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Review

Expanding the primary care patient-centered medical home through new roles for registered nurses

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ABSTRACT

New models of health care delivery such as the patient-centered medical home have emerged to address the Triple Aim of improving the health and the care of patients with the benefit of reducing the cost of quality primary care. The Donabedian approach of addressing structure and process to produce quality outcomes is used to introduce an innovative model of the patient-centered medical home that includes nurses as part of the interdisciplinary team of care providers. New nursing roles and processes are described that optimally utilize electronic health record technology to improve care coordination and care delivery. Economic outcomes have been realized in the form of incentives to a primary care practice and reimbursement for quality, cost-effective care. Recognition of outstanding quality care in this new model demonstrates how an effective care system is evolving to meet the changing health care needs of the population.

The concept of the patient-centered medical home (PCMH) has been promoted by the Institute of Medicine (IOM)[1] as a model of health care delivery to address the issues of providing care that is safe, effective, timely, efficient and equitable. Patient-centeredness is also a key concept of the Triple Aim, with goals to improve the patient experience of care (including quality and satisfaction), improve the health of populations, and reduce the per capita cost of health care.[2] In recent years, the PCMH has been highlighted as a means of achieving the Triple Aim as it has shown promise in reducing the cost burden of care from the "chronically costly," the costliest 1% of patients that consume 1/5 of all health care spending in the U.S.[3] Through the PCMH and pursuit of the Triple Aim, a care delivery system is developing that focuses on the patient and providing appropriate care at the right place, the right time, and from the right provider. Ultimately, the needs of those with chronic disease can be addressed while the health of all patients in the primary care setting is promoted.

To achieve this, a paradigm shift from provider-centered care to patient-centered care delivery is required. A comprehensive approach to address structure, process and outcomes of care delivery can help guide this process. The Donabedian Model[4] is a framework to address the complexities of this paradigm shift. To address this shift in health care delivery, the following will need to be considered:

- Structure—how well do we use the tools, setting, and providers to deliver care?
- Process—what are the health delivery processes that produce the best care and outcomes?
- Patient outcomes—ultimately how does structure and process affect the patient and society to improve health?

Despite the development of the PCMH approach to address current health care issues and incentives to promote sustainability of the PCMH, there is not a standardized method for operationalizing these concepts. Innovative structural elements such as new roles for qualified staff and optimal use of electronic health records (EHRs) are needed to implement new care processes in the primary care setting, to ultimately realize improved quality care outcomes.

Purpose

The purpose of this article to describe an innovative approach to deliver primary care: the Interdisciplinary Patient-Centered Medical Home Model. This model includes adding qualified personnel such as registered nurses at the point of care delivery in the primary

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care setting, as a means of delivering the quality care processes needed in the evolving concept of the PCMH. Traditionally, the staff in primary care settings consists of physicians, advanced practice nurses, physician assistants, medical assistants and other clerical staff to provide care. In this innovative model, nurses assume various new roles and care processes are designed to coordinate and deliver care. This model provides a twofold opportunity for the nursing workforce to (1) provide cost effective care in primary care, and (2) to realize nurses practicing to the full extent of their education as advocated by the Institute of Medicine in the *Future of Nursing*.[5]

In addition to adding nurses as team members, other aspects of the Interdisciplinary PCMH Model include using information technology and improved processes to deliver timely, coordinated care to impact the health of all patients in a primary care practice. The use of the electronic health record will be explored as a tool to document and coordinate patient care, including population health, to enhance care delivery in the primary care setting.

Through the use of this model, economic outcomes, in the form of incentives to the practice and reimbursement for quality, cost-effective care have been realized and demonstrate how an effective care system is evolving to meet the changing health care needs of the population. As payment systems change from fee-for-service to value-based reimbursement in the ambulatory care setting, an interdisciplinary team that includes nurses and effective care processes will be needed to capture incentives and new codes for care coordination.[6]

Current model of health care delivery

Our current care delivery system focuses on disease management rather than prevention. In addition, each care institution is a silo of care. Episodic care occurs within these silos with little communication between systems during care transitions. This leads to costly care that is provider-centered rather than patient-centered (see Fig. 1).

A patient may access these silos at a given time, depending on the specialty services of providers in that institution. The payment structure for care delivered is particular to the care setting. Each care episode is directed by physician orders that flow through various health care professionals, laboratories, radiology and other services. Each care institution maintains its own medical record, which has limited ability to interface with other institutions. Consequently, the current health system has many opportunities for breakdown, leading to the issues of compromised safety and quality, lack of coordination, excessive spending, limited access and equity in care delivery.[2,7,8] Ultimately, this results in costly care where the patient's needs and satisfaction are not adequately addressed.

The patient centered medical home

The patient-centered medical home concept is evolving as a strategy to address the complexities of today's health care delivery. The National Committee for Quality Assurance (NCQA) formally recognizes primary care practices as PCMHs for meeting objective quality criteria.[9] The NCQA describes the patient-centered medical home as a model of care that emphasizes care coordination and communication to transform primary care into “what patients want it to be.” (p.2).[10] Only practices that have successfully utilized systemic processes and information technology (IT) in ways that enhance patient care quality are given this recognition, making the PCMH a prestigious designation.

Designation as a PCMH is associated with cost savings. A national study compared cost and utilization outcomes for beneficiaries of Medicare fee-for-service receiving care in practices recognized by the NCQA as PCMHs and outcomes for those receiving care in practices lacking this recognition.[11] The study

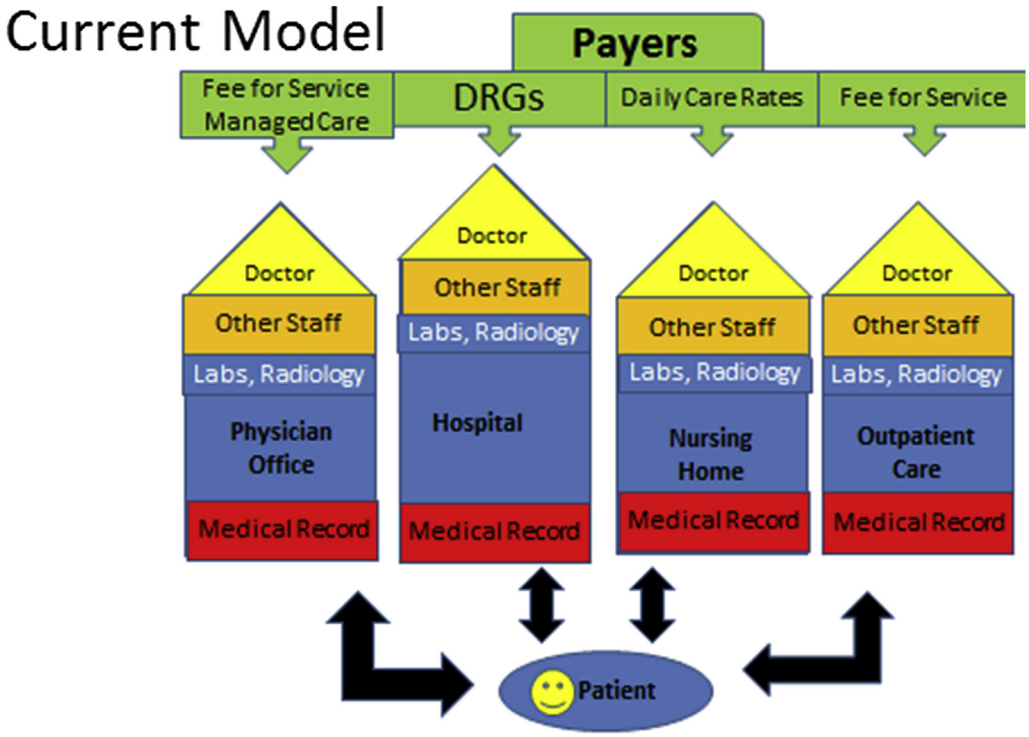

Fig. 1. Current model.

found a 4.6% reduction in Medicare payments annually. This equated to a reduction in $325 per PCMH practice ($p < 0.01$). In acute care hospitals, a 62% reduction was realized due to decreased utilization ($p < 0.05$) as the rate of emergency department visits for any condition was reduced ($p < 0.001$). Insurers are taking note of these outcomes. Some have developed recognition programs of their own.

Blue Cross Blue Shield of Michigan (BCBSM) is one such insurer that has developed a PCMH recognition program for practices that meet criteria for processes of care and performance. Half of the designation score needed to become a PCMH is based on practice capabilities such as 24-h patient access and active care management. The remaining half of the score is based on care quality and utilization measurements. In 2012, BCBSM was the largest PCMH program, designating over 994 practices as patient-centered medical homes, a 28% increase in a one year time period.[12] Economic outcomes of the PCMH model of care in Michigan include a 23.8% lower rate of hospital admission for certain conditions as compared to non-designated practices. Other outcomes include 8.3% lower rate of high-tech radiology use, 9.3% lower rate of adult emergency room visits and 3% higher rate of generic drug prescribing. In 2014, the number of patient-centered medical homes in Michigan had increased to 1420 with 27.5 percent lower rate of hospital admissions for adults with ambulatory care-sensitive conditions.[13] The paradigm shift in care delivery by a team of interdisciplinary providers using the technological tools to provide practice population management and care coordination is the next step in the evolution of the PCMH.

The Interdisciplinary Patient-Centered Medical Home Model

The key feature in the PCMH is the focus on the patient with the goal of improving health. By keeping the patient at the center of the model, the focus of the delivery system shifts from provider and institution-centric care to an interdisciplinary team approach to provide the right care at the right time with the right provider to promote the health of the patient[14] (see Fig. 2). Providing this type of patient-centered care, especially to patients with chronic, complex needs requires a team approach with the capacity to provide the physical, social and culturally appropriate care.[15] Many aspects of this type of care can be delivered by adding nursing professionals to the primary care team.

Structure: nursing in the PCMH

As the health care delivery system transforms, the importance of interdisciplinary teams is emphasized.[15,16] Nurses are beginning to be recognized as an imperative and integral part of this team. Expanding the role of nurses, enabling them to practice to their fullest scope of practice, is one viable solution to improving care quality and health outcomes within the changing health care environment.[17] Historically, the presence of nurses has been limited within ambulatory care settings. Roles of nurses have been restricted to telephone triage, nurse visits (as directed by physician care plans), prior to technical activities such as medication administration, and patient education.[18]

Enabling nurses to practice to their full scope-of-practice can help optimize care delivery and realize quality outcomes in light of the changing reimbursement structure and PCMH implementation. Roles nurses are capable of fulfilling within the PCMH include diabetes management, telephone outreach, telehealth management, and chronic care management. A level of care coordination is required for the success of each of these roles. Studies exploring outcomes of utilizing such nursing roles have found improved patient and provider satisfaction, cost savings, enhanced patient compliance and empowerment, a reduction in hospital admissions, and improved documentation for outcome metrics.[16,19,20]

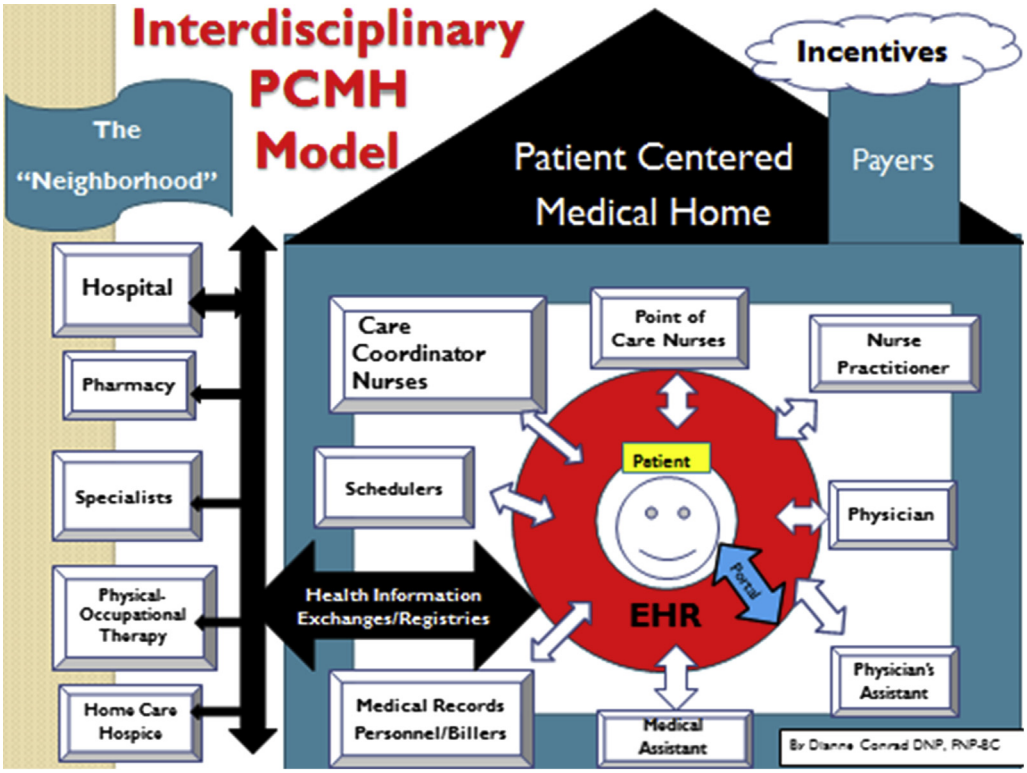

Fig. 2. Interdisciplinary PCMH model.

Process: expanding roles of nurses within the interdisciplinary PCMH model

In order to achieve improved patient outcomes, processes of care delivery in the Interdisciplinary PCMH Model have been modified to utilize nursing and clinical personnel to the full extent of their education and training (see Fig. 3). Innovative nursing roles and processes in the primary care setting include:

- Quality team – this team is led by a registered nurse (RN) along with medical assistants, who extract population data monthly from the electronic health record reporting system on patients who are not meeting quality measures. These patients are actively engaged to make appointments to address the plan of care with their providers. Documented quality outcomes in the electronic medical record are then transmitted to payers through a registry.
- Phone nurses – this team of nurses triage patient calls, report results, and provide patient education for phone inquiries from patients. Chronic care medication refills are performed according to physician-determined protocols by registered nurses. The phone nurses also perform transition of care calls soon after hospital, emergency department admissions or other care transfers that include medication reconciliation and coordination of community services to decrease hospital readmissions. These transitions of care calls are now tied to reimbursement if the patient is seen by the provider in a determined time frame.[21]
- Medicare wellness nurse – the Medicare Wellness nurse is part of the team with providers to administer cognitive, depression and fall risk screening, update immunizations and other provisions of the Medicare Wellness visit for Medicare Beneficiaries.[22]
- Project management (IT) nurse – this nurse has specialized information technology knowledge to modify EHR templates, create population reports and special project management duties such as creating processes to meet Meaningful Use measures. This nurse, with advanced EHR training, also provides daily information technology consulting regarding EHR functionality.
- Point of care nurses working with providers – a team composed of an RN and medical assistants work with providers to maximize daily workflow, assess needed quality measures to be ordered/performed on patients seeing the provider in the office, enhance patient access to care with prior authorization calls to payers, perform patient education and assist in goal setting and care planning for health promotion.
- Care coordinators – as part of a national demonstration project, these RN care coordinators who are employed by the local physician-hospital organization, work closely with patients with complex medical problems to improve care delivery, address the social determinants of health and reduce costly care including emergency department visits and hospitalizations.[15]
- Specialty services nurses – nurses with specialized training, utilizing evidence-based protocols, provide services in the ambulatory care setting such as allergy desensitization injection clinics, flu vaccination clinics, travel immunization and anti-coagulation clinics. These services require a physician available on campus, but are managed by nursing staff.

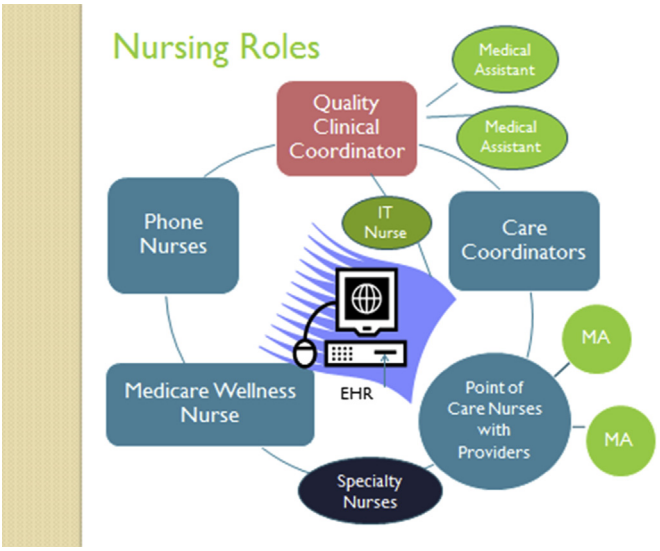

Fig. 3. Nursing roles.

Health care delivery in the ambulatory care setting is rapidly evolving and innovative processes of care delivery by interdisciplinary teams are needed to realize the quality outcomes necessary to capture value-based reimbursements. New for 2015, is the introduction by the Centers for Medicare and Medicaid Services (CMS) of a non-visit based payment for chronic care management for beneficiaries with two or more chronic care conditions. Many aspects of the PCMH are needed to capture these payments including use of a certified EHR, 24 hour access to providers, and collaboration with the patient on developing a comprehensive care plan.[6] Utilizing nurses as part of the interdisciplinary team in the PCMH can assist in redesigning processes needed to capture emerging reimbursements for care coordination.

In summary, innovative patient-centered care delivery by a health care team, including utilizing nursing staff to the full extent of their education and training, can assist in realizing the goals of the PCMH with increasing access to quality, timely care for many primary care services. See Table 1 for an example of redesigned team processes to address diabetes quality measures.

Structure: the electronic health record in the patient-centered medical home

The electronic health record (EHR) is a key component of this model. Ideally, the EHR follows the patient and can be accessed in any setting with current, accurate health information that reduces medical errors. The EHR is also a tool to provide decision support, coordinate care and assist in population health management.[23] A recent study showed that team-based coordinated care is a cornerstone of the PCMH model, and with the use of an EHR system, primary care physicians improved the quality of care delivery.[24] The EHR allows access to medical data by all members of the team, including the patient, who can access their personal health information through a patient portal. With increasing interoperability of systems, the goal of access by all members of the "neighborhood," including hospitals, pharmacies, specialists, hospice, nursing homes and other health care organizations can lead to efficient and safe care delivery. The effect of Meaningful Use incentives has driven the adoption and utilization of EHRs to accomplish interoperability between systems.[25]

Process: the use of the EHR as a tool for care management

The use of the EHR as a tool is critical in the Interdisciplinary PCMH Model to document care in a format to be transmitted to payers through a registry to realize incentives for quality performance. Ideally the EHR in primary care is linked to scheduling and billing to facilitate data flow. Utilizing the EHR to the full extent of capability is critical to population management including: monthly

Table 1
Redesigning team processes to address diabetes quality measures.

A1c as an example (All interdisciplinary team members included, expanded nursing roles bolded)
1. At least annually, the **Quality Coordinator Nurse** analyzes reporting requirements of diabetes quality measures for each payer incentive program.
2. A report is created by the **IT Nurse** to run at the first of each month to identify patients active within the practice who have an A1c greater than or equal to 7% in the past year. This list is sent to the quality department.
3. The quality team, led by the **Quality Coordinator Nurse**, identifies patients on this list who do not have an upcoming appointment or blood work ordered.
4. Through the computerized provider order entry (CPOE) system, based on standing protocols, an order is generated for an A1c (**Quality Team Member, Point of Care Nurse**).
5. Those who do not have an upcoming office visit or lab appointment scheduled are contacted by scheduling staff or the quality team certified medical assistants (CMA) via their preferred method (phone, secure message, etc.), regarding the need for follow up care.
6. The patient is contacted and agrees to schedule an appointment.
7. Patient comes in for an office visit. Demographic info is recorded/updated (Front Desk staff).
8. The patient is admitted to a room, vital signs are charted and medication reconciliation is completed (**Point of Care Nurse** or CMA).
9. An A1c is ordered per protocol by **Point of Care Nurse**, if not previously entered by quality team.
10. The A1c is obtained and the result is documented in the electronic health record (EHR) for the provider to view upon entering the room (**Point of Care Nurse**).
11. The visit is conducted and the care plan is formulated with patient to improve diabetes control (provider and **Point of Care Nurse**).
12. Orders for new prescriptions and/or adjustments in medications are transmitted via e-prescribe to the patient's pharmacy (provider).
13. Additional lab work is ordered as deemed appropriate via CPOE (provider).
14. The patient is encouraged to sign up for the patient portal, and if agreeable, provides a valid e-mail address to start portal sign up process (**Point of Care Nurse**, CMA, provider, or clerical staff).
15. Patient-specific educational resources are identified through the EHR and given to patient upon discharge (**Point of Care Nurse** or provider).
16. The patient is offered a clinical summary of the visit during checkout. This is automatically sent to the patient via the portal if the patient has one. A printed copy is provided if the patient would like a clinical summary, but does not have a portal. (Checkout Desk staff).
17. The patient leaves the office.
18. If patient does not have a portal account, the patient is sent an invitation to sign up for the patient portal via the email address provided during the appointment (Patient service Representative). The patient signs up for the portal and has the ability to view, download, and transmit their personal health information.
19. The patient receives a secure message in the portal from the provider or **Phone Nurse** regarding lab results and further instruction as necessary. The patient is asked to send a secure message back to the provider with reports of blood sugar records, and progress on the care plan.
20. The care plan is reviewed and updated at next office visit and the cycle repeats (provider and **Point of Care Nurse**).
21. The **Quality Coordinator Nurse** analyzes the practice's population health progress regarding diabetes quality measures at the start of the next cycle.

Adapted from: Alfredson, K. M. (2015). A Process Improvement Toolkit to Guide the Attainment of Meaningful Use Stage 2 Requirements (Unpublished doctoral dissertation). Grand Valley State University, Grand Rapids, MI.

compliance reports; decision support with alerts for patients not meeting measures that can be addressed by all members of the team; and care coordination for transitions of care and management of referrals, both initiating and closing the loop with documentation from the referring provider. The patient portal through the EHR maximizes patient engagement in their care with the abilities for the patient to:

- Request appointments
- Pay bills
- Email with questions through a secure portal
- Request medication refills
- Access lab reports
- Access their Personal Health Record

According to Stage 2 Meaningful Use criteria, the portal is a vehicle for the patient to access clinical data and enhance access to the provider through secure electronic communications.[25]

Outcomes of the interdisciplinary PMCH in a primary care practice

Employing nurses in the interdisciplinary team model involves more overhead than solely utilizing medical assistants, which is the current practice in most primary care offices. However, in order to meet the criteria of the quality measures in the PCMH, nursing staff can provide patient-centered services, population management, care planning and assist in documentation of quality measures necessary to obtain incentives to practices during the transition from fee-for-service to value-based reimbursement.

Overhead costs in this model also include optimizing the use of the electronic health record to coordinate care and assist in population management. These costs include the EHR hardware, software, staff training and information technology support to enhance EHR functionality to achieve incentive measures.

In the past five years, a rural, primary care office with five physician providers, a nurse practitioner, physicians' assistant and nine full time equivalent nursing staff, through the use of this Interdisciplinary PCMH approach, have realized significant incentive payments to offset the overhead costs of this innovative care delivery model. These incentives included Medicare, Medicaid, Blue Cross/Blue Shield and other payers' pay-for-performance initiatives, including PCMH uplifts, Meaningful Use and Primary Care Transformation programs. This interdisciplinary team approach effectively uses the EHR as a tool to improve quality care delivery. The providers in this practice are part of a small percentage of eligible professionals who were able to attain the high quality standards of Stage 2 in the first year of this level of Meaningful Use incentives.[26]

By incorporating the Interdisciplinary PCMH, this primary care practice has also resulted in state and national recognition of quality care with the following awards:

- A Blue Cross Blue Shield of Michigan ranking in the top 1% of Patient Centered Medical Homes in the state
- Priority Health Quality Award 2011–2014
- Five Star Medicare Plus Blue Quality Award 2014
- Blue Care Network-90% Composite Quality Score representing greater than the 90th percentile of practices in 2014
- Medicare Advantage-88% Composite Quality Score representing greater than the 90th percentile of practices in 2014.

Conclusion

In the rapidly changing paradigm of health care transformation, the PCMH has emerged as a model of care delivery focused on a patient-centered approach to improving quality care. To realize the full potential of the PCMH, a new delivery model utilizing an interdisciplinary team approach and the electronic health record as an essential tool, has realized quality care outcomes and significant incentive payments to a primary care practice. Key to the Interdisciplinary PCMH Model's success is the use of nursing staff in innovative roles, functioning at the highest level of their education and training.

New models of reimbursement for ambulatory care services are emerging, requiring the expertise of all team members to deliver and document care. In addition, managing the health of populations and coordinating care is critical, particularly for patients with complex conditions. Health care leaders are challenged to incorporate the structural elements of utilizing appropriately trained personnel and information technology to improve care. A redesign of ambulatory care processes that incorporate these

structural elements is necessary to achieve quality outcomes and to participate in primary health care transformation.

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