Coordinating Care in the Medical Neighborhood: Critical Components and Available Mechanisms

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Chapter 1. Introduction and Background

For most patients in the U.S. health care system, the "medical neighborhood" appears as a diverse array of clinicians and institutions with little or no coordination between them, leaving patients and their families to navigate this system on their own and often to serve as the main conduit of information between the clinicians they see. Most patients and their families have little understanding of how their primary care practice coordinates (if at all) with other clinicians, organizations, and institutions in the neighborhood— and often may assume that the system is much more coherent, organized, and coordinated than it is. One approach to decreasing fragmentation, improving coordination, and placing greater emphasis on the needs of patients is the patient-centered medical home (PCMH). Its components include patient-centered care with an orientation toward the whole person, comprehensive care, care coordinated across all the elements of the health system, superb access to care, and a systems-based approach to quality and safety.[1] Ultimately, these components are intended to improve patient outcomes—including better patient experience with care, improved quality of care (leading to better health), and reduced costs.[2]

Many of the goals of the PCMH rely on improved communication and coordination between and across health care providers and institutions: in other words, they require a high-functioning medical neighborhood that (1) encourages the flow of information across and between clinicians and patients, and (2) introduces some level of accountability to ensure that clinicians readily participate in that information exchange. Given that its locus is squarely within the primary care settings of the health system, and the fact that many patients require a substantial amount of specialty care, the PCMH alone can do only so much in creating and promoting the functioning of the medical neighborhood. Thus, specialists, hospitals, other providers, health plans, and other stakeholders also play key roles in ensuring a close-knit neighborhood.

At its core, a well-functioning medical neighborhood requires basic communication and coordination functions. For example:

1. Specialists need to let primary care clinicians know what type of routine care the patient needs after a surgery or course of treatment.

2. Primary care clinicians need to make appropriate referrals and provide specialists with appropriate background information, clinical data on the patient, and goals for the consultation.

3. Hospitals need to let primary care teams know when their patients are in the hospital or have visited the hospital's emergency department (ED).

4. In general, primary care clinicians and other team members need a broad understanding of each patient's health care needs to assist in coordinating all care, help the patient navigate the system, and ensure that the treatment plans (and prescription medications) of different specialists work together as a whole.

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[1] See http://www.pcmh.ahrq.gov/portal/server.pt/community/pcmh__home/1483/what_is_pcmh_ for AHRQ's definition of the PCMH.

[2] See Berwick et al. (2008) for a discussion of this "triple aim" of better patient experience, improved population health, and reduced per capita costs.

While the medical neighborhood clearly could and likely should take on other functions as well—such as managing population health and developing better relationships with community services—many believe that efforts to improve the neighborhood should start with the basics, such as getting hospitals to fax primary care clinicians (PCCs) a list of their patients who are in the hospital, or ensuring that specialists always communicate back to PCCs about their patients.[3]

This paper examines the various "neighbors" in the medical neighborhood and how these neighbors could work together better, thus allowing the PCMH to reach its full potential to improve patient outcomes. Specifically, the paper addresses (1) key components of the medical neighborhood and how the PCMH is situated within it; (2) existing barriers to achieving a well-functioning medical neighborhood; and (3) the approaches and tools available to achieve a well-functioning neighborhood, and the strengths and weaknesses of each.

The term "medical neighborhood" was coined relatively recently in the published literature when Fisher (2008) described the potential barriers associated with the PCMH reaching its full potential, given its placement in the broader medical neighborhood and the necessity of collaborating and coordinating with specialists, hospitals, and other types of providers. Pham (2010) further developed the idea of the medical neighborhood through a conceptual framework of the roles and responsibilities of PCCs, specialists, and patients in the neighborhood. More recently, a 2010 position paper by the American College of Physicians (ACP) described how specialists and subspecialists should interface with the PCMH, categorizing the types of interactions that occur between PCCs and specialists, and highlighting the potential role of care coordination agreements between primary care and specialty practices in defining their respective responsibilities (ACP 2010).

A related body of literature on the concept of accountable care organizations (ACOs) is also highly relevant to the medical neighborhood (Fisher et al. 2007; Gold 2010; Berenson 2010; Meyers et al. 2010). As discussed later in this paper, the ACO—through its emphasis on holding groups of providers jointly responsible for the costs and outcomes of care for a defined population of patients—is a potentially important reform to improve the functioning of the neighborhood. Yet, as discussed below, ACOs are only one of several reforms that can encourage better functioning of the neighborhood.

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[3] We define "primary care clinician" as the physician, nurse practitioner, or physician assistant that takes on the lead clinical role in a patient's primary care. However, in some circumstances, the leader of the primary care team may *not* be the primary care clinician. For example, patients at the end of life may have a social worker serving as the primary contact and coordinator of care.

Building on this and other existing literature, which has primarily focused on primary care-specialist interactions, as well as physician-hospital relationships, we present a broader view of the medical neighborhood, incorporating community and social services and a somewhat more expansive policy perspective. In Chapter 2, we lay out a conceptual framework for the medical neighborhood, including the neighborhood's key actors, the intended outcomes of the ideal neighborhood, and how the neighborhood currently functions. In Chapter 3, we describe a variety of tools and approaches that might be used to improve the functioning of the medical neighborhood. Finally, in Chapter 4, we present conclusions and areas for future research.

We rely on several sources of data for this paper. First, we conducted a review and synthesis of existing literature, recognizing that many of the potential mechanisms for improving the functioning of the medical neighborhood reflect concepts that have existed for some time but have been discussed in other terms (such as care coordination and communication between primary care clinicians and specialists). Second, we held discussions with 16 thought leaders in the field of primary care transformation. Finally, we consulted with three experts who have published widely on this and closely related topics; the panel provided feedback on our conceptual framework and a draft of the paper. (See the appendix for the list of experts who contributed their perspectives to this paper.)

In this chapter, we first describe the characteristics of a high-functioning medical neighborhood, including key activities and desired outcomes. We then discuss how neighborhoods—and their various actors—currently function in most settings.

What Is a Medical Neighborhood?

We conceptualize the medical neighborhood as a PCMH and the constellation of other clinicians providing health care services to patients within it, along with community and social service organizations and State and local public health agencies (Figure 1).[4,5] Defined in this way, the PCMH and the surrounding medical neighborhood can focus on meeting the needs of the individual patient but also incorporate aspects of population health and overall community health needs in its objectives.

While the patient is the primary stakeholder in the medical neighborhood, we place the PCMH at its center, given its role as the central point of contact for the patient and primary coordinator of the patient's care across various neighbors. Within the PCMH, the primary clinician caring for the patient may be a physician, nurse practitioner, or physician assistant. Importantly, the neighborhood is not necessarily a geographic construct but instead a set of relationships revolving around the patient and his or her PCMH, based on that patient's health care needs. Most medical neighborhood clinicians are likely to be in close proximity to the patient and his or her medical home. In some cases, however, the most appropriate care may be located in other communities, or patients may require care when traveling or living in another part of the country for a portion of each year.

While our conceptualization of the medical neighborhood represents a large section of the medical landscape and the portion of the formal health care system with which most patients in the U.S. interact, we recognize that some of the neighborhood's components may rarely interact with primary care (e.g., long-term residential care). Moreover, for some patients, the medical neighborhood may be centered on specific specialists rather than primary care; this might include patients with severe and persistent mental illness, those living with AIDS, and those with a new diagnosis of cancer. In such cases, the role of the specialist and the primary care clinician might be reversed, and the specialist must insure that patients have access to a full range of primary care services, and the primary care team might serve as consultants.

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[4] While use of the PCMH model is growing, the medical neighborhoods of many patients include primary care practices rather than PCMHs per se and do not necessarily have primary care in a central role.

[5] See Meyers et al. (2010) for closely related discussion of the roles of the PCMH and ACOs in coordinating care among multiple providers.

Figure 1. Key actors and the flow of information in the medical neighborhood

Community

Family

Patient

PATIENT-CENTERED MEDICAL HOME
provides patient-centered, comprehensive, and coordinated care that supports patient self care; offers superb access to care; and employs a systems-based approach to quality and safety

Acute and post-acute care
-inpatient hospital care
-rehabilitation
-skilled nursing care
-home health services
-emergency department

Ambulatory care
-specialty care
-subspecialty care
-ancillary services
 (e.g., physical
 therapy, podiatry,
 speech therapy)
-retail clinics

State and local public health
(e.g., smoking cessation, tobacco use prevention, infectious disease control, chronic disease prevention)

Diagnostic services
-lab
-imaging

Pharmacy
-medication
 management

Community and social services
(e.g., hospice, personal care services, home-delivered meals, home modifications, assistive technology, accessible transportation, education and support for patient self care)

What Are the Key Features of a High-Functioning Medical Neighborhood?

The primary activity of a well-functioning medical neighborhood is delivery of coordinated care, which requires regular communication, collaboration, and shared decisionmaking across various actors in the system (Meyers et al. 2010). Ideally, the neighborhood encourages population health and shares resources and infrastructure (for such efforts as health information technology (IT) and performance measurement). Accordingly, a well-functioning medical neighborhood would include the following:

- Clear agreement on and delineation of the respective roles of neighbors in the system (e.g., through care coordination agreements between PCCs and specialty physicians, agreements on care transitions, pre-referral arrangements, referral and followup guidelines from professional societies or others). [6]

- Sharing of the clinical information needed for effective decisionmaking and reducing duplication and waste in the system, supported by appropriate health IT systems.

- Care teams, typically anchored by the PCMH, to develop individualized care plans for complex patients (such as those with multiple chronic conditions) that describe a proactive sequence of health care interventions and interactions—followed by tracking and assisting to ensure that this takes place (including care transitions).

- Continuity of needed medical care when patients transition between settings (e.g., when transferred from a hospital to a skilled nursing facility, and then to an assisted living facility), with active communication, coordination, and collaboration among everyone involved in the patient's care, including clinicians, patient, and family.

- A focus on the patient's preferences, perhaps with the PCC or dedicated care coordinator within the PCMH playing a key role in interfacing with other clinicians to ensure that patient preferences are incorporated into decisionmaking. Informed or shared decisionmaking—in which patients, families, and clinicians work together to balance scientific evidence and patient preferences to make optimal medical decisions with the patient—also can be an important part of a highly functional medical neighborhood.

- Strong community linkages that include both clinical and nonclinical services (such as personal care services, home-delivered meals, or school-based health care).

What Are the Desired Outcomes of a High-Functioning Medical Neighborhood?

The intended outcomes of a high-functioning medical neighborhood include improved patient outcomes; patient safety; patient experience; and possibly lower costs through reduced duplication of services, increased delivery of preventive services, and more evidence-based patient care (resulting in fewer readmissions, polypharmacy issues, and adverse events, for example). Another outcome may include improved population health management, depending on how broadly one defines the role of the medical

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[6] These include the concepts of pre-consultation exchange, formal consultation, co-management of patients, and transfer of care (ACP 2010).

neighborhood. As highlighted in Figure 2, a series of activities and outputs may help to achieve these outcomes. However, such activities are unlikely to occur in the absence of appropriate financial incentives. As we discuss in more detail in Chapter 3, payment reforms are likely to play a key role in any efforts to improve medical neighborhood functioning. Other incentives, such as performance reporting, also may play an important role. The local market context may influence the effectiveness of various incentives in improving coordination and collaboration.

How Does the Medical Neighborhood Currently Operate?

Patients

In the current system, patients and their families frequently must serve as their own navigators in the medical neighborhood, often communicating—to the extent they are willing and able—clinical and other information among PCCs, specialists, and others, including what tests, imaging, and diagnoses other clinicians have provided or made. This approach is ineffective for a variety of reasons, including, in some cases, a lack of patient understanding of the clinical details of their care and a limited ability of patients to advocate for themselves. While the PCMH aims to put patients at the center of the health care experience, it does not intend that the patient serve as navigator, but instead that the PCMH will play this role, with the patient taking an active role as an engaged decisionmaker in his or her health care.
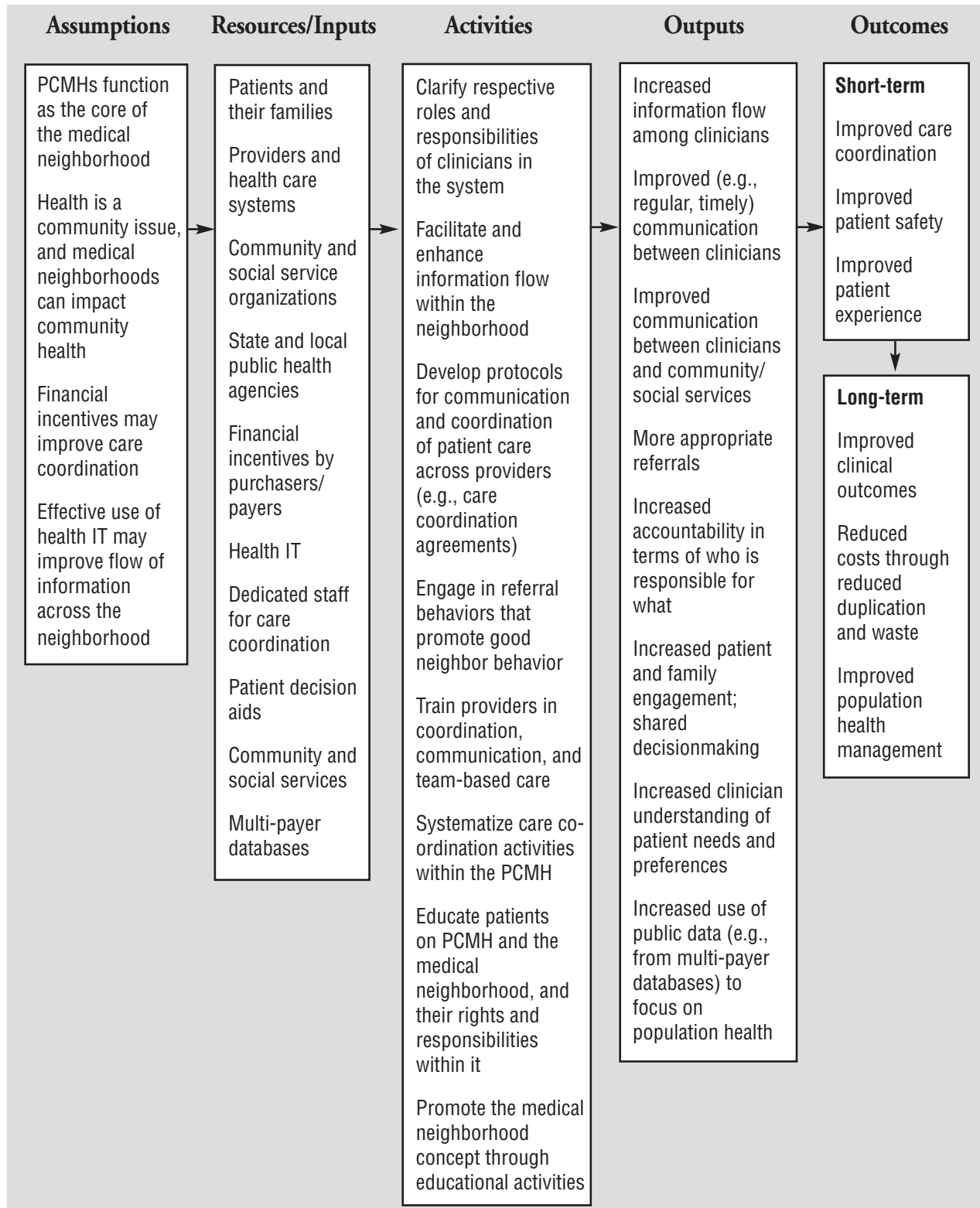
Primary Care Clinicians

The ability of PCCs to coordinate and communicate regularly with a core group of specialists is hampered by the large number of specialists and other clinicians in the system (Pham et al. 2009) and the many competing demands in a physician's workday as currently structured (Casalino 2010). Moreover, the financial incentives for PCCs to engage in such coordination with other clinicians do not exist currently, except in relatively small-scale pilots of PCMH payment models.[7] That said, in most loosely organized health care markets, PCCs often develop a core, informal network of specialists to whom they refer, at least for specialties to which they refer commonly, such as cardiology, gastroenterology, endocrinology, and orthopedics.[8] While perspectives on this were mixed, some experts reported that PCCs incorporate information on whether a specialist is a "good neighbor" when deciding whether to include that specialist in the PCC's core referral network. These "good neighbor" characteristics might include whether the specialist will consult over the telephone, see referred patients in a timely fashion, send back information to the PCC after seeing a patient, and "release" the patient back to the PCC after providing necessary specialty care and services (see, for example, O'Malley et al. 2009b regarding referral networks). Others, however, were uncertain how often PCCs actually have these informal networks, especially in large urban settings with many clinicians.

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[7] Some incentives for care coordination also are provided by selected programs, such as in Medicaid primary care case manager programs combined with pay-for-performance in selected states, as these programs transition to PCMHs (Verdier 2009).

[8] In integrated delivery systems, PCP-specialist relationships often become more formalized within the organizational structures but, even in these circumstances, PCPs have varying approaches and also may cultivate relationships with certain subspecialists needed outside of these systems.

Figure 2. Proposed logic model: outcomes of a well-functioning medical neighborhood

Assumptions	Resources/Inputs	Activities	Outputs	Outcomes
PCMHs function as the core of the medical neighborhood Health is a community issue, and medical neighborhoods can impact community health Financial incentives may improve care coordination Effective use of health IT may improve flow of information across the neighborhood	Patients and their families Providers and health care systems Community and social service organizations State and local public health agencies Financial incentives by purchasers/payers Health IT Dedicated staff for care coordination Patient decision aids Community and social services Multi-payer databases	Clarify respective roles and responsibilities of clinicians in the system Facilitate and enhance information flow within the neighborhood Develop protocols for communication and coordination of patient care across providers (e.g., care coordination agreements) Engage in referral behaviors that promote good neighbor behavior Train providers in coordination, communication, and team-based care Systematize care co-ordination activities within the PCMH Educate patients on PCMH and the medical neighborhood, and their rights and responsibilities within it Promote the medical neighborhood concept through educational activities	Increased information flow among clinicians Improved (e.g., regular, timely) communication between clinicians Improved communication between clinicians and community/social services More appropriate referrals Increased accountability in terms of who is responsible for what Increased patient and family engagement; shared decisionmaking Increased clinician understanding of patient needs and preferences Increased use of public data (e.g., from multi-payer databases) to focus on population health	**Short-term** Improved care coordination Improved patient safety Improved patient experience **Long-term** Improved clinical outcomes Reduced costs through reduced duplication and waste Improved population health management

Another key factor in understanding the interactions between PCCs and specialists is the rapid increase in the use of hospitalists over the past decade (Pham et al. 2008; Wachter and Goldman 1996). The role of hospitalists as the primary physicians within hospital walls has meant that PCCs in many communities have little to no role in care delivered in hospitals. Informal conversations in hospital hallways and "curbside consults" between PCCs and specialists rarely happen now, resulting in substantially less interaction between these neighbors. According to several experts, many hospitalists have limited understanding of the role of PCCs and, by and large, few settings have developed strong communication and coordination between hospitalists and PCCs in the community.

Specialists

In the U.S. health care system, specialty and subspecialty care play a particularly prominent role in the medical neighborhood. PCCs recognize specialists as the neighbors within the medical neighborhood with whom they most frequently co-manage patients, or at least share them, and the neighbors with whom they have (or should have) the most regular interaction. According to a recent study, however, only 62 percent of PCCs report getting consult results from specialists, even though 81 percent of specialists report sending this information back to the referring PCC (O'Malley and Reschovsky 2011). This suggests some substantial communication problems within the medical neighborhood.

A lack of clarity on the respective roles of PCCs and specialists undoubtedly contributes to much more care being provided in specialty settings than is medically necessary (see, for example, Forrest 2009) and also may contribute to coordination issues among specialists and PCCs. While PCCs—in their role as the primary coordinator of care for their patients—may be more vocal about the lack of communication from the specialists to whom they refer, specialists also recognize that communication within the neighborhood is far from optimal. For example, while 69 percent of PCCs report providing notification of a patient's history and reason for consultation to specialists "always" or "most of the time," only 35 percent of specialists report receiving such notification "always" or "most of the time" (O'Malley and Reschovsky 2011).

The emphasis on specialty care may be driven in part by specialists, but several experts suggested that specialists believe that many of the patients they see do not require specialty care. While some of this undoubtedly reflects patient self-referrals, some PCCs refer patients for specialist visits when such visits may not be clinically warranted. The current health care financing system often incentivizes primary care teams to refer patients rather than work to meet their needs within primary care.

Hospitals, Post-Acute Care, and Long-Term Care

Patients who require hospitalization for serious illness or injury have a particularly strong need for communication and coordination among the providers responsible for their care, yet many experts believe that coordination of care in the neighborhood can be at its worst at this stage. Information flows across institutional and community settings are widely regarded as woefully inadequate.[9] While some primary

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[9] Coordination is also an issue between emergency department physicians and PCCs (Carrier et al. 2011).

care physicians follow their patients and are actively involved in their treatment when receiving inpatient care (making coordination less of an issue), many do not. The increased use of hospitalists for managing inpatient care may play a role in the lack of involvement in inpatient care by primary care physicians, but broader and longer term trends in overall specialization have also likely played a role. In such cases, unless informed by patients, primary care physicians often are unaware that their patients have been hospitalized and typically are not informed when they are discharged—giving them no knowledge of the reasons for hospital admission or what transpired during the hospital stay. Lack of followup care post discharge (along with poor discharge planning) has been shown to result in post-discharge complications and worsening of conditions (Ventura et al. 2010).

Similarly, communication by hospital clinicians with patients and among a team of clinicians is at a premium when making decisions about post-acute, rehabilitation, home health, and long-term care services, and in identifying which setting is most appropriate or when changes in settings are appropriate. Preventable hospitalizations and readmissions from rehabilitation and long-term care settings are particularly frequent but often may be avoidable with better communication among clinical teams, including the PCC (Young et al. 2010).

Pharmacists

In some health systems, pharmacists have played a longstanding role in coordinating health care services, serving as the central manager of pharmacological care and a central node between patients and clinician prescribers in managing medications. Their roles include consulting with clinicians about medications for patients, and educating patients about proper use of medications and possible side effects. Pharmacists may serve in independent retail pharmacies, in multi-disciplinary clinician teams within clinics or larger practices, or in inpatient hospital settings. They can play a central role in medication management, reconciling multiple medications, and monitoring contraindications and overuse of medications. They are also involved in care transitions, helping patients plan for their medication use as they move from one care setting to another (AHSP 1999). Pharmacists practicing within primary care teams may take on more extensive roles, developing a personal medication care plan for each patient (which includes medication management and self-management goals) and communicating the care plan to the patient and others in the medical neighborhood (Smith et al. 2010).

Pharmacists confront the same challenges as other health care professionals in attempting to improve coordination within a fragmented delivery system (Smith et al. 2010). Pharmacists in independent retail pharmacies in communities, for example, are likely to deal with very large numbers of patients and prescribing clinicians over time, with little opportunity to develop closer, longer lasting relationships. Transactions and communications are provided on a daily, case-by-case basis, with few opportunities for more prospective and longitudinal management of services for each patient. Moreover, successful medication management can be constrained by limits on the availability of relevant clinical information and lack of appropriate reimbursement for pharmacist services. Patients may not always be aware of all medications they are taking, and the individual pharmacist often does not have access to full information about medications that may have been prescribed by other clinicians and filled by other pharmacists.

Community and Social Services

While all experts with whom we spoke agreed that better communication with community organizations and social services is critical, especially for PCMHs that focus on treating low-income patients or frail elders, many describe the connections with the broader community as the most challenging for the medical neighborhood at large. At its core, the PCMH model suggests that PCCs should know about available resources for different patients' needs and be able to make referrals, and then follow up with patients to ensure that they access those services. More in-depth coordination and interface with these services may depend on a PCMH's patient mix and needs and the breadth of clinical focus.

The broad spectrum of community and social service organizations is one aspect that makes coordination between them and the PCMH difficult. These include myriad organizations providing hospice care, personal care services, mental health and substance use and abuse services, home-delivered meals, accessible transportation, school-based health care, and many other services. Despite the sheer volume of community organizations, some PCCs regularly coordinate with, or at least refer patients to, community and social services. For example, many geriatricians have well- established connections to home health agencies to meet the needs of their patients. Recognition of the value of these connections is evident; the National Council on Aging developed a toolkit to help physicians initiate and sustain connections to community organizations (National Council on Aging 2005). Federally qualified health centers and other safety net providers also are more likely to have connections with social services in their local communities. In many other cases, however, connections between primary care and community services—such as linkages to health care via schools—simply are absent or highly fragmented and disorganized. Primary care teams that include care managers and social workers may be better able to develop and maintain links to community and social services. Currently, few primary care teams have these members.

Payers/Purchasers

While not directly involved in delivery of health care services, health plans, employers, and other purchasers play key roles in the medical neighborhood by paying for care, providing incentives for care coordination and, in some cases, becoming directly involved in the organization and coordination of care (e.g., by establishing provider networks and supporting population-based care management and disease management strategies). The value-based purchasing movement in large part represents an effort to provide incentives for clinicians to work more closely together to improve the quality of care (Maio et al. 2003). As discussed later, because individual clinicians are unlikely to be able to change the medical neighborhood on their own, incentives provided by payers and purchasers are likely to be a key in paving the way for change. To date, much of the value-based purchasing movement has focused on improving the clinical quality of care in particular settings. The next step, however, is focused clearly on care coordination and achieving the outcomes that result from improvements in site-specific clinical quality of care and care coordination.

Chapter 3. Making the Medical Neighborhood Work: Barriers and Potential Approaches to Overcoming Them

While high-functioning medical neighborhoods have the potential to improve patient outcomes and safety as well as patient experience, a number of significant barriers stand in the way of neighbors actively communicating, coordinating, and collaborating on patient care. Several different activities and tools could help improve the functioning of the neighborhood, including financial incentives, quality measurement and performance reporting, professional training and guidelines, and leadership to change clinician culture.

In this chapter, we first describe the barriers that currently exist to high-functioning medical neighborhoods. We then discuss the types of activities in which clinicians and others in the neighborhood might engage to improve its functioning, followed by the health reforms available to promote such activities, focusing in particular on financial incentives and performance measurement. Finally, we present other potential tools and supports that also could facilitate improvement in the neighborhood's functioning. In the absence of truly integrated delivery systems, many of these tools may be necessary to improve coordination and communication within the medical neighborhood.

Barriers to a High-Functioning Medical Neighborhood

Although each actor in the medical neighborhood plays a different role and faces particular challenges in coordinating care, taken together, a common set of barriers to high-functioning neighborhoods emerges (Table 1).

Table 1. Barriers to information flow and accountability in the medical neighborhood

No (or few) financial incentives or requirements for care coordination
Lack of staff and time for investment in coordination (at the practice and broader community levels)
Limited PCC involvement in inpatient care
Fragmented, diverse services, rather than an integrated delivery system
Limited financial integration across most providers
Limited health IT infrastructure and interoperability
Practice norms that encourage clinicians to act in silos rather than coordinate with each other
Complexity of coordination for patients with high levels of need and/or frequent self-referrals
Patient self-referrals about which the PCMH is unaware
Misperceptions regarding HIPAA provisions and limits to information exchange

As discussed above, the lack of financial incentives for care coordination and the fragmentation of the current system are probably the largest factors in the lack of communication and coordination across key actors in the neighborhood. First, the current fee-for-service (FFS) system limits reimbursement to procedures and those care coordination activities involving direct interaction with the patient (referred to as "evaluation and management") as well as clinical consultations between clinicians directly involved in that care. Other care coordination activities, which may be undertaken either by non-clinical staff or

clinical staff not directly caring for the patient, generally are not reimbursed and thus represent only costs (not revenue) for providers. Second, and perhaps more important, FFS as a general payment approach tends to reward an increased volume of services but does not recognize efficiency or improved clinical outcomes—providing few incentives for enhancements in care coordination that might result in efficiencies or improved health.

Other factors, however, also come into play, including limited PCC involvement in inpatient care and the lack of practice norms around clinician communication. A major focus in medical school and other health professions training programs is the ability to make independent clinical judgments and develop expertise in specific areas, and this may contribute to an overall culture in medicine that places relatively less emphasis on coordination, teamwork, and communication, as compared to some other professions. A procedurally focused payment system, combined with a lack of clarity on the respective roles of different types of clinicians in providing patient care, likely has contributed to the specialty-focused and fragmented nature of health care in the U.S., yet little dialogue has been devoted to this topic to date. The ACP's position paper on the interface between PCCs and specialists begins to tackle the issue, focusing largely on care coordination agreements (discussed in more detail below), and Forrest (2009) highlights the various roles that specialists can play in patient care. Moreover, self-referrals and secondary referrals currently are associated with a lack of information flow to the PCC (and likely the neighborhood generally). Finally, the overall complexity, diversity, and fragmentation of the wide range of services needed by patients are also major contributing factors, particularly when including community-based services as part of the medical neighborhood concept. These issues are sometimes exacerbated by misperceptions—by clinicians, practices, and health systems—about HIPAA limitations on information exchange among health care professionals (Wilson 2006). For example, PCCs sometimes cannot access test results from an ED visit without the patient or a family member traveling to the hospital and submitting a written release of records request, resulting in receipt of those results by the PCC weeks later.

Potential Approaches to Overcoming Barriers to High-Functioning Neighborhoods

A number of activities, policy options, and supports and facilitators may help to overcome many of the barriers to a high-functioning medical neighborhood (Table 2). We draw this list of potential activities and tools from our recent discussions with experts and our review of the literature. While financial incentives likely are necessary to promote substantial change, other policy options, supports, and facilitators can be used, separately or in combination. The effectiveness of these approaches, however, probably will vary based on what combinations are used; most are likely to be much more effective in the presence of financial incentives for coordination and communication across the medical neighborhood.

Workforce and Workflow Approaches

Medical homes and PCCs can take several approaches to adjust or augment their workforce and workflow to increase the functioning of the medical neighborhood.

Table 2. Potential activities, reforms, and supports to improve the functioning of medical neighborhoods

Activities to Improve the Medical Neighborhood

• Workforce/Workflow Approaches (All Clinicians)
  - Dedicated care coordination staff in the PCMH
  - Systematizing care coordination activities within the PCMH
  - Getting PCCs more involved in inpatient care
• Referral Practices and Care Coordination Among Clinicians (Primary Care Clinicians)
  - Referring to good neighbors
  - Appropriate referrals
  - Referral tracking systems
  - Establishing care coordination agreements
• Patient and Family Engagement and Education (All Clinicians, Patients, and their Families)
  - Patient education (through print or other materials) on medical home approach, referral process, etc.
  - Discussions with patients about their responsibilities in the PCMH
  - Use of decision aids about treatment options
  - Incorporating patient perspectives in the medical neighborhood

Reforms to Promote High-Functioning Neighborhoods

• Payment Reforms (Payers)
  - Direct payments for care coordination (e.g., medical home care management fees)
  - Payments for ACOs (e.g., shared savings, global payments)
  - Bundled payments for episodes of care
  - Pay-for-performance (P4P) for care coordination processes or outcomes
• Performance Reporting on Care Coordination (Payers, Community)
  - Quality measures on coordinating with others in the medical neighborhood, with feedback loop
  - Public reporting

Additional Supports and Facilitators

• Tools for Information Sharing (All Clinicians; Payers May Provide Resources/Grants/Requirements)
  - Increased use of health IT
  - Health information exchange and management
  - Electronic referral systems
• Professional Norms and Training (All Clinicians, Medical Schools, Professional Societies)
  - Training and continuing medical education on care coordination; board certification
  - Buy-in by professional, local medical, and specialty societies
  - Orienting hospitalists to the role of primary care and the PCMH
• Community Tools and Resources (All)
  - Use of pooled community resources for patient support (e.g., community health teams)
  - Community collaboration
  - Use of community-based information from multi-payer databases
  - Resource directories

Note: Key participants and decisionmakers for each type of activity, policy option, or support are listed parenthetically.

Assigning dedicated staff for care coordination and related tasks. While the PCMH and medical neighborhood concepts clearly involve new responsibilities for the primary care team, simply adding all of these responsibilities to the time-constrained PCC's list of duties is unworkable (Sinsky 2011). A number of PCMHs assign dedicated staff to many of the tasks involved in coordinating and communicating with others in the medical neighborhoods. For example, nurses or administrative assistants can make sure that the referral notes their office sends to specialists and the consultation notes they receive from specialists are complete. Many large primary care practices assign a nurse to serve as a care manager for complex patients (for example, elderly patients with multiple chronic illnesses) (O'Malley et al. 2009b). These care managers can develop care plans, educate patients on self-care and symptoms, coordinate with specialists on medications and other aspects of the care plan, and connect the patient with social services. In smaller practices where hiring a full-time (or full-time equivalent) nurse position may not be practical, care coordinators and managers who work for external organizations may serve many different practices. Financing for a nurse care manager or coordinator position could come through redirecting health plan money that historically has been spent on disease management vendors. For those in ACOs, the ACO may invest in care managers and coordinators for individuals with complex needs as a way to improve care and reduce costs.

Systematizing care coordination approaches within the PCMH. As primary care practices transform into medical homes, they will take on many new tasks to coordinate care for their patients. One approach to help make sure that practices routinely and efficiently perform these tasks for all of their patients is to develop written operating procedures. These procedures delineate who within the PCMH performs specific coordination tasks—such as making referrals—and how and when. Developing such procedures for care coordination is a natural extension of medical home accreditation processes, like those of the National Committee for Quality Assurance (NCQA), which require written procedures for other elements of the medical home, such as health IT and care management. One primary care expert noted that developing standard procedures forces the primary care staff—physicians, nurses, social workers, physician assistants, administrative assistants—to discuss and agree on how to handle key components of coordination, such as referrals and ordering lab tests. These standards also can increase efficiency by reducing confusion within the office, promoting appropriate delegation of tasks, and identifying key roles that need to be filled. For example, some practices have created "referral specialist" positions to aid in routinely identifying appropriate specialists for patients (O'Malley et al. 2009b). Another key advantage of developing internal procedures is that primary care offices can use them to develop pamphlets or other guides to share with their patients. These clearly explain how the medical home, and particularly its care coordination role, works. This can help patients to see the value of the medical home and their own role in helping to maximize the medical home's ability to keep them healthy.

Referral Practices and Care Coordination Agreements Among Clinicians

Clinicians in the medical neighborhood can take several steps in their referral practices that may help encourage a better functioning medical neighborhood, even in the absence of payment reform.

The following represent important ways in which referral behaviors between PCCs and specialists can promote coordination and communication in the neighborhood. Although we focus here on the ways that PCCs and specialists can work together to improve referrals, factors such as the supply of specialists

in a given market, referral preferences of the PCC and of the patient/family, and the available provider network of each patient's insurance plan clearly affect how well these approaches work. In reality, referral practices result from a three-way partnership among PCCs, specialists, and patients. Accordingly, engagement of patients in the care coordination process is discussed later in this chapter.

Referring to good neighbors. The practice of referring patients to those specialists who actively coordinate and even collaborate with the PCMH can provide an important incentive for specialty physicians. While the extent to which referrals currently are made this way is unclear (and undoubtedly varies by PCC and practice), some evidence exists suggesting that PCCs tend to refer to specialists who provide timely access for the PCC's patients, send back consult results to the PCC, and "release" the patient to the PCC after providing the necessary specialty care (O'Malley et al. 2009b). Strengthening these types of referral patterns could further promote a well-functioning neighborhood.[10]

A particularly innovative example of referring to "good neighbors" is the approach of Westminster Medical Clinic in Colorado. This practice has developed agreements with more than a dozen specialty groups and periodically scores each on four categories: (1) access, (2) care transitions, (3) care management, and (4) communication with patients. The practice then directs referrals to those clinicians who score high on these criteria and are designated as "preferred providers." While patients can choose to see specialists outside of the preferred clinician group, the clinicians at Westminster Medical Clinic tell their patients that going to other specialists likely will make care coordination more difficult and possibly limit the practice's ability to play an advocacy role. By and large, specialists have cooperated in this effort because of the improved efficiencies and quality in care from the referral of "prepared" patients (that is, patients accompanied by such information as a full patient history, labs, etc.) and the recognition of a potential increase in their referral pool (Hammond and Barba 2011).

Referring more appropriate cases. The use of a systematic referral process can help to ensure that patients are referred only when they require a specialist visit (as opposed to a case that could be handled by a PCC or one in which a PCC requires only a telephone consult with a specialist). This is likely to improve specialty access for those who really need it—a concern in those markets in which demand for specialist care exceeds supply—by allowing specialists to focus on cases appropriate for their expertise. While this may decrease specialists' patient volume, these more appropriate referrals may represent more complex cases, which typically are associated with higher reimbursement. For example, the e-Referral tool used in San Francisco's safety net system—discussed further below in the context of health IT—has focused on organizing referrals electronically and sorting those requiring specialty office visits from those that simply require a specialist's advice and guidance, thereby dramatically reducing the number of days to appointment and allowing specialists to focus on cases in which their expertise truly is needed (Chen and Yee 2011; Chen et al. 2010). Even in the absence of fully electronic systems, however, health systems, small communities, and others can establish standard protocols for referrals. For example, a small community in Maine that has been integrally involved in PCMH transformation recently developed

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[10] We assume that, in a well-functioning neighborhood, patients, primary care clinicians, and specialists have access to quality data and use this information in making referrals and developing care plans. We recognize, however, that clinical competence and active coordination and collaboration with medical neighbors do not necessarily go hand in hand.

universal referral forms and established protocols for PCC responsibilities prior to sending a patient for a specialist visit (e.g., providing relevant patient history) and specialist responsibilities in providing timely consultation and feedback of post-consultation notes after an office visit.

Establishing care coordination agreements. Care coordination agreements, also known as service agreements, help physicians formalize how they will work together, including their communications and clinical roles in patient care. More clearly defining the roles and responsibilities of PCCs and specialists could improve the functioning of the neighborhood substantially (ACP 2010; Forrest 2009).[11] The goals of the agreements vary and may include clearly outlining the expectations of each clinician, identifying when co-management of patients is necessary, ensuring appropriate information flow, and improving patient access to specialists (O'Malley et al. 2009b). These agreements should also address what steps can be taken to improve information flow from secondary referrals (that is, referrals by specialists to other specialists, which often occur without informing the PCC). Care coordination agreements have the potential to be useful tools in establishing a highly functioning medical neighborhood, given that "payment alone won't systematize the process," as one expert noted.

The ACP (2010) proposes the following guiding principles for developing care coordination agreements between PCCs and specialists:

- Define all types of referral, consultation, and co-management arrangements available.
- Specify who is accountable for which processes and outcomes of care.
- Address how secondary referrals will be handled.
- Develop a mechanism for regular review of the agreements' effectiveness.

Implementing service agreements is most likely to be feasible when there are pre-existing relationships between clinicians. Given that such relationships typically are the foundation for effective communication and care coordination, developing formal agreements *in the absence of existing relationships* may serve as a means of starting the conversation about coordination and communication. A formal agreement alone, however, may have a limited impact; as one expert cautioned, "a piece of paper can't create culture." Other factors also may present challenges. For example, some specialists may see patients from a wide range of geographic areas. Conversely, a PCMH's panel of patients may see hundreds of other clinicians (Pham et al. 2009) and, in geographic regions with many small practices, the logistical complexity of working with many clinicians is likely to make establishing service agreements a significant challenge (O'Malley et al. 2009b). In light of these considerations, care coordination agreements will require some standardization, including standardized communication protocols (Yee 2011).

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[11] Forrest (2009) enumerates the various roles of the specialist as follows: (1) cognitive consultation, in which the specialist provides advice on diagnosis, treatment, or prognosis; (2) procedural consultation, in which the specialist performs a technical procedure or surgery; (3) co-management, in which the specialist provides shared care with PCP for the patient; (4) co-management, in which the specialist provides principal care to the patient; and (5) in rare circumstances, serving as the patient's primary care physician and medical home.

Whether the concept of care coordination agreements will take hold broadly—particularly in the absence of associated payment or a third-party payer's request to do so—remains an open question. Nonetheless, trusting relationships between neighbors in the system, and a mutual understanding of how they will coordinate patient care, are essential to effective care coordination. The process of negotiating agreements may contribute to building these relationships and understandings. In the words of one expert, "it's less about the care coordination agreements themselves and… more about the relationship that happens during the negotiations."

Care Transitions

A highly functioning medical neighborhood also can implement activities to improve care transitions for hospitalized patients to the home or other settings. Many hospitals are beginning to implement interventions focused on discharge planning and post-discharge followup, with an emphasis on reducing readmissions. There is an increasing focus on involving other stakeholders in the community in these efforts as well (Bisagano and Boutwell 2009; Boutwell et al. 2009; Hayes et al. 2010; CMS 2010).

A high-performing medical neighborhood should incorporate the PCMH in these care transition efforts, with activities led jointly by hospitals, the PCMH, relevant specialists, and other clinicians. For example, hospitals and attending specialists or hospitalists should inform and consult with the PCMH about discharge plans for their patients, and they should work together to ensure that discharged patients get appropriate followup care. Experts in our discussions noted that, as a first step, hospitals could, at a minimum, more routinely (1) inform PCCs when their patients have been hospitalized, (2) let them know when patients are discharged, and (3) provide copies of the discharge status and plans. Post-discharge medication management is another key activity that should involve PCMHs, given that information about post-discharge status and instructions for followup care are critical for good care coordination. Routine communication from hospitals to PCCs or from insurers to PCCs about a hospital admission and discharge of their patients—even in the form of a daily communication (e.g., by e-mail, telephone, or fax)—is considered a relatively easy first step that still is uncommon in most settings. Simply transferring information from the hospital to PCCs, however, is not sufficient. Active collaboration and partnership is necessary for managing care transitions well, and appropriate financial incentives would almost certainly be required for this type of collaboration to become common.

Another alternative for improving care coordination and communication with hospitals is for primary care clinicians to become more directly involved with inpatient care (as was the case before the rise in hospitalists in the 1990s). For example, PCMH models that provide resources and incentives to allow primary care teams to care for patients in the hospital may help improve care transitions. A clearer understanding of, and research on, the optimal role of the PCMH in terms of leadership and care coordination in inpatient care is needed. Specifically, a better understanding of the possible approaches and the tradeoffs involved with each—in terms of access, quality, cost, and patient experience—would be useful. For example, having physicians and other clinicians focusing exclusively or almost exclusively on ambulatory care likely leads to increased primary care access and greater efficiency for the PCC, but also decreases continuity of care and increases the complexity of care transitions. The PCMH's focus on team-based care, however, may allow for the primary care physician to devote more time to inpatient care while other members of the team take on additional responsibilities in the outpatient setting.

Patient and Family Engagement and Education

A highly functioning medical neighborhood also depends on patient and family engagement in the system (Sinsky 2011; ACP 2010). Patients need to see the value of the medical home and the broader neighborhood so they will seek their ongoing care from the medical home and work together with their PCCs to make shared decisions. (See Scholle et al. 2010 for more discussion of patients engaging with the PCMH on shared decisionmaking.)

Educating patients on the value of a well-functioning medical neighborhood. Medical homes can take several steps to foster patient and family engagement. The first is to educate patients on the value of a well-functioning medical neighborhood. For example, one practice that recently transformed into a medical home gives patients a clear description of the practice's neighbors. This medical home also describes how solid connections with neighbors are in patients' best interest because they allow PCCs to provide the most comprehensive and informed care over time. A tangible side benefit of developing educational materials for patients is that it forces practices to think hard about who their neighbors are and come to an agreement internally about the ways that greater coordination adds value for the patient.

Talking with patients about their responsibilities in the medical neighborhood. While in the ideal neighborhood the responsibility of care coordination falls primarily on the PCMH and not the patient, the patient is the only one who actually sees and communicates with most of the clinicians in their personal neighborhood. This is particularly the case when patients self-refer to specialists or are cross-referred to other specialists who do not routinely communicate with the primary care practice. The PCMH and the patient should discuss their respective roles and agree upon the patient's responsibilities. For example, when patients do self-refer or accept cross-referrals between specialists, their responsibilities should include communication about those services to the PCMH (Pham 2010).

Increasing the use of patient decision aids. Another support that PCMHs may find helpful is shared decision aids, such as those developed by the Foundation for Informed Medical Decision Making, Healthwise, the Ottawa Patient Decision Aid Research Group, and others. These educational materials provide objective information about the treatment options available for a particular condition, such as colorectal cancer screening or joint pain. The educational videos and pamphlets help patients sort through the pros and cons of different treatment options, allowing them—in consultation with their primary care clinician—to reach a more informed decision about the treatment they would like to pursue. Besides reducing the potential overuse of specialist intervention, these decision tools can be useful to specialists because they ensure that the patients they end up seeing are firmly committed to the treatment approach and better understand the risks and side effects.

Incorporating patient perspectives in the medical neighborhood. More direct engagement of patients is another useful way to ensure the medical neighborhood meets the needs of its key stakeholder: the patient. Patients can contribute to a higher-functioning neighborhood in several ways, at varying levels of patient involvement, and these contributions are similar to the ways patients might engage in the medical home (Scholle et al. 2010). First, and requiring the lowest level of involvement, patients can respond to surveys about their experience of care coordination and their impressions about whether and how primary care practices coordinate with other clinicians. Second, patients can participate in focus groups or advisory councils to help individual practices assess whether specific quality improvement efforts have

improved or will improve patients' experiences. Finally, patients can actively serve on advisory councils to guide overarching policies through which medical homes will coordinate care and interact with other clinicians, hospitals, and community organizations. The model of federally qualified health centers having patient advisory councils and patients on their boards could be a useful one for PCMHs. One expert noted that, in particular, patients should serve on boards for newly forming ACOs. The boards (or similar governing bodies) for ACOs will make many key decisions, including who is included in the organization and how any financial incentive payments and risks are divided among the participants. Key parts of the joint principles for ACOs—supported by the American Academy of Family Physicians, American Academy of Pediatrics, ACP, and the American Osteopathic Association—highlight the need for incorporating patient preferences and patient input into ACO design, governance, and clinical care processes (AAFP, AAP, ACP, and AOA 2010). Patients can help to ensure that their interests, and the clinicians they believe add the most value to their care, are well represented in the boards' discussions and decisions. Given that many of these patient engagement activities require significant investments of time and energy, it may be appropriate and necessary to compensate patients for their contributions.

While incorporating patient preferences into the PCMH in the ways described above is important, patient choice of clinician remains one of the most fundamental aspects of patient preference. In a well-functioning medical neighborhood, patients should continue to have the right to decide whether, how, and by whom their care should coordinated, and who participates in the extended health care team.

Health Reforms to Promote a High-Functioning Medical Neighborhood

Experts with whom we spoke noted that many of the care coordination activities discussed are unlikely to occur without introducing new financial incentives and accountability measures that encourage clinicians to act as good neighbors in medical neighborhoods. The existing FFS system and a lack of transparency and accountability for performance tend to encourage "business as usual." At the same time, experts acknowledge that there is little evidence about exactly how incentives should be reformed, or which changes are most critical for improving medical neighborhood functioning. Most of the reforms are in the early stages of development, and many of them—especially payment reforms—first will be implemented as pilots to test what works best for achieving desired outcomes. The following discussion highlights some of the reforms currently under development and how they might shape improvements in the functioning of medical neighborhoods. From our perspective, financial incentives are likely the most important of those discussed below, although other tools—perhaps most notably health IT—also are necessary.

New Financial Incentives for Care Coordination

It is widely recognized that the current FFS payment system provides few incentives for the improved care coordination and patient outcomes envisioned in a high-functioning medical neighborhood, especially given the current emphasis on reimbursement for procedures. Payers do not reimburse most care coordination services—other than direct evaluation and management of patients.

To address misalignments in the existing payment system, a number of payment reforms are now being proposed and tested. All of the reforms are intended to either reward or directly pay for important care coordination activities or achievement of the outcomes that should result from these activities. Table 3 summarizes possible payment reforms.

Payment strategies supporting ACOs are perhaps the most prominently discussed reform in today's policy debates. The concept of an ACO has received much attention recently as a way to promote accountability for population health and reduce costs while maintaining or improving quality through increased care coordination and other means. ACOs in which medical homes play a central role have the potential to create high-functioning medical neighborhoods.

At the same time, available mechanisms or approaches for improving the medical neighborhood are broader than ACOs and several have their roots in concepts that have existed for decades (Gold 2010). Moreover, many of the approaches described below could work in the presence or absence of ACOs.

Specific proposed ACO payment strategies range from "shared savings," combined with pay-for-performance (P4P) approaches built on existing FFS, to more comprehensive financial risk-sharing approaches with strong incentives for cost containment, such as partial capitation and global payments to ACO entities representing a diversity of providers (Miller 2009). Some have argued that ACO payment systems should evolve over time from initial shared savings models to global payment models with quality performance incentives, as payers and providers gain more experience and are willing and able to share more performance and financial risk (Massachusetts Special Commission on the Health Care Payment System 2009) or, in some cases, should be targeted differentially according to the level of readiness (Merlis 2010). Policymakers and researchers are also paying increasing attention to the alignment of payment reforms that can support PCMHs and improvements in the broader health care system, such as specific payments to PCMHs along with others such as global payments, episode-based payments, or shared savings payments to ACOs (Barr 2010).

However, at least in the short term, there is little expectation that ACOs and their associated payment approaches will dominate most markets. For this reason, policymakers and payers also are considering other reforms that can provide better incentives for care coordination and higher functioning medical neighborhoods in the absence of ACOs. These include P4P approaches for specialists focusing on aspects of performance that relate to coordination with primary care and other specialists, in addition to technical quality of care provided in the office. Alternatively, specialists might be paid directly for care coordination activities with PCMHs that currently are not reimbursed at all, such as routine communications about patients after referrals from the PCMH. Other reforms include bundled payments for physician, hospital, and other services for different clinical episodes of care—such as those occurring around an inpatient hospitalization; these should provide better incentives for teams of clinicians (across settings) to work together in managing those episodes. New incentives for hospitals to reduce readmissions may increase coordination among facilities and clinicians, given growing evidence on the effects of good followup care following hospital discharge on reducing readmissions, if incentives are shared appropriately with the PCMH (Coleman et al. 2006; Jack et al. 2009; Naylor et al. 2004; Naylor et al. 1999).

Table 3. Payment reforms to enhance incentives for a better functioning medical neighborhood

Payment Reform	How It May Help Medical Neighborhood Functioning	Examples
ACO shared savings, partial capitation, or global payments	Incentives for shared accountability for performance Incentives for better overall management of care and reductions in unnecessary, high-cost care, as well as improved preventive and chronic care	Medicare Physician Group Practice demonstration Blue Cross Blue Shield of Massachusetts' Alternative Quality Contract Program of All-Inclusive Care for the Elderly (PACE)
Pay-for-performance (care coordination) Direct payments for care coordination activities	Incentives for individual specialists, hospitals, and other providers to coordinate their care with primary care and across settings	Medicare hospital readmission payment reforms; penalties for hospitals with high readmission rates PCMH payment models with new care management fees Care transition community grants HITECH meaningful use incentives for care coordination (e.g., evidence of use of transition in care summaries)
Bundled payments for clinical episodes of care	Incentives to form teams of primary care clinicians, specialists, and/or hospitals to share risk and joint accountability for financial and quality performance in managing different types of clinical episodes of care	Geisinger's ProvenCare Prometheus pilot demonstrations Medicare Acute Care Episode (ACE) payment demonstrations

Sources: www.cms.gov/DemoProjectsEvalRpts/downloads/PGP_Fact_Sheet.pdf
www.qualityaffordability.com/solutions/alternative-quality-contract.html
www.cms.gov/HealthCareFinancingReview/downloads/09SummerPg1.pdf
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https://www.cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/Medicare-Demonstrations-Items/
CMS1204388.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=ascending
http://www.cms.gov/EHRIncentivePrograms/Downloads/8TransitionofCareSummary.pdf

For payment strategies to work effectively, a number of conditions must be present. First, many reforms require more detailed clinical data on performance than is currently available, or at least better access and reporting of existing data. Second, new risk adjustment methods need to be developed, especially for reforms holding providers at risk for costs or clinical outcomes, to guard against unfairly penalizing providers with sicker patients, and conversely, providing incentives for "cherry-picking" healthy patients. Third, adequate sample sizes and the size and consistency of the incentives themselves are necessary for well-functioning reforms. This is likely to require multipayer efforts (in which financial incentives are aligned across a number of payers) to ensure a sufficient and clear signal to the clinician and health care system. Finally, payment reforms should be designed to be consistent with and reinforce the incentives provided within PCMH payment reforms themselves.

Measuring and Reporting on Care Coordination Performance

In a well-functioning medical neighborhood, primary care clinicians, specialists, patients, and purchasers should all have relevant and appropriately-communicated information about quality of care for use in decisionmaking. Performance measurement and reporting in the area of care coordination specifically are potentially important tools for improving the functioning of the medical neighborhood (see Table 4) and may be tied directly to financial incentives. Public reporting and/or confidential feedback to clinicians on quality and efficiency measures can increase awareness of the existence of medical neighbors situated around PCMHs and should inform decisionmaking and enhance transparency among stakeholders. For example, performance measure reporting may help to inform PCMHs' and patients' understanding of areas of their neighborhood that are working well and those that are not. Reporting on performance measures also can help payers in making contracting decisions and implementing certain types of the payment models discussed above, such as P4P with a focus on improving care coordination and reducing the provision of duplicative and unnecessary services.

Measure development in the area of care coordination is a high priority for measure developers but is still in its early stages. Recent work sponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Quality Forum (NQF) has led to important advances in establishing priorities and actionable measurement frameworks (AHRQ 2011c; NQF 2010). This work illustrates the many measures available that address important dimensions of performance measurement.

A recent report by AHRQ (2011c), the Care Coordination Measure Atlas, provides an overall framework for care coordination measurement, documenting and mapping more than 60 existing measures to key care coordination activities and the differing perspectives of patients/families, health care professionals, and system representatives. Recent work by NQF's (2010) National Priorities Partnership focuses measure development priorities on the following goals: (1) improve care and achieve quality by facilitating and carefully considering feedback from all patients regarding coordination of their care, (2) improve communication around medication information, (3) work to reduce 30-day readmission rates, and (4) work to reduce preventable ED visits by 50 percent. The measures highlighted in this work focus on coordination in specific areas of clinical care, such as cardiac rehabilitation, stroke, and cancer, as well as transitions from inpatient to other settings.

Table 4. Performance measures relevant to the medical neighborhood

Performance Measure	Relevance to the Medical Neighborhood	Existing Examples
Structural measures Evidence of the meaningful use of health IT, such as electronic medical records (EMRs), e-prescribing, or health information exchange Evidence of care coordination agreements between clinicians	Provides evidence that physician practices in the medical neighborhood have the capacity for enhanced communication and access to patient information through health IT Provides evidence that clinicians are aware of who their "neighbors" are and have jointly developed proactive approaches for sharing information and care responsibilities	HITECH "meaningful use" measure on practice capacity for electronic exchange of clinical information Key domains in NCQA's current Physician Practice Connection tool and future adaptations for subspecialty practices, such as evidence of advanced electronic communication
Process measures Development and implementation of care plans Frequency of communication with other clinicians Transfer of appropriate patient history and lab information upon referral to specialist by PCCs Timeliness and quality of consultation notes by specialists to PCCs	Provides evidence that practices are developing care plans for patients and providing communication to other clinicians to enhance care coordination in the medical neighborhood Moves beyond structural measures of capacity (above) to assess whether adequate information flow and sharing of care responsibilities actually occurs for individual patients	CMS's Physician Quality Reporting System measures, including (1) communication between ophthalmologists and primary care physicians managing diabetes care, (2) communication between orthopedists and primary care clinicians about hip fracture and recommendation of testing for osteoporosis, and (3) medication reconciliation by primary care clinicians following hospital discharge

Table 4. Performance measures relevant to the medical neighborhood

Performance Measure	Relevance to the Medical Neighborhood	Existing Examples
Appropriateness, Overuse, or Efficiency measures		
Duplication of services	Indicates the extent to which clinicians can share existing lab and imaging results rather reordering tests based simply on current convenience	Rates of advanced MRI imaging for low back pain, without evidence of prior more conservative therapy/evaluation. CMS hospital outpatient measure
Provision of unnecessary/ efficient services	Provides evidence that clinicians share all relevant clinical information and best practices to avoid unnecessary services	
Outcome measures		
Rates of hospitalizations for ambulatory sensitive conditions	More highly functional medical neighborhoods with improved care coordination should achieve lower rates of preventable hospitalizations and readmissions	AHRQ Prevention Quality Indicators
Rates of preventable readmissions		Readmission rate measures for congestive heart failure, pneumonia, and acute myocardial infarction patients for CMS's Reporting Hospital Quality Data for Annual Payment Update program
Patient experience measures		
Patient reports on care coordination	Patients in well-functioning medical neighborhoods should be more likely to report care coordination and care transition management efforts	Health plan, hospital, or medical group CAHPS survey items on domains of care coordination*
Patient reports on care transitions		Coleman Care Transitions Measure

*CAHPS-PCMH measures are slated to be released in summer 2011 (see AHRQ 2011d).

As these recent reports highlight, both clinical records and patient-reported measures of experiences with care coordination could become important sources of information on system functioning in the future. Emerging comprehensive performance measures for ACOs also will have important applications to medical neighborhood performance measurement. In addition, existing or future outcome measures, such as preventable hospitalization and readmission rates, are important potential indicators of neighborhood functioning.

Despite a growing body of care coordination measures, widespread and aligned use of the measures has not yet occurred. A number of key challenges for measure development and reporting on medical neighborhood performance remain to be addressed. These include developing a comprehensive enough set of measures to address the multifaceted aspects of performance while avoiding information overload and finding the right mix of structure, process, and outcome measures to provide a complete picture. The usefulness of process measures, such as indicators of how often specialists provide information on referred patients back to PCMH practices, also may be limited by the amount of detail or nuance provided in the measures. For example, a simple measure may indicate that specialists communicate often with PCMHs, but the quality or timeliness of that information still might be poor. At the same time, outcome measures can provide useful "bottom-line" indicators, but outcomes often are less specific; that is, they may be the result of factors other than medical neighborhood/care coordination functioning—such as poor clinical quality of care by individual clinicians. Finally, regardless of measure type, performance measures are dependent on data, and ultimately measures are only as good as the data that underlie them.

Additional Supports and Facilitators

A number of mechanisms and facilitators could help support communication and coordination in the medical neighborhood. While they do not represent incentives per se, they nonetheless may be important tools for use along with financial and nonfinancial incentives.

Tools for Information Sharing

Health IT has significant potential for facilitating physician efforts to coordinate patient care in the medical neighborhood. In fact, many agree that health IT is a primary, if not the most important, support tool available. Interoperable electronic health records enable PCCs and specialists to share information, such as a patient's medical history, current problem and medication lists, diagnostic testing and laboratory results, and care plans (Moreno et al. 2010). Although many current health IT systems are not interoperable, physicians still can take advantage of existing health IT by using workarounds such as e-mailing exports from a patient's EMR. However, some experts also caution that health IT can hinder real-time communications between patients and physicians (O'Malley et al. 2010). Educating physicians about how to integrate new technologies into the care process most effectively and appropriately can mitigate these concerns.

Information exchange and management. While health IT has tremendous potential, it requires many refinements to reach that potential; in the words of one expert, "having [health] IT gives you the potential to share information but you have to figure out how to do it well and right." In the current environment, the ease of electronic information exchange allows transmittal of large amounts of information that is not always relevant, resulting in information overload (Sinsky 2011). Health information must be shared in a clear and concise format to be most effective, as managing large amounts

of data is challenging for time-constrained physicians and practices. Physicians who share information need to come to common understandings of what should be shared. Importantly, not everyone with whom we spoke agreed on the types of information that should be transferred in ideal interactions. Building in supports to manage information flow as health information systems are refined should help to meet this challenge. Providing clinicians the right information at the right time—often during the point of patient contact—is key.

Statewide or community-focused health information exchanges (HIE) are a rapidly growing formal structure for enhancing information exchange. Many are now in development, but others have existed for many years.[12] For example, the Santa Cruz HIE was developed in 1990s by the Santa Cruz Medical Group (an independent practice association), local hospitals, and the Santa Cruz county health department to provide all participating providers with confidential Internet access to clinical information for patients they share in common (Beighe 2008). The HIE effort is currently in the process of linking local participants' individual EMR systems to the HIE. The exchange allows clinicians to access information on services provided in other settings more efficiently and can reduce the potential for the ordering of duplicative tests or procedures. From 2004 through 2010, AHRQ invested in the development of six statewide model HIEs, lessons from which are the basis for current large national investments. In general, HIEs have strong potential to improve coordination among providers, providing a platform for managing transitions, sharing information, and making joint decisions about care, but research to date is limited on the extent to which HIEs have been associated with care coordination, perhaps in part because many HIEs are still in development.

Electronic referral. Electronic referral systems constitute another health IT tool that can improve patient care. Electronic referrals not only enable efficient information transfer but, by providing specialists with clinical information ahead of a patient visit, can enable specialists to triage appointment scheduling—allowing them to see the most urgent patients first (Chen et al. 2010). Some electronic referral systems also allow primary care clinicians to ask specialists questions and the specialists to give management advice (Forrest 2009). Given that the transfer of clinical referral information through patients themselves often leads to muddled or missing information, electronic referrals can have a significant impact on a specialist's ability to provide the most appropriate care for a patient.

Improved functionalities over time. While much progress has been made in health IT in recent years, many of the experts consulted noted that current systems need to advance into "second generation" systems that are fully interoperable and make it easy to share information across sites of care. Because of current payment policy, EMRs have evolved in such a way that they are quite useful for documentation but not data sharing and care coordination (O'Malley et al. 2009a). Standardizing the key data elements required for information exchange holds promise to improve this situation (O'Malley et al. 2009a). Systems also can evolve to assist physicians in managing patient care over long periods of time by enabling entry of information about future care and services. For example, systems can allow for incorporation of future care plans and reminders for important tests needed months or years away. Transformative thinking on the use of health IT could enable more creativity, but even more basic steps forward—such as creating reminders for preventive screening tests—will add further value to health IT.

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[12] See, for example, http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov__state_level_initiatives/1154

Linking public health and clinical data. The development of electronic health information that can be shared beyond an individual practice also presents opportunities to connect to the existing public health data infrastructure. The population health management goals of the medical home and neighborhood necessitate stronger connections between clinicians and public health departments. The ability to share information and data between these traditionally separate entities can facilitate development of new relationships and management techniques. However, privacy and security concerns—which are present for all health IT uses but particularly critical when data are shared broadly and linked to other sources of information—are important considerations that must be addressed.

Tools for Collaboration Between Primary Care Clinicians and Their Neighbors

Several approaches may be useful in increasing collaboration between specialists and PCCs. These include telemedicine and virtual consultation or case meetings on a panel of patients (Yee 2011; Forrest 2009). In addition, specialists can meet with primary care clinicians and coach them on how to handle particular diagnoses or conditions that frequently occur among the practice's patients. This reserves consultations and referrals for the cases that require direct specialist involvement. In addition to being tangible manifestations of greater coordination, these approaches—because they involve PCC and specialist interaction over time—can help cement relationships that facilitate further coordination efforts.

A high-functioning medical neighborhood also can serve as a learning community that leads to relationships in which PCCs and specialists effectively co-manage care. For example, Project ECHO (Extension for Community Healthcare Outcomes), a health care program targeted to rural and underserved populations in New Mexico, uses specialists to train rural providers, giving them technical competencies to serve vulnerable patients with chronic and complex diseases.[13] This type of collaborative, learning community can help move the medical neighborhood from a focus on providing individual care to an emphasis on mutual responsibility for population health.

Professional Norms and Training

Changing the way clinicians and administrative practice staff interact both with one another and others in the neighborhood is crucial to facilitating more care coordination. Current education and training does not emphasize working in teams, communicating between sites of care, co-managing patients, and developing a shared understanding among various clinicians on their clinical roles and responsibilities. Professional norms, which are developed as part of clinicians' education, training, and certification, and through peer interactions and professional society values, must evolve to focus on coordinated, integrated care if the medical neighborhood is to succeed. In addition, there may be a role for local medical societies and hospital associations in promoting this orientation toward improved care coordination across the medical neighborhood.

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[13] See http://echo.unm.edu/index.shtml for more information.

Training and continuing medical education for clinicians. While physicians traditionally have not been trained to work in teams and coordinate care with other clinicians during medical school, some initial efforts to change this are underway. A coalition of organizations representing primary care physicians (AAFP, AAP, ACP, and AOA) recently announced joint principles supporting the development of a medical school curriculum that prepares physicians to work in PCMHs. The principles include the need to train physicians to take leadership of health care teams, communicate with all health care team members, and coordinate care, including the use of community-level resources (AAFP et al. 2011).

Education and training for nurses (including advanced practice nurses) and physician assistants (PAs) also need to integrate the skills vital to leading or working in teams and community settings. Throughout a report summarizing a recent conference on training of primary care clinicians, the Josiah Macy Jr. Foundation cites the need for interprofessional education and learning to work in teams for all PCCs (Cronenwett and Dzau 2010). A joint report by the Institute of Medicine and the Robert Wood Johnson Foundation notes that most nurses are trained in hospitals with a focus on acute care. It proposes residency programs outside of acute care settings to train nurses in playing a larger role in providing care at the community level (Institute of Medicine 2010).

Clinicians also need to be trained in the necessary skills to manage internal practice teams of nurses, physicians, care coordinators, and health educators. Specifically, under a team-based care model, clinicians need to motivate others, engage in cooperative goal setting, manage team dynamics, and review performance data. Residency programs can integrate such skill building into the curriculum. For example, Boston's Brigham and Women's Hospital has a management track for physicians to develop management skills along with clinical proficiency (Bohmer 2010).

Orienting hospitalists and other hospital-based specialists on the role of primary care and the PCMH. Given the central role that hospitalists now play in inpatient care, increasing their orientation to the PCMH is key to improving the functioning of the neighborhood. Many hospitalists now begin their careers in this role and have limited understanding of primary care, let alone the PCMH model. One approach is to require hospitalists-in-training to spend time during training in outpatient specialties and primary care offices. Another approach that draws on advantages of the hospitalist model, while still enhancing hospital-PCC coordination, is for PCCs to serve as part-time hospitalists as part of their practices. In either case, it is critical to establish lines of communication and develop protocols for care coordination between hospitalists and PCCs.

Community Tools and Resources

Although available community tools and resources for improving the functioning of the medical neighborhood are not as developed as other supports, several hold promise, while also reflecting the specific circumstances of their communities. These tools and approaches also may help to encourage an increased focus on population health by allowing clinicians to think broadly and collectively about the community they serve.

Community health teams. For small and/or rural primary care practices, the approach of making dedicated staff available for care coordination activities may be infeasible because of resource constraints or the lack of economies of scale. Pooling resources for care support staff, or teams for the broader community, may be possible in some settings, however. For example, the concept of community health teams emerged in Vermont as part of the State's health reform efforts. These are multidisciplinary teams that provide general patient care support while also focusing on population health management, and insurers in the State share the costs. The first community health team was piloted in Burlington, and the concept has since spread to the rest of the State. Each community health team will help coordinate care for 20,000 patients. The composition of teams varies across the State, depending on local needs, but typically includes a nurse care coordinator, a social worker, a dietitian, and a health educator. This type of program will receive support through implementation of Sections 2703 and 3502 of the Affordable Care Act.

Community collaboration. The use of collaboratives or working groups of various stakeholders in the medical neighborhood is another approach to strengthening the neighborhood and can be particularly useful in engaging a broader set of stakeholders. For example, a program in Calhoun County, Michigan, known as "Pathways to Health" brings together physicians, employers, insurers, and community agencies on a monthly basis to focus on how to improve chronic care in the community. While the group originally emphasized the Chronic Care Model, its thinking now incorporates the PCMH concept. As part of this program, employers have begun to use value-based insurance design to incentivize adherence to recommended clinical guidelines. Community agencies are working with physicians to improve care transitions, medication reconciliation, and patient self-management. The group also is in the process of creating a "community portal" in which various stakeholders (for example, clinician and social service agencies) will share information on high-risk patients.

There also is limited evidence of strong connections between PCCs and national or local public health agencies, for example, in transferring information in either direction on emerging infectious diseases or best practices in preventive services. Some examples include the use of community referral liaisons in Michigan (AHRQ 2011a) and a "Steps to Health" community coalition in King County, Washington, consisting of a large number of community-based organizations, health care clinicians, hospitals, health plans, government agencies, and others (AHRQ 2011b).

Although research on how best to develop community partnerships is limited, some early work does exist. For example, Prescription for Health, an initiative implemented in Practice-Based Research Networks supported by AHRQ and the Robert Wood Johnson Foundation, funded several projects to develop clinical and community partnerships to enhance the delivery of preventive services. A program evaluation of the project's impact developed a model for linking practices and community resources and analyzed what factors hindered or helped partnerships to develop. The study concluded, however, that more research and funding are needed to understand how best to link community resources and clinical sites (Etz et al. 2008).

Community-based information. Almost all of the tools and mechanisms discussed in this paper focus little, if at all, on population health. One key way of using community-based information to encourage a population health emphasis is through multi-payer databases that are being developed in several States (such as Massachusetts, Maine, and Utah). Such databases may be useful tools in tracking population health and health needs in the community writ large. To the extent that information from such databases can be examined at the community level and presented to PCCs and specialists serving the community, clinicians can better understand the overall health care needs of the community they serve. While multi-payer databases historically have focused on those who are privately insured, many are now beginning to include data on those in Medicaid and Medicare. The lack of information on the health care services used by the uninsured, however, remains an important issue.

Chapter 4. Conclusions and Future Research

The medical neighborhood in its current form is highly fragmented, with little coordination among the myriad clinicians and institutions. Experts interviewed for this paper agree that primary care—and increasingly a PCMH as the provider of that primary care—should be at the core of the neighborhood, but for many patients it is not. Without a medical home, patients and their families often are left to navigate the system on their own. The current functioning of the neighborhood largely reflects the FFS environment—in which few or no incentives exist for care coordination activities—and an historical emphasis on specialty-based medical practice in independent small groups or solo practice. Other factors, however, including existing professional norms and a lack of tools to share information across clinicians, also play a role in the way the medical neighborhood currently functions.

 In this paper, we outline several reforms, tools, and supports that could help encourage a high-functioning medical neighborhood. A more highly functioning neighborhood would involve such changes as team-based approaches for primary care and specialty care, new referral arrangements and care coordination agreements, and new tools for enhancing patient engagement. No single tool or policy reform on its own is likely to bring fundamental change, but some changes may be essential. From our perspective, payment reform that encourages coordination of care across neighbors is the most fundamental component. Without it, substantial progress toward better functioning neighborhoods will be almost impossible. Moreover, health IT is a tool that likely is a necessary component as well—but insufficient on its own. In the words of one expert, "health IT is the Holy Grail to bring neighborhoods together, but I don't see that happening until payment changes." Other considerations, such as training clinicians in coordination of care and changing the culture across primary care/specialist communication and collaboration, are important supports—but may evolve on their own if payment reform occurs.

Although each of the tools and reforms discussed here may help improve the functioning of the medical neighborhood on its own, and in some cases may be necessary for those improvements, it also seems likely that these tools will be most effective if implemented together in ways that are reinforcing. For example, a reformed payment system should help to provide incentives for the use of health IT and reporting on performance, and each of these may help improve clinician communication and coordination. Yet at the same time, health IT and performance measurement and reporting will be critical components in supporting the development of the new payment models. Similarly, training and workforce approaches that focus on teamwork and communication will be more likely as health care markets increasingly provide incentives for these attributes. Conversely, clinicians exposed to these new emphases in training or those willing to delegate certain responsibilities to other staff also may be more likely to engage readily in new payment approaches, performance reporting activities, and team-based approaches to care.

This paper highlights a number of areas for future research and evaluation. Past research has shown how certain tools—such as patient decision supports, care transition interventions, payment reforms, and public reporting on performance—may result in improvements in particular patient outcomes within specific settings. Despite broad agreement that reforms in these areas are essential, however, little is known about precisely how these tools can be used to establish better connections and enhance care coordination

efforts among all of the actors in the medical neighborhood, and to what effects. Future research can address not only whether payment reforms result in reductions in costs or hospitalization rates, but also whether these outcomes were achieved through new initiatives in care coordination. In addition, a more thorough understanding of what tools work best in what markets is important. Geographic areas in the U.S. differ dramatically in clinician work force, practice patterns, insurance industry concentration, and emphasis on primary care, among other factors, and these are likely to affect which tools and approaches are most appropriate, and their effectiveness in improving the functioning of the medical neighborhood. With focused attention, a well-organized health care system that supports high-functioning medical neighborhoods with primary care medical homes at their core can benefit all Americans.

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