

The Complexity, Diversity, and Science of Primary Care Teams

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This article examines the past, present and future of primary care and teamwork. It begins with a definition and description of primary care—its uniqueness, diversity and complexity, including the historical role of teams within primary care. The article then reviews the emergence of innovative primary care teams, including those grounded in new processes such as the Patient-Centered Medical Home and interprofessional teams that include new types of health professionals, particularly psychologists and other integrated behavioral health clinicians. The article describes key factors that support or hinder primary care teamwork, as well as evidence of the impact of these team-based models on patient outcomes, costs, and team members. It also discusses the role of primary care teams within multiteam systems (or ‘teams of teams’), which are organized around the needs of patients and families, and the unique challenges these systems pose to coordinating care. The article concludes with recommendations for advancing teams in primary care, including changes in payment, descriptions of team competencies, models for primary care team training, and research necessary to inform the gaps in scientific knowledge.

Keywords: primary health care, patient care teams, interprofessional practice, mental health, behavioral health

Traditionally, health care has been organized around a patient’s face-to-face visit with a physician. In that model, nurses, medical assistants (MAs), technicians, and secretaries function to support the work of the physician. This tradition, idealized by television’s Marcus Welby, is antiquated. Just as in other workplace domains, health care has become more complex, with acceleration in scientific discoveries and an overwhelming amount of available data from online resources and electronic health records (EHRs). As a result, interprofessional team-based health care is now needed in everything from surgery to primary care to bring

together relevant expertise that can no longer be represented in one professional discipline (Coleman, Wagner, Schaefer, & Reid, 2016; Mitchell et al., 2012). A prime example of this is the teamwork needed to integrate behavioral health into primary care (McDaniel & deGruy, 2014).

This article describes the past, present, and future of primary care and teamwork—the people, their roles, processes, functioning, and key challenges. For this purpose, our definition of *teams* is as follows: “a set of two or more individuals that adaptively and dynamically interact through specified roles as they work towards shared and valued goals” (Salas, Dickinson, Converse, & Tannenbaum, 1992, p. 4). Teamwork, then, refers to the “dynamic, simultaneous and recursive enactment of process mechanisms which inhibit or contribute to team performance or performance outcomes” (Salas, Stagl, Burke, & Goodwin, 2007, p. 190). The first half of the article brings everyday primary care to life by describing its complexities in some detail, because these unique qualities define the skills, tasks, and membership needed for successful primary care teams. We also describe the expansion of the patient-centered medical home (PCMH) model across all primary care, bringing with it an emphasis on team-based care. The second half of the article focuses on primary care teams themselves—what we know about them, what can be inferred from research on other teams, and what remains to be studied.

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What Is Primary Care?

In 1996, *primary care* was defined as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community” (Institute of Medicine, 1996, p. 1). This definition includes many of the elements of primary care characterized by Starfield (1994): first-contact, continuous, comprehensive, and coordinated care provided to populations undifferentiated by gender, disease, or organ system. The Institute of Medicine definition emphasizes that primary care addresses “all problems that patients bring— unrestricted by problem or organ system” (p. 1).

Primary Care in Practice: Who, What, When, and How?

Primary care is traditionally delivered through face-to-face visits by primary care physicians (PCPs), that is, generalist physicians—family physicians, general internists, pediatricians, and geriatricians; and generalist advanced practice clinicians (APCs)—nurse practitioners and physician assistants. Visit duration ranges from 5 min to an hour, with a mean time in the United States of less than 20 min (L. M. Chen, Farwell, & Jha, 2009). Patients are accompanied by a family member or caregiver in one third of adult visits and more so in child visits (Russell, Ibuka, & Carr, 2008). Historically, primary care has proven remarkably effective in the United States and abroad in improving population health, promoting health equity, and reducing

unnecessary health care costs (Starfield, Shi, & Macinko, 2005).

More than half of primary care physicians are now employed by hospitals or large health systems, with most of the rest working in small private practices (Kane, 2017; Liaw, Jetty, Petterson, Peterson, & Bazemore, 2016). MAs are the most common nonphysician staff members in primary care practices (Chapman, Marks, & Dower, 2015). Family physicians report working with other health care professionals in descending frequency: nurse practitioners (52%), registered nurses (RNs; 45%), physician assistants (30%), licensed practical nurses (33%), behavioral health clinicians (21%), pharmacists (21%), social workers (20%), physical and occupational therapists (14%), psychiatrists (12%), and midwives (4%; Bazemore, Wingrove, Peterson, & Petterson, 2016). This is the primary care team.

Payment models shape the daily life of PCPs and other professionals on the team. Despite commitment by the Centers for Medicare and Medicaid Services to shift toward new payment models that emphasize value over volume, fee-for-service (FFS) remains the dominant model (Zuvekas & Cohen, 2016).

Given the current payment mechanisms, PCPs often begin their day by reviewing their schedule, answering urgent calls, and then moving between exam rooms until all scheduled and “add-in” patients are seen. PCPs address a median of six topics during these visits, with roughly 5 min devoted to the primary topic and about a minute to each of the remaining topics (Tai-Seale, McGuire, & Zhang, 2007). Phone calls, paperwork, and medical record documentation are performed over lunch, at the end of the day, and in evenings (Sinsky et al., 2016). PCPs manage huge amounts of data (Beasley et al., 2011), spending half of their time seeing patients, with the other half on their EHR (Tai-Seale et al., 2017).

Primary care uses brief, episodic encounters to support incremental change (Gawande, 2017). PCPs exploit patient visit opportunities to address a range of concerns and take advantage of patient life events and transitions as pivotal opportunities to support patient changes in behavior. For example, a PCP may leverage patient motivation to quit smoking following a heart attack. Even very brief PCP counseling is beneficial, yielding modest improvements in health-related behavior (Loxterkamp, 2009).

The core features of primary care (first-contact, continuous, comprehensive, and coordinated care, undifferentiated by disease, organ system, or gender and age) traditionally necessitate coordination of care among multiple specialty and community teams separated by time, space, organization, and discipline (see Figure 1). Coordination is largely enacted through loose collaborations. FFS payment promotes a focus on providing discrete services with relatively little task interdependence. The level of cooperation and coordination, including exchange of information and corre-



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sponding adaptations in professional behavior, is highly variable within primary care practices and with other entities and teams.

Primary Care Complexity and Adaptive Reserve

This traditional model of primary care is not ideally suited to the reality of the problems that patients bring to primary care or for tight coordination of care. The primary care system and subsystems result in complex adaptations by team members and patients to changes in information, insurance policies, and patients’ health needs, preferences,

and values (Crabtree, Miller, & Stange, 2001). These multiple factors mean that complexity, ambiguity, and uncertainty are rampant. As such, primary care may be viewed as a complex adaptive system in which the whole does not simply equal the sum of its parts; instead, it is characterized by multiple feedback loops, emergent properties, and non-linear effects (Ellis, 2013).

One reason that primary care, particularly family medicine, is inherently more complex than other medical specialties is the wide range of conditions managed at each visit (Katerndahl, Wood, & Jaén, 2015) compared with, for example, a trauma team that has assembled in the same place at the same time with a single overarching purpose and clear start and end times. In addition, one third of health problems that are present in primary care do not lend themselves to a diagnosis, and about one half do not lend themselves to a standard of care pathway (Rosendal, Carlsen, Rask, & Moth, 2015). Ideally, care plans are unique and individualized, reflecting complexities that can include comorbidities, disease severity, medication tolerance, health beliefs and preferences, family environment, and socioeconomic factors (Young, Roberts, & Holden, 2017). Various team members have skills to deal with different aspects of the care plan. The psychologist on the team, for example, may be especially helpful in surfacing and understanding the patient and family’s priorities, and adjusting the care plan accordingly.

Primary care, with its central coordinating role, represents a sort of “teams of teams” or a loose version of multiteam systems (MTSs; DiazGranados, Dow, Perry, & Palesis, 2014). It is loose in that the coordination of care is not typically “highly interdependent.” The primary care team’s coordination of care for patients requires MTSs, many

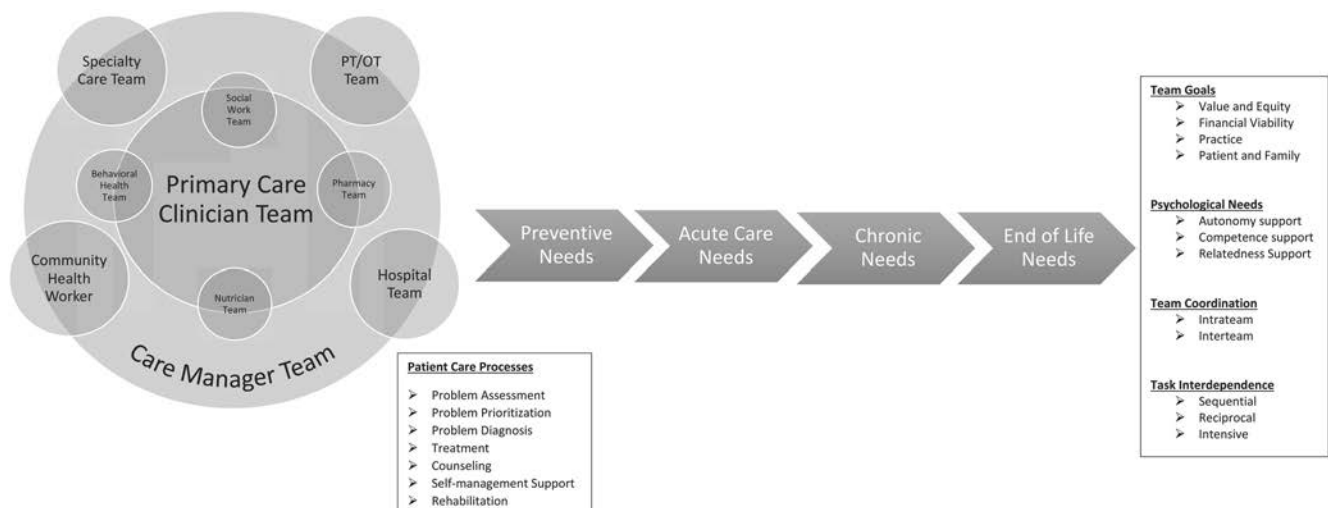


Figure 1. Patient and family interactions with primary care multiteam systems. See the online article for the color version of this figure.

teams of which might be embedded in other organizations, for example, specialty mental health teams, medical specialty care teams, hospital discharging teams, social services and community-based teams, and so forth. The coordination and collaboration among these MTSs is likely to shift and progress in the future with the advent of new technologies and concepts. These teams respond to changes in patient needs, whether preventive, acute, chronic, or end-of-life. The success of a primary care MTS hinges on its flexibility and efficiency in managing complex tasks, its adaptation to changes in patient needs, and its capacity to integrate information across multiple levels. Outcomes and costs are improved for patients with chronic conditions, because they are often more consistent and coordinated in their care (Pollack, Weissman, Lemke, Hussey, & Weiner, 2013). Lack of dedicated time for team goal clarification, planning and coordination of activities, and debriefs pose critical barriers to forming and sustaining high-performing teams in primary care.

Leadership with primary care teams is often ambiguous and dynamic. This holds true for medical and behavioral conditions when they are cared for by physicians and teams from different specialties who share high numbers of the same patients and among team members themselves. The new decentralized structure of primary care MTSs can result in the person with the most knowledge and skill providing leadership around a particular problem. This flexible leadership works best with teams in which members share a belief in this approach and know each other well. Shifting from a physician-dominant model to a team-based model of care requires a fundamental cultural change in how PCPs view their traditional dominance and willingness to engage in interprofessional practice (IPP) and other types of teamwork. This shift is occurring. In line with this shift, in 2017, the major primary care medical associations, along with the American Psychological Association, signed on to a new, evolved version of the PCMH called the *Shared Principles of Primary Care* (Patient-Centered Primary Care Collaborative, 2017). The models for competencies and problem-based leadership are evolving and in need of further development and study so that best practices can be described.

Many federal and state regulations hinder effective teamwork through burdensome documentation such as restricting who is able to enter which data into which sections of the medical record, restrictive and impractical scope of practices laws that prevent staff and clinicians from working at the top of their scopes of practice, and payment silos such as those FFS structures that incent traditional segregated behavioral health care rather than bundled payments for collaborative, integrated care (American Academy of Family Physicians, 2017; Brown & McGinnis, 2014; Iglehart, 2013). There are hopeful signs that as public and private payers become more and more interested in supporting primary care, and its subteams (like integrated care), these

outdated policies will be replaced by ones that truly support improved patient outcomes and healthy work environments for primary care team members.

To summarize the challenges to high-performing teams in primary care, these include visit-based payment systems, limited time, unclear leadership, and restrictive regulations. In addition, teams can struggle because of lack of shared mental models, appropriate competency descriptions for the various primary care team members, supportive health information technology, and goal clarity among the patient and the MTS. The creation of successful MTSs, therefore, requires sufficient resources, time, training (Lacerenza, Rico, Salas, & Shuffler, 2014), and alignment of goals among the various members and teams (Gerber et al., 2016). This complex process can stretch the capacity of practices to adapt and transform. This capacity is called “adaptive reserve” (Nutting et al., 2011).

“Adaptive reserve” refers to a practice’s capacity to initiate and sustain change, particularly during stress and rapid external change. The Adaptive Reserve questionnaire asks staff to rate their organization according to a variety of statements . . . such as; “we regularly take time to consider ways to improve how we do things” and “this organization is a place of joy and hope.” (Jaen et al., 2010, p. S17)

Adaptive reserve has proven to be a rate-limiting factor for primary care transformation, including the need to develop effective teams, and development of PCMHs (W. L. Miller, Crabtree, Nutting, Stange, & Jaén, 2010).

The Patient-Centered Medical Home

Teams are not new to primary care but represent resurrection of an old idea. The outpatient department of Massachusetts General Hospital employed teams of physicians, health educators, and social workers more than a century ago (Grumbach & Bodenheimer, 2004). The earliest community health centers adopted interprofessional patient conferences. However, back then, there was little direction regarding how teams could optimally function, so the team concept was largely dropped (Grumbach & Bodenheimer, 2004). The concept of a primary care “home” then originated in 1967 because of the need for coordinated care for children with complex needs (American Academy of Pediatrics, Council on Pediatric Practice, 1967). It was extended to patients of all ages some 40 years later (Kellerman & Kirk, 2007).

The 21st-century version of the PCMH is grounded on four cornerstones (Rittenhouse & Shortell, 2009; Stange et al., 2010): (a) preservation of the core elements of primary care described earlier; (b) person-centered care organized around the needs, preferences, and values of patients within the context of shared, informed decision making; (c) transformed models for practice that recognize the need for interprofessional teams to enhance the capacity of practices

to adapt and evolve in response to internal and external needs and challenges; and (d) payment reform that enables achievement of the other cornerstones. Earlier definitions of the PCMH, surprisingly, did not mention the importance of behavioral health to health outcomes. In 2014, primary care medical organizations, in concert with the American Psychological Association, asserted that behavioral health is indeed a central feature of the PCMH (Baird et al., 2014).

To qualify for PCMH enhanced payments, practices must meet a set of criteria established by a certification organization, for example, the National Committee for Quality Assurance. Achieving certification is expensive (Halladay et al., 2016) and time consuming (Magill et al., 2015). In 2013, 42% of practices with 11 or more physicians were PCMH certified compared with 6% of those in solo practices (Hing, Kurtzman, Lau, Taplin, & Bindman, 2017). Certified PCMHs are more likely to employ nonphysician clinicians (Hing et al., 2017). Despite growing numbers of practices being certified, true transformation has proven to be a slow, arduous process (Crabtree et al., 2011).

Even so, a national Veterans Health Administration (VHA) study underscored the potential importance of PCMH transformation. Clinics in the highest decile of scores on a PCMH implementation progress index, compared with those in the lowest decile, had lower staff burnout, fewer hospitalizations for ambulatory sensitive conditions, and fewer emergency department visits (Nelson et al., 2014).

The PCMH was adopted largely in response to growing recognition of the mismatch between primary care as envisioned by the Institute of Medicine and the actual daily life of PCPs, resulting in high rates of PCP burnout symptoms (Shanafelt et al., 2015). For this reason, a fourth aim, improving clinician well-being, has been added to the triple aim, resulting in the “the quadruple aim” (Bodenheimer & Sinsky, 2014). The confluence of growing public expectations, an outmoded visit model, and the need for behavioral integration and community services, coupled with PCP exhaustion and demoralization, has yielded calls for major changes in primary care in order to effectively retain its core features during the 21st century (Grumbach & Bodenheimer, 2002). High-functioning teams represent the foundation for this redesign of primary care (Grumbach & Bodenheimer, 2004).

Some challenge the appropriateness of the PCMH certification structure as a way to conceptualize primary care, especially with regard to measuring quality outcomes, because of the comorbidities that define so much of primary care (Young et al., 2017). These critics question the assumption behind metrics used for PCMH certification because they “assume that better health can be achieved by following guidelines developed for single diseases, and that a summation of single-disease guidelines accurately describes the quality of work delivered by a primary care practice”

(Young et al., 2017, p. 175). They do not believe that primary care can be improved by focusing on the performance of its component parts. Rather, primary care is a complex adaptive system “where learning, people, and institutions . . . interact with the environment in nonlinear patterns and self-organize, resulting in unpredictable, emerging creative behaviors rather than rigidly adhering to a standardized set of linear processes for diagnosing and treating single diseases” (p. 175). Traditional single-disease quality metrics, from this point of view, are misaligned with primary care goals and undermine successful, patient-centered care. Instead, Young et al. (2017) believe clinicians should be rewarded for “managing complexity, solving problems, and thinking creatively when addressing the unique circumstances of each patient” (p. 175). Practices and teams should be rewarded for self-reflection, access, population-level outcomes such as decreased premature death and disability, and patient experience of care such as respect, sensitivity, and feeling heard.

PCMH Goals and Processes

The adoption of the PCMH has resulted in goal-directed, interdependent teams to respond to the complexity of patient needs. The PCMH requires that participating specialty teams share the goals of the primary care team, in addition to each of the component teams having its own specific goals. As envisioned in the National Health care Quality and Disparities Reports (Burke, Bruno, & Ulmer, 2010), the superordinate goals of health care focus on value and equity. The goal of value is subsumed under the “triple aim,” which includes optimizing the patient experience of care, promoting patient health and well-being, and minimizing wasteful costs (Berwick, Nolan, & Whittington, 2008). In addition, the fourth aim addresses the well-being of the PCP and other team members (Bodenheimer & Sinsky, 2014). The goal of equity is “the value underlying a commitment to reduce and ultimately eliminate health disparities” (Braveman et al., 2011, p. S151). Equity means ensuring genuine health care access to all while addressing the unique biopsychosocial needs of the patient, including social determinants.

Several theories provide useful lenses to understand primary care teams and promote functioning that supports quality, value, and equity. For example, general systems theory offers a way to understand the complementary relationships between patients and their families, practitioners and their teams, and the interactions among them. By the early 20th century, many scientific disciplines were influenced by general systems theory and its focus on the importance of relationships in understanding behavior. This theory views a system as an entity with interrelated and interdependent parts, defined by its boundaries, with patterns, behaviors, and properties, and as altogether more than

the sum of its parts. Central features of a systems approach are the necessary inclusion of the clinician in any analysis of patient care or team functioning, the complementarity of family or team roles, and the principle that change in one part affects other parts of the whole system (McDaniel & Fogarty, 2009; McDaniel, Hepworth, & Doherty, 2009).

Another relevant theory, this one drawn from theology and psychology (Bakan, 1969), posits that a sense of individual efficacy—or “agency,” and connections with significant others—or “communion,” predict well-being. McDaniel, Doherty, and Hepworth (2014) took these concepts of agency and communion as the overarching goals for medical family therapy and integrated care. Together, they reflect individual autonomy within a relational context. Studies by psychologist Vicki Helgeson (1994) found that it is the balance between the two that predicts health outcomes.

Self-determination theory (SDT; Deci & Ryan, 2002) provides a similar unifying framework for operationalizing processes that support value and equity. A core principle for PCMH teams is that care should reflect the needs, values, and preferences of patients in the context of longitudinal caring and growth-promoting relationships (Epstein, Fiscella, Lesser, & Stange, 2010). SDT suggests that team design, processes, and goals should be grounded in support for patient autonomy (e.g., informed shared decision making at each decision juncture), patient competence (e.g., ability to complete the task or self-manage a condition), and caring relationships (Fiscella, 2017). Doing so places the patient (and supporting family) at the center, with supports from the primary care team.

Care processes that address these psychological needs improve patient well-being and vitality, promote patient self-management, foster patient motivation regarding their goals for care, and potentially minimize costs by avoiding unnecessary and/or undesired tests or treatment (Ryan, Patrick, Deci, & Williams, 2008). Addressing these same needs among team members promotes team member well-being, team cohesion, and, potentially, team performance. Supporting all members having a voice during team meetings, for example, supports autonomy that is bounded by team goals. Support for continuous co-learning among team members supports competence. Support for caring and respect among team members, regardless of role, supports relatedness and human connection. Establishing consensus about the practice’s mission fosters team cohesion and a sense of meaning among members. Fulfillment of these psychological needs among team members creates teams that are better equipped to address patient needs. Studies of primary care teams confirm the importance of these processes as well as successfully expressing differences and managing conflict, relational coordination, heedfulness (i.e., situational awareness of team needs), and backup behavior (i.e., adapting roles to meet team goals; Gittell, Godfrey, & Thistlethwaite, 2013; W. L. Miller et al., 2010).

Primary Care Team Models

The reemergence of an emphasis on teams in primary care early in the 21st century coincided with the development and payments for PCMHs. Much of this research is derived from large health care systems, particularly the VHA and academic programs. Findings are further informed by demonstration projects, case studies, and exemplary practices. Given timing, Validated measures for teamwork in primary care are relatively new. Few studies have examined the role of team function in achieving primary care team goals. To better understand teams in primary care, we begin with the traditional team headed by a PCP, usually a physician, and then discuss the newly redesigned primary care team with some traditional primary care physician roles redistributed to other health professionals.

PCP teams coordinate activities among their own team members in addition to doing so with other patient care teams. Coordination by the PCP team may involve sequential care, meaning that one activity, for example, referral for surgery, requires completion of a preceding activity, for example, completion of diagnostic testing by another team. PCP team coordination can also involve reciprocal interdependence in which the involved care teams respond dynamically and adaptively during shared patient care (Rico, Hinsz, Davison, & Salas, 2017). For example, a patient who is scheduled for curative cancer surgery comes to the PCP with a new lump. In this case, the PCP team will ask the surgical team to cancel surgery, reschedule the patient for a biopsy, and if the biopsy confirms cancer has spread, proceed to coordinate care with the oncology and the behavioral health teams. In a few instances, this interdependent coordination is intensive, for example, a patient collapses in the waiting room and all staff members respond, working intensively and highly interdependently to coordinate resuscitation and emergency transfer.

Interprofessional primary care teams, with expanded membership and flexible roles, are evolving. We describe three examples: teamlets, integrated primary care behavioral health teams, and redesigned roles among primary care team members.

Teamlets

Teamlets are the smallest functional team units engaged in interdependent patient care work (Bodenheimer & Laing, 2007). Teamlets typically involve a PCP and an MA who share delivery of primary care, typically using previsit huddles to plan care for the session or day. Teamlets may also include other team members, for example, an RN, behavioral health clinician, receptionist, and care coordinator. Teamlets have been widely adopted by PCMHs, including large health care systems (Day et al., 2013), the VA, that is, Patient Aligned Care Teams (PACTs; Kearney, Post, Pomerantz, & Zeiss, 2014), hospital residency programs (E. H.

Chen et al., 2010), and high-performing community practices. Teamlets represent a potential superordinate team that not only provides direct primary care but also coordinates care among other patient care teams, for example, specialty teams, within the MTS.

Exemplary PCMH practices have adopted various iterations of teamlets (Ladden et al., 2013). Physicians have shifted from lone patient care responsibility for patient panels to team-based care in which other team members provide significant portions of chronic and preventive care. One example would be MAs who review patient records before visits to identify care gaps, act on protocols for immunizations or offer cancer screening kits, make patient outreach calls, lead prepatient session team huddles, and coach patients to set self-management goals. Another example is RNs who provide uncomplicated acute care, chronic care management, and hospital-to-home transitions. Integrated behavioral health clinicians (e.g., psychologists, licensed clinical social workers, or other licensed counselors) may work with PCPs to be readily available for just-in-time consults and brief interventions.

Teamlets provide a potential beachhead for shifting the mental model of PCPs toward team-based care and the creation of extended teams (Fiscella, Mauksch, Bodenheimer, & Salas, 2017). Teamlet processes are a vehicle for team members to experience and learn from the core dynamic cyclic processes of teamwork—transitions involving explicit planning and/or review and debriefing (Marks, Mathieu, & Zaccaro, 2001).

Studies of teamlets are emerging. A VHA study of teamlets examined the role of brief previsit meetings called *huddles* (Rodriguez, Meredith, Hamilton, Yano, & Rubenstein, 2015). Huddles sometimes involve all team members at a “session” (a half-day clinic) and sometimes involve only teamlets. Teams who routinely huddle reported better teamwork and more supportive practice climates. Preliminary research suggests that teamlets improve care (Baker et al., 2009; Ngo, Hammer, & Bodenheimer, 2010; Willard-Grace et al., 2015). In a study of Medicare patients, higher functioning teamlets were associated with significantly better patient physical and emotional health at 2 years following baseline assessment than those cared for by lower functioning teamlets (Roblin, Howard, Junling, & Becker, 2011).

Collaborative, Integrated Primary Care

A comparative case study by Cohen et al. (2015) described various ways that PCPs and behavioral health professionals work together. Some represent more sequential interdependent work, for example, consulting. Others involve the greater coordination and task interdependence around common goals that are characteristic of collaborative, integrated primary care (Cohen et al., 2015).

Collaborative care was first introduced in the 1980s as a general term to denote the partnerships between primary care and behavioral health clinicians, and patients and families, that are characteristic of integrated care (McDaniel, Campbell, Hepworth, & Lorenz, 2005; McDaniel, Campbell, & Seaburn, 1995). More recently it has been used to refer to a specific model linking patients with primary care clinicians and psychiatrists in a joint management effort that targets depression and is coordinated by a care or case manager (B. Miller, Kessler, Peek, & Kallenberg, 2011).

When used as a general term, *collaborative care* can be described across a continuum defined by degree of colocation and integration of services (or degree of teamwork)—from coordinated care at different sites at one end to on-site, fully integrated systems of care at the other (Collins, Hewson, Munger, & Wade, 2010; Doherty, McDaniel, & Baird, 1996). For example, in basic collaborative care, the PCP may refer a patient to a mental health center, and that care may be coordinated by a specialist behavioral health clinician and a case manager at the mental health center who coordinates care with the PCP and/or teamlet. In a more fully collaborative, integrated care approach, behavioral health clinicians (psychologists, master’s-level counselors or family therapists, and psychiatrists) and PCPs engage in more task interdependence with on-site teamwork, a unified care plan that reflects any comorbidities and patient priorities, and a shared medical record. Services range from preventive to acute and chronic care (McDaniel et al., 2014). We will start by describing the specific, targeted model, collaborative care, and then describe the more general approaches to the collaborative behavioral health care that is integrated directly into the fabric of primary care.

The collaborative care model (CoCM), capitalized to distinguish this specific approach from the more general term, collaborative care, is an example of a care management approach (Unutzer et al., 2002). Care management is typically a targeted program to treat a high-impact disease or problem such as cancer or diabetes. Collaborative care managers provide systematic monitoring and linkages between primary care and mental health professionals, primarily psychiatrists. Distinct from other care managers, they offer patients mental health screenings, interventions, care facilitation, and follow-ups.

The CoCM was developed through multiple studies of depression and other mood disorders, called IMPACT. This approach targets serious depression and has the strongest evidence base for behavioral health integration. A 2016 review of 90 studies that included more than 25,000 patients showed that the CoCM improved mood disorders and quality of life across a range of patient populations (Gerrity, 2016). In addition, there is evidence for improvement in medical outcomes, particularly diabetes. Despite its evidence base, implementation is hindered by expense and it

does not always fit well with complex primary care patients with multiple morbidities.

Primary care behavioral health (PCBH) is a general term for collaborative, integrated primary care. PCBH refers to full integration of primary care and behavioral health, including approaches to health behavior change, mental health problems, and substance use disorders (B. F. Miller et al., 2017). A qualitative study of organizations that adopted behavioral health integration identified the following key elements: prioritization of underserved vulnerable groups, use of data to drive best practices, community-wide collaboration, leadership and institutional support, diverse funding support, and, notably, adoption of a team approach that includes patients and family members (Grazier, Smiley, & Bondalapati, 2016). Many practices use a population health approach that screens all patients for behavioral health conditions and triages those to the appropriate level of care. These elements are common across the approaches to PCBH. A large VHA study showed that veterans receiving behavioral health services as part of a PACT had better outcomes (Trivedi et al., 2015). In a well-designed meta-analysis of randomized controlled trials, Asarnow, Rozenman, Wiblin, & Zeltzer (2015) found that children and adolescents who received PCBH services had significantly better behavioral health outcomes than those who received the usual primary care.

The behavioral health consultant (BHC) model is a specific approach to PCBH. It involves on-site screening, assessment, and brief therapy services, with an emphasis on same-day access (Robinson & Strosahl, 2008). This model has wide implementation, but its effectiveness remains to be documented. A promising study with 29 participants showed that a BHC model for insomnia, with three brief visits using cognitive-behavioral therapy, showed considerably improved sleep efficiency (>85%) from baseline (14%; Goodie, Isler, Hunter, & Peterson, 2009). Another article reviewed studies that point to the effectiveness of the BHC model and laid out a research agenda to study the approach more fully (Hunter, Funderburk, Bauman, Goodie, & Hunter, 2017).

Medical family therapy uses an overarching systemic framework for collaborative care that springs from the same general systems theory as the biopsychosocial approach to medicine. As such, it can be particularly useful in primary care (McDaniel, Doherty, et al., 2014). Medical family therapy emphasizes the power of relationships (including partners, caregivers, families, and treatment teams) in supporting or undermining health outcomes. Other interventions, such as brief cognitive-behavioral approaches to health behavior change, may be part of an overall systemic treatment plan. Medical family therapy interventions can occur with off-site, coordinated care or as part of fully integrated, on-site behavioral health integration.

Intermountain Health System, a large health system based in Utah and renowned for its quality, used its retrospective data to compare integrated team-based care (which they term "TBC") with traditional referral models of behavioral health care in terms of quality, utilization, and costs. An analysis that controlled key confounders showed that patients treated in TBC practices had improved quality outcomes on depression screening, diabetes care, and documentation of self-care plans. Notably, TBC was associated with fewer emergency department visits, hospital admissions, and primary care physician visits (Reiss-Brennan et al., 2016). Despite overall health care cost reductions, the program resulted in financial losses for the Intermountain Health System due to payment models that segregate behavioral health from other health care costs.

Team-based models for collaborative, integrated care can be complementary. Some primary care practices, such as Cherokee Health Systems, the VHA (Kearney et al., 2014), and the University of Rochester Family Medicine Clinic, use a combination of the CoCM to target serious depression and mood disorders along with the more general PCBH consultation and brief treatment, including medical family therapy, to care for most behavioral health problems.

Redesigned Roles for Primary Care Team Members

In addition to psychologists and other behavioral health clinicians, transformed practices in primary care often include other new members or new roles for disciplines traditionally on the team. Teamwork is then based on delegating tasks that were traditionally performed by primary care physicians to a potentially better-qualified health professional (or paraprofessional) from another discipline. Some of these team-based models are based more on sequential teamwork, whereas others involve more highly reciprocal interdependent teamwork. Below are examples of some of the disciplines involved in team-based models.

APCs

Nurse practitioners and physicians' assistants represent the prototype for a model that parallels the work of the primary care physician. Care processes and outcomes by nurse practitioners appear to be generally comparable with that provided by physicians (Newhouse et al., 2011). Often, APCs have their own panel of patients with variable coordination with the primary care physician(s) in the practice.

Care Managers

Financial incentives for reducing avoidable hospitalizations and readmissions have spurred the development of care managers within PCMH teams. These roles are often performed by RNs or social workers working with high-risk

patients who often have multiple biopsychosocial morbidities. Care managers ensure that these patients receive timely care from all members of the primary care team as needed as well as any related specialty care or social services. To date, CMS demonstration models show limited savings (Liaw, Moore, Iko, & Bazemore, 2015).

Pharmacists

Some large primary care practices include pharmacists on primary teams. A systematic review of team-based approaches to hypertension found strong evidence for improving blood pressure outcomes when pharmacists or nurses were part of the team (Proia et al., 2014).

Community Health Workers

Some primary care practices, such as community health centers, employ community health workers (CHWs) from the community to address patients' social needs by linking them with community services (Kaufman et al., 2010; Weir et al., 2010). Cancer screening, cardiovascular risk reduction, and health equity can be improved by CHWs (Kim et al., 2016). CHWs provide a practical, cost-effective way to promote equity by addressing patient social determinants of health and by adding cultural and linguistic diversity and competencies to the primary care team.

Research on Teamwork in Primary Care

Available evidence suggests that many of the same core elements relevant to effective teamwork in general also hold for high-performing primary care teams. Table 1 provides primary care examples of the Big Five core components of teamwork: team leadership, mutual performance monitoring, backup behavior, team adaptability, and team orientation (Salas, Sims, & Burke, 2005; see Table 1 below for illustrations). Other factors relevant to teamwork in primary care include shared mental models and team identity, common goals, role clarity, consistency of staff, open communication, emotional safety, adequate staffing, time to meet, collocation, and training (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2015). A national survey of VHA primary care clinics reported that team huddles, regular meetings, information systems, and disease registries facilitated PCMH transformation (Helfrich et al., 2014). The biggest barriers were clinician and nonclinician recruitment and retention. PCMHs with behavioral health or community integration show improvements across all key outcome measures (cost reductions, decreased emergency department/hospital utilization, improved quality, improved access, increased preventive services, and improved patient satisfaction; Kieber-Emmons & Miller, 2017).

Similar themes emerged from a qualitative VHA study based on semistructured interviews among teamlet mem-

bers (True, Stewart, Lampman, Pelak, & Solimeo, 2014). Team task delegation is facilitated by (a) clear boundaries and collective identity; (b) shared goals and sense of purpose among team members; (c) mature and open communication, particularly psychological safety; and (d) ongoing, intentional role negotiation among team members. Another VHA study of teamlets found that teamlets that report routine brief previsit meetings (huddles) report better teamwork and more supportive practice climates (Rodriguez et al., 2015).

Similar findings about teamwork in primary care are seen in other large health systems and community practices. A qualitative study of PCMHs showed that practices with improved teamwork used PCP delegation of tasks to other team members, for example, expanding roles of MAs and nurses to include template-guided collection of information from patients prior to the physician office visit (O'Malley, Gourevitch, Draper, Bond, & Tirodkar, 2015). Practices improved buy-in for these changes by eliciting staff input regarding care workflow redesign and by using data to demonstrate how these changes improve patient care. In addition, teamlet huddles played pivotal roles in guiding previsit planning, facilitating role delegation, improving the consistency of information collected from patients, and structuring communication among team members (O'Malley, Draper, Gourevitch, Cross, & Scholle, 2015).

Based on direct observation of 29 high-performing primary care practices, Ghorob and Bodenheimer (2015) identified the following common elements: stable team structure; collocation of teamlet members; a shift in culture from physician-driven to team-based care; defined roles with training and skill checks; standing orders and protocols; defined workflows and workflow mapping; adequate staffing ratios for new roles; ground rules; and key modes of communication, including team meetings, huddles, and minute-to-minute interaction. Similarly, a case study of team transformation within an integrated health care system identified key facilitators and barriers to success (Crompt et al., 2015). These included the importance of collocation, which is critical for high-quality communication and relationships; implementation of face-to-face huddles with structured agendas that reinforce shared goals and facilitate team members' efficient sharing of information; and explicit standardized roles that clarify expectations. A network analysis of six primary care practices revealed that team members with dense social networks among team members had patients with fewer hospital days (Mundt et al., 2015). Shared goals and expectations among team members mediated improved patient outcomes. Studies on IPP within primary care found similar predictors of successful teamwork. A qualitative study of exemplary IPP within primary care practices at the University of Washington

Table 1
Key Components of Teamwork in Primary Care

Components and mechanisms	Example scenarios	Exemplar behavior
Core components of teamwork		
Team leadership	Dr. Proudfoot is the family physician unit leader for her section of the clinic, and Dr. Monica has recently joined as the behavioral health consultant on the team.	As team leader, Dr. Proudfoot has engaged Dr. Monica's expertise as a psychologist to train the team to administer and interpret the PHQ-9 depression screening questionnaire. Over time, Dr. Monica and Dr. Proudfoot collaborate to improve depression screening on their unit.
Mutual performance monitoring	The clinic has agreed to administer depression screening to each patient.	Mr. Lopez, the physician assistant, and Noah, the MA on his teamlet, plan ahead in huddle and debrief at the end of the week as to how many PHQ-9s they have administered. They provide feedback to each other about their respective roles in collecting and acting upon the information.
Backup behavior	Internist Dr. Diaz is managing an emergent patient requiring stabilization while waiting for ambulance to transport to emergency department. Dr. Diaz's patients will be affected by this delay. Mr. McClellan, the MA on Dr. Diaz's teamlet is assisting with the stabilization.	Ms. LaFrance, the receptionist, and Mr. Brown, the MA from Dr. Proudfoot's teamlet, make a plan. Francine notifies Dr. Diaz's patients of the delay and Noah reassigns an acute patient from Dr. Diaz to Dr. Proudfoot, and also reassigns one of Dr. Diaz's chronic care patient visits to Mr. Lopez, the physician assistant, who is running on time.
Adaptability	Mr. Lopez, the new physician assistant, has several patients on his schedule who are in for medication monitoring and he is running late. Dr. Monica, the integrated psychologist, is seeing several of the patients.	Dr. Monica sees that Mr. Lopez is running late, so she works with Mr. Lopez's medical assistant to be sure that he knows which medications need to be refilled, so that these are prepared for Mr. Lopez to quickly authorize. She also implements a behavioral intervention for those patients for whom that is appropriate.
Team orientation	Dr. Diaz, Dr. Proudfoot, Dr. Monica, Mr. Lopez, Mr. McClellan, Mr. Brown, and Ms. LaFrance have worked together for a year.	They quickly debrief at the end of every workday. They make a special effort to focus on what went well during the recent urgent patient stabilization and what they might do differently next time.
Supporting coordinating mechanisms		
Shared mental models	"We provide comprehensive, biopsychosocial primary care." "We work together for the good of the patients" "Quality patient care is our mission together."	Instead of asking the medical records specialist, "Would you complete this form for me?" Dr. Proudfoot asks, "Please complete this form for Mr. Santina's Family and Medical Leave Act. He needs it by next Wednesday."
Closed-loop communication	Dr. Diaz places medication orders for a patient with asthma in an acute exacerbation in the office.	Registered nurse Ms. Callan lets Dr. Diaz know she's seen the request, that she will be with the patient in 2 minutes, and will let Dr. Diaz know when the treatment has been administered. Dr. Diaz responds, "Thanks, knock on the next patient's door to let me know."
Mutual trust	Team members know that they will each use their training and best judgement to manage challenging or unanticipated situations.	Ms. Little, the LPN working with Dr. Proudfoot, knows that Dr. Proudfoot expects and values her work in organizing the day's patient schedule and shuffling patients based on lateness, urgency, and expected complexities.

Note. We adopt existing definitions for these constructs (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2015; Salas, Sims, & Burke, 2005). The authors wish to thank colleague Colleen Fogarty for her suggestions and work on this table. MA = medical assistants; PHQ-9 = Patient Health Questionnaire-9 (Kroenke, Spitzer, & Williams, 2001).

showed these practices displayed core elements of high-functioning teams: shared values, clarity of roles, effective communication, and information sharing (Tubbesing & Chen, 2015). A systematic review of IPP within primary care identified that social processes (e.g., open communication and supportive colleagues) and team structure (e.g., team size and having a collaboration champion or facilitator) were most strongly associated with feeling part of the team and with improved outcomes (Mulvale, Embrett, & Razavi, 2016). Space configuration that facilitates frequent brief face-to-face interactions has been found to foster a shared mental

model, shared goals, and shared decision making in primary care (Morgan, Pullon, & McKinlay, 2015).

Summary of What We Know

Primary care teams are somewhat unique. This uniqueness is driven by the inherent complexity of primary care: the wide variation in the size and resources of primary care practices, features of primary care MTS including the patient and family as team members, the decentralization and fluidity of team leadership, the reliance on virtual communication through EHRs, and rapid changes in primary care

team structure and composition (see Table 2). Most teamwork involving teams outside the practice is loosely collaborative and fluid. Much of this collaboration represents sequential interdependent tasks rather than reciprocal “real time” interdependent work.

The emergence of the PCMH model has created the potential for improved teamwork as evidenced by implementation of teamlets, pre-session huddles and introduction of care managers, and, most notably, behavioral health integration. However, a number of barriers—for example, payment, culture, health information technology, training, and regulations—have slowed the development of teamwork that qualifies as “dynamic, simultaneous and recursive enactment of process mechanisms which inhibit or contribute to team performance or performance outcomes” (Salas et al., 2007, p. 190). Primary care teams that satisfy this definition are often from select organizations, for example, the VHA, integrated health systems, and exemplary practices. These high-performing teams share many of the characteristics of high-performing nonprimary care teams.

Improved primary care teamwork and coordination within MTSs offers potential for considerable impact on patient care. An Agency for Healthcare Research and Quality report on transforming primary care concluded that “care coordination and team-based care were identified by multiple grantees as key elements of successful primary care transformation and were found to be related to improved health outcomes as well as improved patient and provider satisfaction” (Gerteis & Kantz, 2015, p. iv).

What We Need to Know

Primary care transformation involves considerable team experimentation. Little is now known about the relative advantages and disadvantages of different types of primary care teams with respect to leadership, structure, size, composition, coordination of work, meeting frequency, modes of communication, optimal type and intensity of training, and comparative impacts on patient outcomes and costs. Little is known about the best ways to meaningfully ensure

Table 2
Teams in Primary Care

Theme	Description
What we know	
Diversity	Teams vary widely in goals, size, task interdependence, composition, opportunity for co-learning, and role of patient/family
Complexity	Primary care’s central coordinating role often involves loose MTSs both within the primary care practice and between the practice and groups outside the practice
Uniqueness	Goals are intended to reflect the dynamic health care needs and specific preferences of patient/families
Sequentially interdependent tasks	Tasks are often sequentially interdependent, e.g., between a medical assistant and a medical clinician or between a medical clinician and a behavioral clinician
Dynamic	MTSs involves continual changes in teams within the MTS, depending on patients’ needs
Team identity	Variable levels of teamness and identity, depending on type of team and context
Leadership	Large variation in leadership style from physician-as-leader to distributed leadership based on patients’ needs and clinician skill
Implicit goals	Team goals are often implicit, particularly those involving MTS such as expectations regarding, goals and roles of referrals
Communication	Much of team communication is asynchronous and increasingly electronic
Teamwork phases	Large variation in team planning/debriefing between team action phases
Behavioral Integration	Large variation in how integrated behavioral care is into teams
PCMH	Emphasizes teamwork organized around the goals and needs of patient/families, with large variation in its operationalization
Outcomes	Evidence from selected, high-performing practices and organizations suggests that team-based care including behavioral integration improves outcomes and reduces costs
Challenges	Training, time, payment models, culture, informatics, regulations
What we need to know	
Role of the patient/family	What are optimal approaches to ensure that patient/families goals and voices are included in teams throughout?
Optimal teams	Which are the optimal features of teams, i.e., leadership, structure, composition, size, coordinating mechanisms, meeting frequency, co-learning and communication modes and under what circumstances? What is the impact of different integrated behavioral team models on care and costs? What is the impact on patient health and well-being, costs and team member well-being?
Training	What are the most practical, feasible, and effective approaches to training different types of teams at different levels (student, resident/post-doc, and practitioner)?
Team models	To what extent do existing models, including MTS, apply to primary care and what are unique features of primary care teams that require new models?
Debriefing	When and how should primary care teams debrief?
Technology	What are the characteristics for informatics’ platforms that optimize teamwork?
Research	What are suitable and feasible methods for conducting observational and interventional research on primary care teams undergoing rapid change?

Note. MTS = multiteam system; PCMH = patient-centered medical home.

a central role for patients and families within teams (Mitchell et al., 2012; van Dongen et al., 2017). Evidence is generally lacking regarding feasible and acceptable approaches to primary care team development, particularly within smaller private practices. The Intermountain Health System experience underscores the potential impact on patient outcomes of an integrated TBC model, but replication in less integrated systems is needed.

There is a clear need for new conceptual models for primary care teams. Most theories of primary care have been based on traditional primary care models. There is a need for theory that integrates the nascent science of MTSs (Rico et al., 2017) and virtual teams (Marlow, Lacerenza, & Salas, 2017), and applies this to primary care teams, to determine to what extent primary care is distinct from, or represents a hybrid of, these models.

We also need to know how to best train primary care interdisciplinary teams. Competencies need to be developed for each primary care discipline. See McDaniel, Grus, et al. (2014). Once described, they need to be studied to ensure a positive relationship with outcomes. Training and processes to ensure maintenance of competencies need to be developed and evaluated.

When the PCMH was adopted as the standard for primary care, a project called Preparing Personal Physicians for Practice (P4) was carried out in 14 selected family medicine residencies. A major focus of P4 was transforming residency training clinics from physician-centered to team-based care. Two hundred forty-one graduates of P4 programs were surveyed 2 years after graduation. The odds of practicing in settings with team-based care was nearly 6 times higher for residents that reported being adequately prepared for team-based care in residency (Carney et al., 2015). Research is needed to determine and standardize competencies in residency training to build on this success.

TeamSTEPPS is perhaps the most widely used model for training for health care teams (Lineberry et al., 2013). This program has been adapted to primary care, but there are scant empirical data related to its implementation or impact within primary care. A meta-analysis confirms that, in general, health care team training, defined as a set of instructional activities used to foster requirements for effective teamwork, improves learning, transfer of training to practices, and outcomes (Hughes et al., 2016). However, few of the studies in the meta-analysis focused on primary care. Research is needed to determine the extent to which these findings generalize to primary care, for which type of practices, and under what conditions.

The VHA has begun piloting novel training programs through seven funded Centers of Excellence in Primary Care Education. One center in East Haven, Virginia, has adopted an approach to interprofessional team training for primary care (Brienza, 2016) in which trainees spend all their time with their team. Roughly half of the training time

is spent in learning sessions, team meetings, or reflection. The rest is spent in direct patient care. This includes a weekly meeting with teamlet members that focuses on team building, systems issues, and performance improvement projects. Research on the effectiveness of this model is needed.

Debriefing is among the most important promoters of team performance, including in health care (Tannenbaum & Cerasoli, 2013). A meta-analysis of team debriefing among intensive care clinicians found that it improved patient outcomes (e.g., during a cardiac arrest) in addition to boosting learning and performance (Couper, Salman, Soar, Finn, & Perkins, 2013). However, empirical data regarding debriefing by primary care teams are scant, in part because team members tend to leave at different times so that scheduling a debrief meeting can be difficult. To counteract this methodologic problem, we piloted debriefing software (DebriefNow.com), adapted for our use at the University of Rochester Family Medicine Clinic. Each team member was prompted virtually, after a half-day clinical session, to fill out a short debriefing e-questionnaire that could be completed on a smart phone. We found that the virtual debriefing was feasible and that team members universally reported liking the process of briefly commenting on the session. Focusing on what went well turned out to be a team-building exercise itself. Conflict avoidance was identified as a shared problem and a focus for team training. After this process, members of the team requested more virtual debriefs. This case study provides support for the need to systematically study the effectiveness of debriefs in improving primary care teamwork.

We also need to know what types of electronic platforms will enable primary care teams. Although there is widespread agreement regarding the limitations of current health information technology (Green & Klinkman, 2015; Krist et al., 2014; O'Malley et al., 2015), much less is known regarding how to operationalize user-friendly electronic platforms that support patients and their primary care teams to develop goals, actions, dynamic personalized care plans, and integrated care management. Such platforms could facilitate development of teams that better meet the definition of primary care as “addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community” (Institute of Medicine, 1996, p. 1).

Last, we need more sophisticated ways to conduct research on primary care teams with regard to their complexity. Mixed quantitative and qualitative methods show promise (Cohen et al., 2015). Survey instruments relevant to primary care teams do exist (Shoemaker et al., 2016; Song et al., 2015). Some of these instruments capture constructs particularly relevant to implementing primary care teams, including sense making, continuous learning, evolving mental models, and adaptation to context. These measures could

be used to advance understanding of primary care. Measures that offer promise for assessing elements of team functioning in primary care include team behavior ratings systems (Rosen, Dietz, Yang, Priebe, & Pronovost, 2014), unobtrusive sensor systems that capture elements of team communication frequency, speaking time, mirroring and energy (Rosen et al., 2014); and social network analysis (Mundt et al., 2015). A simple five-question survey, the Practice Environment Checklist (PEC), was developed for frequent assessment of team effectiveness by the members themselves (Lurie, Schultz, & Lamanna, 2011). The PEC captures a single dimension of teamwork, has good psychometric qualities, and can be completed in less than 3 min. Finally, new quality metrics are needed that adequately reflect the complexity, comorbidities, and psychosocial issues inherent in primary care.

Future of Primary Care Teams

Primary care teams are complex and highly diverse, representing a spectrum in size, scope, interprofessional membership, and levels of interdependent coordination. Primary care shares some features with MTS virtual teams but differs in important ways. Findings from selected high-performing teams, including those that have integrated behavioral health care, suggest that principles of teamwork are relevant to primary care and can guide team development.

Changes in payment, training, and research funding are needed to ensure that teamwork in primary care is able to meet growing demands. Payment models are needed to support the development of high-performing teams, including coordination within MTSs. Interprofessional primary care-oriented training is needed at all levels—graduate, postgraduate, and practicing clinicians and staff. Research funding is needed to inform models for primary teamwork based on context, best practices for training primary care teams in different settings, and payment models that ensure a better balance between direct patient care and team planning, coordination, debriefing, co-learning, and continuous quality improvement. Last, research is needed to guide design of the PCMHs and their diverse array of teams in order to ensure that care goals uniformly reflect those of patients/families while also supporting patients/families in developing the skills to realize those goals. Psychologists can play vital roles in this transformative process—as clinicians, coaches, trainers, educators, and researchers.

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