Original Article

Making the Paradigm Shift from Siloed Population Health Management to an Enterprise-Wide Approach

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Abstract

Health systems across the United States have started their journeys toward population health management and the future of accountable care. Models of population health management include patient-centered medical homes and private sector accountable care organizations (ACOs). Other models include public sector efforts, such as Physician Group Practice Transition Demonstrations, Medicare Health Care Quality Demonstration Programs, Beacon Communities, Medicare Shared Savings Program, and Pioneer ACOs. As a result, health care organizations often have pockets of population health initiatives that lack an enterprise-wide strategy. The next steps are to build on these efforts, leverage the learnings from these experiences, and incorporate the initiatives into an overarching framework and a road map for the future. This paper describes the current challenge many organizations face to implement an enterprise solution, describes how to transition from existing siloed initiatives, and shares a case study of how Mayo Clinic launched its Mayo Model of Community Care.

Keywords: accountable care, community care, health care reform, primary care

Introduction

WITH THE HEALTH CARE industry's drive to increased emphasis on value, US health systems have started a journey to population health management (PHM) and the accountable future. In this article, PHM is broadly defined as the advancement of the health of a defined population through coordinated programs and activities that address medical or social determinants, or both, of health and are supported by an aligned payment model that rewards improvement of population health.[1]

PHM models have taken many forms. For more than a decade, patient-centered medical homes (PCMHs) with accreditation from the National Committee for Quality Assurance have been flourishing. Other health systems began their course by accessing self-insured populations to launch PHM programs and build internal capabilities around PHM core competencies. Yet other models started with a private or public sector accountable care organization (ACO), such as a commercial shared savings arrangement or one of many options under the US Centers for Medicare & Medicaid Services, such as Medicare Physician Group Practice Transition Demonstrations, Medicare Health Care Quality Demonstration Programs, Beacon Communities, Medicare Shared Savings Program, and Pioneer ACO Models.

All health systems should be working toward the shift to value-based care. However, PHM programs are too often pursued individually by multiple departments within an enterprise and in the absence of a larger organizational strategy. The result is departmental pockets of initiatives operating simultaneously with competing goals, objectives, and resources, thereby limiting PHM success for the health system and the community. To ensure a successful PHM program, health systems should develop instead a comprehensive enterprise-wide approach that is aligned with their larger strategy and is part of their overarching framework and road map for the future.[2]

This article describes the current challenges facing many organizations as they pursue PHM; explains how systems can move from a siloed structure to a cohesive, aligned enterprise model; and shares a case study of how Mayo Clinic developed an enterprise solution—Mayo Model of Community Care (MMoCC)—through its Office of Population Health Management (OPHM).

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Models for PHM and Common Limitations in Early Pursuits

Population health initiatives come in many forms and models dictated by the health system, the payer and payment model, and the target population. Typically, health care populations begin to be defined with insurance coverage, and then the definition narrows the scope on the basis of any number of approaches: product, episode type or condition, patient selection, or provider attribution. Various data and analytic approaches are needed to understand who is in the target population and then to stratify the population to understand the individual patient's needs.

In addition, PHM models include an assortment of payment arrangements that range from shared savings and bundles to full capitation. Performance expectations differ greatly across models, including the key process or outcomes metrics, or both, for which the health system is accountable. Health systems have various levels of influence over the terms of the arrangements and associated benefits designs.

Among these PHM models, health systems often start with a narrow or pilot population to test and develop the population's capabilities. As health systems begin to add new populations and seek to grow their PHM programs, they often enter into different payment models with varying expectations for performance and have different implications for the care models, information technology (IT), and other capabilities required to manage the population's health effectively.

In the absence of an enterprise-wide strategy and coordinated approach to PHM, the pursuit of one-off models can create substantial hurdles to navigate. Common limitations include the following.

Siloed population health targets

Organizations face many challenges when trying to apply PHM to a target population or to expand their target group to include more populations. Adding new cohorts to the accountability focus, along with a new care management program, brings different workflows and health concerns that need distinction. Programs focused on diabetes mellitus, frailty protocols for elderly persons, memory center assessments, and cancer survivor processes should be aligned so that any individual patient can receive seamless care coordination that supports each program's patient goals. Without an enterprise perspective of the target populations and a holistic approach to address dynamic population needs, determination of the best interventions is difficult.

Pockets of metrics

Executive support for multiple quality improvement initiatives could skew the metrics by reprioritizing them on the basis of financial impact. For example, when a population has 100,000 members, 20% of whom have diabetes, the executives responsible for increased claims costs may mandate quality metrics for diabetes. One metric could be high-risk pregnancy, which has a substantial cost of care. Because of its financial effect, even when only a small fraction of the diabetic population is associated with this metric, high-risk pregnancy could become a priority for intervention, instead of the larger, more prevalent, and costly issue at hand—diabetes.

"Hidden" best practices

Many primary care provider practices have no mechanism for sharing the best practices and lessons learned. To effect a meaningful impact in the target population's health, health care managers need to share strategies for prevention, community engagement, care coordination, management of chronic conditions, palliative care, care transitions, team-based care, and patient engagement and access.

Integration dissonance results in incomplete data

Often, technologies that support care coordination activities and analytics are derived from multiple vendors and without true integration. Many organizations try to use the electronic health record (EHR) but are challenged because they do not have holistic patient data from other EHRs or out-of-network visits from claims data. Most PHM vendors offer products that bolt on to a core database to provide a basis for integration. Upkeep can be unwieldy because data dictionaries define each product individually. This lack of integration creates an incomplete view of risk, which is a challenge for effective PHM.

Phased Enterprise Approach

These challenges exemplify the importance of having an overarching framework and road map for PHM that directs the health care enterprise into the future. Industry experience has shown that the organizations achieving some success with PHM take a 3-step approach: current state understanding, business planning, and iterative clinical and technical integration with an aligned economic model. With a holistic approach, implementation of a program is possible to achieve better health for populations and better provision of care with commensurate lower costs per capita.

Understanding the current state

Understanding the organization's starting point is necessary for planning and implementing PHM. By assessing its maturity in the PHM continuum's core competencies, an organization can plan and implement strategies to make the necessary enhancements and achieve its business goals. PHM maturity models[3] can help organizations evaluate their current state among industry best practices and industry peers.

The PHM journey is not linear because of the great diversity in the possible end state and pathway of a specific organization or market. Yet, within any context, the assessment and knowledge of where an organization is along the PHM maturity continuum can allow health systems to track and celebrate milestones attained and to identify ways to continue to grow. In other words, the organization identifies where it is on the maturity model and then defines its next steps to move to the next level.

Business plan, organizational support, and structure

The adage, "failing to plan is planning to fail," rings true with PHM. Managers are encouraged to set goals and milestones for the target population and to write a business plan to address how they will be achieved—steps common in all strategic undertakings. This approach should include funding, clinical integration, and underlying technologies to

support the program. It is imperative to develop a 3- to 5-year plan for business strategies and population segments of interest that includes the following aspects:

- Vision and value proposition
- Target customers and staging
- Strengths, weaknesses, opportunities, and threats
- Marketing and patient engagement
- Key performance metrics
- IT
- Financial implications

Every level of the organization needs to understand the PHM goals and objectives and to work synergistically to achieve them.

Iterative approach to clinical and technological integration for milestones supported by aligned economic model

An iterative approach is recommended to achieve full clinical and technical interoperability that works in concert toward business goals, maximum quality-enabled shared savings, and an interoperable system that proves results. Importantly, the economics associated with the pursued PHM programs must align to appropriately support both clinical and technical innovation and change required for success under new PHM models.

First, clinical integration should be defined within the business plan and progressively elaborated before technologies are implemented. If clinical integration is lacking, the underlying technology cannot be effective. Managers can consider a registry for care navigators to use in reaching out to patients who are being discharged. If an existing workflow sends the discharge note to a case manager, then this clinical process must change to allow at least 2 people checking on the patient post discharge. Clinical workflow may require new policies, new procedures, and communication between care team providers.

Second, technology must work together with people and processes across the care continuum for the benefit of the patient. Providers accustomed to fee-for-service compensation traditionally have focused on acute care in episodic encounters. Thinking outside the practice walls requires more than a digitized list of patients who are coming in for an appointment or are on a call-back roster. Instead, providers need tools that help them find patients who need assistance with health care. Because of this paradigm shift, the supporting technology should be able to focus on the health of the patient sitting in the examination room and the future predictive health risk of the patient who has not been seen for months or years.

Third and most important, people and processes are the factors that make PHM successful. Providers who currently see 20 patients face-to-face in an 8-hour day may see, with PHM in place, 10 patients face-to-face for half of the day and spend the rest of the day working an inbox of portal messages for another 100 patients. Proactive care for health care professionals coming into the practice, including huddles and team-based collaboration, enhances the clinical workflow, enabling it to support an increased patient load effectively.

The goal for this iterative approach is to develop sophisticated clinical integration at all organizational levels. In this way, handoffs between caregivers can be seamless from the hospital to the patient's home. Importantly, key process indicators need to be established for measuring and making operational, financial, and clinical decisions. The technology platform should be integrated and should consistently support the need for real-time information for decision making, care coordination, and management of patients and providers. Only with processes to implement and support a holistic care plan can the health care organization take on the risk of accountability for a population's care.

To support the technological and clinical innovations and changes, organizations must ensure they have appropriate economic incentives from the highest level of the organization to the individual leaders and clinicians being asked to change the way they function.

Implementing a Phased PHM Enterprise Approach

As health care organizations travel the population health continuum, many are turning to industry leaders and peers to help identify successful approaches, best practices, and lessons learned.

Mayo Clinic is a nonprofit, integrated group practice wherein providers from every medical specialty work together to meet the needs of the patient, with support from common systems and a core value that emphasizes that the needs of the patient come first. Approximately 3800 physicians and scientists and 50,900 allied health staff work at Mayo Clinic, which has academic centers in Rochester, Minnesota, Jacksonville, Florida, and Phoenix and Scottsdale, Arizona. Mayo Clinic is not as well known for the primary care that it provides to more than 80 communities in the upper Midwest. Collectively, these locations provide care for more than 1 million people each year.[4]

Mayo Clinic's journey to enterprise-wide population health provides an excellent case study.

Understanding the current state

Today, Mayo Clinic is considered a highly integrated and coordinated health care delivery model among the specialty practices of tertiary care centers. However, its leadership recognized the opportunity to integrate Mayo's regional and community practices with its already-integrated tertiary care centers, thereby facilitating communication, coordination of care, and accountability.

Mayo Clinic leadership also realized that multiple initiatives were already under way; although some of the initiatives aligned with central PHM principles, other initiatives did not. Initiatives also involved overlapping resource needs, system requirements, and service offerings, thereby offering a prime opportunity for a unified strategy for value-based reimbursement.

Business plan, organizational support, and structure creation

In late 2012, Mayo Clinic established the OPHM to develop a coordinated care model grounded in PHM principles from its PCMH. The OPHM was chartered to perform the following steps:

- Coordinate and integrate existing aligned initiatives for PHM across Mayo Clinic.

- Share knowledge among the Mayo campuses.
- Develop a framework and strategy to ensure Mayo has the tools and processes needed to support the transformative model of care.
- Ensure a plan exists for standardization and convergence, for the model to be supported and able to be spread to all Mayo Clinic primary care sites.

Mayo Clinic's vision was a patient-centered, integrated care delivery model based on aligned incentives; coordinated, collaborative processes; evidence-based prevention and disease management protocols; and seamless sharing of information. The model needs both to be supported by wellness and continuity care programs that focus on patient engagement, community integration, prevention, and health promotion and to be driven by analytics that support quality outcomes and value-based, accountable reimbursements.

With the vision established, a business plan was created to place it in operation throughout the primary care practices in 3 phases (Table 1). After approval, the OPHM could move forward with the structure needed to support its charter and vision.

Governance

The OPHM reports directly to Mayo's executive dean of practice, who oversees the Clinical Practice Committee for the enterprise. Internal and external advisory collaborations provide additional guidance for OPHM. The office's executive group gives operational oversight for the breadth of OPHM activities. The group contains the medical director; associate directors based in Arizona, Florida, and the Midwest; program directors; and administrators. The operations team—associate directors and operations administrators—manages operational oversight for site-specific activities.

Program framework

The OPHM developed 8 clinical programs based on functional elements and supported by stakeholders across operational sites. Its goal was to develop programs in synergy to use common resources and technologies that benefit from common successes. Although some programs were further along in their development and diffusion, they lacked scientific rigor to identify best practices, standardi-

zation, coordination, and shared learning. The OPHM worked with program leaders to identify priorities, standards, resources, and time lines for universal implementation. Following is a description of the 8 programs that were developed:

1. Primary prevention involves preemptively preventing disease onset and is rooted in education and based in the community. Education is needed at the individual patient level and community level to motivate and engage patients to take action or to understand the need for certain tests and immunizations.
2. Community engagement integrates clinical and public services in the communities in which Mayo Clinic provides primary care to ultimately improve and sustain high-quality health and well-being. Coordination of services that span the public and health sectors is essential in closing gaps in care that are driven by the social determinants and lead to increased morbidity and inappropriate utilization of high-cost services.
3. Patient engagement identifies innovative ways to involve patients in their health outcomes. It uses education, behavioral modification, support, and follow-up to motivate and drive shared decision making and patient self-care, which in turn drives healthy lifestyle choices.
4. The term *care coordination* refers to a set of activities performed across time, episodes, and venues in collaboration with patients and their families. It is designed to manage complex medical conditions and to more proactively, efficiently, and effectively improve patient health status, increase patients' capacity for self-management, and reduce their need for medical services.
5. Care transitions are the coordination of activities to ensure continuity of health care as patients transfer between different locations or levels of care. This transition encompasses coordination of care on both the sending and receiving ends of the process. By using advanced practice nurses or trained transition coaches, readmissions are reduced substantially.
6. Chronic condition management is a systematic, evidence-based, proactive approach to treating patients with chronic diseases. Ambulatory-sensitive conditions, such as diabetes mellitus, have achieved

TABLE 1. THE PHASED APPROACH OF MAYO CLINIC OFFICE OF POPULATION HEALTH MANAGEMENT

Phase	Description	Goal	Deadline
0	Office establishment	Instill awareness—institutional culture change Recruit office staff Draft operational plan, metrics, charters	Q2 2013
1	Basic foundation	Establish foundational programs Assign care coordinators at all sites Implement basic foundational IT systems	Q4 2013
2	Transitional volume to value	Hard wire basic programs Expand on second-tier programs Implement second-tier IT tools	Q4 2015
3	Transformation to total value	Have fully aligned incentives Have all programs fully operational	2017

IT, informational technology; Q2, second quarter; Q4, fourth quarter.

improved outcomes through applying evidence-based protocols in a team-based model and supporting the protocols with IT tools that allow care teams to proactively treat patients between visits.

7. Access is a program of standards to ensure that the right patient has access to the right provider and level of care at the right time. This access is necessary to achieve appropriate utilization of services, and openings eventually are created in the acute care process, making up for projected shortages.

8. The palliative care program develops models that adhere to the core concepts of palliative care, namely focusing on relieving and preventing the symptoms of terminal conditions. Palliative medicine is intended for consideration in patients in all disease stages.

In addition to these 8 programs, 3 key functional subgroups focused on the foundational elements required for the success of all the programs: change management, information systems, and data analysis. Change management experts trained in the Prosci ADKAR model were brought in early in the planning stages and were often present throughout each implementation phase. This involved group and individual interviews with those affected by change to gather their feedback and identify barriers to change. While this brought focus on the people side of change, information systems and data analytics allowed Mayo to assess and measure the impact of change. Metrics such as panel size, quality outcomes, and patient satisfaction were reported in easy to understand visual dashboards that allowed individual teams to understand their performance while allowing leadership to compare teams across the institution.

Clinical and technological integration to achieve visible milestones

Mayo Clinic took an iterative approach to roll out the transformative model of care and drive standardization of PHM practices. The effort was segmented into the 3 operational phases (Table 1). Within each phase, alpha and beta teams were created, tested, reworked, and diffused the necessary changes to support transformation. Experience gained at each testing site and implementation phase of the MMoCC fed information into the next iteration.

Operational Phases Set Incremental, Achievable Milestones

Phases of operation

Following an initial office formulation phase, the following 3 operational phases were implemented (Fig. 1).
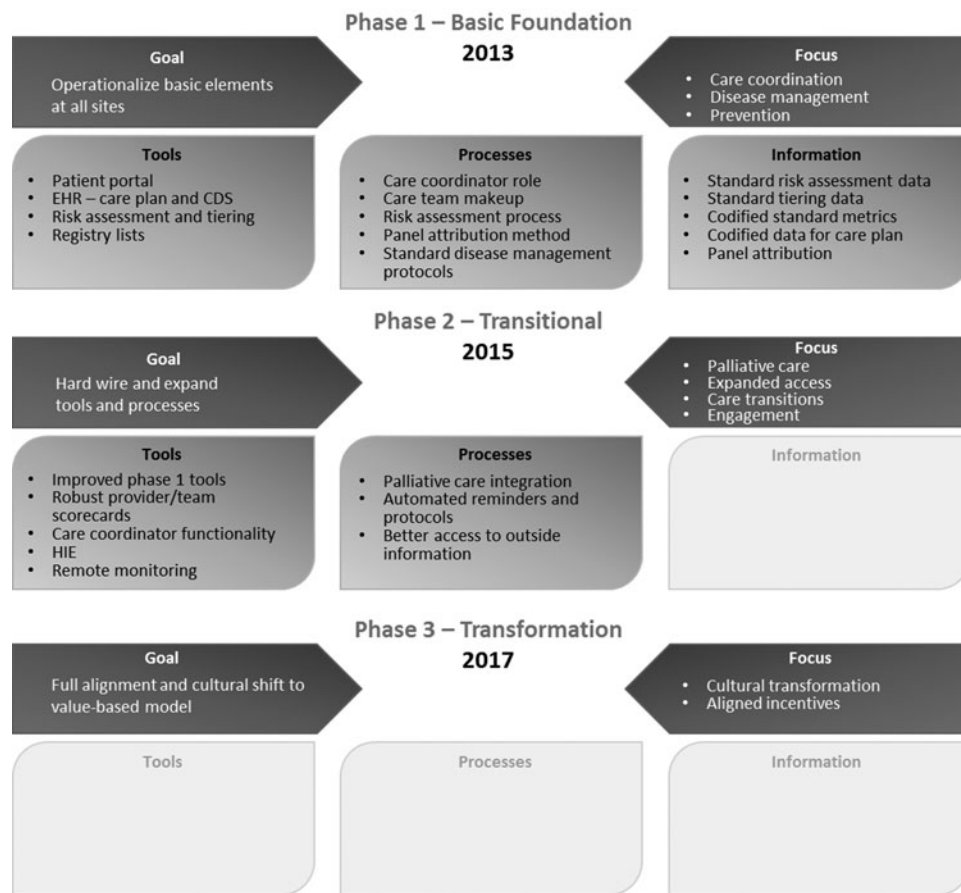

FIG. 1. Mayo Clinic Office of Population Health Management staging phases. Used with permission from the Mayo Foundation for Medical Education and Research. CDS, clinical decision support; EHR, electronic health record; HIE, health information exchange.

Phase 1: Basic PHM operations. The goal for the first phase was to set into operation the basic elements at all Mayo Clinic sites. The focus was basic care coordination, disease management, disease prevention, and formation of care teams. The care coordinator role and the care team makeup were standardized across sites. Processes were defined for risk assessment and panel attribution, and standard disease management protocols were implemented. Tools essential to supporting PHM operations were put in place across all sites—including a patient portal; the EHR model with care plans and clinical decision support; risk assessment and tiering software; and standardized data definitions across the registry lists.

Phase 2: Transitional volume to value. The goal for this transitional phase was to solidify the cultural changes that began in phase 1 by reinforcing workflow changes and expanding services that improved the value of care provided. The focus was palliative care, expanded access to non-visit care options, care transitions, and patient engagement. Many process changes were implemented, including palliative care integration, automated reminders and protocols, and improved access to external information. Tools implemented included robust provider and team scorecards, care coordinator functionality, PHM analytics, health information exchange, and remote monitoring.

Phase 3: Transformational phase. The goal of this final phase was a full alignment of all practices and a cultural shift to the value-based model. The focus was change leadership to support the cultural shift and provider-aligned incentives. Tools and processes are to be determined but will be the latest technologies available and the best practices known.

Alpha and beta teams to phase in standardization and incorporate local factors

Across each phase, OPHM geographically assigned and funded alpha and, later, beta teams to provide the diffusion framework. The process started with pilot sites to test the implementation package. This test incorporated local factors such as aligning payer contracts and compensation incentives to enable transition at an appropriate pace, and obtaining local ownership in the provision of resources and management of implementation pursuant to the MMoCC guiding elements.

New and elevated levels of value-based care

Through the enterprise efforts of the OPHM, Mayo Clinic took what it does best as a destination medical center and applied those principles to its primary care practices to support the future value-based system. The MMoCC continues to be deployed to the enterprise and advance the PHM capabilities in the primary care practices.

Key Success Factors

Mayo Clinic provides a strong example of a successful enterprise PHM effort. Although numerous success factors affected the MMoCC, the following 11 factors are spotlighted.

Physician executive leadership

Physician executive leadership is a must for a successful all-site PHM effort. A physician champion needs to be identified who has decision-making power, trust of peers, and credibility around clinical and technical integration. This person should be an opinion leader and influencer who has a vision for the future value-based care environment.

Population health advisory group

If a PHM advisory group does not already exist, one should be established to review, propose, and approve major decisions; ensure delivery of expected outcomes; and assist with issue escalation and resolution. This advisory group should report to top-level executives to ensure closed-loop communication on PHM activities and successes.

Governance and program oversight

A sound governance support structure must be in place and have strong leaders in key positions. Current governance structures should be leveraged where possible. In addition, each PHM clinical program requires oversight to provide direction, make decisions, and communicate its operational status. The structure leaders should establish program oversight teams for each clinical program, with a physician champion and leaders in clinical, nursing informatics, and operations areas to determine process and technology changes. Operations leadership is essential for decision making and for bringing decisions and proposals to the local level for feedback or execution.

Funding and staffing

Organizational commitment through sufficient funding for IT tools, staff, and process changes is necessary to support an enterprise approach and keep PHM initiatives moving forward.

Technology foundation

Integration of analytics systems is needed to drive best practices. Billing data, patient satisfaction data, EHR clinical data, claims data, and other technology sources support the PHM structure and provide a comprehensive clinical picture of the patient.

EHR

A central technology for PHM is a standardized, robust, and flexible EHR. As PHM technologies are added, they need to integrate with the EHR, leaving it as the central repository for all clinical information about the patient. The EHR must support new population health workflows and team-based care through tools that support collaboration. New workflows will be stressful enough without an easy to use EHR that supports them.

Care management

A care management system helps stratify patients by risk and recommend interventions. This system should not duplicate documentation in the EHR or another source system.

An interface should exist between the 2 systems that syncs the 2 on an ongoing basis.

Population analytics

A population analytics system is necessary to produce reports supportive of the management and measurement of the results of PHM efforts.

Data aggregation and integration

These 2 factors ensure that data entering the PHM analytics system are standardized with a clear, concise, and common data definition. Before the training of the end users, the integration scenarios should be planned for and tested.

Change management

Change management is an important success factor, especially with new clinical workflows and changes in technologies. Staff need to understand why they are being asked to change the workflow, such as participating in colocation, documenting goals and interventions, and preparing for and participating in daily clinical huddles. Physician champions are necessary to drive these new processes and demonstrate their importance.

Portfolio, program, and project leadership

Project leadership is critical to keep the PHM implementation team on target for the schedule and to meet the PHM scope and objectives. Project management tools are used to document timelines, risks, issues, status reports, and meeting agendas, with minutes and action items to ensure the project path is clear at all times.

Conclusion

The past 10 years have brought about myriad approaches, solutions, and models for value-based care in the United States. Health systems pursuing population health should do so with strong consideration and alignment with the overarching organizational strategy. Too often, PHM programs are undertaken in pockets or silos in an organization, with multiple models implemented, thereby limiting their benefits to the target population and the health system. Realizing an accountable future—improved health outcomes, better health care experiences, and lower per capita costs—requires that health care providers learn from the work of others. Mayo Clinic's launch of the MMoCC provides central lessons and recommendations to health systems looking to successfully create or transition to a comprehensive, enterprise-wide PHM program.

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