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Implementation of Care Management: An Analysis of Recent AHRQ Research

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Abstract

Care management (CM) is a promising team-based, patient-centered approach "designed to assist patients and their support systems in managing medical conditions more effectively." As little is known about its implementation, this article describes CM implementation and associated lessons from 12 Agency for Healthcare Research and Quality–sponsored projects. Two rounds of data collection resulted in project-specific narratives that were analyzed using an iterative approach analogous to framework analysis. Informants also participated as coauthors. Variation emerged across practices and over time regarding CM services provided, personnel delivering these services, target populations, and setting(s). Successful implementation was characterized by resource availability (both monetary and nonmonetary), identifying as well as training employees with the right technical expertise and interpersonal skills, and embedding CM within practices. Our findings facilitate future context-specific implementation of CM within medical homes. They also inform the development of medical home recognition programs that anticipate and allow for contextual variation.

Keywords

care management; care coordination; patient-centered medical home; PCMH; implementation; primary care

Current health care reform efforts emphasize primary care delivered within a medical home model (Stange et al., 2010) in which primary care clinicians manage chronic conditions while coordinating subspecialty care and connections to community resources (Starfield, 1998). One strategy gaining prominence is care management (CM), a team-based, patient-centered approach, "designed to assist patients and their support systems in managing medical conditions more effectively" (Center for Health Care Strategies, 2007). CM programs seek to alleviate negative effects of care fragmentation. Currently, many patients with complex and/or comorbid conditions must interact with multiple health care providers and organizations. Lack of effective coordination among different health care providers can lead to adverse events such as medication errors and hospital readmissions, resulting in harm to patients, service duplication, and increased costs (Kripalani, Jackson, Schnipper, & Coleman, 2007). Research demonstrates that CM can be effective in helping patients improve clinically meaningful metrics (e.g., blood pressure, hemoglobin A1c) and reduce complications of chronic disease (Dorr, Wilcox, Donnelly, Burns, & Clayton, 2005; Egginton et al., 2012; Krause, 2005; Sochalski et al., 2009; Taliani, Bricker, Adelman, Cronholm, & Gabbay, 2013).

Until recently, this work was almost always uncompensated. Policy initiatives including the Community-based Care Transitions Program (Centers for Medicare and Medicaid Services [CMS], 2011), the CMS (2014) readmissions penalty, the development of the CMS chronic CM code (Pershing Yoakley and Associates, 2014), and models such as the patient-centered medical home (PCMH) and Accountable Care Organizations (ACOs; CMS, 2015a) are

designed to address these gaps in care and payment, while at the same time increasing responsiveness to patients' needs and preferences. As a result, primary care practices are changing the management of population health and developing more deliberate approaches to CM.

In a review of roles critical for implementation of primary care practice redesign, Taylor, Machta, Meyers, Genevro, and Peikes (2013) identify six functions generally included within CM: (a) Serial assessments of patients' care needs; (b) Developing, reinforcing, and monitoring care plans; (c) Providing education and encouraging self-management; (d) Communicating information across clinicians and settings; (e) Connecting patients to community resources and social services; and (f) Participating in practice quality improvement activities. It is important to note that CM often intersects with care coordination. Care coordination encompasses coordination for entire patient populations, whereas CM typically focuses on managing and coordinating care for patients with complex and/or comorbid conditions.

In 2010, the Agency for Healthcare Research and Quality (AHRQ) funded 18 research studies (through two grant mechanisms) addressing primary care transformation. CM emerged as a core component of these projects. We focused on studying key elements of effective CM implementation and its application across a variety of primary care settings.

New Contributions

In response to a lack of consensus in the literature about the core functions of CM and to diversity in CM implementation as documented by these AHRQ-funded projects, we used an iterative approach to identify, refine, and illustrate themes emerging from these projects' experiences with CM implementation and evaluation. Our goal was to identify lessons from these projects in a way that could inform CM implementation efforts within medical homes and related settings.

Method

In 2010, AHRQ awarded 14 Transforming Primary Care (TPC) grants to retrospectively describe the process and content of transformation toward PCMH that had occurred in various practice settings (AHRQ, 2011). Although not always the principal study objective for these grants, CM emerged as a core component within primary care practice transformation in most of the practices studied. Data sources and methods varied across grantees. Data sources included administrative data queries, electronic health record (EHR) queries, self-assessment implementation tools, in-clinic observations, surveys, and stakeholder interviews. Methods included correlations, thematic coding, and various mixed methods. For reports from each grantee, see the May/June 2013 *Annals of Family Medicine* special issue (Alexander et al., 2013; Berry et al., 2013; Calman et al., 2013; Day et al., 2013; Dohan, McCuistion, Frosch, Hung, & Tai-Seale, 2013; Donahue et al., 2013; Driscoll et al., 2013; Gabbay et al., 2013; McAllister, Cooley, Van Cleave, Boudreau, & Kuhlthau, 2013; McMullen, Schneider, Firemark, Davis, & Spofford, 2013; Scholle et al., 2013; Solberg et al., 2013).

At the 2011 AHRQ annual meeting, TPC grantees met to discuss preliminary findings. The grantees identified six topics for further exploration by the grantees as a group: CM, context, care teams, mental models, research methods, and the patient/ family perspective. In April 2013, AHRQ awarded one of the study investigators (Gabbay) a grant to convene a conference in which the TPC grantees were invited to discuss their findings relevant to one or more of these six topics. In preparation for this conference, each study team submitted a description of lessons learned, as well as facilitators and barriers. During the meeting, study teams participated in six rounds of facilitated group discussion regarding these submissions. At the end of the meeting, study teams created a brief summary of key points emerging from these discussions, and those teams interested in further exploring the CM topic formed the "TPC-CM group" (hereafter "TPC team") led by one of the investigators (Farrel).

The TPC team established the objective of writing an article describing the experiences and lessons the participants had learned about CM. Between May 2013 and September 2014, the team held regular conference calls to accomplish this objective. To start, the team explored definitions of CM and adopted a broad definition from the Center for Health Care Strategies (2007):

> Care management programs apply systems, science, incentives, and information to improve medical practice and assist consumers and their support system to become engaged in a collaborative process designed to manage medical/social/mental health conditions more effectively. The goal of care management is to achieve an optimal level of wellness and improve coordination of care while providing cost effective, non-duplicative services.

In keeping with this definition, in this article we use "Care Manager" to describe individuals responsible for CM functions, even though local titles for these individuals varied (e.g., Care Manager, Case Manager, Care Coordinator).

Through discussions during conference calls, the TPC team determined the study scope, developed data collection processes, and explored and refined themes. We utilized an approach analogous to framework analysis (Gale, Heath, Cameron, Rashid, & Redwood, 2013) in which textual data were provided by the principal investigators (PIs) of the original projects (and their teams), organized into themes, and then further specified and illustrated.

During this process, the TPC team became aware that AHRQ had also concurrently funded four studies of primary care delivery system innovations under a larger program supported by the American Recovery and Reinvestment Act (ARRA; Health and Human Services, 2010). The team invited the primary investigators on these four studies to take part in this cross-study analysis. A second grant, awarded to another study investigator (Magill), also supported this analysis. At this time, the TPC team was expanded to include the participating ARRA instigators and relevant AHRQ personnel (hereafter "the Team").

Data Collection and Analysis

All 18 AHRQ grantees (14 TPC and the 4 relevant ARRA grantees) were asked to provide insights about their experiences with CM implementation. Ten of the 14 TPC grantees and 2 of the 4 ARRA grantees participated ($n = 12$ informants). Informants were often the PIs

alone or in consultation with their research teams. For a detailed breakdown of inclusion criteria, please see Appendix A. Appendix B describes clinical practices associated with the participating grantee teams.

Two rounds of data collection and analysis are summarized in Figure 1. Each institution received institutional review board (IRB) approval for the original grant-funded studies. IRB approval for the synthesis work presented here was not obtained as the University of Utah IRB indicated that this larger study was exempt from IRB review.

In Round 1 of data collection, prime investigators and colleagues serving as "informants" reflected on the practice sites studied and provided the study leads (Tomoaia-Cotisel and Farrel) with a brief summary of the study context, available data sources, and lessons learned during the grant period. After the study leads familiarized themselves with the data provided by the informants, the study leads independently coded these narratives, listing key ideas and recurrent themes (14 themes emerged). The study leads then met with all the informants to discuss, refine, and merge the resulting themes into a thematic framework. This thematic framework was refined in an iterative process by the study leads and by the informants during several conference calls as they reflected on how the identified phenomena influenced the informants' practices. Three coauthors (Tomoaia-Cotisel, Farrel and McGinley) took notes during the calls and incorporated these reflections into the thematic framework.

In Round 2 of data collection, informants reviewed a word document listing themes identified during Round 1. Informants highlighted those themes that pertained to their practices and included previously unreported information that related to the themes. The informants also added case studies illustrating how the themes played out in their practice sites. On completion of data collection, additional conference calls facilitated further discussion and refinement of the thematic framework. The resulting thematic framework consisted of three categories: CM characteristics; implementation process; and contextual factors at the practice, larger organization, and environment levels (Tomoaia-Cotisel, 2013). CM characteristics refer to the "what" of CM, including activities carried out, target populations, and assignments of responsibility for performing CM activities. Implementation process involves the "how" of CM, for example, how team operations shaped CM. Contextual factors at the environmental, organizational, and practice levels help explain variations in characteristics and implementation process and shape the prospects for maintaining and sustaining the CM program.

Study leads (Tomoaia-Cotisel and Farrel) then applied the thematic framework to the textual data by indexing Round 2 data according to the emerging themes. We summarized the themes in brief paragraphs. We did not array them in a matrix as proposed by Gale et al. (2013), since variations in data-gathering techniques and analytic focus across our sites made site-by-site comparisons inappropriate. In the discussion that follows, themes are illustrated with deidentified quotations or summaries from the grantee narratives.

Results

Program Characteristics

We present our findings about CM program characteristics with regard to CM functions, the staff delivering those functions, the targeted population, and the settings and timing of patient engagement. Because we also observed extensive variation in CM characteristics, we also identify contextual factors that, according to informants, affected programs' development.

What CM Functions Are Performed?—Functions included within CM can be classified into four domains: (a) self-management support, (b) strengthening linkages and relationships, (c) clinical care, and (d) administration (see Table 1 for the list of functions and illustrative quotations). Practices varied with respect to their selection and combination of CM functions.

Provision of comprehensive, collaborative care plans was central to self-management support. Once generated, care plans were used to monitor progress toward patient and family goals. In practice, such plans were often difficult to implement, according to our informants.

Several CM functions related to the strengthening of linkages and relationships. Building continuous relationships between clinicians and patients as well as their caregivers was facilitated by redesigning how patients are introduced to the care team, including use of "warm hand-offs," where the physician endorses the care manager as a member of the care team. Relationship building also involved redesigning clinic workflows; for example, having nonphysicians make phone calls to patients when these calls had previously been made by clinicians. Team building within the care team also emerged as an important function. Team building occurred during care team meetings (as CMs were now part of these meetings) and through frequent informal interactions made possible when care managers were physically colocated with providers and others on the patient's care team. Over time, the accumulation of these experiences contributed to both providers viewing CMs and CMs viewing themselves as being part of the care team.

Clinical care and administrative functions were also reported as essential components of CM. Linkages with the external environment (e.g., external care givers and agencies) facilitated monitoring for adverse events. When an adverse event was identified, appropriate care team members were mobilized as needed. For example, in the case of an unplanned hospital admission, when the CM identified one of their patients on a hospital discharge list, the CM was tasked with contacting the patient and facilitating the scheduling of a primary care appointment (Informant 3). Care team meetings enhanced the ability of the care team to work efficiently toward shared patient goals.

Contextual factors.—One set of contextual factors affecting the services offered stood out in the grantees' reports: The availability of an EHR and the ease with which the EHR could be used to support CM.

Availability of an EHR facilitated many aspects of CM including (a) communication among care team members (e.g., via electronic patient care plans); (b) organizing, coordinating, and documenting services to be delivered in a structured manner; (c) reminding patients about appointments or contacting patients who were lost to follow-up; (d) creating and managing patient registries; (e) tracking patients' plans of care and progress toward their goals; and (f) identifying additional "triggers" (e.g., utilization events such as hospitalization) warranting activation of CM services.

One informant (Informant 7) reported that some of the practices studied only acquired EHRs during the study period. In one state, the Department of Health provided subsidies to practices, training in EHR use, and support for acquiring meaningful use and PCMH certification. Despite the potential contribution of EHRs to CM, complications in using them often posed challenges for CM. One informant reported that when EHRs were hard to use, they complicated patient data collection and impeded smooth operations of the care team. These complications were observed in 8 of the 14 practices studied (Informant 5).

Who Delivers CM?—Some practices hired dedicated staff and designated them specifically as "care managers." The background and training of people given this role varied and included pharmacists, registered nurses, licensed vocational nurses, social workers, clergy, dieticians, unlicensed health coaches, child and family advocates, and medical assistants. The care managers' clinical responsibilities depended on their licensure and skills. Moreover, the training of staff performing CM services affected how they performed their duties. Some practices distributed CM services across multiple staff members, including clinicians. Other practices used care managers with specific functional expertise to train medical assistants in delivering certain services so as to broaden their reach within the program. Quotations illustrating these variations appear in Table 2.

Contextual factors.—Practice size influenced available resources, which, in turn, influenced who delivered services, and the types of services provided. Larger group practices were more likely to hire dedicated care managers, while smaller independent practices tended to rely on existing staff and a well-functioning EHR to facilitate implementation of CM functions. For example, in one set of small practices, the EHR contributed to documentation needed for follow-up on patients with chronic health needs, helped staff organize care during patient visits, and contributed to coordination of care with other practices (Informant 7). When small practices did hire care managers, they sometimes preferred to pool resources by relying on a centralized CM model (either centrally located or with travel from site to site; Informant 9). At other times, practices opted for a site-specific approach, as described below.

Informant 8 described three organizational models for CM delivery: The Centralized and Decentralized models were found in physician organizations, while a Site-Specific model was found in independent practices.

Details of these models include the following:

Model A: Physician Organization CM—Centralized

The physician organization … hire[d] a team of care managers who operated, for the most part, out of a centralized location. Primary care practices [usually] referr[ed] patients to the centralized team; although the practice that we interviewed reported that they were still working with the physician organization to determine … criteria to be used to identify patients for referral.

Model B: Physician Organization CM—Decentralized

A primary care practice that was part of a large, integrated provider organization reported that the provider organization had recently hired an RN case manager and assigned that individual to their clinic. Because this was a very recent addition to the practice, there was a high degree of uncertainty regarding the roles and responsibilities of the case manager, as well as the model for incorporating the case manager's work into the practice team's workflow.

Model C: Primary Care Practice CM—Site Specific

In this model, the primary care practice bears the responsibility and accountability for funding, developing, implementing and advancing the role of CM. Reported challenges included clarifying the roles and responsibilities of a care manager, creating the capacity (time in the day) to provide CM between visits and incorporating CM into the daily workflow.

For Whom Is CM Deployed?

Although practices sometimes delivered CM to an entire patient population, more often they directed CM services toward high-risk patient subpopulations. The definition of this high-risk subpopulation varied across sites. Inclusion criteria encompassed clinical condition and need; recommendations by physicians, demographic characteristics, and insurance status (see Table 3).

Some practices with dedicated care managers implemented a formal protocol to assign a panel of patients to the care manager based on a combination of selected high-risk conditions. In a small number of practices, patients were not assigned to individual care managers—instead, each care manager worked from a CM patient list shared with other care managers.

Patients were sometimes enrolled in CM via generated patient registries and sometimes through individual identification. Some practices produced and periodically updated registries, using periodic EHR queries based on a variety of criteria in Table 3. Others generated CM patient registries via automated claims-based risk algorithms (e.g., using complexity scores). Yet other practices identified individual patients to enroll in CM via patient request (e.g., patient requested assistance from CM in coordinating care) as well as physician hand-offs. Once the registry was generated, the center manager then was responsible for maintaining the registry and reviewing it regularly.

Contextual factors.—The breadth of individuals receiving CM depended on the patient characteristics of the primary care practice in which CM is embedded. For example, Informant 2 reported pediatric practices reaching beyond the pediatric patient to include a

range of family services, including child literacy assistance, behavior management, parenting skills, linkage to financial aid and other family supports, and support to siblings of children with disabilities or chronic illnesses.

When and Where Are Patients Engaged?—Patients received CM when experiencing an adverse event; for example, having HbA1c outside certain parameters, experiencing an ED transfer or unplanned hospital admission. Patients also received CM following a visit with the clinician, often via warm hand-off to the care manager. Alternatively, some care managers arranged a mutually agreed meeting schedule with the patient.

Contextual factors.—Most CM visits occurred in the clinic or via telephone. Other opportunities to engage with patients included home visits and intervisit coordination (e.g., with schools or community services for school-aged children).

> The type of visit chosen depended on the patient's preferences and needs:

> [After the initial in-person encounter with the care manager,] subsequent encounters can be either in person or over the phone, depending on [the] patient's preference. For example, one patient prefers seeing the care manager in person, because she felt that the anticipation of needing to "face" the care manager at a pre-determined time would give her the motivation needed to carry out the lifestyle changes. More activated patients may just need a telephone check-in with the care manager. (Informant 6)

Implementation Process

Two features of implementation process emerged from the grantees' reports: Approaches to assigning the "right person" to CM tasks and processes for incorporating care a manager into the care team.

Right Person, Right Job.—Whether a care manager was hired or CM functions were shared among care team members, informants agreed that it was important to assign the right person to the care manager role or to specific CM activities. Achieving this fit required considering both the candidates' expertise and their interpersonal skills: "Practices with well-trained and integrated care managers were much more satisfied with CM and utilized it routinely" (Informant 9). "In some practices it is primarily the provider him-or herself who provides most of the CM, because of a lack of other staff altogether, or staff with minimal competence" (Informant 7).

In a group of clinics that relied on multiple personnel with varied skill-sets to provide CM services, clinics identified the right person for a particular task based on timing and location of that patient in need: In the clinic, before and after clinician encounters, the patient engages with the medical assistant; between encounters, (a) if the patient is visited in the home then he engages with the community health worker, (b) if the patient comes to the clinic or calls the clinic, then he engages with either the community health worker or medical assistant (paraphrased from Informant 5).

Patient-Centered, Team-Based Care Involving an "Embedded" Care Manager.

CM was reported to reinforce relationship building within PCMHs. Implementing CM involved thinking about and sometimes redrawing patient, clinician, and (new as well as existing) staff relationships.

For example, one group of practices encouraged patients to change from accessing "the system" for care to accessing care from "my care team" (Informant 10). This approach shifted the relationship between the patient and clinicians within the system from one focused on individual visits to a focus on continuous, team-based care.

Practices in that same group changed nurses' roles from managing specific diseases to supporting patients across their range of comorbidities and health-related needs, and from roster-based disease management within the traditional clinician/patient dyad to a team-based model of care. This change altered nurses' focus from disease-centered care to patient-centered care. Recognizing that some patients had previously developed a strong relationship with a particular nurse, the delivery system also implemented open access, thereby continuing to allow the patient to continuing seeing the nurse he had previously seen for disease-specific care (Informant 10).

These same practices, revised the role of the scheduler to include helping patients find care teams in which they could establish relationships that met their needs:

> [Schedulers identified patients who moved] rapidly from one primary care clinician's panel to another … seeking reduced examination room wait times, less restrictive prescription practices, [or] improved personal relationships with their clinician, … [etc. and helped patients] find a [care team] with services most conducive to their needs. (Informant 10)

These redrawn relationships sometimes extended beyond the patient to include the family. In a group of *pediatric* practices, families favored the implementation of sitespecific and embedded CM.

> [The care manager] is a member of the team and the patient [and the] family perceive them as such (not a referral to care coordination but an extension of care). … The family are the primary care coordinators, they need ongoing and varying guidance, help [and] assistance. (Informant 2)

Most informants described CM functions as embedded within the primary care team in the sense that contact with clinicians was frequent and extended. Activities that embedded individuals performing CM within care teams included team meetings and "warm [in-person] hand-offs" of patients directly from the clinician to the care manager.

Contextual Factors Affecting CM Maintenance and Sustainability

During the early years of the CM initiatives that we studied, three factors appeared that were likely to affect the programs' ability to carry out their functions successfully and sustain their operations over time: level of shared commitment to CM within the practices, financial support for the program, and participating in a state or regional collaborative.

Shared Commitment.—Informants indicated that successful CM programs benefited from commitment of leadership, clinicians and staff alike.

For example:

> [The organization] committed to provide patient-centered care principles before PCMH became popular. [Its] leaders have invested in patient-centered transformations of its care processes and structures. … Commitment from [organization]-level or clinic-level leadership is paramount for the implementation of CM structure and processes. … Development and implementation of this model involved leaders, frontline staff and researchers. … Engagement with stakeholders in all levels of the organization is a prerequisite and a facilitator. (Informant 6)

Participation in Collaboratives.—Many practices received support for development and maintenance of CM activities through participation in state or regional collaboratives. Collaboratives generally acted as a venue where practices could discuss and share lessons learned. Some collaboratives provided additional resources and expertise to participating practices. One PI described "[A] state-led, state-wide, multi-stakeholder, multi-payer initiative … [P]ractices were supported by practice facilitation, regional learning collaboratives, monthly performance reporting, practice-based CM and enhanced payment structures" (Informant 4). Another PI reported "[Clinics benefitted from consortium-led] quality improvement and intervention activities and developed their network's quality improvement infrastructure as part of the project. The consortium now runs a 'learning collaborative' for effectively implementing interdisciplinary teams as part of PCMH implementation" (Informant 5).

Financial Support.—Practices involved in this study drew on varied sources of funding, including grants for research and service delivery, government-funded collaboratives, and EHR dissemination, as well as capitated payments and incentive programs from insurers. Many practices applied for seed money for CM through research grants and then sought other ways to sustain the program. For example, one group of practices:

> … participated in a pilot project funded by [a foundation], in collaboration with [an institute]. … [Later], a centralized department of managed care was formed to oversee CM functions for patients in capitated commercial plans and [for] Medicare Advantage plans with all [of the group's clinics]. (Informant 6)

Other informants indicated that state incentive programs for PCMH-accredited practices included funding for CM. (PCMH accreditation or recognition involves the implementation of a CM program.) In one instance, practices: " … received financial incentives primarily tied to being [National Committee for Quality Assurance] PCMH recognized, [developing] CM capabilities for high-risk patients; [attending] regional learning sessions and [a] monthly conference call; and [providing] monthly quality reports" (Informant 4).

Methods for sustaining CM were more difficult to ascertain, since some informants ceased to interact with practices on the completion of their research. Nonetheless, we did find examples of practices which successfully sustained CM beyond the completion of their

AHRQ-sponsored TPC projects. For example, one group of clinics continued CM by making the case for its own organization to take on costs that had previously been externally funded. The program leaders did this by " … showing cost-effectiveness, showing that this program would facilitate readiness for health care reforms coming up—being ready for the ACO [and] the readmissions penalties" (Informant 3).

In another set of practices: "The Medicaid network provided human resources for case management and patient education for Medicaid patients; the degree of this [support] varied by practice—by our observation, usually correlating with the amount of Medicaid patients a particular practice saw" (Informant 11).

Discussion

In this study, we collaborated on the collection, analysis, synthesis, and dissemination of findings by an unaffiliated group of investigators, all of whom received research grants from the AHRQ. Through an iterative approach analogous to framework analysis, we identified important themes regarding the characteristics of CM programs, the process of implementation of CM, and highlighted some contextual factors that may enhance implementation and sustainability of CM.

Several key features of CM similar to those reported in the literature (Taylor et al., 2013) emerged in our study; however, we also identified some nuances critical to effective implementation of CM.

Consistent with the literature on CM, we found that CM involved a variety of functions including self-management support, clinical care, and administrative duties. Like others, we found that a shared care plan was a critical component of CM.

Our study identified three additional CM functions that appear to facilitate effective CM. These additional CM functions, which are not mentioned in Taylor's model and are rarely cited in the literature, include the following: building relationships between clinicians, patients, and their caregivers; developing effective working relationships among care team members; and establishing relationships with external care givers and agencies. Our findings also suggest that a fully operational EHR can contribute to many CM functions and facilitate communication among team members.

We found that CM services were provided in a variety of settings including in the clinic, on the phone and in the home. A range of staff performed some or all of the CM functions. Informants reported that assigning the right person to CM tasks and embedding the care manager within patient-centered care teams were critical to the success of CM.

CM design and integration within practices were influenced by the larger context of practices. Who receives CM services, as well as when and where those services were received, depended on the patient populations served, the size of the practice, and the organizational design of the particular program. We found centralized and decentralized organization-wide CM programs, as well as site-specific CM. Patients enrolled in CM services were most often those exhibiting a need for a higher level of care, but the

definitions of need and criteria for assignment to CM varied widely. Availability of appropriate resources and support of engaged leadership with a shared vision appear to facilitate successful CM implementation and to bode well for sustaining CM after initial funding streams ended.

Limitations

Since we conducted a retrospective analysis of 12 unrelated studies, our findings should be viewed as descriptive and hypothesis-generating. Although all 12 of our informants studied CM, their definitions of CM, the actual types of CM observed, and their methods varied across studies. Therefore, a quantitative, outcomes-focused meta-analysis was not feasible. Our findings were limited in part by what informants chose to discuss in the brief Round 1 narrative. We attempted to address this limitation by providing a list of themes emerging from Round 1 and asking informants to highlight themes that were present in their studies but that had been neglected during Round 1 reporting. The findings were further limited by whether an individual research project explored particular themes in the thematic framework. In particular, some of our informants reported few findings about the sustainability of CM programs because the researchers did not have contact with the studied practices after their research awards expired.

We organized our findings into themes rather than providing program-specific case studies. As a result, we did not provide detailed, context-specific descriptions of each organization or set of practices; however, we did offer a summary of contextual information grouped by study team (Appendix B), contextual factors influencing each CM program characteristic, and a separate discussion of contextual factors affecting maintenance and sustainment of CM programs. We observed that contextual factors specific to the practice, organization, and larger environment all influenced CM implementation.

Other study limitations may include biases due to recall and social desirability biases in the data collection process. We sought to minimize these biases by asking informants to ground their responses in illustrative cases, context-specific comments, and contrasting results.

Directions for Future Research

Our study suggests important ways that CM activities and implementation are influenced by contextual factors at the practice, organizational, and environmental levels. Our inductive methodology could not ensure full specification of possible factors affecting CM at each specified level of analysis. Hence, future research could fruitfully explore in depth the effects of contextual factors at each level of analysis; for example, the methods for sustaining CM services and sustaining patient engagement in those services.

Future research may further profit from examining interactions among specific components of CM identified in this analysis and from assessments of the components' separate and joint contribution to CM processes, costs, and care quality. If, for example, e-visits enhance patient access to clinicians and the practice uses an electronic registry, care managers might need fewer outbound contacts and less paperwork to update recommended diagnostic tests. Another fruitful area of exploration could be investigation of the most effective staffing models for the delivery of specific CM services. The variations we observed in assignments

of CM functions suggest that the relative superiority of particular CM staffing models may be context-specific.

Researchers should continue to examine the CM implementation process, which may be a modifying factor in practices' experiences with CM. Training, selecting, and assigning the right person to specific CM activities or to the care manager role was reported to strengthen CM programs.

Attention is warranted to the ways that practices build strong patient-centered care teams and embed the care manager within these teams. Optimal delivery of CM services depends on high-functioning interprofessional (IP) teams that understand the four core competencies of IP team care, including values of IP practice, role and responsibilities of IP team members, IP communication, and IP teams and teamwork (Interprofessional Education Collaborative, 2011). IP training has become increasingly common within medical school curricula, but there is still significant work to be done to change the culture of medical care from a clinician-centered to a team-centered approach.

Implications for Practice and Policy

Our research also has important implications for the practice of CM. Our findings suggest that CM program characteristics and implementation processes continue to evolve in relation to the complex variation in practice settings, organizational context, and the health care environment. Moreover, the findings raise questions as to whether there is a single best approach to CM that will be appropriate for all clinicians, patients, and practice conditions. Instead, it seems wise for practice leaders, along with researchers, to continue efforts to identify combinations of CM arrangements, staffing, and funding that best align with specific types of patients and specific practice settings. In this endeavor, we suggest that practitioners remain mindful of the importance of embedding CM within patient-centered care teams so that CM resources are routinely available (Rodriguez, Chen, Martinez, & Friedberg, 2015). At the same time, attention is needed to strengthening the care manager's connections to specialists and community agencies beyond the practice, along with relationships with patients' families.

Elsewhere, some of the authors of this study discuss broad implications of CM for medical practice, health policy, and health services research (Farrel, 2015). Here, we highlight one important policy issue: the sustainability of new CM initiatives. CM programs begun as pilots or demonstrations require further sources of funding if they are to be sustained. The new chronic CM billing codes implemented by CMS in 2015 hold promise for assisting practices in maintaining CM services for patients with multiple chronic conditions (CMS, 2015c). CM services including planning and managing care, self-care support, and tracking and coordinating care may be covered. These services can be provided in person or via telephone contacts. However, practices will need to modify their billing practices and documentation procedures to be able to use this new mechanism. Other mechanisms for ensuring the sustainability of CM services should also be investigated. As the health care workforce expands to include new health care professionals, including the integration of behavioral health within primary care, methods for compensating practices for their services will become increasingly important. It is to be hoped that new forms of value-based payment

(CMS, 2015b) will succeed in creating a business case for carrying out the full range of CM activities within primary care practices.

Conclusion

CM has emerged as an important function related to the provision of patient-centered primary care. CM will become increasingly important to patients, clinicians, health care administrators, and payors as evidence accumulates that CM can both improve outcomes and decrease costs. Hence, a wide range of stakeholders will benefit from detailed analyses of ways that CM is actually delivered, as well as from evaluations of CM's impact on cost and quality.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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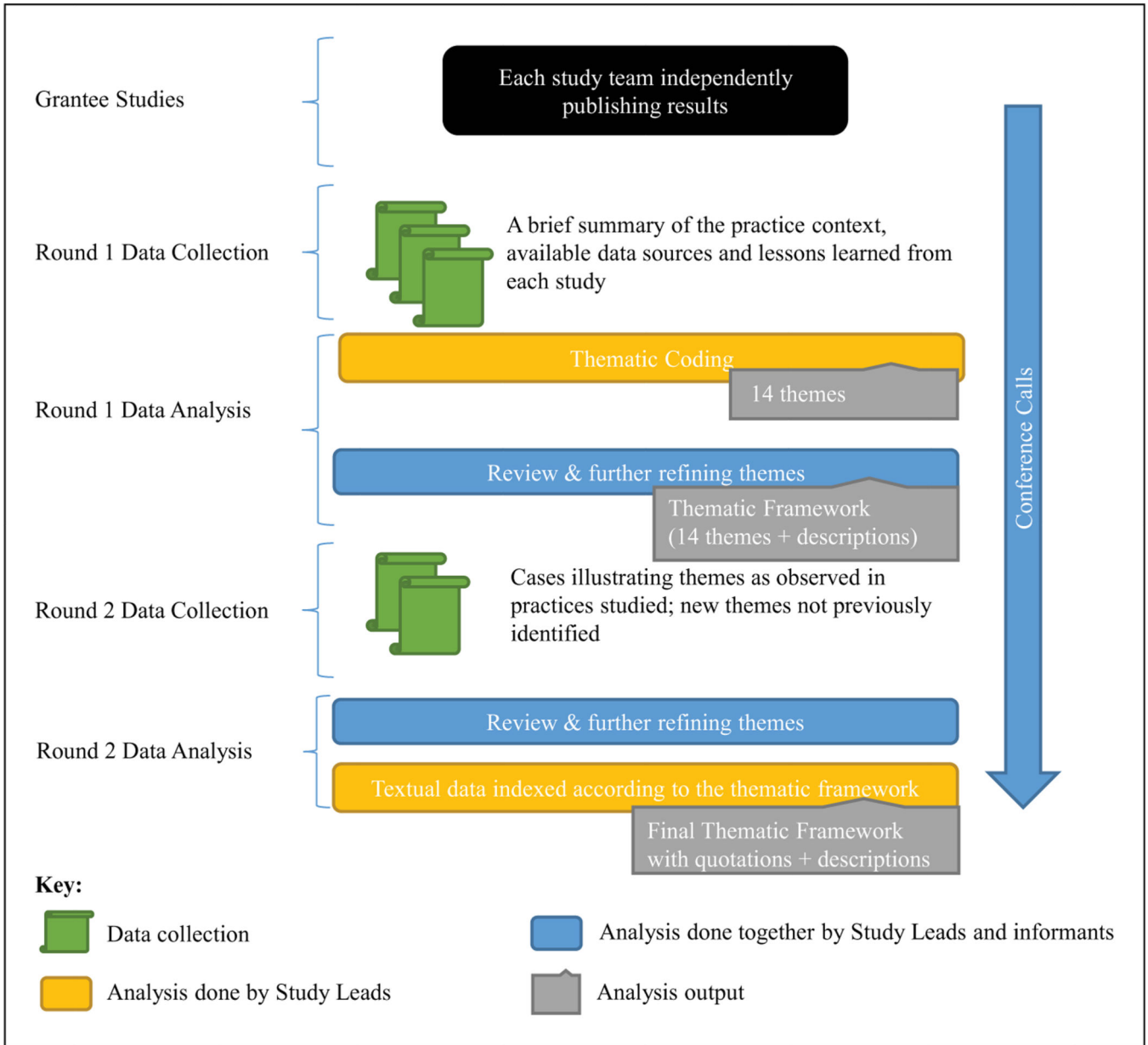
Figure 1.
Methods flow chart.

Table 1.

Care Management (CM) Functions.

CM functions and illustrative quotations

Self-management support[a]

  • Goal-setting assessment and discussion (e.g., weight loss, exercise, blood glucose and blood pressure targets, management of depression)

  • Care plan development, utilization, and revision

  • Motivational interviewing

  • Behavior change counseling

  • Health education

  • Self-care skills building

  In each [practice] providing care as a team in this way [developing and using plans of care] was evolving. For example a provider may complete part of a care plan, the family another and the care coordinator a third. The care coordinator then checks with provider and runs a final version by the family for review. In this way all teach, all learn. (Informant 2)

Strengthening linkages and relationships

  • Ongoing outreach and follow-up services (e.g., previsit contacts, identification of patients overdue for services, refining patients' goals, postadverse event review)

  • Transmission of clinical information during transitions across the care continuum

  • Linking to community resources

  • Building a continuous relationship with patients and their caregivers

  Workflow of the care coordinator includes a pre-visit assessment to identify family priorities, [and] goals; and [to] document unforeseen events, emergency room visits, [and] specialty care since last seen. This helps the practice team prepare for a planned care visit. (Informant 2)

  Some of the practices with the most developed CM functionality were communicating with their local hospital(s) about care transitions and calling discharged patients to assess transitional care needs and arrange for follow-up visits, and reconcile medications. (Informant 4)

Clinical care

  • Medication reconciliation

  • Assessment of compliance with treatment recommendations

  • Treatment intensification

  • Monitoring for adverse events to mobilize response from the care team

  Care coordinator/care manager monitors and provides ongoing contact, thus looping the clinician in as needed, requested, warranted. (Informant 2)

  The key here was a broader focus on issues not often addressed by primary care providers—looking at the patient's overall resources and ability to follow through on their PCP's recommendations. This required total flexibility in where the CM made contact with the patient and also how that visit came about—whether through outreach to folks not meeting clinical goals, by referral from the PCP or practice nursing staff, or by request of the patient. (Informant 12)

Administration

  • Participation in practice quality improvement activities

  • Participation in care team meetings

  Care managers in highest performing practices we studied had their own high-risk patient panels and met regularly with the providers in their practice to discuss and coordinate the care of these patients. (Informant 4)

[a]Except in the case of children, where the caregiver will need management support as the child is less able or unable to self-manage his or her condition(s).

Table 2.

Who Delivers Care Management (CM) Functions?

Who delivers CM functions?
Background/Training: The care manager with the research background was adept at collecting and reporting requested data. The care manager with the clergy background was more interested in spending time with her patients and [stated] that she did not have time to do the reporting. Not that either approach was necessarily bad; we hired these individuals, recognizing the diversity of expertise and cross-training that they could bring. (Informant 3)
Specialize by Function: [For example] A receptionist might take on those CM functions related to enrollment, scheduling, coordinating visits, and [providing] referrals and [generating] reports while, a nurse might do most of the patient education and counseling. [A] physician or nurse practitioner would address treatment changes. (Informant 1)
Training Others: One of [the care managers] is an experienced registered nurse and certified diabetes educator who supervised and trained medical assistants in educating and encouraging patients in the [program]. (Informant 6)

Table 3.

To Whom Is Care Management (CM) Delivered?

Practices defined the target population for receipt of CM services according to one or more of the following criteria:[a]

• Patient need

○ Burden of comorbidities (e.g., presence of one or more chronic conditions: diabetes, hypertension, coronary artery disease, chronic obstructive pulmonary disease, congestive heart failure, asthma, chronic kidney disease, depression, cancer)

○ Physical disability or social issues interfering with patient's compliance with clinical recommendations

○ Gap in evidence-based care (e.g., HbA1c not assessed, asthma action plan missing)

○ Identification as high risk for undesirable outcomes such as an adverse medication event

○ Specific triggering event (e.g., uncontrolled HbA1c, hospital discharge)

• Other patient characteristics

○ Ethnic group (e.g., American Indian, Alaska Native, Latino)

○ Age (e.g., children and their families, older adults)

○ Insurance status (e.g., capitated commercial plans, Medicare Advantage plans)

• Clinician recommendation (i.e., clinicians generate list of patients they believe would benefit from CM services)

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[a]These criteria were sometimes used to generate patient registries for care management (e.g., event occurrence places the patient on the care management list). Alternatively, they were used as components of predictive algorithms to identify patients at high risk of an adverse event.