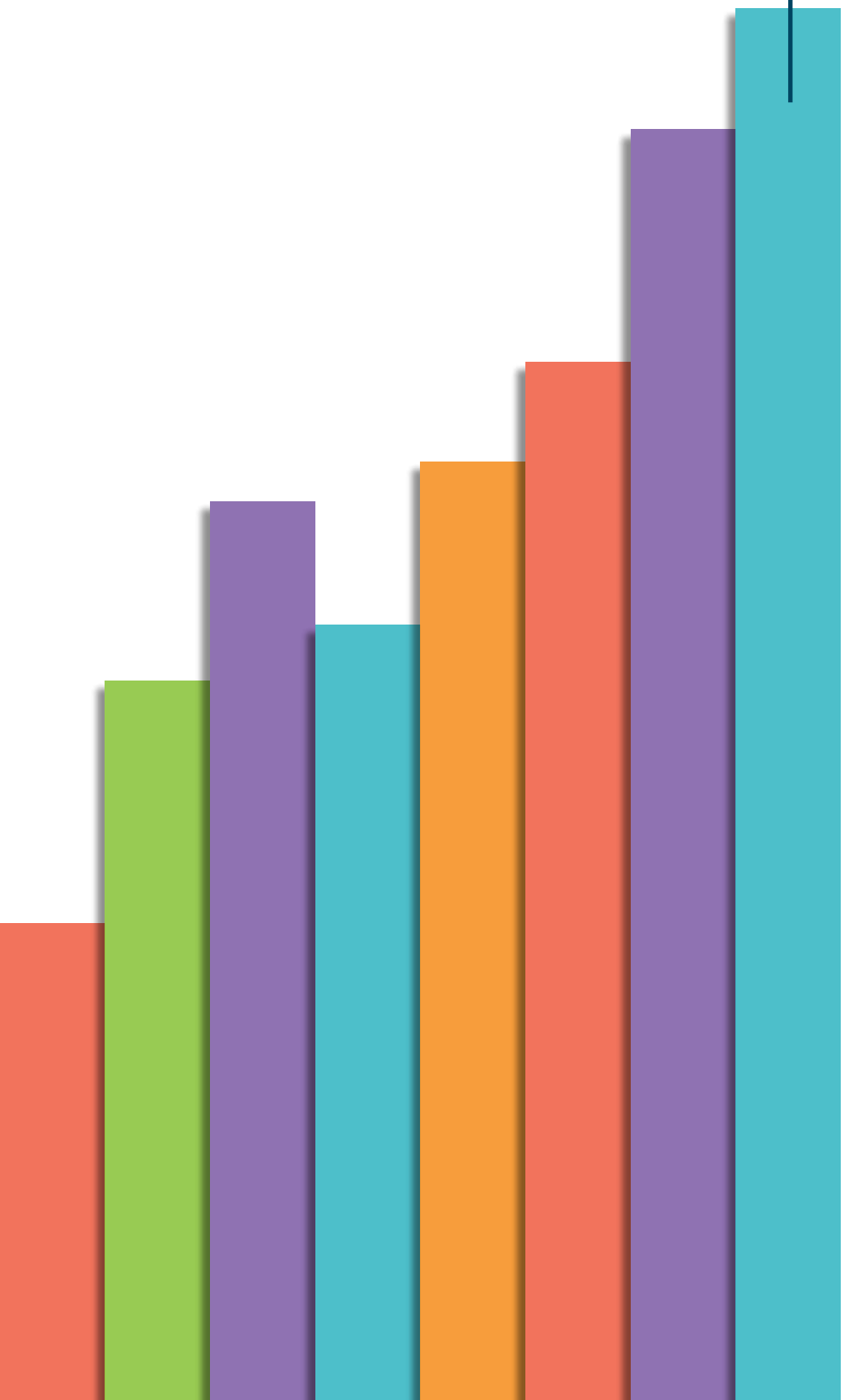
Patient-Centered
Primary Care
COLLABORATIVE



The Patient-Centered Medical Home's Impact on Cost & Quality:

An Annual Update of the Evidence, 2012-2013

January 2014

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ABOUT THE PATIENT-CENTERED PRIMARY CARE COLLABORATIVE (PCPCC)

Founded in 2006, the PCPCC is dedicated to advancing an effective and efficient health care system built on a strong foundation of primary care and the patient-centered medical home (PCMH). The PCPCC achieves its mission through the work of its five Stakeholder Centers, led by experts and thoughts leaders who are dedicated to transforming the U.S. health care system through delivery reform, payment reform, patient engagement, and employee benefit redesign. Today, PCPCC represents more than 1,000 medical home stakeholders and supporters throughout the U.S. For more information visit **www.pcpcc.org**.

ABOUT THE MILBANK MEMORIAL FUND

The Milbank Memorial Fund is an endowed operating foundation that works to improve health by helping decision makers in the public and private sectors acquire and use the best available evidence to inform policy for health care and population health. The Fund has engaged in nonpartisan analysis, study, research, and communication on significant issues in health policy since its inception in 1905. Its staff organizes and participates in meetings with decision makers and publishes reports, books, and *The Milbank Quarterly*, a peer-reviewed journal of population health and health policy.

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EXECUTIVE SUMMARY

This annual report highlights recently published clinical, quality, and financial outcomes of patient-centered medical home (PCMH) initiatives from across the United States. At the time of this writing, more than 90 commercial and not-for-profit health plans, including the nation's largest, are leading initiatives grounded in the philosophy of patient-centered care and the PCMH. Dozens of the nation's largest employers, including Boeing, IBM, Intel, Safeway, and Lockheed Martin, are offering advanced primary care and PCMH benefits to thousands of employees. In the public sector, millions of beneficiaries are receiving patient-centered primary care through 25 state Medicaid programs, the Federal Employee Health Benefits program, Medicare, the US military, and the Veterans Administration. In addition, millions more patients are attributed to the thousands of private practices, community health centers, hospital ambulatory care networks, independent physician associations, and other organizations that have adopted this approach to primary care. Clearly, the momentum for the PCMH continues to build.

Profiling a showcase of PCMH initiatives, this report focuses on studies released between August 2012 and December 2013 and identifies where they are happening, who is leading them, and highlights the outcomes they are achieving. In addition to the results from these 20 most recent studies, the report includes a summary of PCMH initiatives taking place throughout the US since 2009, which can be found in Appendix A on page 25 (reflecting 54 different studies organized by state and location). Although the evidence is early from an academic perspective, and this report does not represent a formal peer-reviewed meta-analysis of the literature, the expanding body of research provided here suggests that when fully transformed primary care practices have embraced the PCMH model of care, we find a number of consistent, positive outcomes.

A summary of key points from this year's report include:

1. PCMH studies continue to demonstrate impressive improvements across a broad range of categories including: cost, utilization, population health, prevention, access to care, and patient satisfaction, while a gap still exists in reporting impact on clinician satisfaction.

	Total Studies	Cost Reductions	Fewer ED Visits	Fewer Inpatient Admissions	Fewer Readmissions	Improvement in Population Health	Improved Access	Increase in Preventive Services	Improvement in Satisfaction
PEER-REVIEW/ACADEMIA									
Reported outcomes	(n=13)	61% (n=8)	61% (n=8)	31% (n=4)	13% (n=1)	31% (n=4)	31% (n=4)	31% (n=4)	23% (n=3)
INDUSTRY REPORTS									
Reported outcomes	(n=7)	57% (n=4)	57% (n=4)	57% (n=4)	29% (n=2)	29% (n=2)	14% (n=1)	29% (n=2)	14% (n=1)

While recognizing that "one size does not fit all," these 20 studies found that PCMH initiatives continue to demonstrate improvements across a number of metrics in peer-reviewed (academic) and industry-generated studies. The most common reported metrics include:

- **Decreases in the cost of care,** such as per member per month (PMPM) costs, return on investment, and total cost of care (61% of peer-reviewed and 57% of industry-generated studies);
- **Reductions in the use of unnecessary or avoidable services,** such as emergency department or urgent care visits (61% of peer-reviewed and 57% of industry-generated studies), inpatient admissions (31% peer-reviewed and 57% industry-generated studies), and hospital readmissions (13% of peer-reviewed and 29% of industry-generated studies);

- **Improvements in population health indicators and increase in preventive services,** such as better controlled HbA1c, blood pressure, and LDL levels (31% of peer-reviewed and 29% of industry-generated studies) and increases in screening and / or immunization rates (31% of peer-reviewed and 29% of industry-generated studies);
- **Improvements in access to care,** such as improved overall access to primary care clinicians, as well as non-face-to-face visits (31% of peer-reviewed and 29% of industry-generated studies);
- **Improvements in patient satisfaction**, such as overall satisfaction, recommending the practice to family and friends, and satisfaction with provider communications (23% of peer-reviewed and 14% of industry-generated studies); and
- **Future studies should include clinician satisfaction** as part of PCMH evaluation studies that measure cost and utilization given the importance of strengthening and enhancing the primary care workforce. Only a single study found here, the University of Utah's "Care By Design" program, overtly measured improvements in clinician satisfaction.

Further supporting the PCMH, recent research finds that the longer a PCMH model of care has been in place, the greater the cost savings and improvement in quality and outcomes.[1, 2, 3]

2. The PCMH continues to play a role in strengthening the larger health care system, specifically Accountable Care Organizations and the emerging medical neighborhood model.

As private and public sector support for the PCMH continues to build, the health care sector continues to recognize the foundational role of the PCMH in delivery models such as ACOs and the emerging medical neighborhood model. Many of the nation's highest-performing ACOs embrace their strong PCMH component, [4] and for this reason, PCMHs are well-positioned to lead and drive change across ACOs. Initial ACO evaluation results from CMS suggest that many early adopters have indeed improved the cost effectiveness of care delivery and received shared savings as a result. Many of the improvements can be attributed to PCMH-like features, including innovative approaches to care coordination, team-based care, and chronic disease management.[5, 6] As evaluations of ACOs, integrated health systems, and the medical neighborhood continue, the PCMH will be essential to driving improvements in cost, quality, and outcomes.

3. Significant payment reforms are incorporating the PCMH and its key attributes.

Paying for a health care system that invests in primary care and the PCMH is imperative. One of the most promising payment reforms of 2013 includes recent Congressional activity to repeal the Medicare Sustainable Growth Rate (SGR). If passed into law, these reforms will result in a major step toward moving the US health care system away from a fee-for-service (FFS) model, to one that rewards quality, efficiency, and innovation. The proposal specifically names the PCMH as a supportive framework for alternative value-based payment models that rewards quality and value. Significant strides were also made this year in the private sector, as commercial health plans increasingly transitioned their PCMH 'demonstrations' or pilots into a standard business operation (i.e. incentivizing primary care and PCMHs with PMPM payments or care coordination fees).

Significant strides were also made this year in the private sector, as commercial health plans increasingly transitioned their PCMH pilots into a standard business operation.

The findings are indeed encouraging and the evidence base for the model continues to build at a rapid pace. While we need to be cautious about over-promising what the PCMH alone can deliver,[7, 8, 9] our review of the recent literature affirmatively shows improvements across a number of categories. Our review also suggests some gaps in the evidence and ways to improve future PCMH studies. More robust analyses regarding how PCMHs function, transform and improve outcomes for all patients and their families are critical to the long-term success of primary care, as well as helping the US to achieve much needed, broad-based delivery reform.

SECTION ONE
AN OVERVIEW OF THE PATIENT-CENTERED MEDICAL HOME

With the United States spending roughly $2.8 trillion on health care annually (nearly 18% of our gross domestic product), yet ranking among the worst in terms of quality and outcomes, primary care and the patient-centered medical home (PCMH) have emerged front and center of public policy discussions.[10, 11, 12] After more than 30 years of academic study, research findings demonstrate that countries and health systems that heavily invest in primary care have better health outcomes at lower total cost.[13, 14] As American health care costs continue to rise without commensurate improvements in health outcomes, a conundrum that has intensified over time, the imperative to lower costs takes on increased significance.

That high quality primary care is acknowledged as a key solution to the US health conundrum makes intuitive sense. Most individuals are closely connected to the health system via their primary care practice, and their primary care provider is viewed as an entryway to the complicated world of health and health care for patients, families, and consumers alike. Grounded in the long term healing relationship between a primary care provider and their patient, the door of primary care opens in both directions: one focused on compassionately treating illness and injury when it occurs, and the other focused on prevention and wellness, and even the social and physical environments in which we live and work.[15]

"That high quality primary care is acknowledged as a key solution to the US health conundrum makes intuitive sense. Most individuals are closely connected to the health system via their primary care practice, and their primary care provider is viewed as an entryway to the complicated world of health and health care."

Policymakers across the political spectrum are investing in primary care and the primary care workforce, with multiple initiatives ranging from the Center for Medicare and Medicaid Services (CMS) Multi-Payer Advanced Primary Care Initiative,[16] to those included in the Affordable Care Act, such as the Comprehensive Primary Care Initiative (CPCI), an expansion of the National Health Service Corps, and the creation of Teaching Health Centers.[17] A recent PCPCC analysis of health system transformation proposals by five national thought leader organizations (Partnership for Sustainable Health Care, The Brookings Institution, The Commonwealth Fund, Center for American Progress, and the Bipartisan Policy Center), and all included a major focus on strengthening primary care and further spread of PCMH-like features. [18] More recently, Congress appears to be considering changes in physician reimbursement within Medicare that end the Sustainable Growth Rate (SGR) and gradually transitions from a fee-for-service (FFS) reimbursement structure toward value-based models of care that incentivize primary care, PCMHs, and Accountable Care Organizations (ACOs).

Definition

A concept first introduced in 1967 by the American Academy of Pediatrics to improve the care of children with complex care needs, the PCMH has evolved to become a widely accepted model among clinicians, health plans, employers, policymakers, and many consumer groups. The model describes an expert and evidence-supported set of expectations regarding how primary care should be organized and delivered for all patients and their families. [19] In 2007, the momentum behind the PCMH received a boost when the major primary care physician associations developed and endorsed the Joint Principles of the Patient-Centered Medical Home. [20] A precise definition of the medical home continues to evolve, but consensus is emerging on key principles (the terms "advanced primary care" or "health home" are sometimes used to describe the PCMH). The PCPCC actively promotes the medical home as set forth by the Agency for Healthcare Research and Quality (AHRQ), which identifies five core attributes:

Person-centered: A well-established partnership among practitioners, patients, and their families ensures that decisions respect patients' wants, needs, and preferences, and that patients have the

education and support they need to make decisions and participate in their own care.

- **Comprehensive:** A team of care providers is wholly accountable for a patient's physical and behavioral health care needs, including prevention and wellness, mental and behavioral health, acute care, and chronic care.
- **Accessible:** Patients are able to access services with shorter waiting times, "after hours" care, 24/7 electronic or telephone access, and are able to communicate with providers through e-mail, patient portals or other health IT tools.
- **Coordinated:** Care is organized across all elements of the broader health care system, including specialty care, hospitals, home health care, community services and supports.
- **Committed to quality and safety through a systems approach:** Clinicians and staff enhance quality improvement through the use of health IT and other tools to ensure that patients and families make informed decisions about their health. [21]

PCMH Recognition or Accreditation Programs

Even with this general definition of a medical home, the exact set of standards for achieving primary care excellence varies across accrediting organizations, health plan payers, and clinician practices. While thousands of primary care practices have embraced the medical home *philosophy*, a subset of approximately 7,000 practices [22] have achieved PCMH recognition (also known as certification or accreditation) from an external accrediting body or expert entity. Several national programs offer medical home recognition, including the Accreditation Association for Ambulatory Health Care (AAAHC), the Joint Commission, the National Committee for Quality Assurance (NCQA), and URAC (formerly the Utilization Review Accreditation Commission).

In addition to these national programs, states such as Minnesota, Oklahoma, and Maine, and several commercial health plans, such as Blue Cross Blue Shield Michigan, have developed their own PCMH standards. A growing number of health plans and payers use PCMH recognition as a means to validate high performing practices, and reward practices with increased reimbursement in exchange for this qualification. For many practices, going through the recognition process provides a useful road map for quality improvement and practice transformation. Contracting with technical assistance organizations that provide access to transformation "coaches" or learning collaboratives [23] can also provide clinical practices with individualized support to meet recognition requirements and embrace the demanding leadership and cultural changes needed for true practice transformation.[24]

Although recognition programs have similar standards for assessing "medical home-ness," [25, 26, 27, 28] the specific elements, processes, administrative burden, and costs for undergoing recognition differs fairly significantly across programs. [29] Moreover, recognition as a PCMH is not synonymous with being one. As McNellis et al describe in their commentary of several primary care practice transformation studies, "a practice could be a true PCMH without having received recognition, and a practice that has received PCMH recognition may not be a true PCMH." [30] Indeed, although a number of the individual elements of the medical home are well-grounded in the literature, the evidence base for which components of the model are most important in terms of impacting patient outcomes, high performance, operational feasibility, and sustainability, is still being developed. [31] Accordingly, the requirements for recognition are also likely to evolve. A persistent challenge is not only meeting the "basics" of medical home recognition, rather, it is the capability of practices and health systems to self-sustain their improvements and adapt their primary care model in response to the changing health needs of patients and the ever-evolving health care landscape.

"A persistent challenge is not only meeting the basics of PCMH recognition, rather, it is the capability of practices and health systems to self-sustain their improvements."

SECTION TWO
SUMMARY OF COST & QUALITY RESULTS

What does it take for a reformed model of health care to transition from being a hypothesis to an accepted standard for optimal care delivery? This report helps to shed light on this question by presenting evidence from PCMH studies released over the past year, specifically presenting the model's impact on Triple Aim outcomes such as health care costs, quality, and population health. The collection of evidence below is a compilation of newly peer-reviewed articles and industry reports released between August of 2012 and December 2013 that focus on quantitatively measured outcomes attributed to the PCMH.

Methods

While initiatives highlighted in this report vary in regards to recognition status, size of practice, and specific PCMH attributes, we gathered information from: **(1) peer-reviewed scholarly articles,** using PUBMED search engine; and **(2) "grey literature"** from industry reports, trade organizations, think tanks, not-for-profit associations, and government, using various internet search engines. Initiatives were selected for inclusion in Tables 1 and 2 below if they were published between August 2012 and December 2013 (since last year's PCPCC report), and included quantitative data on "medical home" or "PCMH" as an independent (predictor) variable. Since this paper is meant to focus primarily on the Triple Aim, studies were excluded if they did not include quantitative data on these measures as dependent (or outcome) variables. This resulted in 13 peer-reviewed and 7 industry-generated evaluations.

For the purposes of our report, the peer-reviewed studies were separated from the industry-generated studies in order to reflect the disparate analytical approaches and purposes for each. Academia's goal in supporting peer-reviewed research is to build a body of scientific knowledge over time that can be generalized and be of suitable quality for publication and potential policy recommendations, which is often a time-consuming process. Although the peer-reviewed research on PCMH continues to grow, the research and statistical methods suitable to compare PCMH practices require ample number of practices compared over sufficient periods of time to detect real changes in process and outcome measures. Accordingly, the evidence base for the PCMH model is still fairly early from an academic perspective. Despite this, our review of the peer-reviewed literature found 13 PCMH evaluations examining cost and quality metrics in the past year alone. In contrast, industry often uses actuarial analysis in order to assess risk and evaluate the likelihood of future events, using the analytical framework to focus on the financial bottom line. Thus, the investment in PCMH from commercial plans is increasing more swiftly as industry reports highlight positive outcomes.

Results

The results are identified by four outcome measure categories in Tables 1 and 2 below: (1) **cost & utilization,** which includes impact on hospital admissions and readmissions, avoidable emergency department (ED) visits, length of stay, specialist visits, in-person visits, and any impact on health care costs and overall investment; (2) **population health & prevention,** which includes quality of care measures, such as chronic disease-related indicators, as well as measures of clinical prevention services (screenings, immunizations, etc.); (3) **access to care,** which includes measures related to overall access to primary care clinicians and services, as well as non-face-to-face visits; and (4) **patient or clinician satisfaction** as collected via patient, staff and clinician surveys.

Only studies with findings related to PCMH as the independent variable are included in the tables. Inconclusive findings are generally not listed; and p values denoting statistical significance are included whenever cited in the original article. A more expansive list of evidence from medical home initiatives since 2009 can be found in Appendix A on page 25.

Table 1. Peer Review-Reported Outcomes 2012-2013, by location and by category

Location/Initiative	Cost & Utilization	Population Health & Preventive Services	Access	Patient or Clinician Satisfaction
Alaska				
Alaska Southcentral Foundation Nuka System of Care[32] *Published:2013* *Data Review: 1996-2009*	• ED use for all causes was increasing before the PCMH implementation (p<.001), and dropped during and after implementation (p<.001) • ED use for adult asthma dropped before, during, and after implementation (p<.001)	• Increase in preventive services for asthmatics	• Increase in access to same-day appointments, extended office hours, and non-face-to-face visits	
Colorado				
Colorado Multi-Payer PCMH Pilot [33] *Published: Sept. 2012* *Data Review: 2009-2012*	• 15% fewer ED visits (v. 4% fewer in control group) • 18% fewer inpatient admissions (v. 18% increase in control group) • Number of specialty visits remained flat (v. 10% increase in control group) • For every dollar WellPoint invested, estimated return ranged from 2.5:1 to 4.5:1	• Improvements across all measures of diabetes care		**High patient satisfaction:** • 95% of patients said care was well organized and efficient • 97% said they would recommend to family/ friends • 90% said it was easy to speak to physician
Michigan				
BlueCross BlueShield of Michigan Physician Group Incentive Program[34] *Published: July 2013* *Data Review: 2009-2010*	• Practices with full PCMH implementation had savings of $26.37 PMPM (p=.0529)	• 5.1% higher "prevention composite" score (p=.0316); and 3.5% "adult quality score" (p=.0806) for fully implemented PCMHs		

Table 1 continued

Location/Initiative	Cost & Utilization	Population Health & Preventive Services	Access	Patient or Clinician Satisfaction
National				
Military Health System PCMH Initiative [35] *Published: Feb. 2013* *Data Review: 2008-2009*	**For all patients:** • 4% fewer inpatient admissions; and 18% more inpatient days • 6.8% fewer ED visits (39% decrease at Walter Reed Nat'l Medical Center) • 2% reduction in specialty care visits • 13% reduction in pharmacy costs • 16% reduction in ancillary health costs • 9% reduction in PMPQ total costs **For those with chronic conditions:** • 7% fewer ED visits • 3% fewer specialty encounters • 13% reduction in pharmacy costs • 17% reduction in ancillary health costs • 11% reduction ($83) in total PMPQ costs	• Improvements across eight preventive services measures related to chronic disease management	**For all patients:** • 21% higher primary care use than comparison sites • Increase in telephone consults from 16% to 24% • Improvement in ability to schedule appointments **For those with chronic conditions:** • 26% increase in primary care visits • 19% improvement in care continuity at Walter Reed (v. non-PCMHs)	• Statistically significant improvements for 11 measures of patient satisfaction (v. comparison sites) • 8% higher satisfaction at Edwards Air Force Base
National				
Veterans Health Administration Patient Aligned Care Team (PACT) [36] *Published: July 2013* *Data Review: 2010-2012*	• Increase in in-person or phone encounters from 85 to 101 per 100 patients (p<.01 for trend) • Patients evaluated within 48 hours of inpatient discharge increased 6% to 61% (p for trend <.01) • Decrease in face-to-face primary care visits (53 to 43 per 100 patients per calendar quarter; p <.01)		• Increase in phone encounters (2.7 to 28.8 per 100 patients per quarter; p<.01) • Increases in personal health record use (3% to 13% of patients enrolled) • Increases in electronic messaging to providers (0.01% to 2.3% of patients per quarter) • Increase in same day appointments (p<.01) • Increase in patients seen within 7 days of desired appointment date (85% to 90%; p for trend <.01)	
New Hampshire				
New Hampshire Citizens Health Initiative [37] *Published: Sept. 2012* *Data Review: 2010-2011*	• WellPoint participants, costs for PCMH enrollees increased 5%, v. 12% in traditional practices			

Table 1 continued

Location/Initiative	Cost & Utilization	Population Health & Preventive Services	Access	Patient or Clinician Satisfaction
New Jersey				
Horizon Blue Cross Blue Shield New Jersey Single Private Payer Pilot[38] *Published: June 2013* *Data Review: 2010-2011*	• Health care utilization and costs did not significantly change, however, this was a single year study analyzing eight practices	• Increase in breast cancer screenings increased by 2.2 percentage points on a base of 69.5% (p <0.001) • Increase in nephropathy screenings by 6.6 percentage points on a base of 51.8% (p= 0.05)		
New York				
EmblemHealth High Value Medical Home Initiative [39] ** randomized trial* *Published: June 2013* *Data Review: 2008-2010*	• 3.8% fewer ED visits per year, saving approximately $1,900 in ED costs per physician, per year (p=.002) • Physicians improved efficiency for all episode types by 3.3% (p=0.07)	• Improvements in BP control (23% v. 2%; p= 0.02) and breast cancer screenings (3.5% v. 0.4%; p= 0.03		
New York				
WellPoint's Single Health Plan Model New York PCMH [40] *Published: Sept. 2012* *Data Review: 2007-2010*	**Compared to control group:** • 11% fewer ED visits for adults; 17% for children • 14.5% lower risk adjusted total PMPM costs for adults; 8.6% lower for children • Lower rates of inappropriate antibiotic use (27.5% v. 35.4%; p=.001)	• Higher rates of HbA1c testing v. control group (82.1% versus 77.7%; p>.001)		
Pennsylvania				
UPMC Health Plan Medical Home Pilot [41] *Published: Nov. 2012* *Data Review: 2008-2010*	• 5.1% fewer ED visits (p<.05) • 6.1% increase in inpatient admissions (v. 8.1% for non-PCMHs; p<.05) • 12.5% fewer readmissions (2008-2009; p<.05); 18.3% fewer (2009-2010; p<.05) • 160% return on investment for PCMHs	• PCMH practices consistently outperformed the rest of the network across all quality measures		
Rhode Island				
Rhode Island Chronic Care Sustainability Initiative [42] *Published: Nov. 2013* *Data Review: 2006 - 2010*	• 11.6% fewer ambulatory care sensitive ED visits (0.8 per 1000 member; p = .002) • Fewer overall ED visits, inpatient admissions, and ambulatory care sensitive inpatient admissions (not statistically significant)	• Improvements were noted for PCMHs across diabetes care measures compared with control practices (although not statistically significant)		

Table 1 continued

Location/Initiative	Cost & Utilization	Population Health & Preventive Services	Access	Patient or Clinician Satisfaction
Utah				
University of Utah Care by Design Program[43] *Published: Nov/Dec 2013* *Data Review: 2008-2011*	**For the composite scores based on team based care, 2 measures of productivity and cost were statistically significant (p<.05)** • Staff cost, clinician FTE (–0.94) • Visits/clinician FTE (–0.70)			**Improvement in patient satisfaction (p<.05):** • Explanation of care (0.67) • Clinician instructions (0.72) • Likely to recommend (0.76) • Overall satisfaction (0.67) **Improvement in clinician satisfaction (p<.05):** • Time spent working (0.68) • Relationship with patient (0.72)
Washington				
Group Health Cooperative PCMH Program [44] ** spread of prototype model to 26 clinics in Washington and Idaho* *Published: May/June 2013* *Data Review: 2008-2011*	• Declines in ED visits in early and late stabilization of the program (13.7% and 18.5%; p<.001)		• 5.1% and 6.7% declines in primary care office visits in early and later years; corresponding increases in secure messages (123%) and telephone encounters (20%); (p<.001)	

Table 2. Industry-Reported Outcomes 2012-2013, by location and by category

Initiative	Cost & Utilization	Population Health & Prevention	Access	Patient and Clinician Satisfaction
Alabama				
BlueCross BlueShield Alabama Medical Home Program [45] *Published: Aug. 2012* *Data Review: 2009 - 2011*	• Fewer ED visits • Fewer hospital days • Estimated cost savings of $1.9 million	**Compared to network avg., PCMHs had:** • 13.6% higher rate of colorectal cancer screenings • 11.8% higher rate of breast cancer screenings • 13.8% higher rate of appropriate testing of children w/pharyngitis		• Overall improvement in patient satisfaction
Connecticut				
Connecticut Health Enhancement Program [46] *Published: Jan. 2013* *Data Review: 2011-2012*	• 22.8% fewer monthly ED visits • 20.8% fewer specialty care visits • 75% increase in primary care visits • 70% decrease in medical trend growth rate	• Modest improvements in adherence to heart disease, blood pressure, cholesterol and diabetes medication		
Maryland				
CareFirst BlueCross BlueShield [47] *Published: June 2013* *Data Review: 2010-2012*	• $98 million in total costs savings • Panels earning incentives achieved average of 4.7% savings, v. 3.6% higher costs for those not earning incentives	• 3.7 % higher quality scores for panels that received incentives • Quality scores for PCMH panels rose by 9.3 % from 2011 to 2012		
Michigan				
Blue Cross Blue Shield Michigan PCMH Program[48] *Published: July 2013* *Data Review: Not Specified*	• 8.8% fewer adult ED visits • 17.7% fewer pediatric ED visits; 23.8% fewer primary-care sensitive ED visits • 11.2% lower rate of adult primary care-sensitive ED visits • 19.1% fewer adult ambulatory care-sensitive inpatient admissions			
New Jersey				
Horizon BlueCross BlueShield New Jersey PCMH Pilot Monmouth County Public Employees [49] *Published: Dec. 2013* *Data Review: 2012-2013*		• 33% increase in colorectal screenings (v. 10% increase in non-PCMHs) • 23% increase in breast cancer screenings (v. 3% increase in non-PCMHs)		

Table 2 continued

Initiative	Cost & Utilization	Population Health & Prevention	Access	Patient and Clinician Satisfaction
Oregon				
Oregon Coordinated Care Organizations (CCOs) Oregon Health Authority [50] *Published: Nov. 2013* *Data Review: 2012-2013*	• 9% fewer ED visits • 18% reduction in ED spending • 12% fewer inpatient readmissions • 7% increase in primary care spending		• 18% increase in outpatient primary care visits • 36% increase in PCMH enrollment	
Pennsylvania				
Highmark Patient-Centered Medical Home Pilot [51] *Published: Jan. 2013* *Data Review: 2011-2012*	• 9% fewer inpatient admissions • 13% fewer 30-day inpatient readmissions • 5% decrease in total PMPM costs for coronary artery disease patients • 3.5% decrease in total PMPM costs for diabetics • 2% decrease in overall health care costs			

Discussion

Though the magnitude and consistency of the PCMH's effects vary across studies and settings, and sample sizes and time frames are constrained, in the aggregate these studies show progress on important Triple Aim metrics. In order to identify consistencies or gaps in measures as reported by the PCMH studies, we then categorized the 20 evaluations into eight more specific outcome measures and assessed the frequency of measures in each category, which can be found in Table 3.

Table 3. PCMH Studies from August 2012 to December 2013 that report outcomes (by category and by frequency)

	Total Studies	Cost Reductions	Fewer ED Visits	Fewer Inpatient Admissions	Fewer Readmissions	Improvement in Population Health	Improved Access	Increase in Preventive Services	Improvement in Satisfaction
PEER-REVIEW/ACADEMIA									
Reported outcomes	(n=13)	**61%** (n=8)	**61%** (n=8)	**31%** (n=4)	**13%** (n=1)	**31%** (n=4)	**31%** (n=4)	**31%** (n=4)	**23%** (n=3)
INDUSTRY REPORTS									
Reported outcomes	(n=7)	**57%** (n=4)	**57%** (n=4)	**57%** (n=4)	**29%** (n=2)	**29%** (n=2)	**14%** (n=1)	**29%** (n=2)	**14%** (n=1)

Decreased Cost and Utilization. Of the 20 PCMH evaluations, a majority show reductions in cost or utilization. Across both peer-reviewed and industry-generated studies, the two most commonly reported metrics reported were reductions in emergency department (ED) use (61% peer-review; 57% industry) and cost reductions (61% peer-review; 57% industry). In the industry-generated studies, there was also a high rate of reporting reductions in

inpatient admission (57%). Less than 30% of all the studies reported reductions in 30-day hospital readmissions. The only study that included the total cost of care (TCC) was the UPMC Medical Home Pilot.

Increased clinical quality and population health. Across both sets of studies, nearly a third reported improvements in population health and increases in clinical preventive services. Preventive outcomes include increases in screenings, immunizations, and specific tests, while population health indicators included improvements in patient control of HbA1c (diabetes); blood pressure (BP; hypertension); and low-density lipoproteins (LDL or "bad cholesterol"; obesity, heart disease).

Improvement in access to care and patient satisfaction. Measures of access to care and patient satisfaction were less likely to be reported than other measures, particularly in industry studies (both were reported just 14% of the time). In the peer-reviewed studies, 31% reported improvements in access to care, as indicated by decreases in wait times for appointments, or increases in non-face-to-face visits, phone encounters or patient use of electronic health records. In the peer-reviewed studies, 29% reported improvements in patient satisfaction, which included overall satisfaction, likelihood of recommending the practice to family and friends, and satisfaction with provider communication.

A gap exists in reporting clinician satisfaction data. Although there is growing evidence that the PCMH model enhances clinician satisfaction, [52 53, 54] our analysis demonstrates that evaluations focused on measuring cost and utilization outcomes do not tend to measure clinician satisfaction. The initiatives cited here may have included these metrics in their evaluations, but were not reported. Only a single study of the University of Utah's "Care by Design" program overtly measured improvements in clinician satisfaction. Future studies should include clinician satisfaction as part of PCMH evaluations given the importance of strengthening and enhancing the primary care workforce. A high-functioning team with the capacity to better serve patients and families can increase clinician satisfaction and may offer "innovations that can facilitate joy in practice and mitigate physician burn out." [55]

As demonstrated by the variation reported across these 20 studies, the demand for a broad and inclusive common set of measures for evaluating PCMH initiatives, such as those recommended by The Commonwealth Fund's Patient-Centered Medical Home Evaluator's Collaborative, [56] continues to build.

A growing body of evidence points to PCMH success. The studies found here are impressive in terms of their fairly consistent findings of reduced cost and/or utilization of health care services. Policymakers should be encouraged that the PCMH continues to bend the cost curve by reducing unnecessary services. Importantly, the PCMH is also improving population health and increasing the provision of clinical preventive services. Finally, increases in access to care and patient satisfaction are also moving in the right direction, as patients and their families continue to benefit from a model that is efficient, patient-centered, and provides access to a high-performing care team. Clinician satisfaction, however, must also be valued as an integral measure in evaluating the PCMH, since attracting and retaining a capable primary care workforce will be essential in sustaining this model in the future.

The conceptual framework and definition of the PCMH are part of what has made it so attractive to primary care clinicians, policymakers, payers, and consumers. Separate from the growing volume of data that empirically supports the PCMH, there is a high degree of "face validity" to the model."[57] In other words, it makes intuitive sense that a well-functioning primary care delivery system should be more person-centered, comprehensive, accessible, coordinated, and committed to quality and safety; and that harmonizing these domains will help realize Triple Aim goals. That said, one of the greatest strengths, and yet an ongoing challenge, is that the PCMH is not a "one size fits all" model.

The lack of clear rules or a strict recipe that prescribes how to implement a PCMH means there is variation in implementation. This variation makes clean analytic comparisons difficult, but this flexibility yields something much more valuable on the ground: freedom for primary care providers to implement the core principles in a way that is consistent with the needs of their patients and their families.

The Challenge of studying the PCMH

The data in this report is derived from studies using a variety of research designs and methods, providing a helpful compendium of current available information and demonstrates that the PCMH model is headed in the right direction on important measures of cost, quality, and outcomes. The strategy of synthesizing various PCMH data sets, outcomes, and reports is important to help guide those implementing PCMH as they adapt their own processes to better reflect the patients and communities they serve. However, the accumulating body of PCMH research highlights a key challenge for future studies: if PCMH reforms are expected to continue achieving the Triple Aim, stakeholders need to consider whether we are using the right metrics and employing the right methods to further our progress.

"The question is not whether to improve primary care, and commensurately the entire health system, but how best to do it."

The right metrics

For the study of a care delivery model that includes "patient-centered" in its title, are the PCMH metrics being used sufficiently "patient-centered?" Or are the metrics too "medical?" For example, many studies use proxies for health, such as cancer screening or diabetes and blood pressure control, but do not directly measure the patient's experience or satisfaction with their health care. For instance, having blood pressure within a target range is not the same as being functionally in good health or feeling in a subjective state of well-being. In a study from 2012, the Regence Blue Shield Intensive Outpatient Care program sponsored by Boeing in Washington, researchers included a comprehensive set of measures of health status, detecting improvements in patient-reported physical and mental function, and a reduction in patient-reported missed workdays. [58] Similar metrics could be applied and considered for PCMH evaluations in other settings. As the analysis here demonstrates, patient satisfaction measures are sometimes included, although not uniformly, and additional core measures of self-reported health status and well-being could enhance our understanding of patient-centeredness.

PCMH evaluation metrics will also need to take more account of the socioeconomic diversity of patient populations. Health inequities based on race-ethnicity, social class, geography, and other factors are rampant across the US, and how can we ensure that PCMH measures do not mirror the biases that underlie these inequities? To illustrate this challenge, consider the measure of patient use of personal health records or patient portals as an indicator of improved access to care. Using a measure that is dependent on patients having a relatively high level of literacy, English fluency, and reliable access to a computer runs the risk of marginalizing patients particularly in need of high performing primary care. Moreover, with heightened interest in the integration of primary care and public health as part of a broader medical neighborhood,[59] we need to consider how to broaden our notions of the PCMH and to consider the importance of the social determinants of health.[60]

The right methods

In addition to challenges in selecting appropriate metrics, researchers contend with choosing study designs appropriate for investigating the complexity of health system reform. In a commentary in JAMA-Internal Medicine, Grumbach asserted that the "The Patient-Centered Medical Home is not a Pill," [61] arguing that the PCMH is a complex intervention involving changes in organizational thinking and culture, financing, processes and workforce roles. For example: "A pharmaceutical product can

be manufactured with uniform specifications and delivered in a standardized manner. The patient-centered medical home, however, is a multifaceted intervention…Practice transformation has more in common with continuous quality improvement than a rigid clinical trial protocol. There are inevitable compromises between fidelity to the prescribed patient-centered medical home model and adapting the model to the particular circumstances and context of different practices."[62]

Many PCMH studies are conducted as natural experiments and are often characterized by small sample sizes and limited follow-up. In light of these pragmatic and scientific limitations, researchers need to do their best to apply the methods of implementation and "complexity science" to the study of PCMHs, and find a reasonable balance between internal validity and external relevance. A picture that emerges of early PCMH initiatives is that they are a work in progress, however, evidence provided here demonstrates that the longer a PCMH model has been implemented, the more the evidence for Triple Aim outcomes accumulates. [63, 64] The transformation work itself is never finished as practices embrace continuous quality improvement and use information to refine and improve care delivery for patients and their families. PCMH is a way of codifying and systematizing primary care improvement efforts. The question is not whether to improve primary care, and commensurately the entire health system, but how best to do it.

SECTION THREE
THE FUTURE OF PRIMARY CARE AND THE PCMH

As described earlier, the goal of this report is to provide the reader with a comprehensive overview of the recent evidence for the PCMH that have outcomes consistent with the Triple Aim. Equally as important is demonstrating the growing consensus for the PCMH and its key role in delivery system reform, including ACOs and the medical neighborhood. Faced with an economic imperative to control health spending, broad consensus has emerged that substantial health system redesign is warranted and the future must be built on a strong foundation of primary care. Employers, payers, and policymakers are looking for solutions that eliminate the well-documented system inefficiencies that are estimated to account for 30 percent of US health care costs. [65] Better, stronger primary care – codified as the PCMH – is necessary for any solution, but not sufficient. What are critical future efforts for PCMH development?

The PCMH's Role in Achieving Delivery System Reform

The foundation of high-performing Accountable Care Organizations

Even the strongest supporters of PCMH acknowledge that to achieve societal goals of improved population health, cost effectiveness, and a better patient experience, PCMHs must be part of larger delivery system reform and integration efforts. Medical homes are at the core of successful ACOs that are currently being developed by public and private payers.

Formally arranged through contractual agreements, ACOs are clinically integrated groups composed of clinicians, hospitals, and other health care organizations that share mutual responsibility for improving the quality of care delivered and health outcomes, and reducing health costs and inefficiencies for a designated population. [66] As defined by CMS, primary care is a foundational "must-have" element in an ACO. Articulated early on by Fisher and McClellan, and later adopted as part of federal health reform, ACOs are required to have "a strong base of primary care that is collectively accountable for quality and total per capita costs across the full continuum of care for a population of patients." [67] Since 2008, the number of ACOs has increased significantly, with more than 400 hospitals and an estimated 14 percent of the U.S. population being served by one. [68] Different ACO models are currently being implemented and evaluated, and are testing various risk-sharing agreements. Medicare ACOs that deliver more cost-effective care for a given population as compared with baseline estimates "share" with Medicare any savings that are generated on a percentage basis.

Many of the nation's highest-performing ACOs embrace their strong PCMH component, [69] and for this reason, PCMHs are well-positioned to lead and drive change across ACOs. Initial ACO evaluation results from CMS suggest that many early adopters have indeed improved the cost effectiveness of care delivery and received shared savings as a result. Many of the improvements can be attributed to PCMH-like features, including care coordination, team-based care, and chronic disease management.[70, 71]

A hub for the medical neighborhood

The forces at work to spread high-functioning PCMHs are arguably needed across the continuum of care delivery. For any given patient, there are a myriad of factors contributing to his/her overall health status. In a recent Medicare study, the average primary care practice was found to coordinate with 99 other physicians working across 53 different practices. [72] This is especially true when serving high risk or complex patients, including those with chronic diseases, mental and behavioral health issues, and other special needs. Environmental factors such as socioeconomic status, employment,

access to healthy foods, transportation, and physical environment are important predictors of health because having access to care and high levels of health literacy can be difficult for many individuals and families.[73, 74] As a result, the medical neighborhood model has increasingly gained recognition as an effective model for bridging the gap between community support services and health care needs.

Further, many studies have shown that non-medical factors, such as socioeconomic status, employment, access to healthy foods and transportation, have a far greater impact on health status than actual medical care. The goals of a high-functioning PCMH include collaborating with these various "medical neighbors" to encourage the flow of information across and between clinicians and patients, to include specialists, hospitals, home health, long term care, and other clinical providers. Partnerships are also essential with non-clinical partners like community centers, faith-based organizations, schools, employers, public health agencies, YMCAs, and even Meals on Wheels. [75] Together these organizations can actively promote care coordination, fitness, healthy behaviors, proper nutrition, as well as healthy environments and workplaces. AHRQ articulates that a successful medical neighborhood will "focus on meeting the needs of the individual patient, but also incorporate aspects of population health and overall community health needs." [76]

The payment reform imperative

Perhaps one of the most important goals for future years is to understand the impact of aligning new payment methods with the PCMH care delivery and ACO models, and its subsequent impact on outcomes. Throughout this report, we note the importance of several strategies and care processes that are rarely reimbursed, if at all, in a traditional fee-for-service (FFS) environment. These include: leveraging care team members to improve care coordination and patient education; adopting population health management processes, 24/7 access, and alternatives to traditional face-to-face visits; exchanging health information across the medical neighborhood; and using quality improvement tools to track outcomes and success. Without payment for these services, it will be increasingly difficult to encourage broader adoption of the PCMH or tackle its next phase of evolution.

However, payment reform is complex. PCMH payment reforms are growing in popularity and vary among payers, but are most often characterized by a traditional FFS component coupled with an additional care management payment. Additional payment models include shared savings models, bundled payments, and partial or full capitation. As part of payment reform, modernizing today's physician payment system and investing in primary care is critical. Given that it rewards volume of services and prioritizes sick care, FFS, while still important to many practicing physicians, will for most health care services ultimately be phased out. The current unbalanced FFS incentives are a driving factor behind the perpetually lopsided design of our current health care system that fails to reward clinical quality or outcomes, especially among primary care clinicians.

We are thus encouraged by the bipartisan, bicameral effort to repeal the Medicare SGR payment formula, subsequently transitioning the current volume-based system into one that rewards primary care teams for achieving better quality of care, patient experience, and health outcomes.

All-payer or multi-payer payment reform

Another significant challenge to payment reform is that most payers (employers and health plans) in any given health care market ask practices for multiple diverse quality metrics, and reimburse providers differently. In all-payer or multi-payer initiatives, payers align around a single payment and reporting methodology for clinicians, simplifying reimbursement and reducing administrative burden. As outlined in the Vermont case study (see page 23), in addition to the encouraging results from Colorado and Rhode Island (Table 1), the potential of payment reforms through multi-payer initiatives is particularly promising since various payers in a given community have a unique ability

to incentivize primary care transformation by using a standard set of payment methods and quality metrics.

Employer and consumer engagement

Employers and health plans cite their willingness to invest in the PCMH model of care when it can be demonstrated that outcomes are better and the work force is more productive without adding significant new dollars to an already expensive health system. The 20 initiatives included here indicate this is in fact being achieved. The payment reforms discussed in the previous section are often thought of as "supply-side" reforms because they are focused on reimbursement changes that impact the delivery system who "supply" the goods and services to the patient or consumer.

What use are supply-side reforms, however, if there is no consumer clamor for better, stronger primary care on the "demand-side"? Demand-side reforms are those that alter how consumers and employers select and purchase health care services and insurance. How can we motivate consumers to actively seek out the expertise embodied in a well-functioning PCMH? This is a topic being explored through value-based purchasing and value-based insurance design (VBID). These demand-side reforms incentivize consumers to use higher-value services. These efforts may include reduced or no co-pays for wellness visits or for receiving care in a recognized PCMH or discouraging the use of lower-value, non-evidence based services. The most prevalent example in recent years has been the proliferation of tiered pharmacy benefits, to encourage the use of cost effective prescription drugs. Other consumer engagement strategies, such as the Choosing Wisely campaign, created by the ABIM Foundation and Consumer Reports, are also proving to be meaningful demand-side reforms that can promote health system transformation.

Another way to increase demand is to improve how the value of a PCMH is communicated to consumers. Healthcare is one of the only services provided in this country in which consumers are not provided detailed information on cost and quality. It is widely believed that if we can increase transparency on health costs and quality, consumers will have more reliable information on which to base decisions regarding where to receive their health care. Coupling information on quality with clearly defined expectations of the type of care that will be delivered in a PCMH, can only lend itself to greater consumer demand.

Taken together, supply-side and demand-side reforms offer significant potential to align incentives for a high functioning health system with an informed and engaged public. Employers and purchasers are interested in achieving synergies between delivery reforms, like the PCMH, and benefit redesign, like value-based purchasing, to create this alignment and maximize our opportunities to achieve the Triple Aim. Refining these tools to promote high value primary care will be an increasingly critical area for work in the future.

MULTI-PAYER INITIATIVES: THE ROLE OF PAYMENT REFORM

VERMONT BLUEPRINT FOR HEALTH

Author: Lisa Dulsky Watkins, MD, Former Associate Director, Vermont Blueprint for Health

The importance of employers and payers investing in the PCMH model is critical because the extent to which various payers – Medicare, Medicaid, commercial plans, and employers – are aligned around these payment models is the extent to which true transformation of the US health care system is possible. These "multi-payer" initiatives convince health care providers that the daunting task of redesigning their clinical practice is worth the time, effort, and investment because a majority of their payer-mix supports the re-design. [77]

The Vermont Blueprint for Health [78] is a striking example of the effectiveness of a successful multi-payer reform effort. [79] The statewide adoptions of the spectrum of this multifaceted program can be linked to a long-standing willingness to cultivate collaborative relationships among the various stakeholders. This demonstrable public-private partnership reflects a culture that nurtures new ideas and the ability to execute them, moving from the theoretical to the implemented.

Over the last decade, Bipartisan support in the public sector had a profound impact on the credibility of Health Reform. Republican Governor Jim Douglas and an increasingly Democratic State Legislature found common ground on key aspects of reform, joined by a commitment to grapple with predictions of escalating costs and increasing morbidity in the aging Vermont population. Initial Blueprint activity was seated at the Vermont Department of (Public) Health, seen widely as a neutral convener of the disparate groups brought together.

Meaningful engagement of the private sector was essential. From the very beginning, commercial insurers, business groups, academic and nonprofit organizations, health care providers and many others were invited to participate in the myriad planning and advisory committees. Attention was paid to the need for national recognition of practices as PCMHs, the scale of enhanced payments to the practices, the initial development and payment of the locally based care coordination teams, respect for the internal business processes of the participating insurers and accountability of the Blueprint to its funders regarding outcomes.

Lively planning discussions ensued, with representatives of private and public organizations shaping the design, implementation and evaluation strategies to be undertaken. Their commitment to voluntarily support the Blueprint was evident. There are self-insured employers already participating in the Blueprint despite their ERISA exemptions, and discussion with others as well as with private payers as the impact on cost and quality is coming to light. In the end, the Legislature mandated the financial participation of Vermont's commercial insurers,[80] but there remains the impact of the process undertaken in good faith.

The flexibility of Vermont Medicaid's Global Commitment Waiver (1115 Demonstration) enabled the State to pay for Medicare beneficiaries in the pilot phase of the Blueprint, underscoring the State's commitment to making the program "all-payer" through the lens of the practices and payers.[81] Recognizing that the absence of CMS as a payer was a critical problem in statewide implementation, Vermont leaders were instrumental in the call for its involvement. The CMS Multi-payer Advanced Primary Care Demonstration, for which Vermont successfully applied, brings this critical entity into the fold as an innovator along with Vermont's partners.[82]

CONCLUSION

While we are encouraged by the expanding body of research that demonstrates the potential of high-performing primary care on cost, quality and population health, these studies also point to the need for ongoing evaluation of the medical home as it evolves over time, especially as a range of factors can impact their outcomes. The evidence to drive improvements to the model will be critical, and communicating this evidence is a top priority of the PCPCC. However, we recognize this cannot be achieved by researchers alone and in the tradition of collaboration we provide a number of recommendations for medical home advocates across the health care sector to play a direct role in this primary care revolution:

Policymakers and advocates should continue their support for payment reforms that reward care delivery innovations and achieve the goals of the Triple Aim. This includes aligning payment incentives with care delivery innovations that encourage patient-centered team-based primary care; increasing support for payment innovations and evaluation projects such as those in all-payer and multi-payer pilots; identifying success factors and best practices that contribute to improved health and to disseminate this information broadly; and providing incentives at the state, regional and national levels that encourage payment and care delivery reforms through Medicare, Medicaid, health insurance exchanges, and ACOs.

Physicians, clinicians, health professionals, health plans, and academic medicine partners should support care delivery innovations that strengthen the primary care infrastructure and workforce. This includes investing in education and training for health care professionals working in teams to advance patient-centered primary care; the use of health IT, population health management, and care coordination; promoting the widespread adoption of meaningful use (MU) electronic health record standards, interoperability, and health information exchange (HIE); and supporting practices who adopt non-face-to-face patient visits, using telehealth and other innovations; and rewarding providers appropriately for adopting the health IT necessary to support this transition

Employers, purchaser, and health benefit design consultants should design employee health benefits that promote wellness and prevention, and incentivize and enhance access to providers and practices that deliver patient-centered primary care. This includes supporting the adoption of value-driven reimbursement models and strong partnerships with PCMH and ACO providers, networks and health systems on the "supply side," as well as rewarding employers for using value-based purchasing and developing employee wellness and prevention programs on the "demand side."

Patients, families, caregivers need to feel engaged and educated in order to choosing better health care services and feel confident in navigating the system and communicating with their care team. This includes providing access to shared decision making, self-management tools, patient health data, and community resources. In addition, patients should be encouraged to choose high quality, patient-centered care, through shared savings or other financial incentives.

We also look to **health service researchers, academics, and economists** to continue to identify effective medical home models and strategies to accelerate their spread and impact throughout the US. This includes continued support for research and evaluation across the public and private sector to identify critical success factors, effective payment models, and exemplar patient and family engagement strategies. Further, we recommend the development of a set of standard criteria that assesses the medical home's impact on cost, utilization, and quality, and the alignment of quality and efficiency measures across the care continuum.

Finally, while underscoring the considerable challenge of bringing isolated primary care successes to scale, we believe the current state of PCMH evidence demonstrates that a health care system that delivers better primary care is not only necessary, but also possible. In order to secure the future of the PCMH and to anchor its foundational role in the larger healthcare system, we must galvanize the necessary resources, technology, payment reforms, education, and culture change that will ultimately revolutionize the way primary care is paid for, delivered, and experienced. We look forward to our work together and to a growing collection of evidence over 2014.

APPENDIX A: Summary of PCMH evidence by category and organized by State/Location, with references, 2009-2013

LEGEND

Cost reductions	Improved access to care
Reduction in ED/ Hospital	Increased preventive services
Improved health	Improved patient or clinician satisfaction

Location	Initiative
Alabama	**Blue Cross Blue Shield Alabama Medical Home Program** Medical Home Program Description, Blue Cross Blue Shield Alabama, August 2012.
Alaska	**Alaska Southcentral Foundation – Noka System of Care** "Process and Outcomes of Patient-Centered Medical Care With Alaska Native People at Southcentral Foundation" Driscoll, et al. *The Annals of Family Medicine*, May/June 2013.
Alaska	**Alaska Native Medical Center** "A new model of health care" Asinof. *Providence Business News*, May 2012.
California	**Orange County, CA Health Care Coverage Initiative (HCCI) – Medical Services Initiative** "Impact of Patient-Centered Medical Home Assignment on Emergency Room Visits Among Uninsured Patients in a County Health System" Roby, et al. *Medical Care Research and Review*, 2010.
California	**CareMore Medical Group, Urban Medical Group, Leon Medical Centers, Redlands Family Practice** "American Medical Home Runs," Milstein A, Gilbertson E., *Health Affairs*, 2009.
California	**Blue Cross Blue Shield of California Accountable Care Organization Pilot** "Building Tomorrow's Healthcare System: The Pathway to High-Quality, Affordable Care in America" Blue Cross Blue Shield Association, August 2012.
Colorado	**Colorado Multi-Payer Patient-Centered Medical Home Pilot** "Early Results Show WellPoint's Patient-Centered Medical Home Pilots Have Met Some Goals For Costs, Utilization, And Quality" Raskas, et al. *Health Affairs*, September 2012. "Colorado's Patient-Centered Medical Home Pilot Met Numerous Obstacles, Yet Saw Results Such As Reduced Hospital Admissions" Harbrecht, et al. *Health Affairs*, 2012.
Colorado	**Colorado Medicaid and State Children's Health Insurance Program (SCHIP)** "Reinventing Medicaid: State Innovations to Quality and Pay for Patient-Centered Medical Homes Show Promising Results" Takach, M. *Health Affairs*, July, 2011. "Analysis & commentary Driving Quality Gains And Cost Savings Through Adoption of Medical Homes" Fields, et al. *Health Affairs*. 2010.

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Location	Initiative
Connecticut	**Connecticut Health Enhancement Program** "V-BID in Action: A Profile of Connecticut's Health Enhancement Program" The University of Michigan Center for Value-Based Insurance Design, January 2013. 
District of Columbia	**Johns Hopkins University – Guided Care Program (Washington, DC and Baltimore, MD)** Guided Care and the Cost of Complex Healthcare: A Preliminary Report Leff, et al. *American Journal of Managed Care*, 2009. 
Florida	"Increasing access to health care providers through medical home model may abolish racial disparity in diabetes care: Evidence from a cross-sectional study" Lee, et al. *Journal of the National Medical Association*, 2011 
Florida	**Capital Health Plan** "Report from Tallahassee Memorial HealthCare on Enhancing Continuity of Care" Institute for Healthcare Improvement, August 2011. 
Idaho	**Blue Cross of Idaho Health Service** "Building Tomorrow's Healthcare System: The Pathway to High-Quality, Affordable Care in America" Blue Cross Blue Shield Association, August 2012. 
Illinois	**State of Illinois Medical Home Pilot** "Illinois Medical Home Project: Pilot Intervention and Evaluation" Rankin, et al. *American Journal of Medical Quality,* 2009. "Building Community-Based Medical Homes for Children" Sanabria, K. Illinois Chapter of the Illinois American Academy of Pediatrics 
Maryland	**CareFirst BlueCross BlueShield** "Patient-Centered Medical Home Program Trims Expected Health Care Costs by $98 million in Second Year" Newman. CareFirst Press Release, June 2013. 
Maryland	**Johns Hopkins University – Guided Care Program (Baltimore, MD and Washington, DC)** Guided Care and the Cost of Complex Healthcare: A Preliminary Report Leff, et al. *American Journal of Managed Care*, 2009. 
Michigan	**BlueCross BlueShield of Michigan Physician Group Incentive Program** "Partial and Incremental PCMH Practice Transformation: Implications for Quality and Costs" Paustian, et al. *Health Services Research*, July 2013. 
Minnesota	**HealthPartners** "Patient-Centered Medical Home Cost Reductions Limited to Complex Patients" Flottemesch, et al. *American Journal of Managed Care,* November 2012. "Trends in Quality During Medical Home Transformation" Solberg, et al. *The Annals of Family Medicine. 2011.* Is Consistent Primary Care Within a Patient-Centered Medical Home Related to Utilization Patterns and Costs? Fontaine, et al. *The Journal of Ambulatory Care Management*, 2011. 

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Location	Initiative
National	**Military Health System Patient-Centered Medical Home Program** **Walter Reed National Military Medical Center (Bethesda, MD), Edwards Air Force Base (Lancaster, CA)** "The Patient-Centered Medical Home: A Case Study in Transforming the Military Health System" Hudak, et al. *Military Medicine*. 2013. "Impact of a Patient-Centered Medical Home on Access, Quality, and Cost" Christensen, et al. *Military Medicine*, February 2013. **United States Air Force** "FY 2012 Medical Programs" Statement of Lieutenant General (Dr.) Charles B. Green. *Testimony Before the House Appropriations Committee*, Subcommittee on Defense, May 2011. 
National	**Veterans Health Administration Patient Aligned Care Team (PACT) Program** "The Patient-Centered Medical Home in the Veterans Health Administration" Rosland, et al. *American Journal of Managed Care*, July 2013. "The Veterans Health Administration: Implementing Patient-Centered Medical Homes in the Nation's Largest Integrated Delivery System" Klein S., Fund C. *The Commonwealth Fund*, 2011. "Medical Homes Require More Than an EMR and Aligned Incentives" Solimeo, et al. *American Journal of Managed Care*, 2013. 
National	**PCMH National Demonstration Project – American Academy of Family Physicians** "Patient Outcomes at 26 Months in the Patient-Centered Medical Home National Demonstration Project" Jaén, et al. *The Annals of Family Medicine*, 2010. 
Nebraska	**Blue Cross Blue Shield of Nebraska** "Medical Home: Better health at same or reduced cost?" Reutter. *Lexington Clipper-Herald*, April 2012. 
New Hampshire	**New Hampshire Citizens Health Initiative** "Early Results Show WellPoint's Patient-Centered Medical Home Pilots Have Met Some Goals For Costs, Utilization, And Quality" Raskas, et al. *Health Affairs*, September 2012. 
New Jersey	**Horizon Blue Cross Blue Shield Patient-Centered Medical Home Pilot** "Horizon Blue Cross Blue Shield of New Jersey Works With Monmouth County to Improve the Quality and Delivery of Care for County Workforce" Horizon Blue Cross Blue Shield of New Jersey, Press Release, December 2013. "Early Results Show Patient-Centered Medical Homes Drive Quality and Cost Improvements" Horizon Blue Cross Blue Shield of New Jersey, April 2012. 
New Jersey	**New Jersey Family Medicine Research Network** "Principles of the Patient-Centered Medical Home and Preventive Services" Ferrante, et al. *Annals of Family Medicine*, 2010. 
New York	**Institute for Family Health Patient-Centered Medical Home Program** "Becoming a Patient-Centered Medical Home: A 9-Year Transition for a Network of Federally Qualified Health Centers" Calman, et al. *The Annals of Family Medicine*, 2013 

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Location	Initiative
New York	**WellPoint's Single Health Plan Model New York Patient Centered Medical Home** "Early Results Show WellPoint's Patient-Centered Medical Home Pilots Have Met Some Goals For Costs, Utilization, And Quality" Raskas, et al. *Health Affairs*, September 2012. "Impact of Medical Homes on Quality, Healthcare Utilization, and Costs" DeVries, et al. *American Journal of Managed Care*, 2012. 
New York	**EmblemHealth High Value Medical Home Initiative** "Quality and Efficiency in Small Practices Transitioning to Patient Centered Medical Homes: A Randomized Trial" Fifield, et al. *Journal of General Internal Medicine*, June 2013. 
North Carolina	**Community Care of North Carolina (State Medicaid Program)** "Transitional Care Cut Hospital Readmissions for North Carolina Medicaid Patients with Complex Chronic Conditions" Jackson, et al. *Health Affairs*, August 2013. "Analysis & Commentary Driving Quality Gains And Cost Savings Through Adoption of Medical Homes" Fields, et al. *Health Affairs*, 2010. "Community Care of North Carolina: Improving Care Through Community Health Networks" Steiner, et al. *Annals of Family Medicine*, 2008. 
North Carolina	**Blue Cross Blue Shield of North Carolina - Blue Quality Physician's Program** "Blue Cross and Blue Shield Patient-Centered Medical Home Programs Are Improving the Practice and Delivery of Primary Care Communities Nationwide" Blue Cross Blue Shield Association, June 2012. 
North Dakota	**BlueCross BlueShield of North Dakota MediQHome Quality Program** "Patient-Centered Home Snapshots," BlueCross Blue Shield Association, January 2012. "Analysis & Commentary: Driving Quality Gains And Cost Savings Through Adoption of Medical Homes" Fields, et al. *Health Affairs*, 2010. 
Ohio	**Humana Queen City Physicians** "Senate Panel Looks at Innovative Health Care Strategies," *Kaiser Health News*, June 2012. 
Oklahoma	**Oklahoma Medicaid** "Reinventing Medicaid: State Innovations to Qualify and Pay for Patient-Centered Medical Homes Show Promising Results" Takach, M. *Health Affairs*, July 2011. 
Oregon	**Oregon Coordinated Care Organizations (CCOs) Oregon Health Authority** "Oregon's Health System Transformation: Quarterly Progress Report" Oregon Health Authority, November 2013. 
Oregon	**CareOregon Medicaid and Dual Eligibles** "CareOregon: Transforming the Role of a Medicaid Health Plan from Payer to Partner" Klein, S., & McCarthy, D., The Commonwealth Fund, July 2010. 
Oregon	**Bend Memorial Clinic & Clear One Medicare Advantage (PacificSource Medicare Advantage)** "Bend Memorial Clinic Reduces Hospital Admissions and Emergency Visits" Bend Memorial Clinic Press Release, April 2012. 

APPENDIX A (Cont'd)

Location	Initiative
Pennsylvania	**UPMC Health Plan Medical Home Pilot** "Results from a patient-centered medical home pilot at UPMC Health Plan hold lessons for broader adoption of the model" Rosenberg, et al. *Health Affairs*, November 2012. 
Pennsylvania	**Southeast Pennsylvania (SEPA) Multi-Payer Collaborative** "Multipayer patient-centered medical home implementation guided by the chronic care model" Gabbay, et al. *Joint Commission Journal on Quality and Patient Safety*, 2011. 
Pennsylvania	**PinnacleHealth** "PinnacleHealth Expands Patient-Centered Medical Home Model," PinnacleHealth News, June 2012. 
Pennsylvania	**Geisinger Health System Proven Health Navigator PCMH Model** "Reducing Long-Term Cost by Transforming Primary Care: Evidence From Geisinger's Medical Home Model" Maeng, et al. *American Journal of Managed Care*, March 2012. "How Geisinger's Advanced Medical Home Model Argues The Case For Rapid-Cycle Innovation" Steele, et al. *Health Affairs*. 2010. 
Pennsylvania	**Independence Blue Cross – Pennsylvania Chronic Care Initiative** "Patient-Centered Medical Home Snapshots," BlueCross Blue Shield Association, January 2012. 
Pennsylvania	**Highmark Patient-Centered Medical Home Pilot** "Highmark to expand patient-centered medical home efforts to improve care and health outcomes for members" Highmark Press Release, January 2013. 
Rhode Island	**Rhode Island Chronic Care Sustainability Initiative** "Effect of a Multipayer Patient-Centered Medical Home on Health Care Utilization and Quality: The Rhode Island Chronic Care Sustainability Initiative Pilot Program" Rosenthal, et al. *JAMA Internal Medicine*, November 2013. 
Rhode Island	**Blue Cross Blue Shield of Rhode Island** "Patient-Centered Medical Home Snapshots" BlueCross *Blue Shield Association*, January 2012. 
South Carolina	**Blue Cross Blue Shield of South Carolina, Palmetto Primary Care Physicians** "Patient-Centered Medical Home Snapshots" BlueCross Blue Shield Association, January 2012. 
Tennessee	**BlueCross BlueShield of Tennessee** Patient-Centered Medical Home Snapshots, BlueCross Blue Shield Association, January 2012. 
Texas	**BlueCross BlueShield of Texas** "Building Tomorrow's Healthcare System," Blue Cross Blue Shield Association, 2012. 
Texas	**WellMed Medical Group** "Case Study of a Primary Care–Based Accountable Care System Approach to Medical Home Transformation" Phillips, et al. *The Journal of Ambulatory Care Management*, 2011. 

APPENDIX A (Cont'd)

Location	Initiative
Utah	**University of Utah Care by Design (CBD) Program** "Quality, Satisfaction, and Financial Efficiency Associated With Elements of Primary Care Practice Transformation: Preliminary Findings" Day, et al, *The Annals of Family Medicine*, 2013. 
Utah	**Intermountain Healthcare Care Management Plus Program** "Analysis & commentary Driving Quality Gains And Cost Savings Through Adoption of Medical Homes" Fields, et al. *Health Affairs*, 2010. 
Vermont	**Vermont Medicaid** "Reinventing Medicaid: State Innovations to Qualify and Pay for Patient-Centered Medical Homes Show Promising Results" Takach, M. *Health Affairs,* July 2011. 
Vermont	**Vermont Blueprint for Health** Vermont Blueprint for Health Annual Report, Department of Vermont Health Access, February 2013. "Vermont's Blueprint For Medical Homes, Community Health Teams, And Better Health At Lower Cost" Bielaszka-DuVernay C. *Health Affairs*, 2011. "Analysis & Commentary: Driving Quality Gains And Cost Savings Through Adoption of Medical Homes" Fields, et al. *Health Affairs*, 2010. 
Washington	**Regence Blue Shield Intensive Outpatient Care Program with Boeing** "Building Tomorrow's Healthcare System," Blue Cross Blue Shield Association, 2012. 
Washington	**Group Health Cooperative** "Spreading a Medical Home Redesign: Effects on Emergency Department Use and Hospital Admissions," Reid, et al. *The Annals of Family Medicine*, 2013. "Impact on Seniors of the Patient-Centered Medical Home: Evidence From a Pilot Study" Fishman, et al. *The Gerontologist*. 2012. Group Health's Move to the Medical Home: For Doctors, it's Often a Hard Journey Meyer, H. *Health Affairs,* 2010. Implications of Reassigning Patients for the Medical Home: A Case Study Coleman, et al. *The Annals of Family Medicine*, 2010. "Analysis & Commentary Driving Quality Gains And Cost Savings Through Adoption of Medical Homes" Fields, et al. *Health Affairs*, 2010. Group Health Cooperative: Reinventing Primary Care by Connecting Patients with a Medical Home McCarthy, et al. *The Commonwealth Fund*, July 2009. "Value and the Medical Home: Effects of Transformed Primary Care" Gilfillan, et al. *American Journal of Managed Care*, 2010. 

APPENDIX B. The Year in Review: Case Study Snapshots

As the market continues to coalesce around the principles of the medical home model, the industry has taken an increasingly sophisticated approach to operationalizing this patient and family centered philosophy of care delivery. This year we saw many standout results from leading health plans, state initiatives, integrated health systems, and all of their partners from private practices, community health centers, state and federal agencies, and community organizations. Many organizations tested innovative strategies to advance and scale their PCMH initiatives, including the use of care managers, care coordinators, and patient navigators on care teams. These critical staff roles are well-recognized for ensuring that patients and their families are well-managed and informed throughout their care experience. Others leveraged health information technology to enhance patient-provider communications, after-hours access, and population health management.

Veterans Health Administration Patient Aligned Care Team (PACT)

National Program, 5 million patients
Publication Date: July 2013

The VA's Veterans Health Administration (VHA) operates one of the largest integrated health delivery systems in the United States, delivering comprehensive care to approximately five million Veterans. VA's PCMH Patient initiative includes a care team model that incorporates multidisciplinary clinical and support staff who deliver all primary care and coordinate the remainder of patients' needs, including specialty care. To optimize workflow and enhance continuity of care, staff are organized into "teamlets" that provide care to an assigned panel of about 1,200 patients. A teamlet consists of 1 primary care physician, 1 registered nurse care manager, 1 licensed practical nurse or medical assistant, and 1 administrative clerk. In addition, the program instructs facilities to enact advanced access scheduling, including same-day appointment slots. Facilities are also asked to conduct more appointments via phone and group appointments

RESULTS

- 8% fewer urgent care visits
- 4% fewer inpatient admissions
- Decrease in face-to-face visits
- Increase in phone encounters, personal health record use, and electronic messaging to providers

BlueCross BlueShield of Michigan Physician Group Incentive Program

Michigan (statewide), 3 million patients
Publication Date: July 2013

Blue Cross Blue Shield of Michigan's PCMH program, one of the largest in the nation with nearly 2,500 practices, yielded significant improvements in quality and preventive care. In fact, the health plan estimates savings of $155 million in the program's first three years. These avoided costs represent the savings achieved relatively early in the program's history and factor in costs at all practices in the program, not just those that had been designated as PCMH-based practices. The program demonstrated that cost savings achieved by highly developed PCMH practices are substantially greater. The analysis also shows that, when physicians fully transform their practices to the PCMH model, it results in higher quality and improved preventive care.

RESULTS

- 13.5% fewer pediatric ED visits
- 10% fewer adult ED visits
- 17% fewer inpatient admissions
- 6% fewer hospital readmissions
- Savings of $26.37 PMPM
- $155 million in cost savings

UPMC Health Plan

Pennsylvania, 23,390 patients
Publication Date: July 2013

UPMC Health Plan is part of a large, integrated delivery and financing system headquartered in Pittsburgh, Pennsylvania. From 2008 through 2010, sites participating in the plan's PCMH pilot achieved lower medical and pharmacy costs; and lower utilization of services such as ED visits, hospital admissions and readmissions. The plan also experienced a 160 percent return on the plan's investment when compared with nonparticipating sites. As part of the initiative, UPMC provided each participating site with a practice-based nurse care manager, who was trained and employed by the health plan. Six care managers were assigned to the ten sites and were made available by telephone and electronically to their assigned practices, regardless of which office they were in at any particular time. Practice-based care managers provided care management support at the participating sites for certain high-need members with one or more chronic conditions, including diabetes, heart disease, depression, and asthma. Members were identified as high need based on a risk-stratification methodology that combined data from a variety of sources.

RESULTS

- 2.8% fewer inpatient admission
- 18.3% fewer hospital readmissions
- 2.6% reduction in total costs
- 160% ROI
- 6.6% increase in patients with controlled HbA1c
- 23.2% increase in eye exams
- 9.7% increase in LDL screenings

CareFirst Blue Cross Blue Shield

Maryland, 1 million patients
Publication Date: June 2013

CareFirst BlueCross BlueShield announced that the second-year of its PCMH program, one of the nation's earliest and largest, demonstrated $98 million less in health care costs for its 1 million members. To support its PCMH program, the program facilitates implementation of care plans directed by primary care physicians with the support of local care coordination teams led by RN care coordinators. The care coordinators arrange for and track the care of those members who are at highest risk or who would benefit most from a comprehensive care plan. In addition, approximately 66 percent of participating primary care panels – groups of physicians that join together to participate in the PCMH program – earned increased reimbursements for their 2012 performance in the program

RESULTS

- $98 million in total costs savings
- 4.7% lower costs for physicians that received an incentive award

Oregon Health Authority Coordinated Care Organizations (CCOs)

Statewide Medicaid Program, 600,000 patients
Publication Date: November 2013

Oregon's local coordinated care organizations (CCOs) provide health care to more than 600,000 Medicaid patients, and have demonstrated improvements in several key areas while controlling costs. The CCOs began serving Oregon Health Plan members in 2012, and include over 450 PCMH practices and clinics. The Oregon Health Authority's November 2013 "Health System Transformation Progress Report" also identified reductions in ED visits and hospitalizations, while primary care visits have increased 18 percent. The report also demonstrated increases in electronic health record adoption among measured providers; in 2011, 28 percent of eligible providers had EHRs, and by June of 2013, 57 percent of them had adopted EHRs.

RESULTS

- 9% reduction in ED visits
- 14-29% fewer Ed visits for chronic disease patients
- 12% fewer hospital readaddmissions
- 18% reduction in ED visit spending
- Reduced per captial health spending growth by >1%

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