end of 2018.
60 Baylor Scott & White Quality Alliance (2018). Medical Home. Retrieved April 25, 2018, from http://thequalityalliance.com/medical-home/.
61 Communication with D. Rice of Main Line Health on April 4, 2018.
62 Currently, 87 of the 98 BS&W practices have achieved PCMH Recognition. BS&W is working with the remaining 11 practices, and anticipates they will achieve PCMH Recognition during the next PCMH renewal cycle.

For example, is the method dependent on the number of visits or provider payments? Are only E&M related claims used for attribution, or are all professional claims used? Is attribution conducted on a prospective basis, which assumes that most members will use the same primary care providers in the future that they have used the past? What is the "tie-breaker" method that is used if more than one primary care provider meets the criteria for patient assignment?

8. Does the patient population mix make the practice particularly well set up to reap the benefits of PCMH? For example, is there a substantial portion of individuals with chronic conditions? A recent study of PCMH impacts on safety-net clinics that serves the seniors and persons with disabilities population, for example, showed that PCMH clinics reduced ED utilization by about 70 visits per 1000 members per year when compared to non-PCMH clinics.[63]

9. What are the potential cash flow issues that the practice must plan for? If investments must be made up front and revenue is not realized until the following quarter, or even settled at the end of the year, then practices could experience cash flow strains. Funds should be budgeted to ensure cash flow constraints do not jeopardize the business health of the practice.

10. What might future payer mix look like? If contracts are not rewarding value currently, there is a good chance they may in the future. Evaluate whether PCMH transformation may benefit future contracting and business needs.

11. How much will this benefit practices participating in MIPS under MACRA? For practices participating in MIPS, there may be tangible benefits from participating in PCMH Recognition to obtain the maximum Improvement Activities credits available under the MIPS program. If a practice does not choose to participate in a PCMH recognized program from one of the accrediting bodies, then it must choose from 93 activities listed as an Improvement Activity, each worth "medium" or "high" activity weights.[64] The process of reviewing and selecting which of the Improvement Activities are appropriate for the practice and determining how to maximize credits may not be worthwhile if the practice already functions as a PCMH and can easily obtain NCQA PCMH Recognition.

12. How will PCMH Recognition impact the Medicare Advantage population and Star Ratings? Health systems and medical groups with Medicare Advantage members and with payment tied to Star Ratings may have bonus payment potential resulting from PCMH-driven quality improvement. Some plans provide bonuses to providers per qualifying visit for visits that meet minimum Star Ratings (e.g., 3.75 Star Rating or higher). Also relevant for the Medicare Advantage population is the point that PCMH and related encounter data collection efforts can directly affect risk adjusted payments. Efforts to capture data can help providers (and plans) better reflect the acuity level of the population upon which risk scores are based.

Note, when developing a pro forma based on current projected revenues and costs, there is a risk that actual revenue or costs may differ from those projections. For example, the payer may discontinue the PCMH-related PMPM payments, or costs of implementing transformation may be higher than expected. One step practice leadership can take to mitigate such risks is to establish sufficient contractual time periods. Specifically, try to ensure that contract provisions allow for sufficient funding streams, at least to cover the initial investment phase. That way, the practice will not be in a situation where it has made investments but will never see associated revenues.

Conclusion

The NCQA PCMH model provides a well-vetted and respected foundation for the organization and transformation of primary care. Among the potential benefits of PCMH Recognition are increased utilization of primary care services; improved quality, efficiency, and effectiveness of care; and increased revenue. Likewise, there are also costs, such as the costs of new systems, structures and processes, and staff needed to support transformation to and delivery of advanced primary care. Ultimately, leadership must determine whether the revenue potential outweighs the investment costs for PCMH and whether there are other motivations for PCMH Recognition. Developing a business case requires developing a pro forma, carefully considering payment arrangements and other operational and administrative benefits or costs.

63 Chu, 2016. This study also shows that after the clinic's population exceeds 10% of SPDs, the high needs population "crowds out" low cost populations.
64 Department of Health and Human Services. (n.d.) Improvement Activities. Retrieved from Quality Payment Program: https://qpp.cms.gov/mips/improvement-activities.

Appendix A: Research Methods

This section summarizes our approach to understanding costs and revenues attributable to NCQA PCMH Recognition. Milliman undertook the following steps:

- Conducted a literature search for systematic reviews, meta-analyses, and recent evaluations of individual NCQA PCMH initiatives
- Conducted discussions with content experts, including researchers, consultants, industry experts, and NCQA personnel
- Conducted key informant interviews with implementers of NCQA PCMH Recognition

LITERATURE REVIEW

Milliman conducted a literature search to determine the availability of literature on the costs and revenues attributable to NCQA PCMH transformation and recognition. We used a combination of key terms to capture the relevant literature (see below). The literature search included both peer-reviewed, industry, and grey literature published in English from 2009 to present. We used search engines such as MEDLINE (PubMed), Academic Search Premier, and Google Scholar. To find relevant information that may not be readily available in the published literature, we reviewed other websites maintained by government agencies, foundations, provider associations and societies, payers, and health organizations.

PRIMARY SEARCH TERMS	IN COMBINATION WITH PRIMARY TERMS
• Patient-Centered Medical Home • PCMH • Medical home • Primary care transformation • Primary care recognition • NCQA recognized • Care management • Population health management	• Cost / Expenditures • Revenue • Return on investment (ROI) • Quality • Utilization • Benefits • Payments • Value based payments • Alternative payment models

After conducting the initial literature search, we narrowed our literature inclusion criteria so that the final pool of literature we relied on for this white paper was composed of systematic reviews, meta-analyses, and studies conducted after the comprehensive meta-analysis by Sinaiko et al. (2017). One exception is that we included literature suggested to us by content experts and implementers, even if the literature was not a systematic review, meta-analysis, or published after the Sinaiko et al. (2017) study. We excluded literature that did not include NCQA PCMH-recognized study participants, because there are many types of medical homes (see Introduction and Background above for a discussion of various medical home models), with varying requirements and structures.

CONTENT EXPERT DISCUSSIONS

Milliman conducted interviews with recognized experts in the field including researchers, PCMH certified content experts (CCEs), and National Committee for Quality Assurance (NCQA) personnel who are well versed in PCMH Recognition, primary-care transformation, and efforts to grow PCMH adoption. The purpose of these discussions was to efficiently gather information on the current evidence base of PCMH Recognition, as well as to gather industry-specific perspectives and current academic perspectives on PCMH. We sought to clarify available resources on PCMH, gaps, and points of interest in the literature on PCMH, as well as on the costs, revenues, and potential cost savings and cost offsets or return on investment for provider organizations, health systems, and payers engaging in PCMH transformation, recognition, and maintenance.

Methods

NCQA and Milliman reached out to 15 individuals, introducing the project, its purpose and goals, and Milliman key project personnel.

- Researchers represented academic research scientists with areas of expertise related to PCMH outcomes including costs, quality, healthcare utilization, and patient health outcomes. Researchers studied various PCMH adoption phases, including the early and current PCMH adoption phases. Content expert research represented business, operations, and administration of PCMHs, as well as a variety of implementer types: payers, provider organizations, health systems, and integrated networks.

- Consultant content experts represented a wide range of PCMH implementers, as well as federal qualified health centers (FQHCs) and state agencies.
- NCQA personnel provided input on PCMH transformation as it relates to quality measurement and improvement; PCMH Recognition product development and support; state and federal policy around PCMH Recognition; and NCQA engagement and relationship management with PCMH implementers.
- Milliman developed a high-level discussion guide that NCQA reviewed. While specific topics varied based on the expert's specialized area of knowledge or interest, discussion questions generally covered the following topics:
- What do you think is the value proposition of NCQA PCMH Recognition for healthcare provider organizations and/or clinicians (individual providers, independent physician associations [IPAs], health systems and networks)?
- Is there a threshold for scale (provider/health system size, patient panel size) required for business success as a NCQA PCMH? If yes, what is that threshold?
- Is there a threshold for time (number of months or years) required before business success as a NCQA PCMH can be realized?
- What are the expectations around the amount of time provider organizations and/or clinicians should invest before seeing improvements in quality, cost, and outcomes?
- Are those expectations reasonable?
- What are the direct costs (up-front costs and ongoing) for a practice or health system that we should consider—including system investments, people, and process transformation?
- What are factors provider organizations and/or clinicians should consider for NCQA PCMH transformation and recognition, other than direct costs, related to achieving business and/or financial success as a NCQA PCMH?
- Are there other areas for potential savings or financial improvement related to NCQA PCMH transformation aside from improvements or changes in cost, quality, utilization, and outcomes?
- What are the "ignored" areas of savings and financial success?
- What do you consider the seminal pieces of literature related to NCQA PCMH Recognition in general and specifically related to business and financial success as a NCQA PCMH?
- Where do you see the largest gaps in the available literature about business and/or financial success as a NCQA PCMH?
- Are there factors for success that you have observed in your work or research that are not included in published literature or information?
- What other areas of your work or research do you think we could or should look to for insight into business and financial success as a NCQA PCMH?

Results

Milliman successfully conducted 60-minute discussion calls with 15 content experts including six researchers, three consultants and/or industry experts, and six NCQA personnel.

KEY INFORMANT INTERVIEWS

Milliman conducted key informant in-depth interviews with implementers of NCQA PCMH Recognition. Implementers represented a range of organization types (see Figure 7 below for target implementer characteristics, and Figure 8 below for actual characteristics of implementer interviewees). The purpose of the in-depth interviews was to gather data from providers, provider organizations, health systems or networks, and payers to gain an understanding of their transformation efforts, target population(s), and views on how PCMH-related efforts have affected costs, revenues, and healthcare utilization and performance. Note that to gain varying perspectives, we also included a subset of interviewees who had at one point had PCMH Recognition but decided to no longer maintain recognition status. Information we were interested in collecting from key informants included:

- Key informant characteristics (region, size, type)
- Patient characteristics (health status/risk mix)
- PCMH profile (maturity level, recognition level, length of time since recognition)
- Delivery system environment (payer mix, payment models, other value-based initiatives)
- Investment costs (costs for systems, people, and processes)
- Costs for NCQA PCMH Recognition, including application and recognition fees
- Time period investments and costs were accrued
- Pre- and post-PCMH transformation revenue
- Revenue changes attributable to PCMH transformation
- Time period of revenue changes and costs impacts
- Benefits to patients, physicians, other clinicians, and staff
- Return on investment for PCMH Recognition

Target Interviewees

Key informant interviewees were implementers of PCMH transformation and included individual providers or groups of providers or medical groups, health systems or networks of providers, and payers or plans. Our goal was to interview four to five key informants with a variety of characteristics.

Methods

NCQA and Milliman undertook several steps to conduct key informant interviews:

1. To initiate contact with key informants, NCQA and Milliman reached out to a total of 16 implementers, introducing the project and Milliman key project personnel.
2. After key informants replied to initial outreach e-mails, Milliman scheduled 30-minute introductory calls with each key informant to introduce them to the project scope and goals, and the in-depth interview process.
3. After introductory calls with key informants were complete, Milliman scheduled subsequent 60- to 90-minute in-depth interviews with each key informant.
4. Milliman conducted nine in-depth interviews; seven of the key informants did not participate in the project due to scheduling conflicts or other factors.
5. Milliman developed an interview guide that was provided to the interviewees in advance of the in-depth interviews.
6. Interviewees were given the option to keep their information masked and speak off the record. If key informants wished to speak off the record, Milliman did not include specific quotes or information from them in this final white paper.

Our interview guide included a set of base questions and a set of questions that varied based on the key informant's experience with NCQA PCMH transformation and recognition. Interview questions covered the following topics:

1. Questions related to the practice profile, including name, organization name, type (e.g., medical group, hospital), location, and practice size.
2. Questions related to PCMH participation including number of years of PCMH Recognition, number of sites (for multisite interviewees) with and without PCMH Recognition, and number of patients attributed to PCMH-recognized sites.
3. For implementers who previously had PCMH Recognition, but let recognition lapse, reasons for not renewing recognition.
4. Additional payments the implementer may have received for participating in NCQA-recognized PCMHs, a description of those payments and payment models (e.g., PMPM, care management fee, case-mix adjusted FFS payment), the payer source, and the underlying payment model (e.g., Medicare Advantage, capitated payment for primary care services).
5. Practice revenue changes attributable to changes in healthcare utilization resulting from PCMH Recognition, for example, increases in primary care visits, or preventive services, or shared savings payments resulting from decreases in total cost of care and attaining quality-of-care targets.
6. Direct labor costs (e.g., physician leaders' time per week) and other costs (e.g., training) attributable to PCMH Recognition.
7. Indirect costs attributable to PCMH Recognition (e.g., loss in productivity).
8. Observed improvements in key quality of care measures, or reductions in unnecessary utilization that may be attributable to PCMH Recognition.
9. Other observed benefits or impacts of PCMH, for instance as it related to patient satisfaction, clinician satisfaction, or physician burnout.

Results

Milliman successfully conducted 60- to 90-minute discussion calls with nine implementers. Figure 7 provides a list of characteristics we used to guide our development and selection of key informants interviewees. Figure 8 provides a profile

FIGURE 7: TARGET CHARACTERISTICS FOR PCMH IMPLEMENTER KEY INFORMANT INTERVIEWS

CHARACTERISTIC	TARGET A	TARGET B	TARGET C	TARGET D
SIZE	Small (1-5 Clinicians)	Midsize (>5-10 Clinicians)	Large or Network (>10 or speaking on behalf of network	
TYPE	Medical Group / IPA	Health System / Network	Plan / Payer	
PCMH MATURITY LEVEL	Newly Recognized	1-2 Years Recognition	>2 Years Recognition	Multiple Maturity levels
PAYER MIX	Medicaid	Medicare	Commercial	Uninsured / Self-Pay
PAYMENT MODEL	Fee-for-service	Managed Care	Value-Based Payment Model	Other Alternative Payment Model
CENSUS REGION	West	South	Midwest	Northeast

FIGURE 8: PCMH IMPLEMENTERS: KEY INFORMANT INTERVIEWEE CHARACTERISTICS

IMPLEMENTER NUMBER.	SIZE	TYPE	PCMH MATURITY LEVEL	PAYER MIX	PAYMENT MODELS	CENSUS REGION
1	Large	Health System / Network	1-2 Years Recognition	All Payer Types	All Payment Models	West
2	Large	Medical Group / IPA	>2 Years Recognition	All Payer Types	All Payment Models	West
3	Large	Medical Group / IPA	Multiple Maturity Levels	All Payer Types	All Payment Models	Midwest
4	Large	Plan / Payer	Multiple Maturity Levels	NA	Payment Models Undisclosed	Northeast
5	Small	Medical Group / IPA	>2 Years Recognition	Medicaid, Commercial, Self-Pay	All Payment Models	South
6	Large	Medical Group / IPA	Multiple Maturity Levels	All Payer Types	All Payment Models	Northeast
7	Large	Health System / Network	Multiple Maturity Levels	All Payer Types	All Payment Models	South
8	Small	Medical Group / Network	>2 Years Recognition	Medicaid, Commercial, Self-Pay	Fee-for-service	Northeast
9	Large	Medical Group / Network	NA	All Payer Types	All Payment Models	Northeast

Appendix B: Evaluating PCMH Recognition

Making the business case by drawing a connection from quality of care and efficiency gains to revenue gains resulting from PCMH Recognition is not easy, even when payment arrangements encourage reporting. To assess the impact that PCMH Recognition has on the bottom line, it's necessary to evaluate by isolating the effects of PCMH-related activity. While larger health systems and networks were able to provide quantifiable information on specific outcome measures related to PCMH, we found that most practices we interviewed did not have quantifiable information regarding the effects of PCMH Recognition because:

- "Baseline" data at the beginning of their transformation experiences were not uniformly collected.
- Analytic capabilities needed to conduct credible evaluations are not necessarily readily available to most practices.
- PCMH Recognition standards have changed, thus making it difficult to compare over time.
- Each practice has a different "starting point." This variation in leadership, organizational culture, processes, and systems makes it difficult to compare across practices.
- Other payment reform and quality improvement initiatives may have an interactive effect with PCMH-related activity. In some cases, these initiatives are seen as competing for staff time and resources and may "take the oxygen out of the room" for PCMH Recognition activity. In other cases, these other initiatives may have an amplification effect, especially when the program goals and measures are aligned or when PCMH Recognition is explicitly required.

The effects of PCMH Recognition on patient outcomes and quality of care are highly dependent on the patient population mix, applied care management strategies, and patient engagement. We reviewed the relevant literature to assess the current evidence on the effects of PCMH Recognition on utilization, cost, and quality outcomes. In summary, PCMH is associated with reductions in specialty care visits and total cost of care among higher-morbidity populations—meaning those with two or more chronic conditions. Among the general population, it is also associated with increases for preventive services, such as cervical cancer screening. For a higher-morbidity population there is also an increase in certain preventive screenings, such as for breast cancer screening. There is mixed but directionally positive evidence to show that PCMH Recognition may reduce ER visits and hospital admissions for patients with chronic conditions, improve management of select chronic conditions, and enhance patients' experiences with care. In particular, individual studies show compelling evidence of these effects among specific subpopulations of patients, as do systematic reviews and implementers' experiences. For example, data from one of the implementers we interviewed showed that the practice went from 8.45 hospitalizations to 7.93 hospitalizations per 1,000 member months after transformation; a more than 8% decrease. However, in aggregate, the research does not clearly demonstrate PCMH's impact in these areas.

LITERATURE SYNTHESIS

The principles underlying the medical home model of care include: 1) accessible care for all patients; 2) continuous care and communication that focuses on the relationship between the primary care team and patient; 3) comprehensive care that meets the majority of patients' physical and mental health needs; 4) coordinated care across all areas of the healthcare system; and 5) whole-person, accountable care that is oriented toward respecting each patient's unique needs, culture, values, and preferences.[65,66,67] Compared with traditional models of primary care, the PCMH—as defined by these principles—is said to improve patient care and reduce healthcare costs. Findings from systematic reviews, meta-analyses, and recent literature on the effects of PCMH Recognition on quality of care, costs, and revenues can help practices that are considering recognition or that are already recognized determine evidence-based expectations for these outcome areas.

65 Donaldson, M., et al. (1996). Committee on the Future of Primary Care Services. National Academy of Sciences.
66 Agency for Healthcare Research and Quality (October 2017). CAHPS Patient-Centered Medical Home (PCMH) Item Set. Retrieved April 25, 2018, from https://cahps.ahrq.gov/surveys-guidance/item-sets/PCMH/index.html.
67 O'Malley, A., Rich, E., Maccarone, A., et al. (2015). Disentangling the linkage of primary care features to patient outcomes: A review of current literature, data sources, and measurement needs. Journal of General Internal Medicine. 576-585.

QUALITY OF CARE

There are a number of areas where PCMH Recognition may be associated with improvement in quality of care. For example, it is hypothesized that the PCMH model of care can increase the capacity of primary care to provide a comprehensive set of services, and reduce referrals to specialty care providers. PCMHs may also increase the use of evidence-based preventive services, such as age-appropriate breast cancer screenings and care bundles for chronic conditions, because one requirement for recognition is that practices develop evidence-based guidelines for patient subpopulations and certain conditions. Finally, PCMHs may result in reduced ER visits and hospital admissions through mechanisms such as reduced fragmentation of care and more timely and accessible care.

A comprehensive meta-analysis published in 2017 synthesized the effects of a number of PCMH initiatives across the United States on utilization and quality of care.[68] Sinaiko et al. (2017) found, after standardizing findings from 11 initiatives that PCMH Recognition was associated with a 1.5% reduction in the use of specialty visits, a 1.2% increase in cervical cancer screening among all patients, and a 1.4% increase in breast cancer screening among higher-morbidity patients.[69] However, findings indicated no significant effect on the utilization of primary care visits, ER visits, inpatient visits, or colorectal cancer screening. An earlier systematic review by Jackson et al. (2013), compared 19 PCMH interventions, and uncovered moderately strong evidence that PCMHs increased the use of primary care services.[70] Similar to Sinaiko et al. (2017), Jackson et al. (2013) found no evidence of reduced hospital admissions related to PCMH. However, Jackson et al. (2013) did show evidence for reduced ER visits associated with PCMHs. [71]

Studies that have evaluated single PCMH interventions on quality of care find similarly mixed results. For example, an evaluation of CareFirst's PCMH initiative that compared PCMH-enrolled patients to non-PCMH-enrolled patients found no significant differences in utilization [72] of primary or specialty care services associated with PCMHs after controlling for factors known to affect healthcare utilization. In contrast, a study of community health centers (HCs) found that HCs with PCMH Recognition performed better on clinical performance measures related to asthma therapy, diabetes control, tobacco cessation, prenatal care, and pap testing compared with HCs without recognition. [73] Two studies that examined the impact of PCMH on access to care found little to no effect.[74,75] For instance, Chou et al. (2018) found practices with PCMH designations were no more likely to offer seven-day appointments or have reduced appointment wait times than those without PCMH designations.[76] Additionally, Leroux et al. (2017) found, when comparing practices before and after PCMH designation, that differences in appointment availability were so small that patients may not have actually experienced improvement.[77] In contrast, research on the effect of PCMHs on office visits and ER use in California safety net clinics found PCMH clinics had 163 more office visits per 1,000 members per year and 70 fewer ER visits per 1,000 members per year compared with non-PCMH clinics.[78]

COSTS AND REVENUES

Studies have also examined costs associated with PCMH transformation and recognition. PCMH models of care are hypothesized to decrease total costs of care through several mechanisms. For example, PCMHs may lower hospital and acute care costs through a reduction in ER visits and hospital admissions. PCMHs also have the potential to decrease costs associated with care fragmentation, waste, and service duplication through improved coordination and communication between and within practices, networks, and health systems. Last, the PCMH model of care may decrease costs by providing better management of patients with chronic conditions.

68 Sinaiko, A., Landrum, M., Meyers, D., et al. (2017). Synthesis of research on Patient-Centered Medical Homes brings systematic differences into relief. Health Affairs. pp. 500-508.
69 Sinaiko, A. et al., ibid.
70 Jackson, G., Powers, B., Chatterjee, R., et al. (2013). The Patient-Centered Medical Home, a systematic review. Annals of Internal Medicine. 169-178.
71 Jackson, G. et al., ibid.
72 Afendulis, C., Hatfield, L., Landon, B., et al. (2017). Early impact of CareFirst's Patient-Centered Medical Home with strong financial incentives. Health Affairs. 468-475.
73 Shi, L., Lee, D., Chung, M., et al. (2017). Patient-Centered Medical Home recognition and clinical performance in U.S. community health centers. Health Services Research. 984-1004.
74 Chou, S., Rothenberg, C., Agnoli, A., et al. (2018). Patient centered medical homes did not improve access to timely follow-up after ED visit. American Journal of Emergency Medicine. Retrieved April 25, 2018, from https://doi.org/10.1016/j.ajem.2018.01.070.
75 Leroux, T., Cote, M., Kum, H., et al. (2017). Transitioning to Patient-Centered Medical Homes: Associations with appointment availability. Military Medicine. 1741-1746.
76 Chu, L., Tu, M., Lee, Y., et al. (2016). The impact of Patient-Centered Medical Homes on safety net clinics. American Journal of Managed Care. 532-538
77 Leroux, T. et al., ibid.
78 Chu, L. et al., ibid.

The Sinaiko et al. (2017) meta-analysis found a 4.2% decrease in total healthcare spending (excluding pharmacy spending) for higher-morbidity patients associated with PCMH Recognition.[79] Among all patients, researchers found a 2.25% reduction in total healthcare spending. However, the difference was not statistically significant.[80] In addition, a systematic review by Peikes et al. (2012) found evidence of cost savings among PCMH initiatives.[81] Conversely, the systematic review conducted by Jackson et al. (2013) found no evidence of overall cost savings attributable to PCMHs.[82] Finally, in a recent systematic review of medical home initiatives, some of which were NCQA PCMHs and others that were not exclusively NCQA PCMHs, the majority of studies found decreased costs associated with the medical home model of care.[83]

Similar to Sinaiko et al. (2017), an evaluation of an individual initiative by Afendulis et al. (2017) found small but significant reductions in total healthcare spending associated with CareFirst's PCMH initiative.[84] Similarly, a study by Van Hasselt, Keyes, Wensky, and Smith (2014) found recognition was associated with more than a $250 decrease, or 4.9% reduction, in annual total Medicare spending per beneficiary.[85] In a study looking at a statewide medical home network by Domino et al. (2009), PCMH Recognition was associated with reduced mean monthly total costs of care; costs were reduced by $43 per fee-for-service patient.[86] In a pre-post study conducted by Reid et al. (2010), total costs of care over the first 12 months, 18 months, and 21 months of PCMH implementation were lower by more than 10%, compared with total costs of care prior to PCMH implementation.[87]

INITIAL INVESTMENT COSTS

There is a small body of research that provides initial investment costs that are comparable across studies. For instance, a recent study on the costs of transformation and recognition of 56 practices across a Texas health system found initial investment costs to be around $43,000 per practice for a hypothetical practice with 5.0 full-time equivalent (FTE) physicians, 7.5 FTE medical assistants, a practice administrator, and an office manager.[88] This estimate includes recognition fees, as well as the labor costs and non-labor costs for preparing documentation and completing the NCQA PCMH application; developing policies and procedures; designing new workflows, clinical guidelines, and quality improvement metrics; providing training on PCMH standards and EHR documentation to practice staff; creating mechanisms to identify high-risk patients; identifying gaps in preventive and chronic disease care, and providing care management services to patients; conducting patient chart reviews; carrying out other medical home functions; and purchasing equipment. Similarly, a case study of two small, independent primary care practices in Rhode Island reported the initial investment costs for NCQA level 3 recognition to be around $46,000 per practice for labor, recognition fees, and related opportunity costs. [89] In another study of three pediatric practices and one family medicine practice in North Carolina, costs associated with achieving level 3 recognition were estimated at approximately $13,700 per FTE physician.[90] Finally, research on the costs of transformation for practices participating in a medical home pilot found that practices spent a median of approximately $9,800 per provider in one-time costs for transformation and recognition.[91]

79 Sinaiko, A. et al., ibid.
80 Sinaiko, A. et al., ibid.
81 Peikes, D., Zutshi, A., Genevro, J., et al. (2012). Early evaluations of the medical home: building on a promising start. American Journal of Managed Care. 105-116.
82 Jackson, G. et al, ibid.
83 Jabbarpour, Y., DeMarchis, E., Bazemore, A., et al. (2017). The Impact of Primary Care Practice Transformation on Cost, Quality, and Utilization: A Systematic Review of Research Published in 2016. Patient Centered Primary Care Collaborative.
84 Afendulis, C. et al., ibid.
85 Van Hasselt, M., McCall, N., Keyes, V., et al. (2014). Total cost of care lower among Medicare fee-for-service beneficiaries receiving care from Patient-Centered Medical Homes. Health Services Research.
86 Domino, M., Humble, C., Lawrence, W., et al. (2009). Enhancing the medical homes model for children with asthma. Medical Care. 1113-1120.
87 Reid, R., Coleman, K., Johnson, E., et al. (May 2010). The Group Health medical home at year two: Cost savings, higher patient satisfaction, and less burnout for providers. Health Affairs. Retrieved April 25, 2018, from https://doi.org/10.1377/hlthaff.2010.0158.
88 Fleming, N., da Graca, B., Ogola, G., et al. (2017). Costs of transforming established primary care practices to Patient-Centered Medical Homes (PCMHs). Journal of the American Board of Family Medicine. 30:460-471.
89 Ho, L., & Attonucci, J. (2015). The dissenter's viewpoint: there has to be a better way to measure a medical home. Annals of Family Medicine. 13:269-272.
90 Halladay, J., Mottus, K., Reiter, K., et al. (2016). The cost to successfully apply for level 3 medical home recognition. Journal of the American Board of Family Medicine. 29:69-77.
91 Martsolf, G., Kandrack, R., Gabbay, R., et al. (2015). Cost of transformation among primary care practices participating in a medical home pilot. Journal of General Internal Medicine. 31(7): 723-731.

MAINTENANCE COSTS

Some of the available literature on total incurred costs for PCMH Recognition indicate maintenance and renewal are less costly than initial recognition. For example, Fleming et al., (2017) found a hypothetical 5-FTE physician practice would spend about $43,000 on initial investments, and reported the same practice would spend slightly less than $18,000 for maintenance and renewal—40% of the cost incurred during the initial investment period.[92] In addition, the study reporting initial investment costs of approximately $69,000 for a hypothetical 5-FTE physician practice found maintenance and renewal costs to be around $10,400 per FTE physician, or about $52,000 for a hypothetical 5-FTE physician practice.[93] In direct contrast to these studies, the research that found initial investment costs to be around $49,000 for a hypothetical 5-FTE physician practice found maintenance and renewal costs to be greater than initial investment costs—maintenance costs for a hypothetical 5-FTE physician practice would be greater than $300,000 based on this research.[94] More research is required to reconcile the different findings between studies on the costs of maintaining a PCMH.

CONCLUSION

There are a few outcomes for which the evidence appears to agree:

- PCMH Recognition is associated with reductions in specialty care visits and total cost of care, and increases in breast cancer screenings among higher-morbidity patients.
- PCMH Recognition is associated with increased cervical cancer screening among all patients.

There are a number of outcomes for which the evidence suggests positive findings, but more research is needed:

- PCMH Recognition may be associated with reductions in ER visits and hospital admissions.
- PCMH Recognition may improve management of select chronic conditions.
- PCMH Recognition may improve patients' experiences with care.

There are also a number of outcomes for which the evidence is either inconclusive or lacking. In their systematic review, Sinaiko et al. (2017) highlight the existence of significant heterogeneity between PCMH initiatives and indicate this may be one possible explanation for unclear and disparate findings between studies for these outcomes.[95] Finally, studies use myriad evaluation and cost allocation strategies that provide widely varying estimates of the costs of PCMH transformation and maintenance.

92 Fleming, N. et al., ibid.
93 Halladay, J. et al., ibid.
94 Martsolf, G., et al., ibid.
95 Sinaiko, A. et al., ibid.

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