

Assessing the Components Needed to Support and Operate Comprehensive
Medication Management in Primary Care Clinics

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Abstract

Background: Significant attention has been given to developing a consistent patient care process for providing comprehensive medication management (CMM). However, little research exists that examines the structures required to effectively manage a CMM practice to achieve quality, consistency, and sustainability. The aims of this study were to (1) determine the essential components of CMM practice management and the extent to which these components are being carried out in practice, and then use these components to (2) develop a CMM practice management assessment tool to assess and prioritize areas for CMM practice management improvement for an individual clinic.

Methods: This study was part of a large implementation and outcomes evaluation project involving 35 primary care clinics delivering CMM across five states. Clinics were divided into three similar cohorts. To begin, a focus group was conducted with CMM managers of participating clinics to understand management's perspective on the essential components of CMM practice management. Then, one-on-one semi-structured interviews were conducted with the lead pharmacist from all clinics in cohort one. Participants were asked to describe what they considered to be the essential components of CMM practice management and describe them as they applied to their practice. Transcripts from the focus group and cohort one interviews were coded inductively by two investigators using NVivo. Initial codes were grouped into categories, which were considered the essential components of practice management. A descriptive CMM practice management assessment tool was developed from emergent categories and codes. A second series of focus groups were held with the same CMM managers to obtain their feedback on the tool, as well as the essential components. Based on feedback from the focus groups, the essential components and their definitions were refined. Using cognitive interviewing, participants in cohorts two and three completed sections of the tool while verbalizing their thought process and providing feedback. This process led to simultaneous development and refinement of the essential components and practice management tool and enhanced the validity of the results.

Results: Thirteen essential components of CMM practice management emerged forming five domains: (1) Organizational support, (2) Care team engagement, (3) Care delivery

processes, (4) Evaluating CMM services, and (5) Ensuring consistent and quality care. Each domain consists of two to three components and each component contains several questions which form a 78-item descriptive CMM practice management assessment tool.

Conclusion: This is the first study to develop a framework for CMM practice management and create an assessment tool that primary care medical practices can use to assess the core domains and essential components of CMM practice management. Understanding CMM practice management and the components that define it is critical to enhancing and expanding the practice of CMM.

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Chapter 1: Introduction

Background

The United States incurs more than \$500 billion in avoidable costs every year due to medication-related morbidity and mortality.¹ These medication therapy problems translate into millions of avoidable hospital admissions, emergency room visits, outpatient treatments, and prescription drugs.² Medications are the most common medical intervention³ and in 2016, more than 4 billion prescriptions were filled in the United States⁴ totaling costs of approximately \$330 billion.^{5,6} Medications play an essential role in improving the health and wellbeing of individuals. However, medication therapy problems are a significant and costly barrier to improving patient outcomes. With more than half of all Americans taking at least one prescription drug,⁷ the need to manage and optimize patients' medications is greater than ever.

An approach to improve patient outcomes and mitigate the avoidable costs caused by suboptimal medication use is comprehensive medication management. Comprehensive medication management (CMM) is defined as:

The standard of care that ensures each patient's medications (whether they are prescription, nonprescription, alternative, traditional, vitamins, or nutritional supplements) are individually assessed to determine that each medication is appropriate for the patient, effective for the medical condition, safe given the comorbidities and other medications being taken, and able to be taken by the patient as intended.⁸

CMM has demonstrated improved clinical outcomes and a positive return on investment across multiple studies.⁹⁻¹⁵ Despite these benefits, CMM has yet to see widespread adoption within ambulatory care. Significant attention has been given to developing a consistent patient care process for providing CMM.¹⁶⁻¹⁹ However, little is known about what is needed to effectively manage a CMM practice. Curran and Shoemaker posit that while there has been a body of research demonstrating the effectiveness of CMM, few studies have sought to understand or systematically test optimal ways to support implementation and sustainability of CMM.²⁰ This lack of a clear practice framework

hinders the development of CMM programs as well as the advancement of existing practices. While a consistent patient care process is essential for ensuring standardization of CMM across pharmacists, practice management is necessary to replicate, grow, and sustain CMM practices. Pharmacists must have the knowledge and resources to incorporate CMM into existing administrative systems to be successful. Therefore, understanding practice management of CMM is critical to enhancing and expanding the practice of CMM to ultimately optimize patients' medications and decrease medication-related morbidity and mortality.

Purpose

The purpose of this study is to identify and define the essential components of CMM practice management to develop a framework for CMM practice management. This framework will then be used to produce a CMM practice management assessment tool that pharmacists may use to evaluate their CMM practices and guide practice improvement. A number of practice management frameworks have been introduced in pharmacy,²¹⁻²⁵ but most lack research methods to support their claims. Other health care disciplines, such as medicine and nursing, have developed practice management frameworks,²⁶⁻²⁸ mainly for the purpose of guiding practice management education. However, many of the components of these frameworks are often discipline specific. In addition, CMM is a relatively new practice and therefore may require resources and support that are unique to other health care disciplines and services. As a result, an in-depth exploration into the components that are necessary for CMM practice management, according to those who practice and have expertise in CMM, is necessary to understand the facets of CMM practice management. Once a framework has been established, it will then be used to guide the development of a practice assessment tool for clinics to assess their CMM practice management. The results of the assessment will be used to classify the level to which CMM is being operationalized within the pharmacist's practice. Sites can then use this tool to guide improvement initiatives to understand what components could be improved within their practice and what is needed to move to the next level of practice advancement. The long-term goal is that creating a tool such as this will work to define standards and benchmarks of CMM practice management that will facilitate the

implementation of new CMM practices while enhancing and expanding existing practices.

Primary aims:

1. Determine the essential components of CMM practice management and the extent to which these components are being carried out in practice.
2. Develop a CMM practice management assessment tool to assess and prioritize areas for CMM practice management improvement for an individual clinic.

Significance

While many pharmacists and organizations state that they are providing CMM, the resources and support required to provide CMM can vary greatly from clinic to clinic. Resources are available to aid in the implementation of CMM,²⁹⁻³¹ but no tools have been developed that define and assess levels of CMM practice management. This study will result in a set of core domains and essential components of practice management that support the integration and delivery of CMM into primary care medical practices. A framework that can describe the enabling contexts of CMM will be of benefit to new practitioners seeking an understanding of what is needed of a successful practice and can be a useful instructional tool to describe a CMM practice to pharmacy learners, other care team members, and clinic leadership. In addition, the practice-assessment tool developed out of this work will serve as a valuable guide for CMM practice management development and assessment. A tool such as this can provide direction for quality improvement work as pharmacists and managers seek to make their practices more efficient and sustainable. CMM practice management is a relatively unstudied area; therefore, this project will contribute significantly to understanding the necessary elements and complexity of a successful CMM practice.

Chapter 2: Review of the literature

The practice of comprehensive medication management

Pharmaceutical care was first introduced by Hepler and Strand in 1990 in their landmark article, *Opportunities and Responsibilities in Pharmaceutical Care*.³² There, the authors define pharmaceutical care as “the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient’s quality of life.”³² Cipolle, Strand, and Morley expanded upon this work in their textbook, *Pharmaceutical Care Practice*.³³ Now in its third edition, *Pharmaceutical Care Practice: The Patient Centered Approach to Medication Management*, the authors define pharmaceutical care as “a practice in which the practitioner takes responsibility for a patient’s drug-related needs, and is held accountable for this commitment. In the course of this practice, responsible drug therapy is provided for the purpose of achieving positive patient outcomes.”³⁴

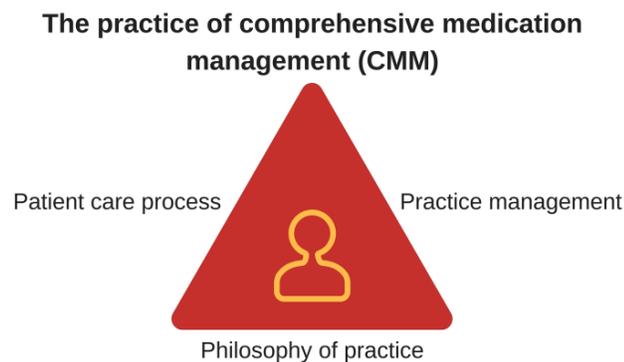
Since its inception, terminology surrounding pharmaceutical care has varied within the profession of pharmacy. The term that has been used most often is medication therapy management. This term was introduced in 2006 when the U.S. government enacted Medicare Part D, a prescription benefit for individuals eligible for Medicare.³⁵ It was taken from terminology used in the British Health System where managing treatment options was referred to as therapy management. When the U.S. adopted this term to refer to the management of medications taken by Medicare beneficiaries, it became medication therapy management.³⁴ However, when it was first introduced, medication therapy management did not have a clear definition. As a result, several other terms and concepts have been developed, each with their own accompanying definition. For example, terms such as comprehensive medication review, individualized medication assessment and planning, clinical pharmacy services, and medication therapy management, are all terms that are often used interchangeably to describe pharmaceutical care services.¹⁶

Today, the term most aligned with the original definition of pharmaceutical care services is comprehensive medication management (CMM).^{8,36} As the name implies, CMM assumes that a pharmacist *comprehensively* assesses a patient’s medications. Rather than targeting the medications associated with one particular disease state (e.g., hypertension,

diabetes, cardiovascular disease), with CMM, *all* medications are assessed and comprehensively managed to ensure that every medication “(whether they are prescription, nonprescription, alternative, traditional, vitamins, or nutritional supplements) are individually assessed to determine that each medication is appropriate for the patient, effective for the medical condition, safe given the comorbidities and other medications being taken, and able to be taken by the patient as intended.”⁸

Cipolle, et al. state that all patient care practices consist of three primary components: (1) the philosophy of practice; (2) the patient care process; and (3) the practice management system (Figure 1).³⁴

Figure 1: The components of a comprehensive medication management practice³⁴



The philosophy of practice serves as the foundation of CMM as it is a set of professional values and beliefs that guide the actions and decisions of the pharmacist in practice. The patient care process is the step-by-step process a pharmacist goes through when delivering CMM. Finally, practice management is all the necessary resources and support to provide CMM in an efficient and productive manner.³⁴

A previous study described how CMM pharmacists articulate their philosophy of practice and provided five core tenets to serve as the basis of the philosophy of practice of CMM.³⁷ In addition, a significant amount of attention has been given to defining the patient care process of CMM. Several professional documents and manuscripts have been published to establish a clear and consistent care delivery process for CMM.^{8,18,19,34,38} In 2014, the Joint Commission of Pharmacy Practitioners (JCPP) published a document outlining the pharmacists’ patient care process.¹⁷ This was significant as it involved, for

the first time, several professional pharmacy organizations coming together to develop and endorse a consistent process of care. An area that is not addressed by the JCPP document and others, however, is the practice management structures needed to support this patient care process. A consistent patient care process is necessary to provide a uniform service that patients, providers, and payers can rely on and to have a common language when speaking about CMM. Equally important, however, is a defined framework for practice management to facilitate implementation and sustainability of the practice of CMM.

Building a practice versus practice management

Most literature on pharmacy practice management focuses on building a patient care practice as opposed to the management system to support ongoing practice. For example, components such as completing a market assessment and needs assessment, creating a care model, and determining the costs of providing the service all relate to the initial steps of building a CMM practice. While building the practice is key, practice management extends beyond the establishment of the service. Practice management must also include systems to support efficiency and functionality. Therefore, it is crucial to evaluate the factors that promote growth, efficiency, quality, and effectiveness of established practices because these components are essential for CMM to be successful and sustainable.

Defining practice management in pharmacy

When writing about practice management in 2012, Cipolle et al. wrote “there are still relatively few [CMM] practices that have been established long enough from which to learn [practice management]. Therefore, it is necessary to learn from other patient care practitioners who have built successful practices, namely, nurse practitioners, physicians, dentists, and veterinarians.”³⁴ As a result, they relied on the experience of non-pharmacy practice models when they stated that a practice management system includes four areas: (1) a clear understanding of the mission the practice, (2) all the resources required to deliver the service, (3) the means by which the service can be evaluated in the short term to determine “patient-specific experiences,” and in the long term to represent quality of the service, and (4) the means to reward the practitioner, and financially support the longevity of the practice.³⁴

Over the years, several other resources have attempted to articulate the components of developing and/or managing a pharmacist patient care practice. These include guidelines,³⁹ books,^{22,34} commentaries,^{25,40} research articles,^{41,42} and white papers,²¹ to name a few. Table 1 highlights five of these resources to demonstrate the variability in practice management frameworks that have been presented, which range from 9 to 20 components.²¹⁻²⁵ These components were determined using the authors' section headings, steps, or chapter titles. For example, *Building a Successful Ambulatory Care Practice: A Complete Guide for Pharmacists* is "a how-to guide to creating and managing an ambulatory care clinic"²⁴ published by the American Society of Health-System Pharmacists (ASHP) with the chapters representing "a sequence of steps that an ambulatory care pharmacy practitioner would use to develop or enhance his or her practice site."²⁴ There are nine chapters included in the book: (1) Defining the ambulatory patient care model, (2) Planning and steps to building the ambulatory practice model, (3) Developing a business plan for an ambulatory practice, (4) Marketing your ambulatory practice, (5) Creating the ambulatory patient care model, (6) Communication & documentation for an ambulatory practice, (7) Quality assurance for ambulatory patient care, (8) Reimbursement for the pharmacist in an ambulatory practice, and (9) Maximizing your ambulatory practice: planning for the future. These chapter titles were taken to be the authors' proposed framework for practice management.

Table 1: Variations in components of practice management in stakeholder resources

Publisher/ Stakeholder	Resource (Year)	Objective	Components of practice management
ACCP	ACCP White Paper: Developing a Business- Practice Model for Pharmacy Services in Ambulatory Settings (2008)	“To assist clinical pharmacy practitioners and administrators to develop business-practice models for new and existing clinical pharmacy services in the outpatient and ambulatory setting” ²¹	<ol style="list-style-type: none"> 1. Market assessment 2. Needs assessment 3. Description of services 4. Operations 5. Legal and regulatory issues 6. Marketing and promotion 7. Service development and exit plan 8. Evaluation of service outcomes 9. Financial considerations for business-practice model development
APhA ^b	Managing the Patient-Centered Pharmacy (2002)	“To enable owners, managers, and pharmacy executives to change systems within pharmacies so a patient-focused practice can emerge.” ²²	<ol style="list-style-type: none"> 1. Plan 2. Change your practice 3. Interdisciplinary patient care 4. Develop the infrastructure 5. Motivate staff 6. Educate and train 7. Create a business plan 8. Financial management 9. Manage patient outcome data 10. Continuous quality improvement
APhA ^b	How to Start an MTM Practice: A Guidebook for Pharmacists (2012)	This resource is meant “for pharmacists who want to learn more about how to start a medication therapy management (MTM) service. It focuses on how to begin determining the operational and business aspects of	<ol style="list-style-type: none"> 1. Mission for patient care services 2. Pharmacy practice setting 3. Practice site location 4. Practice features 5. Practice market/patient demographics 6. Pre-existing services 7. SWOT analysis

		MTM services.” ²³	<ol style="list-style-type: none"> 8. Features of the new MTM service 9. Practice site requirements for the new service 10. MTM service hours 11. Personnel requirements 12. Managerial requirements 13. Regulatory requirements and formal agreements 14. Staff development 15. Marketing and promotion 16. Costs to provide MTM services 17. Potential payer populations 18. Revenue, billing, and pharmacist payment 19. Return on investment 20. Outcomes of the service
ASHP ^c	Building a Successful Ambulatory Care Practice: A Complete Guide for Pharmacists (2012)	“A how-to guide to creating and managing an ambulatory care clinic, from building a business model to clinical practice, risk management and liability, reimbursement, marketing, and credentialing.” ²⁴	<ol style="list-style-type: none"> 1. Defining the ambulatory patient care model 2. Planning and steps to building the ambulatory practice model 3. Developing a business plan for an ambulatory practice 4. Marketing your ambulatory practice 5. Creating the ambulatory patient care model 6. Communication and documentation for an ambulatory practice 7. Quality assurance for ambulatory patient care 8. Reimbursement for the pharmacist in an ambulatory practice 9. Maximizing your ambulatory practice: Planning for your future
ASHP ^c	Patient care delivery and integration: Stimulating advancement of ambulatory care	“How to plan and implement an ambulatory care pharmacist service, how to integrate a hospital- or health-system based service with	<ol style="list-style-type: none"> 1. Conduct a needs assessment 2. Align goals with organizational mission and objectives 3. Define the scope of the service

	<p>pharmacy practice in an era of healthcare reform (2014)</p>	<p>the mission and operations of the institution, and how to help the institution meet its challenges related to quality improvement, continuity of care, and financial sustainability.”²⁵</p>	<ul style="list-style-type: none"> a. Collaborating with physicians b. Collaborating with patients c. Prescribing authority <ol style="list-style-type: none"> 4. Standardize approach to direct patient care 5. Formally propose the service 6. Allocate necessary resources 7. Identify key stakeholders 8. Identify applicable quality standards 9. Develop competency standards 10. Develop a strategy for compensation for services 11. Monitor outcomes
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^a = American College of Clinical Pharmacy

^b = American Pharmacist Association

^c = American Society of Health-System Pharmacists

In comparing these various resources, some overlap does exist. For example, all resources discuss financial considerations. In addition, many resources discuss the importance of marketing and promotion, evaluating outcomes, creating a business plan, and developing quality standards. While there are similarities, there are also a number of differences. For example, legal considerations, documentation, and formally proposing the service are components that are not consistently presented. Also, many terms and descriptions are inconsistent among publications. For example, when the American Pharmacists Association (APhA) discusses “staff development” in *How to Start an MTM Practice: A Guidebook for Pharmacists*, they suggest that pharmacists “contact potential third-party payers, MTM vendors, or other intermediaries”²³ to determine if any specific training or credentialing is required. They also suggest pursuing certification and participating in continuing education programs. Hagel and Rovers, on the other hand, propose a more hands-on approach that includes actions such as analyzing what skills and abilities are needed of pharmacists, articulating these expectations, and matching instructional resources with needs as they outline components for “education and training.”²²

Another issue that occurs when comparing these resources is the vast terminology that is used. One example is the different terms used to describe practice management. Harris et al. describe their work as a way to help practitioners “develop business-practice models,”²¹ the American Society of Health-System Pharmacists (ASHP) outlines requirements for the “operation and management”³⁹ of patient care services, Epplen discusses how to “plan and implement”²⁵ patient care services, while Hagel and Rovers describe their book, *Managing the Patient-Centered Pharmacy*, as a means to enable pharmacy leaders to “change systems within pharmacies.”²² In addition, terms used to describe patient care services vary from “clinical pharmacy services” and “ambulatory care pharmacist services,” to “medication therapy management.” It is evident from examining these resources that practice management for CMM has yet to be consistently defined and a clear framework to describe practice management does not yet exist in pharmacy.

Defining practice management in other health care disciplines

Looking to health care disciplines outside of pharmacy, there is a significant body of literature surrounding practice management. Several journals exist solely devoted to practice management, such as *Journal of Medical Practice Management* and *Family Practice Management*, a journal of the American Academy of Family Physicians. Most journal articles address individual pieces of practice management, such as strategies to maximize the electronic health record,⁴³ creating more effective appointment management systems,⁴⁴ and increasing staff productivity.⁴⁵ A few articles have attempted to outline a framework for practice management, mostly as it relates to education. For example, in a study they conducted in 2001, Sportsman and colleagues sought to identify business concepts necessary for nurse practitioners to successfully manage a primary care practice to be incorporated into a family medicine nurse practitioner curriculum.²⁶ Through a survey and focus group, they identified twenty business concepts important for practice management skills that they organized into three categories: (1) Reimbursement, (2) Clinical performance, and (3) Relationships. Reimbursement included technical aspects, such as “Billing” and “CPT coding and documentation,” as well as broader concepts, such as “Medicare” and “CHIPS.” Similarly, clinical performance consisted of measurement related concepts, such as “Quality outcomes” and “HEDIS,” and regulatory aspects, such as “JCAHO regulations.” Relationships included “Patient relationships,” but also more vague concepts, such as “Risk management” and “Utilization.”²⁶

Gill and Schutt in their article, *Practice Management Education in Orthopaedic Surgical Residencies*, reviewed current trends in practice management training during graduate medical education reported in the literature.²⁷ Practice management topics they identified as important were: coding and billing, entry into medical practice, leadership, managed care, marketing, Medicare and Medicaid, negotiating, office management, personnel issues, regulatory environment, reimbursement issues, risk management, state and local laws, third-party payers, time management, and quality assurance. In *Practice Management Education During Surgical Residency*, Jones et al. describe their surgical residency program which was designed to teach residents practice management.²⁸ In their article, they outline the ten practice management lecture series that they provide as their training program. Lectures include: (1) Documentation and Coding Guidelines, (2) Types

of practices – advantages and disadvantages, (3) Finding a job, (4) Evaluating employment agreements and recruitment agreements, (5) Understanding malpractice insurance and risk management, (6) Billing, billing compliance, and accounts receivables management, (7) Managed care 101: understanding the basics, (8) Accounting 101: developing a practice performance and business plan, (9) Marketing your practice, (10) Investing and financial planning.

The American Academy of Family Physicians has curriculum guidelines for “Health Systems Management” that define a recommended training strategy for family medicine residents.⁴⁶ In their document, they outline the attitudes and behaviors that residents should develop as it relates to health systems management, knowledge they should be able to apply, skills they should demonstrate, and competencies they should achieve. They outline nine competencies in the areas of: (1) patient care, (2) medical knowledge, (3) systems-based practice, (4) practice-based learning, (5) professionalism, and (6) interpersonal and communication skills. However, most of the competencies are very broadly stated. For example, one of the competency statements related to practice-based learning and improvement states, “Understand the business operations of their clinical practices, revenue streams, human resources, and contracts (i.e., all aspects of running a successful practice).”⁴⁶ The skills section of the document that outlines skills residents should be able to carry out related to health systems management also lacks specific detail. One of the items listed, for instance, states, “Recognize the essential elements that make a practice a patient-centered medical home.”⁴⁶ The document concludes with a brief section on how the curriculum can be implemented as well as a listing of general resources that can be referenced, such as the American Medical Association (AMA) website and local health department to foster implementation.

A variety of other articles, books, and resources exist spanning other practice management related topics, such as business plan development,⁴⁷ characteristics of high performing primary care practices,⁴⁸ and business skills necessary for health care.⁴⁹ For example, Twiddy wrote an article titled *Practice Transformation: Lessons From a Safety Net Clinic* in which he outlines some of the key lessons that leaders at Terry Reilly Health Services learned as they transformed their Idaho-based organization to a patient-

centered medical home (PCMH).⁵⁰ While the article is not specifically written about practice management, Twiddy does speak about several practice management pieces that the group discovered to be important in their new practice model. For example, he speaks of the importance of physician champions, creating defined patient panels, care coordination, a workspace that supports interprofessional collaboration, measuring success, and other aspects of practice management that led to the success of their practice transformation.

A difficulty in reviewing the literature for practice management frameworks is that many frameworks that are presented are often vague or are difficult to extract the components of practice management. For example, in a resource that outlines 12 steps to help practices lead the way towards becoming PCMHs, some steps are clearly related to practice management, such as the step of “Engage your staff” which speaks of the importance of getting care team buy-in of the new practice model and “Invest in a registry.”⁵¹ However, other steps, such as “Take a vacation” which addresses the importance of taking a break during practice transformation are not as informative to understanding the essential components of practice management.

Similar to pharmacy, a variety of practice management frameworks have been presented by other health care disciplines. While components such as billing and evaluating outcomes are consistent themes across frameworks, most of the frameworks that have been developed are discipline and/or practice area specific. Therefore, CMM may incorporate some of the components of other practice management frameworks, but further work is needed to understand which of these components are essential to CMM.

Existing pharmacy practice management tools

Within pharmacy, two tools have been previously developed to assess practice management; however, both have slightly different purposes. The first tool, developed by the American Society of Health-System Pharmacists (ASHP), is meant to determine how well the user’s practice aligns with the recommendations from the 2014 ASHP Ambulatory Summit. The second tool, developed by Blue Thorn Inc., is a practice evaluation tool to assess the robustness of CMM practice infrastructure.

In 2014, the ASHP-ASHP Foundation Ambulatory Care Summit was held with the specific goal “to create a long-term vision for aspirational and forward-thinking pharmacy practice models that will ensure that pharmacists participate as members of patient care teams for ambulatory patients and are responsible and accountable for patient and population outcomes.”⁵² More than 400 participants attended the summit and took part in developing summit recommendations on advancing ambulatory care pharmacy practice. At the end of the summit, a list of 25 recommendations were developed across four domains: (1) Defining ambulatory care pharmacy practice, (2) Patient care delivery and integration, (3) Sustainable business models, and (4) Outcomes evaluation.⁵³

These recommendations that were produced during the 2014 ASHP Ambulatory Care Summit were then used to develop an Ambulatory Care Self-Assessment Tool that is available on the ASHP website. No methods are provided describing how the tool was developed, simply that the tool “was developed by an expert panel”⁵⁴ and uses “multiple-choice questions to identify policies, procedures, and services that should be implemented in the ambulatory care setting.”⁵⁴ After creating an account and completing some demographic questions, the user is given the option to complete the tool from a systems-based perspective or from the perspective of a practitioner in a single practice setting. Both the systems-based and practitioner tracks have questions within the following domains: (1) Program development and sustainable business models, (2) Pharmacist training and credentials, (3) Program planning, (4) Patient-care delivery and integration, (5) Health information technology, (6) Pharmacy technicians/support personnel, and (7) Outcomes evaluation. The systems-based track contains 57 questions, while the practitioner track has 40 questions and every question is linked to one of the recommendations of the ASHP Ambulatory Care Summit⁵⁵ or the ASHP Guidelines: Minimum Standard for Ambulatory Care Pharmacy Practice.³⁹ However, there is response logic built into the self-assessment, so the user will only complete applicable questions.

After completing the assessment, a list of action items is generated based on responses to the assessment questions. The user is then asked to rank each item on feasibility and impact on a scale of low, medium, or high. Based on these responses, the action items are

put into a list from highest feasibility and impact to lowest feasibility and impact. The final action plan includes the prioritized action items along with links to tools and resources to help achieve each item. For example, if the action item is to enhance collaboration to improve transitions across the care continuum, two documents are provided outlining medication management best practices in transitions of care⁵⁶ and guidelines on documenting pharmacy services in the medical record.⁵⁷

The benefit of the Ambulatory Care Self-Assessment Tool is that the two-track approach allows for a more targeted assessment for the user. In addition, because the assessment is completed online and data can be stored and tracked by ASHP, after completing the assessment, the user is able to generate reports illustrating how their responses and action plan compare to other users within their state. However, a limitation of the tool is that it provides little direction in terms of what the user should be striving towards. The action items that are presented are simply the recommendations from the ASHP Summit and are therefore difficult to act on because they lack specificity. For example, an action item may be, “Pharmacists who provide ambulatory care services must collaborate with patients, care givers, and healthcare professionals to establish consistent and sustainable models for seamless transitions across the continuum of care.”⁵⁴ An item such as this is difficult to act upon because it is unclear how collaboration is defined, what consistent and sustainable models of care would be, and how pharmacists should ideally work with patients, care givers, and healthcare professionals. Therefore, a more descriptive tool is needed that clearly indicates the various levels of CMM practice management and provides greater direction of what is needed to achieve an optimal CMM practice.

The second practice management tool that has been developed is called the McInnis Index for Advanced Medication Management Practice (MI-AMMP). The tool was developed as part of a larger project that sought to identify and highlight pharmacy practices that have successfully integrated CMM services into team-based collaborative care. There is no information on how tool questions or domains were developed, only that the tool “assesses robustness of practice infrastructure, such as CMM and MTM essential practice elements: collaborative practice agreements; quality and financial metrics; patient and provider satisfaction; IT integration and decision support; and pharmacist

training.”⁵⁸ The tool contains 103 questions with branching logic, taking approximately 15 minutes to complete. A panel of six pharmacy practice leaders completed an early version of the tool and provided feedback which was used to refine questions.⁵⁸

The research team worked with several pharmacy organizations and pharmacist networks to distribute their tool via Survey Monkey in January 2016. The MI-AMMP includes a weighted scoring system to deliver a total score of each practice’s capability to deliver advanced disease-state MTM and CMM. A total of 618 pharmacists/program managers completed the tool, and that information was used to identify high-performing CMM practices for further study within the project.⁵⁸ No further results are presented to describe findings from the tool and the tool is proprietary, so the questions cannot be readily evaluated.

While a numeric score is helpful to assess baseline practice management performance and track progress over time, similar the Ambulatory Care Self-Assessment Tool, the MI-AMMP provides no guidance on how to improve practice management performance. The MI-AMMP and the Ambulatory Care Self-Assessment Tool have their respective strengths, but, based on the information provided, neither tool relied on a validated practice management framework to develop items. In addition, practices are at different stages in their CMM practice management implementation and development and these stages are not defined by the existing tools, nor do the tools define what ideal practice management looks like. Therefore, further work is needed to develop a framework for CMM practice management that can guide assessment tool development and provide pharmacy teams with better direction on how they can improve their CMM practices.

Summary

This chapter highlighted that despite practice management being a core component of a patient care practice, there is a lack of a well-defined practice management framework for pharmacy, including CMM. Furthermore, practice management frameworks in other health care disciplines outside of pharmacy present a variety of different frameworks, suggesting that practice management may be discipline specific. Within pharmacy, there are currently two tools that can be used to assess practice management. However, neither

tool relies on a validated CMM practice management framework nor do the tools provide clear direction to inform practice improvement.

Chapter 3: Methods

Philosophical assumptions

According to Mertens, “a researcher’s philosophical orientation has implications for every decision made in the research process, including the choice of method.”⁵⁹ Within research, there are several paradigms, or worldviews, that are characterized by different beliefs related to ontology (i.e., What is reality?), epistemology (i.e., What is the relationship between the researcher and that being researched?), methodology (i.e., How does one go about acquiring knowledge?), and axiology (i.e., What is the role of values).⁶⁰ For this work, I maintained a constructivist worldview. According to Lincoln and Guba, constructivism begins with the assumption that “social reality is relative to the individuals involved and to the particular context in which they find themselves.”⁶⁰ Under constructivism, “the goal of the research is to rely as much as possible on the participants’ views of the situation being studied. The questions become broad and general so that the participants can construct the meaning of the situation... The researcher’s intent is to make sense of (or interpret) the meanings others have about the world.”⁶¹ Rather than maintaining that a single model or theory holds true for all groups of people, constructivists believe that individuals develop subjective meanings of the world around them and therefore seek to inductively develop meaning.

Qualitative approach

Creswell states, “We conduct qualitative research because a problem or issue needs to be *explored*.”⁶² Qualitative methods are predominantly used in constructivism because they allow for in-depth exploration into the multiple constructs held by participants. Prior to this dissertation, no previous research had explored the practice management of CMM. Therefore, qualitative methods were necessary to obtain a detailed and thorough understanding of this subject matter. Because no previous models or theories existed to explain CMM practice management specifically, an inductive approach relying on the experiences of pharmacists and managers who interface with practice management on a daily basis was used to define the facets and complexities of CMM practice management. Furthermore, qualitative methods provide the benefit of flexibility. For example, as new concepts or ideas emerge in the research process, qualitative methods allow the

researcher to explore and further evaluate these ideas rather than adhering to a strict protocol. As CMM practice management had not been studied before, a flexible approach to its study was necessary as new discoveries were made throughout the research process.

CMM grant

This dissertation was part of a larger two-year CMM implementation and outcomes grant titled *Enhancing Performance in Primary Care Medical Practice through Implementation of Comprehensive Medication Management*. The University of Minnesota was a collaborator on this grant which was awarded by the American College of Clinical Pharmacy (ACCP) and the ACCP Research Institute to study the impact of implementing CMM in contemporary primary care medical practices. The University of North Carolina Eshelman School of Pharmacy was the coordinating institution on the project, which also included the American Academy of Family Physicians (AAFP) National Research Network and the Alliance for Integrated Medication Management as collaborators. According to the University of Minnesota and the University of North Carolina Institutional Review Boards, this dissertation did not meet the definition of human subjects research and therefore did not require full review.

The research team

As this dissertation falls within a larger research study with additional researchers, the following terms are used to describe the roles of the individuals who contributed to this work.

- *Lead investigator* (Deborah Pestka): The primary investigator and author of this dissertation
- *Principle investigators* (Mary Roth McClurg, Todd Sorensen, Jennifer Carroll): The primary investigators of the larger CMM grant
- *Assistant moderator/second interviewer* (Lori Armistead): A member of the University of North Carolina research team who assisted in conducting the first CMM manager focus group and completing cohort 1 interviews
- *The research team* (Caitlin Frail, Kylee Funk, Deborah Pestka, Todd Sorensen, Lindsay Sorge): Researchers at the University of Minnesota who contributed to

the planning of this dissertation and provided insights and guidance on the development of the results

Selection of participants

Funding for the grant began January 2016 and at that time 44 primary care practices were enrolled in the study. To be included in the study, all sites had to have established CMM services delivered by pharmacists embedded in the primary care clinic and acknowledge that they were offering CMM, as defined in the ACCP Standards of Practice for Clinical Pharmacists⁶³ and the Patient-Centered Primary Care Collaborative Comprehensive Medication Management Resource Guide.⁸ These documents outline steps to achieve CMM as well as the expectations for clinical pharmacists delivering these types of services. Participating clinics were recruited by the University of Minnesota, the University of North Carolina, and AAFP. The University of Minnesota and the University of North Carolina both recruited a diverse group of primary care sites they had previously worked with and knew met the inclusion criteria for the grant. AAFP put out a national call to members of the AAFP National Research Network to participate in the study and those that responded and that met the inclusion criteria were included in the study. To meet the minimum eligibility requirements, all sites needed to:

- Be part of existing primary care medical practices (i.e., no new practices)
- Have established team-based relationships with clinical pharmacists authorized by collaborative practice agreements and/or by a documented privileging process to engage in patient encounters
- Have an electronic patient registry or a means of identifying patients most in need of comprehensive medication management
- Have read/write access for the clinical pharmacists in the electronic medical records
- Have existing quality measures that were reported on a regular basis for practice improvement (e.g., hospitalizations, emergency department visits, clinical care gaps, clinic revenue)

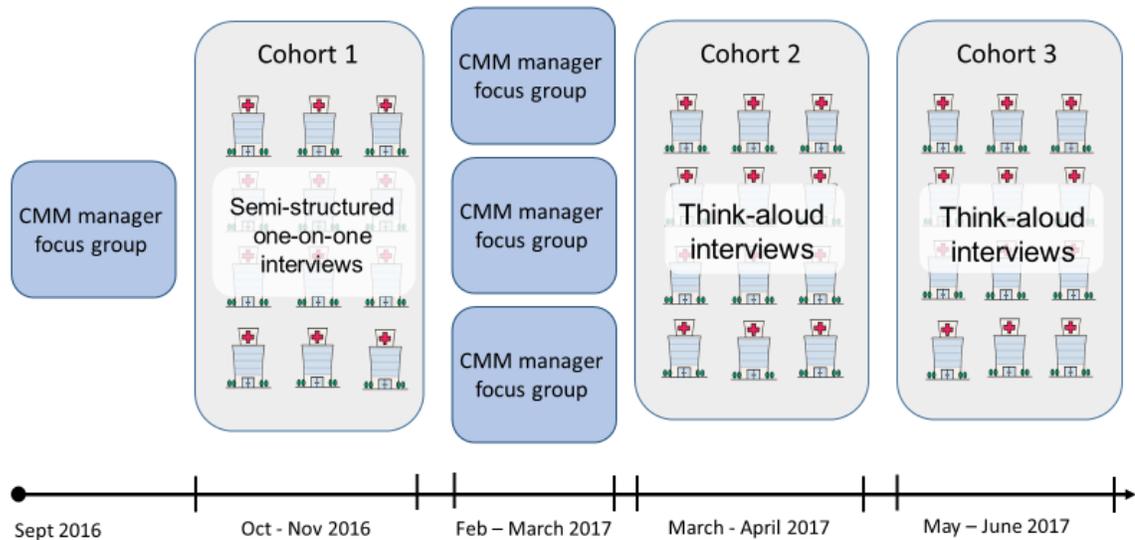
- Provide or have the commitment to provide comprehensive medication management services (in accordance with ACCP standards regarding care process and documentation) in the context of team-based care delivery

Participating clinics were then grouped into three cohorts based on who had recruited them: University of Minnesota, University of North Carolina, or AAFP. Twenty-three, eleven, and ten sites were in the University of Minnesota, University of North Carolina, and AAFP cohorts, respectively. All the sites in the AAFP cohort were family medicine clinics (Note: three of the AAFP sites were located in Minnesota, but because they were family medicine clinics and were recruited by AAFP, they were in the AAFP cohort.) Since that time, various sites withdrew from the study due to a number of reasons (organizational restructuring, maternity leave, pharmacists switching positions, etc.) and two new sites were added September 2016. For the work of this dissertation, 35 out of 36 sites that were participating at the time of data collection were included. One site was not included because the same pharmacist was working at two participating sites. This pharmacist indicated that interviewing her about one of her sites would suffice since she had similar practices at both sites. At the beginning of the grant, all sites completed an initial baseline and demographic survey. This information was used to create three diverse cohorts taking into consideration the number of CMM pharmacist full-time equivalents (FTEs), the year CMM was established in the clinic, the number of CMM patients seen in a typical week, as well as health system (for example, there were five clinics from HealthPartners participating in this grant so efforts were made to ensure that the five clinics were evenly distributed across the three cohorts), and grant cohort (University of Minnesota vs University of North Carolina vs AAFP). Cohorts were readjusted at times as sites dropped out, and three sites had to be rearranged due to maternity leaves. Cohorts were formed because input from all participating pharmacists was desired, but as this was a multistage project that included tool development and refinement, it was also important to not overburden the pharmacists by seeking their input at every stage. For that reason, the three cohorts were created.

In addition to pharmacists, it was important to gain insights about CMM practice management from those who manage CMM pharmacists. Therefore, two of the principle

investigators (Mary Roth McClurg and Todd Sorensen) were asked to identify any pharmacy managers within the participating sites. Pharmacy managers were defined as those with a formal management title and who hold a primary responsibility for the CMM program in their institution. There were eight CMM managers involved in this grant who met that criteria.

Figure 2: Methods outline and timeline



First focus group with CMM managers

An email invitation (Appendix A) was sent to all eight CMM managers requesting that they complete a Doodle poll (Doodle, Zurich, Switzerland) to determine a time when most of the managers would be available to participate in the focus group. At that time, the managers were also asked to complete a brief Qualtrics (Qualtrics, Provo, UT) survey with the following question:

Thinking back during all of your time in CMM, please list at least three components (though you may include more) that you feel make up an ideal CMM practice management system in the space below. We will begin our focus group by discussing some of these components.

The Qualtrics survey also included logistical questions, like whether they would be able to attend the focus group in person and whether they had access to a webcam and

microphone. Participants were also asked to provide their name on the survey, so it was not anonymous.

Focus group was the method of data collection in order to hear a range of ideas and understand the different perspectives of the CMM managers. In addition, a focus group allows the participants to “play off of” one another’s responses. According to Krueger and Casey, “A group possesses the capacity to become more than the sum of its parts, to exhibit a synergy that individuals alone don’t possess.”⁶⁴ Focus groups, therefore, can result in a more fruitful discussion than individual interviews by allowing participants to react and expound upon others’ comments.

As recommended by Krueger and Casey,⁶⁴ an assistant moderator was present during the focus group to take notes, follow up on any questions the lead investigator may have missed, and provide a summary of the discussion to the group at the end to determine if anything was missed. The lead investigator was responsible for training the assistant moderator and did so by providing her with class notes received in PUBH 7250 Designing and Conducting Focus Group Interviews and talking with her before the focus group about the agenda and her role.

The focus group was held on September 23rd, 2016 at 10:00 am and lasted 90 minutes. Six of the eight managers could join. Two attended in person in the Twin-Cities while the other four joined via Webex (Cisco, San Jose, CA). One manager also brought a pharmacy resident and two managers had their 4th year pharmacy student who was on rotation with them also listen in on the focus group. Following recommended procedures,⁶⁴ the focus group began with a welcome, followed by an overview of the topic, ground rules during the focus group, and an opening question (Tell us who you are, where you work, and what you enjoy doing outside of pharmacy) (Appendix B). The purpose of an opening question is to serve as an icebreaker so that everyone speaks early in the discussion. “The longer it is before someone says something in a group, the less likely he or she is to say something,”⁶⁴ so it is important that everyone talk early in the group. Additionally, an opening question should not be controversial and it is generally not analyzed as part of the results. It is strictly a way to get participants speaking early in the focus group.

After the opening questions, the discussion centered around their responses to the Qualtrics survey. The lead investigator had reviewed the responses and grouped them into similar categories before the focus group. The group then went through the list of items discussing why they were important to practice and what each component would look like in an ideal practice. Knowing that the resulting tool that would develop from this work would have varying levels of practice maturity, participants were asked what each component would look like an ideal practice to have a better understanding of what the highest level of CMM practice management would be for each component.

Developing the cohort 1 interview guide

Following the first focus group, an interview guide was developed to be used with pharmacists in cohort 1. The interview guide was developed based on managers' responses to the Qualtrics survey from the first focus group, themes that emerged in that focus group, and reviewing the literature.^{21,22,24,65} The interview guide was reviewed by the research team and revised several times until a final interview guide was developed (Appendix C). The interview guide contained the following domains:

- Targeting patient populations
- Engaging patients in the service
- Documentation
- Communication
- Collaboration
- Marketing
- Buy-in
- Creating a shared vision
- Staff support and resources
- Business plan
- Outcomes
- Standard care model
- Continuous quality improvement

As stated previously, the lead pharmacist of all participating clinics involved in the study completed a baseline and demographic survey in August 2016 to obtain background information of all sites. Interview questions that related to baseline and/or demographic questions were noted on the interview guide so that the interviewer could review and/or reference their survey responses during the interview.

Piloting the interview guide

To ensure interview questions were clear and elicited desired information from participants, the lead investigator and the second interviewer pilot tested the interview guide on three ambulatory care pharmacists not involved in the study. Two of the pilot testers were CMM pharmacists practicing in Minnesota and the third practiced in North Carolina. Pilot testers were identified by the principle investigators and volunteered to participate in the pilot. Pilot interviews occurred on October 13th and 14th 2016. The lead investigator completed two of the pilot interviews while the second interviewer completed one. The results of the pilot interviews did not indicate that any changes needed to be made to the interview guide.

To train the second interviewer on proper interview techniques, the lead investigator developed a three-page document outlining the methods, techniques, and strategies for obtaining high quality audio recordings, follow-ups and probes, and not biasing participant responses. The lead investigator also provided the second interviewer with a link to an open access video on Qualitative Interviewing 101 provided by the University of Wisconsin School of Medicine and Public Health.⁶⁶ In addition, the lead investigator and second interviewer spoke by phone to summarize and answer any questions related to qualitative methodology and interviewing techniques. Finally, the lead investigator listened to the second interviewer's pilot interview and provided feedback relating to her strengths as an interviewer as well as areas that could be improved.

Defining practice management

Terminology and definitions surrounding practice management vary in the literature. Cipolle et al. used the term “practice management system” which they define as “all the support required to provide a service to patients in a proficient and productive manner.”³⁴ When speaking of practice management system with members of the grant steering

committee, it was discovered that many connotate practice management system with a computer system. For that reason, the research team sought to create an alternative term for practice management system. In the initial interviews, the term “CMM operations and infrastructure” was used. However, this was found to be verbose. Through talking with pharmacists, the lead investigator learned that simply using the term “practice management,” as opposed to “practice management system,” eliminated the misconception that it referred to a computer system. The research team also expanded upon Cipolle et al.’s definition to define practice management as all of the necessary resources and support to provide CMM in an efficient and productive manner.

Pharmacist cohort 1 interviews

Of the twelve pharmacists in cohort 1, the lead investigator interviewed seven while the second interviewer interviewed five. The lead investigator and second interviewer emailed their assigned interviewees 2-3 weeks before their interview inviting them to participate in a 60-minute phone interview about CMM practice management (Appendix D). Participants were offered several dates and times to choose from to be interviewed that was most convenient for them. All interviews with pharmacists in cohort 1 occurred by phone between October 27th and November 10th 2016.

Interviews were semi-structured using the developed interview guide (Appendix C). Interviews were chosen as the data collection method because they allow respondents to answer questions at length and in vivid detail while giving the interviewer the opportunity to follow-up and probe participants’ responses. Semi-structured interviews also allow the interviewer more freedom in directing the interview and following up on participant responses than structured interviews, yet provide greater focus than unstructured interviews.⁶⁷

After providing an introduction and giving an overview of the interview process, participants were asked to give a brief overview of their practice and to give an example of one of the biggest successes of their practice as an ice breaker. However, after completing a few interviews, the lead investigator learned that the “give an example of one of the biggest successes of your practice” portion of the icebreaker was taking up too much time. Therefore, to get through all interview questions, the ice breaker question was

reduced to asking participants just to provide a brief overview of their practice. Participants were then given the following background and definition of CMM practice management:

We recognize that there is a continuum of CMM practice development and that sites are at different places within this continuum. Today we wanted to understand where your site is at with regards to your CMM operations and infrastructure. This may include things like scheduling, staff support, having a standard practice model, etc.

For the purposes of this project, we define CMM operations as the necessary resources and support to provide CMM in an efficient and productive manner. Given that, what components do you think are most important for CMM operations and infrastructure?

Given this prompt, participants mentioned between two to ten components that they thought were important to practice management. With every item that they mentioned, the lead investigator and second interviewer asked the pharmacist to describe that item, what it looked like in their practice (e.g., if they said “support staff,” they were asked to describe ways they use support staff in their practice and the effect this has) and how it is important to practice management. With time that was remaining, the lead investigator and second interviewer then asked questions or follow-ups from the interview guide that had not been brought up previously in the discussion. At the end of the interview, pharmacists were given the opportunity to provide any additional thoughts or comments that hadn’t come up during the interview. In addition to signing a consent form to participate in the larger research grant, all interview participants provided verbal consent at the beginning of the interview to be recorded. All interviews lasted approximately 60 minutes and were audio recorded and transcribed verbatim by a commercial transcription company.

Questions related to business plans and creating a shared vision were removed during cohort 1 interviews. Interviewees did not have a great deal to discuss regarding business plans and felt they were not influential to practice. In addition, when participants discussed creating a shared vision, it became clear that they were talking about their

philosophy of practice which is different from practice management. For this reason, it was not explored further during the interviews.

Because sites were at different places in the maturity of their practice management, the lead investigator and second interviewer strived to maintain rapport through neutrality during the interviews. According to Patton:

Neutrality means that the person being interviewed can tell me anything without engendering either my favor or disfavor. I cannot be shocked; I cannot be angered; I cannot be embarrassed; I cannot be saddened. Nothing the person tells me will make me think more or less of her or him.⁶⁸

While participants provided different responses to questions or indicated that they did not do certain things in their practice, the lead investigator and second interviewer remained open and nonjudgmental to their responses.

Developing the initial draft of the CMM practice management assessment tool

Taking what was learned from the manager focus group and the interviews with pharmacists in cohort 1, the next step was to develop an initial framework for CMM practice management that would then be used to inform a CMM practice management assessment tool. Knowing that pharmacists are at different stages in terms of the resources available to them for practice management, the goal was to create a tool that would clearly define the different levels of practice management so that a pharmacist completing the tool would know where their practice was in relation to other practices, and have a clear understanding of what was needed to move to the next level of practice advancement.

To identify the essential components of CMM practice management and create an initial draft of the CMM practice management assessment tool, the lead investigator applied holistic coding to all transcripts from cohort 1 using NVivo 11 for Windows (QSR International, Melbourne, Australia). Holistic coding is “preparatory groundwork for more detailed coding of the data”⁶⁹ and serves to “‘chunk’ the text into broad topic areas, as a first step to seeing what is there.”⁶⁹ To do this, she read through all of the transcripts and broadly coded the data. For example, if a participant discussed their documentation,

rather than coding for nuances, the lead investigator coded the entire passage “documentation.” She then shared these holistic codes and the data they contained with a second investigator on the research team, Caitlin Frail (CKF). A second investigator was needed to help interpret and fully understand participants’ comments related to clinical practice. CKF is an Assistant Professor in the department of Pharmaceutical Care and Health Systems at the University of Minnesota and was also a member of the grant research team. She has experience providing CMM and, in her current position, she has a dual appointment with HealthPartners where she supports the expansion and evaluation of pharmacists providing CMM. CKF assisted the lead investigator with coding and was a very effective coding partner because of her clinical experience. In addition, with both coders located at the University of Minnesota, the ability to have face-to-face coding meetings facilitated the coding process.

The lead investigator and CKF would meet periodically to discuss the holistic codes and develop subcodes to further describe the data. “A Subcode is a second-order tag assigned after a primary code to detail or enrich the entry.”⁶⁹ Subcoding was done to identify the nuances of the holistic codes. Prior to meeting, the lead investigator and CKF would read through the assigned holistic codes and independently subcode the data. During meetings, they would then discuss the subcodes they had developed to come to agreement on a final subcode schema. They also began to organize subcodes and participant examples into a tool where each row of the tool was a subcode and participant responses within that subcode were arranged from least optimal to most optimal along a horizontal scale. Coding meetings took place November 17th 2016 through January 5th 2017. As various sections of the tool were created, they were shared with the larger research team to obtain feedback for clarity and to identify any areas that might have been missing. The initial draft of the tool contained the following fourteen sections:

- Clinic space
- Collaboration
- Collaborative practice agreements (CPAs)
- Documentation
- Finances

- Identifying patients for CMM
- Leadership support
- Measuring
- Pharmacist staffing
- Quality assurance
- Reporting
- Scheduling
- Support staff
- Training

Throughout the coding process, the lead investigator documented several analytic memos. The goal of analytic memos are to document and reflect on coding processes and code choices, how the processes of inquiry are taking shape, and the emergent patterns, categories and subcategories, themes, and concepts in the data.⁶⁹ The lead investigator documented most of the analytic memos during meetings with CKF as they discussed their different codes and subcodes and then came to agreement on how they would be ordered to develop the tool. Within those memos the lead investigator also documented how their view of the tool changed as coding progressed. For example, after their first meeting where they discussed the component of “documentation,” the lead investigator included in her memo:

Our original plan was to have a hierarchical system where documentation would be one row, and the columns would constitute different levels. However, we discovered that documentation had too many components and that it would be difficult for sites to exclusively fit in one level. So we decided that there would be a header of documentation, the rows would be individual facets of documentation, and the columns would be the different levels of that facet.

It was difficult at times to thoroughly document discussions and thoughts while at the same time actively participating in discussion. However, major changes and the initial coding schemes were captured in analytic memos.

Second series of focus groups with managers

To obtain CMM managers feedback on the tool, a second focus group with the same group of CMM managers who participated in the first focus group was scheduled (Appendix E). A Doodle poll (Doodle, Zurich, Switzerland) was sent out to all managers to request their availability for select dates. Due to the difficulty of convening everyone in one location because of their busy schedules, the focus group took place via Webex (Cisco, San Jose, CA) on February 27th, 2017 and lasted 90 minutes. Five of the seven managers that were invited attended the focus group (Note: eight managers were invited to the first focus group, but due to organizational restructuring, one of the managers was no longer involved in the study at the time of the second focus group). The lead investigator emailed the initial draft of the tool to everyone prior to the focus group so that they could review it ahead of time. There was not an interview guide for this focus group. Instead, during the interview, the lead investigator shared her computer screen (which had the tool displayed) with participants and went through the tool each section at a time and asked for managers' feedback on each section. The primary objective of the focus group was to get managers' feedback on whether or not anything was missing, if they would delete any items, or if they would modify any of the items. Given the nature of the focus group, it was determined that an assistant moderator was necessary. After cohort 1, the lead investigator independently carried out all focus groups and interviews (without the assistance of a second interviewer).

During this second focus group with the managers, they were only able to get through six out of 14 sections of the tool so, at the request of one of the managers, two additional focus groups were scheduled to go through the remaining sections of the tool. The third focus group occurred on March 16th 2017 and was attended by three of the managers and the fourth focus group occurred on March 17th 2017 and was attended by four of the managers. Table 2 outlines which managers were present during each of the focus groups, where each letter signifies a CMM manager.

Table 2: Participants in each of the manager focus groups

Focus Group Date	Participants
9-23-16	A, B, C, D, F, G
2-27-17	A, B, C, D, F

3-16-17	B, C, D
3-17-17	B, C, D, F

Both the third and fourth focus groups were 60 minutes long. During the fourth focus group, the lead investigator concluded by asking the managers how they would group the essential components into domains and mocked up four different formats of the tool to get their input on the preferred format (Appendix F).

All focus group sessions were audio recorded and transcribed by a commercial transcription company. The lead investigator reviewed the transcripts to pull out comments that were made regarding areas of confusion, items the managers thought were unnecessary, and components they felt were missing. The lead investigator then discussed these comments with the rest of the research team to determine how to address their comments and modify the tool accordingly. Participant comments were documented in Excel (Microsoft, Redmond, WA), as well as any changes that came as a result of their comments and/or the research team’s response to their comments. A revised version of the tool was drafted after incorporating the feedback of the CMM managers and the research team.

Pharmacist cohort 2 interviews

To achieve feedback and validate the essential components and items in the tool, cognitive interviews using think-aloud and verbal probing procedures were conducted with the pharmacists in cohort 2. Cognitive interviewing is used “to study the manner in which targeted audiences understand, mentally process, and respond to the materials we present,”⁷⁰ in this case, the CMM practice management assessment tool. Cognitive interviewing has become a widely used method in survey development and has been used by several well-known agencies such as the National Center for Health Statistics⁷¹ and the U.S. Census Bureau.⁷² The purpose of cognitive interviewing is not to judge the response options participants select, but rather to understand their thought process in answering items, interpretation of terms, and decision-making process of selecting their response.⁷⁰ Some general features of cognitive interviewing are that it relies on purposive

sampling and interviews are typically done between initial drafting and administration in the field of a tool or survey.⁷⁰

For the purpose of these interviews, both think-aloud interviewing and verbal probing techniques were used. During think-aloud interviews, participants vocalize all of their thoughts as they respond to questions. When using verbal probing techniques, the participant answers a question, but then the interviewer follows up (either immediately or at the end of the interview) by probing for specific information relevant to the question or to the answer given. It has been said that “cognitive interviewing is best characterized as a combination of think-aloud and probing procedures” because the two approaches fit together naturally and that probing tends to facilitate think-aloud responses.⁷⁰

The pharmacists in cohort 2 were emailed approximately 2-3 weeks ahead of time asking for their participation in an interview (Appendix G). The lead investigator provided her availability and requested that they select 2-3 one-hour time blocks that would work for their schedule to conduct the interview. A reminder email about the interview was sent out along with the most up-to-date version of the tool to each participant the night before or the day of their interview. The tool was sent in case they were not able to access Webex during the interview. However, the tool was intentionally not sent out too far in advance to prevent pharmacists from reviewing the tool ahead of time. Instead, the lead investigator wanted to capture their initial impressions and reactions during the interview.

The lead investigator began the interviews by giving some brief background of the project to provide some context. Then, an overview of cognitive interviewing and how the process of the interview would work was provided. All interviews were scheduled for one hour. Given the length of the tool, participants gave feedback on certain sections of the tool rather than the entire tool so as to not overburden participants. At the beginning of the interview, the lead investigator would determine what section they would start at and then perform cognitive interviewing with the pharmacist while the pharmacist worked through the tool. The lead investigator and the pharmacist would go through as many questions as they could until the hour ran out. The sections pharmacists started on

were intentionally staggered to ensure that feedback was received on all sections of the tool. If someone started on the last section, for example, they would complete that section and then start at the beginning of the tool and continue working through questions until time ran out. About 5-10 minutes was left at the end of every interview to ask participants if they felt anything was missing, or did not belong, or if they had any overall feedback regarding the tool.

There was not a typical interview guide for these interviews. Instead a series of probes were relied on to obtain feedback on items. Examples of probes include:

- What was your thought process as you answered that question?
- Why did you put yourself in that box as opposed to the others?
- Do you feel anything is missing or would you delete anything from this section?
- How did you arrive at that answer?

The lead investigator interviewed all twelve pharmacists in cohort 2 March 20th through April 12th, 2017. All interviews were one-on-one and occurred on Webex. Through Webex, the CMM practice management assessment tool was displayed and participants were asked to verbalize their thought process as they worked through the various sections. Interviews were recorded and transcribed verbatim, except for one. One of the pharmacists indicated on their study consent form that they did not want to be recorded, so instead this pharmacist was asked if notes of the conversation could be taken and they agreed. The lead investigator reviewed all of the transcripts and notes from the cohort 2 interviews and extracted participants' comments and feedback regarding questions and transferred them into an Excel spreadsheet. Several meetings with the research team occurred where the lead investigator and other members of the research team discussed the comments that were made and how to address participant feedback and points of confusion. The lead investigator documented changes to the tool and rationale in the Excel spreadsheet so that there was a record of comments that were made and how questions were revised over the course of the tool development. Changes to the tool occurred simultaneously with cognitive interviewing. For example, if a pharmacist from

cohort 2 suggested adding another option to a question, and the research team agreed with the comment, this option was added before conducting subsequent interviews.

Going into cohort 2, there were 14 essential components. To make the framework less overwhelming, the components were grouped into domains. Therefore, starting with the 7th participant in cohort 2, at the end of the interview, after the pharmacist had gone through several sections of the tool, they were asked how they would group the components together into themes. Based on the input from participants, the essential components were grouped into five domains and these domains were confirmed and agreed upon by several participants in cohort 2 as well as the research team.

Following completion of the cohort 2 interviews, the format of the tool was modified to make it more targeted. Given the length of the tool (at the end of cohort 2 it was 17 pages), it was felt that it would be too overwhelming if participants felt they had to complete the entire tool in one sitting. Therefore, the research team sought to create a way to prioritize sections that pharmacists completed based on areas the pharmacists felt they were weakest in and could feasibly improve. To achieve this, the tool was divided into two parts. The first part, labeled “Part I”, lists each of the five domains, some questions to consider when thinking of each domain, and then a question asking how the pharmacist would rate the performance of that domain on a scale from 0-10 and how they would rate the feasibility of improving that domain on a scale from 0-10. The following are questions to consider that are included for the domain of *Care team engagement*:

When thinking of *care team engagement*, consider the following:

How would you rate your level of collaboration and communication with the rest of the care team? Do they have a good understanding of CMM? Do you receive referrals from most clinic providers? Do you have collaborative practice agreements in place that allow you to initiate, modify, and discontinue medications from numerous conditions and drug classes? Do you have designated support staff to room and take vitals of your CMM patients?

High-level questions for participants to consider were intentionally chosen to get them to think critically about their practice management. For example, “Do you receive referrals

from *most* clinic providers?” was included as opposed to “Do you receive referrals from clinic providers?” so that the pharmacist would consider how many providers they receive referrals from and whether that number could be improved. Additionally, not all pharmacists have collaborative practice agreements in place that allow them to initiate, modify, and discontinue medications from numerous conditions and drug classes, but it was important to have them consider this when rating their performance in that domain and whether that was potentially an area for improvement. After rating their performance and feasibility for each domain, there are instructions to select the two domains the pharmacist thinks would be the most relevant to focus on improving given their performance and feasibility scores and answer all the questions within those two domains. The rest of the tool, which are the domains and the items that make up each essential component, is labeled “Part II”. After the participants had gone through the tool, they were asked if they would change any of the scores they had given themselves in Part I to ensure that the “questions to consider” they had been provided caused them to accurately reflect on their practices.

Pharmacist cohort 3 interviews

The structure and format of the interviews in cohort 3 were similar to the interviews in cohort 2 because they also consisted of cognitive interviewing with verbal probing. Cognitive interviewing is an iterative process where “small numbers of individuals are tested – generally between 5 and 15 in an interviewing *round* – before the findings are reviewed and interpreted.”⁷⁰ Following revision and modification, the revised tool is tested further with another round which is seen as a major strength of cognitive interviewing.⁷⁰ While the practice management tool was modified throughout cohort 2 interviews, another round of interviews was warranted to ensure that all items were clear and that participants agreed with the revisions that were made.

All pharmacists in cohort 3 were emailed approximately 2-3 weeks in advance (Appendix H) and requested their participation in a one-on-one interview. The lead investigator provided her availability and asked that they email her 2-3 one-hour blocks of time that worked best for them to do the interview. Similar to cohort 2, the pharmacists were sent the most up-to-date version of the tool before the interview, but were told that they did

not need to review it ahead of time. Twelve pharmacists were interviewed in cohort 3 between May 22nd and June 7th, 2017. Two pharmacists practiced at the same location, so they both participated in the interview with that site. All interviews occurred via Webex, and were done in a similar fashion as cohort 2 where the lead investigator shared her screen with the participant and they verbalized their thought process as they were filling out the tool and also provided feedback on suggested revisions.

With cohort 3, the interview began by having the participant complete Part I of the tool where they ranked the performance and feasibility for improving each of the five domains. Participants verbalized their thought process as they completed this part of the tool and then, per the instructions, selected two domains to complete all the questions within those domains. However, to obtain an even amount of feedback across all domains, the lead investigator would occasionally request that the pharmacist complete a different domain than the one they had selected to receive feedback on that domain.

The research team met periodically throughout the course of completing the cohort 3 interviews to discuss participant feedback and address their comments. There was significantly less feedback than in cohort 2 and there were no drastic changes that were proposed that would warrant another round of cognitive interviewing. The lack of any proposed additions or deletions of items or components from the tool by the pharmacists in cohort 3 further validated that the essential components and that their items accurately captured CMM practice management.

Ensuring methodological rigor

Several processes contributed to the methodological rigor and strength of the results. First, seeking input from 34 different pharmacists working in diverse institutions and with a variety of CMM experience ensured that the results represented a wide range of viewpoints and practice experience. Also, soliciting pharmacist feedback and input throughout the process of developing the practice management framework and tool ensured that any revisions, deletions, and additions were done correctly. In addition, CMM managers, in their role, have unique insights. Therefore, their feedback was also sought out at various stages to ensure that the framework and tool were an accurate depiction of CMM practice management. Furthermore, the research team was composed

of several pharmacists, many of whom have experience delivering CMM. Their expert review and input of the versions of the tool that were drafted further confirmed that the framework accurately depicted CMM and that the tool contained appropriate items and response options. Finally, the lead investigator has taken numerous courses in qualitative research and has led a variety of projects employing qualitative methods and therefore ensured methodological rigor was maintained throughout this work.

Chapter 4: Results

Cohort characteristics

The following tables illustrate the clinics that were included in each cohort as well as the demographic characteristics that were used to organize the cohorts.

Table 3: Cohort 1 Clinic Characteristics

Affiliation	Clinic	Pharmacist FTEs	Year CMM was established	Number of CMM visits conducted in a typical week
Minnesota	Fairview Ridges	0.4	1999	10.8
	Fairview Eagan	0.6	2010	13.5
	HealthPartners Midway Clinic	0.5	2006	15
	Park Nicollet Carlson Parkway	0.6	2013	10
	Park Nicollet Shakopee	0.6	2014	7
	Essentia Health Superior	0.2	2009	4
	Hennepin County Medical Center	1.6	2007	45
	Medicine Clinic			
AAFP	Bethesda Clinic	0.8	1998	14
	Highland Family Medicine	0.5	2010	3
North Carolina	MAHEC Cane Creek	0.3	2013	5
	CAMP	3	2011	Not reported
	Clinton Medical Center	1	2010	1
	Mean	0.8	2008	11.7
	Median	0.6	2010	10

FTE: Full-time equivalent

MAHEC: Mountain Area Health Education Center

CAMP: Carolina Assessment of Medications Program

Table 4: Cohort 2 Clinic Characteristics

Affiliation	Clinic	Pharmacist FTEs	Year CMM was established	Number of CMM visits conducted in a typical week
Minnesota	Fairview Uptown	0.4	1999	6
	Fairview Edina	0.6	2003	20.3
	HealthPartners Brooklyn Center	0.9	2006	10
	HealthPartners White Bear Lake	0.45	Not reported	12
	Park Nicollet St. Louis Park	1	2011	22
	Park Nicollet Brookdale	1	2011	5
AAFP	Broadway Family Medicine	0.9	2004	5
	Jordan Health	1.2	2007	5
	Mountain Valley Health	0.2	2016	6
North Carolina	Mission My Care Plus Candler	0.5	2014	25
	MAHEC Biltmore	1.43	2001	30
	Deerfield Episcopal Retirement Community	0.3	2014	10
	Mean	0.7	2008	13.0
	Median	0.75	2007	10

FTE: Full-time equivalent

MAHEC: Mountain Area Health Education Center

Table 5: Cohort 3 Clinic Characteristics

Affiliation	Clinic	Pharmacist FTEs	Year CMM was established	Number of CMM visits conducted in a typical week
Minnesota	Fairview North Branch	0.4	2013	10
	HealthPartners Woodbury	0.5	2007	8
	HealthPartners Arden Hills	0.57	2006	25
	Park Nicollet Burnsville	0.5	2012	7
	Essentia Health Fosston	3.6	2014	3
	Essentia Health Lakewalk	0.5	2011	35
	Essentia Health Internal Medicine	1	2003	35
	AAFP	Smiley’s Clinic	0.8	2004
Memorial Medical Center		0.3	2014	6
North Carolina	MAHEC Enka Candler	0.3	2014	2
	Greensboro Medical Associates	1	1998	60
Mean		0.8	2009	16.9
Median		0.5	2011.5	7.5

FTE: Full-time equivalent

MAHEC: Mountain Area Health Education Center

Participant characteristics

The following table presents selected characteristics of all the pharmacists that participated in interviews in cohorts 1, 2, and 3.

Table 6: Participant Characteristics (n=34*)

Characteristic	Frequency
Sex	
Female	29
Male	5
Graduation year from pharmacy school (n = 33)	
1990-1995	1
1996-2000	2
2001-2005	8
2006-2010	14
2011-2015	8
Pharmacy degree	
BS Pharm and PharmD	4
PharmD	30
Residency training	
PGY1	29
PGY2	6
Additional postgraduate training	
Fellowship	1
MBA	1
Master's Degree	1
Board certified (n = 33)	
Pharmacotherapy	9
Ambulatory care	16

*One pharmacist was interviewed twice because she was covering the maternity leave for one of the lead pharmacists of a different participating clinic.

Identifying and defining the essential components of CMM

Initial coding of the data produced 17 categories made up of 292 codes. However, five categories were later removed five because they were deemed as nonessential components. For example, the category of “Standard practice model” was removed because when pharmacists spoke of this, they described it as either their patient care process or their practice management system. Because patient care process is distinct from practice management and because practice management includes all of the components that resulted from this work, this category was removed. The category of

“Marketing/buy-in” was removed because the concept of buy-in occurs in other categories such as “Leadership support” and “Collaboration.” Furthermore, many people discussed how they had used marketing strategies, but did not feel as though they contributed to the success of their practice.

While one of the managers did list “Communication strategy for contacting prescribers with recommendations” as an essential component of practice management, the category of “Communication” was removed because communication strategies are often prescriber specific and participant responses did not indicate that any particular strategy (e.g., handwritten note, face-to-face discussion, phone conversation, note in the electronic health record) was better than others. A similar rationale was applied to the category of “Clinic relationships.” While several participants indicated that this was important to their practice, many described strategies they used to build relationships and there was no indication that certain strategies were more effective than others. In addition, clinic relationships appear to some extent in other categories such as “Collaboration.” For example, having a champion of CMM is presented in “Collaboration” and having a champion for CMM is often dependent on having a collaborative relationship with the pharmacist.

Appropriate pharmacist staffing came up as an essential component during the first manager focus group and was initially labeled as a category. However, after receiving feedback during the second focus group with managers, this category was removed because having a process to determine the number of pharmacist full-time equivalents (FTEs) needed to provide CMM for a defined population is often out of the pharmacists’ control and more in line with long-range planning. Finally, the category of “Measurement and reporting” was broken into two categories – “Measuring CMM data” and “Reporting CMM data and outcomes.” The final result was 13 categories made up of 233 codes. These categories served to form the CMM practice management assessment tool that was used during the second, third, and fourth focus groups with CMM managers as well as interviews with cohorts 2 and 3. During those focus groups and interviews, participants were asked if they felt anything was missing or if they would remove anything from the

tool. Participants did not suggest that any categories should be added or removed, validating that the five categories that had been removed were not essential to practice management.

The resulting categories were determined to be the essential components of CMM practice management. The essential components were grouped into themes which are referred to as domains. It should be noted that initially naming the domains as stages was considered. It was thought that there may be a sequential order one should go through when addressing practice management. However, during cognitive interviewing with a pharmacist in cohort 2, she pointed out that many of the aspects of practice management need to occur simultaneously and that putting things into numerical stages may lead pharmacists to believe they have to achieve one stage before moving on to the other.

Because we're pharmacists we tend to think very linear. Like I'm going to do 1, check. OK, now I'm going to move to number 2. Check, I'm done. In reality that's not at all how [practice management] happens. (C2P3)

As a result, the term domain was chosen to refer to the themes of this work and it should be stressed that all of the domains carry equal importance and value towards achieving CMM practice management that will allow CMM to be delivered efficiently and in a productive manner. The following are the domains and their essential components:

Table 7: The Domains and Essential Components of CMM Practice Management

Domain	Essential components
Organizational support	Leadership support
	Availability and adequacy of clinic space
	Finances
Care team engagement	Presence and scope of collaborative practice agreements (CPAs)
	Interprofessional collaboration
	Availability and use of support staff
Care delivery processes	Methods for identifying patients in need of CMM
	Scheduling CMM visits
	Care documentation

Evaluating CMM services	Measuring CMM program data
	Reporting CMM data and outcomes
Ensuring consistent and quality care	Quality assurance processes
	Practitioner training

The following are the definitions of the essential components, as well as illustrative quotes from participants. Quotes from participants are specified with their assigned cohort and participant number (e.g., C2P4 signifies participant four from pharmacist cohort two, F1 signifies the quote came from the first manager focus group, etc.).

Organizational support

Leadership support

There are many important facets to leadership support that pharmacists and managers described as important. Participants discussed the different sources of leadership support that they receive. For example, those working in larger operations often have pharmacy leadership (e.g., a pharmacy manager), clinic-level leadership, and executive leadership. When speaking of clinic-level leadership, participants spoke of receiving support from medical directors, quality improvement team members, clinic managers, among others. It was noted that having pharmacy leadership allows the practicing pharmacists to focus more on care because the leadership tasks are being carried out by others. Many spoke of the benefit of having leadership support outside of pharmacy:

We've also had some clinic administrators who really advocated for our service. And I think that's always helpful, to have someone who's not providing the service advocate for you, because then there's a little bit less bias. Then they can say that they've seen the benefits and speak at your behalf. (C1P5)

I think [clinic leadership] are respected by the clinicians, so when they say something, it's generally listened to, so when you get that kind of endorsement, that carries weight with your clinicians, and it helps the clinicians refer to you more, and all of that. So they carry weight not just with clinicians, but with nursing staff, and what-not. (C1P12)

One pharmacist, who spends time at two clinics, noted the importance of leadership support and how the absence of leadership support can hinder CMM by commenting, "Unfortunately leadership at my other clinic isn't great, and so things just haven't been

rolling.” (C1P11)

In addition, participants discussed the various ways that leadership support CMM, such as providing pharmacists with space to provide CMM, helping to ensure resources are in place to identify and schedule patients, advocating for the use of CMM, and encouraging their participation in provider meetings. For instance, one of the CMM managers provided an example of how having executive leadership support was influential to getting support across an entire health system:

We’ve had a couple issues with providers. We had an issue earlier this year with our endocrine department supporting us when we were working for our collaborative practice agreement, so we had leadership get us together and say, ‘we really support what they do.’ ...I think you need [leadership support] all the way up and then to be able to talk on your behalf and say they believe in us, so providers across the system should believe in us and want to support what we do. (F1)

One of the managers spoke of how they were able to attain leadership support:

From my perspective, one area of agreement is at least have leadership understand what it is you do and what the capacity is for pharmacists in managing high-risk populations or whoever your criteria is set around the individual that you want to bring in for the intervention that you have. Once you have that level of agreement, I think it allows for leadership to help support you with growth expansion for your clinic and hiring and onboarding a pharmacist to grow that relationship. By telling the story and having the financials and the clinical outcomes to show that and leadership to have an understanding, they are able to support the expansion and growth of your clinical services. (F1)

If there are multiple levels of leadership, then it is important to have support across all levels. One pharmacist commented that she had support from clinic-level leadership, but the clinic-level leadership may not always have sufficient time to advocate for CMM given their other responsibilities, so support of CMM must come from multiple sources:

[Clinic leaders] can’t always be the champions either. It’s just realistic for us to have to find multiple ways to advocate for our services. It’s not that I don’t think they’re supportive. I just think that they can’t necessarily be the only ones to lead the charge, so to speak. (C3P5)

Availability and adequacy of clinic space

The space and location where pharmacists work was described as two areas: the pharmacists' patient care workspace and their non-patient care workspace. While not all pharmacists have designated non-patient care workspace (e.g., they move from station to station or they work in an exam room all day), having a designated non-patient care space was considered to be ideal. For example, this manager spoke of how clinic set-up may dictate the availability and adequacy of clinic space, but also commented that having both designated patient care and non-patient care space is preferred:

Some [pharmacists] might be in the exam room for the day and that's where they are. Maybe they don't have their own touchdown space within the clinic. I will say for us in [one of our clinics], the whole building was designed so that nobody has a desk any more. They're all touchdown spaces that they can have...I think it's probably best if you can have both [patient care workspace and non-patient care workspace]. It all depends on the clinic setup. (F2)

Pharmacists spoke of the importance of having their non-patient care workspace visible and accessible to the care team. Participants described how working in close proximity to other providers fosters relationships and increases collaboration. As a result, care team members can easily consult with CMM pharmacists and vice versa.

We're integrated into the clinic, so where I sit is with all the other providers in a big room where everybody is in between visits, which is helpful in visibility in referrals. It's also helpful for me to have all those resources on hand, so if I have a challenging patient, and I want to bounce things off of a team member, I have a ton of resources available to me, such as social workers and physicians and nurse practitioners, diabetes educators, etc. It helps support the work that I'm trying to do in the clinic. (C1P6)

Another pharmacist also commented on the importance of non-patient care space being in close proximity to other care team members. She discussed how this proximity fosters relationships and can lead to more CMM referrals:

I feel passionately for the non-patient care working space to be in the patient care areas.... Sometimes, and this is by no fault of anybody, but out of sight, out of mind. I think that we drum up the most business...[being] in the patient care areas and I think that's where the clinics a lot of times have some limitations (C3P5)

When discussing their patient care space, pharmacists discussed the importance of having

access to necessary office equipment (e.g., desk, phone). They also spoke about having an exam room available to see patients, but how this was sometimes lacking in their clinic.

Often times, I will have patients here and be unable to see them in as timely of a way as I would like to or anybody would really like to just due to space, so I think that space is a resource that is important. (C1P6)

One of the limitations that I have is that first all the billable providers select their clinics' times, and once that's selected, then I can go back through the calendar and pick days that are light on providers, so they can fit me into the schedule and I can actually see patients and have exam rooms available. So there are months that I can very easily fit in at least two to three half days a week, and there are months like the coming month, where I can barely fit in one half day a week sometimes, because there are a lot of billable providers that are able to see patients. (C1P7)

I don't technically have my own exam room, and so every day it's like a new adventure to figure out where I can see patients...so sometimes it's kind of like where am I going to see this patient. There have been times where I've seen patients in a conference room, because that's what was available. (C1P11)

When discussing what an ideal CMM practice would look like in terms of exam room availability, one participant commented that having at least two exam rooms per pharmacist would be optimal:

Ideally, I would have two rooms...so I've got one room that I'm in with a patient now and then my next patient is being roomed in the room next to me, so I can just go room to room. (F1)

Pharmacists spoke about not only having access to an exam room, but the importance of the patient care space meeting the needs of a CMM visit. For instance, participants talked about the need to have a private space to conduct CMM visits, but how this was sometimes challenging to achieve. One pharmacist, who provides telehealth visits, described the challenges of ensuring privacy:

Right now, we just reconfigured the room the best we could, and basically set up cubicles that allow for the pharmacist to have visual separation so that if they're on the call with the patient who has the ability to see them through a camera, they can't see any of the surroundings around them. Which is great, but the problem is that they're out in the open meaning that it's an open room that has eight cubicles in there. If you have multiple people making these phone calls, it can be distracting to the pharmacist who is trying to do that because of all the talking going on around them. The other issue is you can't really do speaker phone for

that reason, so that brings in challenges when you're trying to provide an environment for learning with students. (C1P2)

Participants also discussed having a patient care space that is large enough for all of the people that are present during a CMM visit as well as a space that facilitates conversation and supports CMM activities:

Our DHS (Department of Human Services) guidelines here is a room that can adequately seat three people. I think many of you know it really needs to seat more because your patient might bring in an interpreter and a family member and a child. You've got lots of people in the room. Our exam rooms aren't always set up in a way that facilitates conversation because sometimes there's a computer between you and the patient. That computer has to be there because it's necessary for documentation, but it's not always real convenient. Or the desk is so tiny that if you ask them to bring in their meds you can't get them out of the box because there's nowhere to set them. You need a table and a computer and whatever you need for vitals. (C2P1)

Billing and revenue

Demonstrating financial value of CMM is important for building and sustaining the service. As one pharmacist commented:

The way that our management is most interested in what we're doing is through our financial model, because while they agree that our service is great and they want us to be there wholeheartedly, they want to make sure that the budget balances at the end of the day, too. (C1P4)

Pharmacists participate in a number of mechanisms for billing and revenue. For example, some pharmacists spoke of billing off of non-pharmacy mechanisms, such as Medicare Annual Wellness Visits to generate revenue to sustain CMM services:

We started doing annual wellness visits because of the reimbursement model and one of the requirements of the annual wellness visit is medication reconciliation, but one of the ways that we justify having a pharmacist do it is to do a more comprehensive medication review, more a CMM. That's why we started doing it that way. It was synergistic with a physician who was doing it. It provided a financial revenue generator for us; it provided us the opportunity to see more patients for CMM that we weren't seeing before, so that's where we started tying it in. (C1P4)

Another strategy mentioned was to perform co-visits with physicians so that the physician could bill at a higher level:

All of those patients that I see off of his schedule, he sees as well, so from a billing perspective he can address any other acute issues or review any chronic disease plan changes that we make and he can bill at a higher level than I'm able to. (C1P4)

This approach allows the clinic to generate more money and thus support the presence of a CMM pharmacist. Other pharmacists, however, bill fee-for-service through pharmacy mechanisms such as current procedural terminology (CPT) codes. Finally, with many organizations shifting from a fee-for-service financial model to one of value-based payment, several participants spoke of generating revenue through value based payment, as one participant noted:

We provide justification through cost savings, rather than billing. (F1)

Being part of a value-based payment system, such as an accountable care organization (ACO), is often beneficial because there is more incentive for providers to incorporate CMM. One pharmacist, working in a strictly fee-for-service practice, pointed out the difficulty of integrating CMM because that would in turn reduce the amount of revenue the other providers could potentially generate if that went to the CMM pharmacists instead:

Sometimes there can be competition with providers because they think, 'Well, why do I want to send a patient to you when I could see them and get paid for the office visit?' type thing. (C3P3)

Another advantage of being part of an ACO that one pharmacist brought up is that more patients are eligible for CMM since they are not excluded based on insurance coverage:

We most recently...had the opportunity to transition from reimbursement just based on fee-for-service to now being part of the umbrella of ACO services, so that we don't disadvantage any patient that would be a candidate to see us, because of the limitation on their insurance coverage. That's a very significant step towards spreading our services more broadly. (C3P5)

Finally, when initially beginning CMM services, it is often an investment on the part of the organization because it takes time for the pharmacist to build their practice and become financially viable. One pharmacist pointed out that other organizational factors may inhibit support to invest in CMM:

The other thing we've seen a big issue with is – this can fall under the finances – but what other large investment has the practice made recently. We had one practice that just hired a new physician, a new grad physician, so she doesn't have a full patient panel yet...So that's a huge expense for them until she builds her panel all the way out. So what other big investments has the practice made recently, because that will negatively impact your ability to continue pharmacy services, especially in the beginning when you're not sustainable. (C2P3)

Organizational investments such as the one described above are important to consider when determining the financial sustainability of CMM.

Summary

Leadership support, availability and adequacy of clinic space, as well as billing and revenue are all important components that contribute to the domain of organization support. Leadership for CMM can occur from many sources, including pharmacy managers, clinic leadership, and executive leadership. In addition, leadership can demonstrate support for CMM in many forms. As far as space for providing CMM, both patient care space and non-patient care space are important to consider, as well as the privacy and size of patient care space and ensuring that necessary equipment is available. Finally, organizations and clinics can engage in multiple forms of payment models, including fee-for-service and value-based payment models.

Care team engagement

Presence and scope of collaborative practice agreements (CPAs)

According to the American Pharmacist Association (APhA), “Collaborative practice agreements (CPAs) create a formal practice relationship between a pharmacist and another health care provider and specify what patient care services—beyond the pharmacist’s typical scope of practice—can be provided by the pharmacist.”⁷³ Several pharmacists spoke of the importance of CPAs to their practice:

Having collaborative practice agreements is huge, because that makes it easier for everybody, for the team, that's what made it efficient. I remember when I started, I would have all these ideas of things that I wanted to do, and part of it was me being new and not needing to be quite so gung-ho about everything. But I would come to a clinician and say I wanted to increase this dose, which means you'll have to order these labs, and I had one of my best advocates say this is all great, but I'm going to have to stop referring to you because it's too much work for me in my in-box. So being able to leverage a collaborative practice agreement, to say

now when I see your blood pressure patients, I'll just take care of it, was huge, because that actually impacted their daily work more than anything, I don't want to be an inconvenience. (C1P12)

Pharmacists who did not have CPAs at their practice spoke of the challenges this can present:

[CPAs] would prevent some of the confusion for patients where we have to talk about how this is 'likely' what we'll do, but we still have to confirm it with your doctor. It would be nice to just have that immediate confidence to say this is what we're going to do as part of our plan. I can see that being a little bit more efficient. (C1P9)

There was also significant variation in the scope of CPAs among participants. For example, when it comes to initiating and/or adjusting medications, some pharmacists use protocols, which are generally decision algorithms designed for "guiding initial agent selection while preserving clinician choices."⁷⁴ One participant described protocols as being very "black and white" because they allow for little prescriptive authority on the part of pharmacists. Condition specific CPAs, which some pharmacists described having in place, allow for slightly more autonomy in choosing therapeutic options for selected conditions (e.g., diabetes, hypertension, opioid tapering). Those with the most autonomy to initiate, discontinue, and/or modify patients' medications described having broad CPAs limited only by the exclusion of certain drug classes or conditions. For example, one participant commented:

We have a scope of practice that allows us to initiate, modify and discontinue any medications except for things like narcotics and controlled substances and oncology drugs and some specialty medications. (C1P3)

Also included in CPAs are pharmacists' ability to order labs, durable medical equipment, and imaging. However, there was some disagreement among pharmacists about whether or not the ability to order durable medical equipment and imaging was essential to practice given the limited amount of imaging or durable medical equipment pharmacists would realistically order. However, ordering labs was regarded as important and the types of labs that pharmacists can order are often dictated by their CPA as this pharmacist describes:

The types of labs I can order depend on the conditions that I have listed on my protocol. For instance, associated with osteoporosis I can order a vitamin D level;

associated with anticoagulation I can order a CVC and an INR or whatever. So there are certain labs I cannot order without a provider co-signature if it's not really related to the diseases I have listed on my protocol. (C2P11)

Interprofessional collaboration

Many participants highlighted their relationships and collaboration that they have with other care team members as important to their CMM practice management. As one participant noted:

I think it's the driver. Without being able to collaborate, I wouldn't be able to be effective...working in a silo would not be a good thing when it comes to medication management. (C1P7)

Participants noted that this interprofessional collaboration makes them feel like an integral part of the care team and, for some, has even increased their scope of practice because they have been able to build trusting relationships which has allowed them to broaden their collaborative practice agreements. One pharmacist commented how their broad scope of practice was evidence of their collaborative relationships:

That scope of practice, I think, shows that they completely trust us, that we can basically make any changes we want, and we have a great collaborative relationship. (C1P3)

One of the collaborative areas that was brought up was the way pharmacists communicate with providers. Participants discussed a variety of ways they communicate their recommendations and changes to providers such as face-to-face, through the electronic health record (EHR), fax, leaving a hand-written note, etc. However, not having a consistent approach for communication can sometimes create confusion:

There's not a consistent strategy with contacting providers. I know each of my providers, so I know what [each one prefers], but it's not consistent across the whole team.... For example, right now I'm covering for a maternity leave for someone, and I have to try to figure out how this provider wants me to contact them. Do they want me to go and talk with them in the clinic? Do they want me to go and send a telephone encounter to them? Do they want me to send a staff message? Do they want me to send a carbon copy of the chart? ...So I still feel

like it's an area that I do think we can identify as an area for improvement.
(C3P11)

In sites with medical residents, it was confusing for some pharmacists if they should send their recommendations to the medical resident or their attending physician:

Because we're a residency training site, there's a lot of moving pieces. Sometimes residents are in clinic, and sometimes residents are in the hospital. I think that sometimes it's challenging to know should I be sending this to the staff physician versus the resident, and whose input should I be seeking. There's room for improvement like that. (C1P6)

Another concern with communication that was brought up was following up on recommendations that were made to primary care providers. One participant commented that once she sends a recommendation or question to the primary care provider in the EHR, there is no way of electronically tracking whether she has heard back on that recommendation and, as a result, it becomes difficult to keep track of all the things she still needs to follow up on:

I think one of the things I struggle with is if I have a recommendation, but it's not a recommendation I'm going to implement that day—like I'm looking for some additional feedback or I just want buy-in or it's something that's outside of our collaborative practice, any of those things...because if I close my note, and send my follow up to the PCP (primary care provider) or to whoever's input I'm seeking... it's kind of done. Unless I'm keeping a running tally of how many people I see each day and what my follow up things are, it's kind of done. I think having a system to say, 'I still need an answer about that patient's X, Y, and Z'. I think there's room for improvement with that. (C1P6)

Another area where collaboration takes place is doing collaborative visits (e.g., organizing patient visits so that the pharmacist sees the patient either immediately before or after another provider, conducting a CMM visit at the same time as their medical visit). While not all participants reported engaging in collaborative visits, some discussed having collaborative visits with certain patient populations such as diabetes or transitions of care patients, or more complex patients. One participant commented how doing these visits fosters collaboration because it allows other providers to better understand CMM:

I think that doing co-visits really helps [providers] to see what we do in a nonthreatening way, like they'll see kind of our flow and that and start to work with us better, so that's really educating to them. (C1P8)

However, some pharmacists described limitations to doing collaborative visits. For example, one pharmacist spoke of how collaborative visits can limit efficiency:

Collaborative visits is one of those where I feel torn, because sometimes I feel like you duplicate services...The doctor's already initiated a change, if they get to the doctor first, and then if it's a change that I don't necessarily agree with, or I have a different idea...I don't know. I'm mixed on if I feel like collaborative visits are an essential point of care team engagement. I'm torn. I think more collaboration versus collaborative visits, but that's just me personally. (C3P11)

Another participant spoke of workflow limitations of collaborative visits:

We don't necessarily have a defined workflow just because each doc works a little bit differently sometimes. Part of it depends on how they are scheduled, whether it's MTM first or the doc first. That isn't always even the same way; so usually it's just me communicating to the nursing staff of the docs that I'm either seeing their patients before them or after them to try to make sure that happens and they don't let the patient leave without seeing me. It's doesn't always work. (C2P5)

One more area that can be somewhat challenging when doing collaborative visits is implementing the care plan. With multiple people working together, it can be difficult to know who will carry out which piece of the care plan if there is not a consistent process in place. For example, this participant commented that knowing who will put in the order for prescriptions after a collaborative visit has taken place is not always clear:

Probably an area where we could improve between me and the providers [is] knowing who is going to do what at what time; it's not consistent. Sometimes I'll create the prescriptions, sometimes I'll ask them to create the prescriptions, but it depends on if I'm seeing the patient that day or if it's been a while since I've seen the patient. It's not consistent. (C1P9)

Collaboration can also occur through presence at clinic and/or organization meetings. Most clinics have provider meetings on a regular basis (e.g., weekly or monthly) where clinic providers are invited to attend. The purpose of these meetings is to provide clinic updates and updates in therapeutics. Most participants indicated that they were invited to provider meetings or that their pharmacy manager was invited. However, there were a

few participants that discussed disappointment over not being invited to their clinic provider meetings:

One thing that I have asked, but have not been successful with, is being part of their provider meetings. Every Thursday, all the providers of the clinic have a lunchtime meeting...I think if I was there in person, and they were always seeing my face every Thursday just as if I was another provider like the rest of them, I think that that would really help, but it just hasn't happened. I don't want to force myself into the meetings; I've been trying to find reasons as to why I would need to be there. I'll offer to give a little presentation on something, or a drug update, or a formulary update, something quick just so I could be there without forcing myself in, but kind of wedging myself in there...I just get the impression that they don't think it's imperative that I be there. (C1P9)

Participants also spoke of the importance of having a non-pharmacist champion of CMM, someone who could advocate and promote CMM on the pharmacist's behalf. This was noted as being important because oftentimes the non-pharmacist champion is more established within the clinic and therefore can be more influential in helping to achieve clinic buy-in of CMM.

Collaboration can also contribute to providers referring patients for CMM. Once a provider, such as a physician or nurse practitioner, collaborates with a CMM pharmacist, they have a better understanding of what the pharmacist provides and if they see the patient benefitting from the service, then they may be more likely to refer more patients for CMM.

I think [collaboration has] been really helpful. I get the most referrals from repeat customers. I mean, the providers that have worked with me before and have seen their patients have improved outcomes and success, certainly are more apt to refer again. (C1P5)

An added benefit of provider referrals that participants noted is that if the CMM visit is driven by the provider, then they are more likely to incorporate recommendations that pharmacists make. However, a limitation of provider referrals that was noted was that providers don't always have criteria for who they select to be referred for CMM so they may not always select the best candidates for CMM as this pharmacist described:

I think the weakness is appropriate patient selection sometimes. Often, patients that have uncontrolled or significant psychiatric conditions tend to be referred to me, and until those underlying conditions are better controlled, it's very hard to address medication management or even chronic disease state management. (C1P7)

The ability of pharmacists to be able to refer patients to other care team members was noted as a characteristic of an ideal practice. One pharmacist discussed how she has the ability to refer patients to diabetes educators, mental health, and physical therapy, but if the patient needed a higher level of care referral, such as to an endocrinologist, she would first consult with the primary care provider. However, another participant commented that at his clinic, they are not able to place any referrals due to insurance restrictions.

To foster interprofessional collaboration, a few pharmacists discussed how they have a CMM orientation when a new care team member is hired. They discussed going through patient cases with new team members, explaining how they address patient issues, and describing how they fit into the rest of the care team. It was noted that having new team members immersed in the process of CMM as part of their orientation can have a big impact on collaboration. On the other hand, one participant found interprofessional collaboration difficult to assess because in her eyes, collaboration is not a measurable item, but a culture and her organization takes a different approach to assess collaboration:

One of the criteria we have when we're trying to evaluate new practices and whether we want to partner with them for their residency, we say it as evidence they've demonstrated team-based care, so we qualify that as they're PCMH (Patient Centered Medical Home), they're a member of an ACO, they have interdisciplinary team members already present...Therefore, they've already identified that the team is important to the way they practice medicine. (C2P3)

It should be noted that while participants spoke of the benefits of interprofessional collaboration, one pharmacist mentioned that it did not support efficiency. In other words, collaborating with the rest of the care team she felt improved patient care, but did not make her work more efficient because she still had to execute the same amount of work as if she had seen the patient on her own. Therefore, while interprofessional collaboration is essential to CMM, it can also occasionally present drawbacks.

Availability and use of support staff

Several participants spoke of the importance of support staff to their CMM practice management. Many pharmacists spoke of the difficulty of not have staff support in various areas of practice management:

One thing I think is really important and valuable that we do not currently have in a full-time role is the staff support. Right now, our pharmacists schedule all of their own visits, they check the patient in themselves, they conduct the visit, they document the visit, and they check the patient out...the burden of all that is really on the pharmacist. (C1P2)

We could reach a lot more patients with capacity to grow a lot if we had an MA (medical assistant). A lot of the work that we do in the wellness visit to meet the Medicare requirements are things that don't require a pharmacist to do. When the physicians do any kind of wellness visit, all of that stuff gets done by an MA, so it feels like it's not a great use of – I don't feel like I'm working. I feel like for half the visit I'm working really far beneath what I'm licensed to do and then for half the visit I feel like I'm really working at the top of my license. If we could reallocate that time to an MA to do vitals and to update the chart with all that stuff that goes into the paperwork, that's our pie in the sky dream. I think there's definitely an opportunity to maximize our reach in pursuing [CMM patients] if we had MA support. (C1P4)

Participants mentioned several areas where support staff assist in their CMM practice. For example, many spoke of the benefits of having support staff involved in scheduling CMM visits. Scheduling can happen at many different levels, some discussed having support staff to schedule CMM referrals (i.e., a patient was referred by another provider to see the pharmacist), prospectively scheduling CMM patients to ensure their schedule remains full (e.g., after identifying patients who would benefit from CMM, having a scheduler reach out to those patients to see if they would be interested in coming in for a CMM visit), and scheduling follow-up visits (i.e., patients that have already been seen once by a pharmacist, but need to come in again to monitor progress and/or changes in their therapy). Pharmacists commented that having support staff to assist in scheduling adds to their efficiency and ability to see more patients:

The referrals that come in from providers, not even having to look at them from my standpoint, anymore, and just sending them straight to scheduling, our scheduler has just been really helpful to fill up the schedule. Because as a pharmacist, that was kind of like the last thing that I would do, like I have to take care of my patients first, and then if I have time, I'll try to get ahold of these

patients to get them to come in. That's been incredibly helpful. That's probably the number one thing (C1P11)

I think when you can get patients directly scheduled in through referrals, but then also have somebody proactively working to fill your schedule, is really helpful in keeping your practice busy and consistent. And I do think the support of some support personnel can make your day go a little bit faster. (C1P5)

One of the CMM managers commented on the difficulty of not having support staff in this area:

The pharmacist can't deliver care and be the person that's calling and scheduling and doing reminder calls; it just doesn't work. (F1)

Another area where clinic staff supports CMM pharmacists is in rooming their patients and taking any necessary vitals. Some participants commented, "I do all the rooming." (C1P11), while other participants talked of having access to support staff for rooming and taking vitals only if they were doing a co-visit with another provider. However, other participants spoke of how they have support staff to room and take necessary vitals for all their patients and the benefit that provides:

Another thing that we have is support with rooming, so when my patients arrive to the clinic, a medical assistant will bring them to an exam room and take their vitals. That helps me with time and allows me to wrap up things from a previous visit, or do a quick refresher or a chart review before I go see my patients. (C1P6)

However, not all pharmacists agreed that having support staff to room patients was beneficial. One pharmacist expressed concern over having support staff room her patients because typically, when support staff rooms patients, they also review and update their medication list. This pharmacist felt this could potentially interfere with the process of CMM:

I don't know how imperative it is to have support staff [room patients], because I feel like some of it would be duplication, like what are they going to do, I guess. We're reviewing their medicine list, which is one of the big components of rooming that they do for a provider, so I guess I don't see it as essential as some of these other things. (C3P11)

For pharmacists that bill for their services, having a support person that can facilitate ensuring their documentation has been properly coded and that all claims have been submitted properly is very important for CMM. This was brought up by one of the managers in the focus group and echoed by pharmacists in later interviews:

We absolutely require staff to help us with billing and coding. We don't have the time to trace down discounted claims or missing claims or anything like that. We really need help with that. (F1)

Point of care testing, diagnostic testing that can be done outside of a laboratory, is another area support staff assist pharmacists. This pharmacist described the benefit of having support staff perform labs that are frequently drawn, such as INRs:

The other thing is that when we're seeing patients for anticoagulation, they go to the lab, the lab draws their INR and has them fill out the questionnaire that we then evaluate, and then the patient comes up and we just see them. I know there are some pharmacists that have to operate the CoaguChek themselves and check the lab themselves, enter it into the chart themselves. It's really nice that we have a lot of operations support that do a lot of these things, so we don't have to do some of these things that are kind of below our license. (C1P3)

Participants also spoke of having support staff assist with several other technical activities such as administering vaccinations, working with CMM contracts, assisting with patient related insurance issues, etc. Many mentioned how other health care providers have these resources available to them and having the same resources for CMM would allow pharmacists to be more efficient and have the ability to see more patients. This focus group participant described the advantage of having support staff available to assist with triaging CMM phone calls and requests, as other providers have:

A lot of our pharmacists don't have the buffer that physicians have, where when patients call with questions, they need refills, they lost the paper that you sent them, whatever it might be. They come directly to our pharmacists, so if there were somebody in the middle that can just say, 'yeah, this really needs to go to you,' or, 'no, I can take care of this for you.' That would be fabulous. (F1)

Finally, regarding the access that pharmacists have to support staff, participants reported a wide range of responses. Some mentioned having no dedicated staff support to assist with CMM:

I don't really have someone who's assigned to me to do things. When I have students work with me, unfortunately they kind of do some of that stuff too. (C1P8)

Others mentioned having access to support staff, but that they were a shared resource for the entire clinical team:

We do have one full time dedicated support person for our entire team, so it's not just for my position or my clinic. It's for our entire team, which is quite large (C1P6)

When support staff is shared among the team it was noted that, "at times, non-physician providers [such as CMM pharmacists] are slightly lower on the priority pole" (C1P6) so support staff is not always available when they are shared with the rest of the care team. Having support staff dedicated to assisting with CMM was mentioned as being ideal, but difficult to achieve:

Yeah, that would be great if we could have our own staff! But that would be a lot to ask. (C1P3)

Summary

Collaborative practice agreements are an essential part of care team engagement because they foster efficiency in delivering CMM and often presence of collaborative practice agreements is indicative of a trusting relationship between the CMM pharmacist and providers. However, the prescriptive authority and what is included in a collaborative practice agreement can vary from clinic to clinic. Interprofessional collaboration is also essential to care team engagement and occurs in many forms such as having a CMM champion, inviting CMM pharmacists to provider meetings, and others. In addition, interprofessional collaboration is important for many aspects of CMM such as communication, workflow, and implementing care plans. Finally, support staff to assist in aspects of care delivery such as scheduling, rooming patients, and billing and coding are important to free up pharmacist time to provide CMM.

Care delivery processes

Methods for identifying patients in need of CMM

Identifying patients for CMM was described by many as an influential component of their practice management. There are many different methods that clinics and health

systems use to identify patients. Most places rely on a variety of sources to identify patients because as one participant noted:

There's always going to be gaps because every patient is different. Every list and every algorithm that you create is perfect in an ideal world, but in a real setting when you're dealing with patients that are very complicated you may get a patient that falls on your list, even after further screening, that you can't do much with, or you might have missed somebody. There's always a chance that you do miss someone when you screen like that, but we kind of take that 95/5 rule that we're hoping that we've captured 95% of the people that we should have, and the 5% that we don't, well we've still impacted 95% if that makes sense. It's not perfect, but it's what we have. (C1P2)

Often, many pharmacists start out by self-identifying patients to be seen for CMM:

We self-identify. So we go into Epic and we look at the patients coming in for that day and we have criteria that we use [to identify patients for CMM]. (C1P3)

However, participants also spoke about the limitations of self-identifying patients, such as patients and providers not necessarily wanting the service at that time:

If we're doing the self-identification, a limitation of that is, oftentimes a patient is coming in for an acute visit to see not their primary care physician; they're coming in for a sprained ankle, and it's a Family Medicine Clinic, right? So they're like, 'I sprained my ankle and I have to come in,' and they're seeing someone else who's not their primary, and that person doesn't want to change out a bunch of their meds, because then the primary – they just don't want to mess with the primary doc, then the primary doc could get upset like, 'What? You came in and you changed all my patient's meds?' and they don't know the patient and they might not feel comfortable. It's okay, but there are two things. The patient might be like, 'I'm here for a sprained ankle. Why are you going over all my meds? I just want to get my pain taken care of. I'm in pain right now; could you just stop talking to me?' So the patient might not be as willing, and then the physician's like, 'I'm not going to change them; this isn't my patient. Let them change their meds.' So then it's less effective, because then we just have to put a note in the chart, make recommendations to the physician, and then it's not done that day. (C1P3)

Working in a busy clinic, another limitation of self-identifying patients to see that day is the logistics of coordinating the pharmacist's visit around the primary care provider's visit:

I'm sure you know, but it's hard to see somebody the same day. It's great to capture someone when they're there, and the timing of it can be so challenging. (C1P6)

To address the limitations of pharmacists self-identifying patients and to increase efficiency, many clinics and health systems rely on electronic tools to assist in identifying patients.

I would say that being able to [identify CMM patients] in an efficient way, which is something we've been working on this year through a big program, of going from manually screening patients that hit some of our high priority cohorts, to using electronic tools behind the scenes to do that for us. I think that's important to be the most efficient in the way that you can. (F1)

These electronic tools, formulas, and algorithms combine different identification characteristics to identify the best candidates for CMM. Using electronic means is often an effective way to identify patients for CMM and allows the pharmacist more time to provide patient care. One pharmacist commented how they tracked how much time pharmacists were spending manually identifying patients and the significant impact using a patient identification tool had on freeing up pharmacist time:

We did a study on this last year, and we actually researched the time difference to use that [patient identification] tool versus the manual screening that the pharmacist was doing, and we were able to get a match within 96% of the exact same patients that the pharmacist would have picked by using that tool, but at 14 hours with the pharmacist versus one hour or less using the tool. It was about 45 minutes. What it does is it provides valuable time back that the pharmacist can engage in clinic activities versus having to sit there and manually screen patients. (C1P2)

Additionally, some participants commented on the added benefit of having an algorithm built into the electronic health record which can automatically identify patients who are deemed good candidates for CMM:

I think the ones that work the best are the automatic reminders...they just pop up, and it's that visual reminder that providers think of us, because a lot of us are part-time in clinic, so I'm only two days in one clinic, two days in another, and not always visible. We've heard repeated times from providers that I just don't think of you. I think your service is great, but you just don't always come to mind when I need it. So the more we've been able to make things automatic for them...it seems to be the most helpful, the most beneficial. (C1P10)

However, participants pointed out that algorithms are not perfect. One pharmacist commented that occasionally the algorithm will identify patients for CMM that are stable

and do not have any medication-related problems. Additionally, another pharmacist brought up that no algorithm has been identified as most effective to identify CMM patients:

There's no literature on an effective algorithm...I don't think there's one that's ever been identified to say this is the [most effective algorithm]. We do use an algorithm daily, but even that is just a screening. It's not like the end all. We use it more to screen. (C3P4)

Another source of identifying patients for CMM is utilizing registries. A registry is “a tool for tracking the clinical care and outcomes of a defined patient population.”⁷⁵ For example, registries are able to flag clinic patients that are not meeting certain quality indicators, such as those for hypertension, diabetes, asthma, etc. A number of participants described how registries are used to identify CMM patients:

I think initially on, we were utilizing registries, so we would look at the number of patients that are uncontrolled hypertensives or uncontrolled diabetics that are on multiple medications that might benefit from a visit. (C1P7)

Many of the patients that are scheduled for CMM, are done so through referrals. Referrals come from many different sources. For example, patients on Medicare may be referred by their Part D plans for CMM. Additionally, a patient may self-refer, another care team member (e.g., nurse, care coordinator) may refer, and retail pharmacies may also be a referral source. However, most participants commented that the majority of their referrals come from primary care providers.

That's where the majority of the referrals come from is the physicians. (C1P9)

By and large, the majority though, I think, are coming from direct clinician referrals (C1P12)

However, if an individual provider refers patients for CMM, it is likely determined by their collaborative relationship with the pharmacist. Therefore, provider referrals occur in *Interprofessional collaboration* as opposed to *Methods for identifying patients in need of CMM*.

Finally, once CMM patients are identified, it is important that pharmacists are able to keep track of the patients they see by creating a panel. A panel is “a list of patients assigned to each care team in the practice.”⁷⁶ Creating an individual panel of patients that

each CMM pharmacist has worked with allows pharmacists to better identify the patients they have seen and therefore track their patients and outcomes. One of the managers highlighted the importance of having a panel:

You have to be able to have a way to identify your population, because in a lot of the EMRs (electronic medical records) they're very provider-centric, meaning the primary care provider, so it's really difficult to tell with Dr. Smith's panel, who did Jane see. You have to be able to narrow down that these are the populations that we've touched. (F1)

One pharmacist spoke of having to manually keep track the patients that she saw because she did not have a CMM panel at her practice:

Our EHR does not allow us to identify patients who have been seen for CMM by creating their own panel or registry. We have to keep them on Excel spreadsheets. (C2P7)

These methods and resources that are available to identify patients for CMM allow pharmacists to be more efficient and effective in practice. However, as was illustrated by the pharmacists' and managers' quotes, not every site is able to take advantage of these tools.

Scheduling CMM services

Once patients are identified, the next step in the care delivery process is scheduling the visit. One Minnesota CMM manager discussed the importance of being able to schedule patients and how being part of a health system allows CMM to tap into existing scheduling resources:

Scheduling is absolutely paramount to what's going on. In Minnesota we have the luxury that all of us in the health systems have [a] scheduling backbone, so we can take advantage of existing resources that don't exist in community pharmacies. But when we talk to a community pharmacy who doesn't have potentially a documentation system and doesn't have any ability to schedule visits, that's a huge barrier, something that we know is there. You have to have the ability to schedule your patients. (F1)

A pharmacist from another state shared similar sentiments:

Scheduling is essential. You really should not have to do your own scheduling. (C2P3)

There are several different methods and intricacies of scheduling CMM visits. Participants brought up how important it is to be able to schedule in the electronic health record:

When I first started our clinic, we had an EMR that did not support scheduling. We were not allowed to schedule because we weren't recognized as a real clinic, so we maintained our schedule on a notebook. It was like a calendar-planner type of thing, which obviously created a few issues. One, you had to physically be at the clinic to see it. Secondly, to get notification reminders out to patients, that was also difficult because it wasn't something automatically generated from the system that we used. Now that we've moved over to a scheduling system with our EMR it's much easier. For me an ideal world is definitely having it in an electronic format that multiple providers and people can see. (F1)

If CMM scheduling can occur in the EHR, this also makes it easier for providers to refer patients for CMM. One of the pharmacists described the ease of this referral process:

We have a referral system in place within our EMR, so you just have to type in MTM...It will pull up that referral, and then they can just put that referral in like they would to any other specialty department. (C1P5)

Also noted as an important feature were automated appointment reminders that are sent out to patients. These reminders, often a phone call or a text message, help ensure patients show up to visits and bring their medications.

Having a consistent scheduling process was also mentioned as being important. One manager, during the focus group, talked about how she works with the scheduling system to ensure that all CMM appointments are standardized and scheduled in a consistent manner:

We MTM providers have a framework, so we have certain visit types; we have certain lengths of appointments, so that's standardized throughout our system, so every MTM provider CMM provider will look the same in the system, so as I put that request in I was like, OK, here's our five different visit types, here's our appointment lengths, here's the reminder when the patient calls. (F1)

For scheduling CMM visits, some participants discussed the support that is available to them, while other pharmacists were solely responsible for scheduling. One participant mentioned the benefit of being able to control her own schedule, but stated the downsides to being responsible for scheduling her own patients:

It is nice being able to do it myself, but the downside is it's an extra activity that is time consuming, or could be assisted by somebody else. I could have more time for patient care if I wasn't busy doing the scheduling. (C1P9)

For those that did have assistance from support staff with scheduling, they spoke about having access to centralized scheduling services and being able to tap into that resource to assist with scheduling CMM visits. Also having scheduling assistance with providing visit reminders, mainly by reminder phone calls, and educating patients ahead of time on the purpose of the visit and what to bring was mentioned as being helpful:

Our schedulers are...she's amazing and very well versed in what we do as pharmacist providers. She kind of has that initial conversation with the patient when she goes to schedule the appointment, just what they can expect, what they might want to bring to get the most out of their appointment, whether that's an updated medication list, or their bottles or their supplements, you know, whatever pertains to that particular patient. (C1P5)

Another area where pharmacists receive support in scheduling is with identifying patients who did not show up for their CMM visit and attempting to reach out to those patients so that they complete their visit. Certain clinics experience a high rate of "no-show" patients due to their patient populations and barriers those patients face. Therefore, having added assistance to identify no-show patients and work with them to come in for the CMM appointment can provide tremendous benefit to pharmacists, as one participant stated:

Say we have a patient that has been a no-show, and their phone is disconnected. So what the support staff will do is they'll kind of watch out, because sometimes that patient will come in to pick up their prescription or come in for something else, and then they'll try to catch that patient to, you know, we have been trying to schedule, and then they can be integral in seeing that patient when I'm not going to see them, but to get them scheduled. So the support staff I work with are very helpful to me in that respect. (C1P1)

Another method of scheduling assistance that is beneficial to pharmacists is patients having the ability to schedule their appointments online:

In today's world you want to be able to have people schedule online; I don't think we've mentioned that. Online scheduling, reminders, linked in with your EHR – all those types of things would be key. (F1)

Follow-up visits are an important step of CMM. Participants described various methods that they have for scheduling follow-up visits. Some pharmacists discussed using support

staff to schedule their follow-up visits or scheduling the visits themselves while the patient was still in the room. On the other hand, one pharmacist mentioned not having any follow-up system in his practice. Participants also spoke about tracking various aspects of CMM patient scheduling such as how many referred patients wound up being scheduled, the sources of CMM referrals, etc. as a useful metric for guiding quality improvement work:

Now there's a trail to see how many patients were referred, how many actually got appointments, how many actually showed up, so we have some metrics involved that we didn't previously have. (C1P7)

Finally, another aspect of scheduling that some participants mentioned was whether their clinic does outreach. Performing outreach includes various strategies to prospectively reach out to potential CMM patients to inform them about the service and/or gauge their interest in making a CMM appointment. This can be accomplished in a number of different ways such as through phone calls, letters, or other mailings.

Care documentation

Another instrumental piece of the care delivery process is documenting CMM visits. Fundamental to this is where pharmacists document, whether it is in the same system that the rest of the care team uses (i.e., in the EHR) or a separate system. Participants spoke of the importance of documenting in the same system used by the rest of the care team because otherwise they would have to double document, a process by which the pharmacist documents their visits or portions of their visits in a separate CMM platform and then copies that documentation into the EHR. This often creates more work for the pharmacist and decreases efficiency. One of the focus group participants commented:

I don't want to dual document, so I don't want to have to document in my EMR at my medical practice and have to document yet in another type of system. (F1)

Additionally, an important point that was made was the level of access that pharmacists have to the EHR. Some are able to both view and document in the EHR, while other sites may not be able to view the EHR, or they only have the ability to view, but cannot document in the EHR.

I guess one thing that may be assumed but probably should be said is just having access to the patient's medical record, that not all MTMs have access to, but I think being able to see the patient's full history and that whole picture, is very, very important. And being able to read/write access to that, being able to document in that same system means that everyone else has access to what I'm putting in there, and I think that helps really establish it as an integrated presence in the clinic. (C1P12)

With regards to writing their documentation, some pharmacists described how they free-text the majority of their notes, meaning that they type out all parts of their notes. On the other hand, some pharmacists have developed "dot phrases" where they simply type ".HTN", for example, and the note will auto populate with the necessary components that need to be documented for a note about hypertension. This pharmacist describes how she uses dot phrases in her practice:

We have created what we call dot-phrases, so they're like shorthand phrases. So we have made several of those for the chronic disease states that we probably evaluate most often, or that we see most often in primary care. So for hypertension, hyperlipidemia, diabetes, COPD (chronic obstructive pulmonary disease), CHF (congestive heart failure), asthma incontinence, sleep, immunizations, a lot of those kinds of big things, we have these, you can push .MTM, and whatever that might be. Like H-T-N, and it pops up the pertinent things you'd want in your assessment. So it'll say, 'the blood pressure goal is blank,' and you can pick from a dropdown menu what that blood pressure goal is and according to which set of guidelines, and there's another dropdown menu, so you can choose which guidelines you're using. It kind of walks you through it, so you can document much, much more quickly. And it has really helped us with efficiency. (C1P5)

An additional efficiency tool is "SmartSets" or "smart forms." These are tools built into the EHR that allow the pharmacist to type in a code and certain things are auto populated such as the patient's medication list, their review of systems, or even portions of previous notes so that the pharmacist does not have to manually enter all that information again. Having these tools in place not only contributes to efficiency since the pharmacist can spend less time documenting, but it also facilitates standardization of documentation which is important for pharmacists working within a health system where standardization is key to maintaining consistency. One manager described the benefits of SmartSets:

We have some great SmartSets that we've built for our documentation, so that is really helpful to make sure that we're getting everything that's required for plans,

all the information that we need to help follow a flow as well as be consistent through all of our pharmacists. Having those capabilities available has been very great for us. (F1)

In addition, participants talked about different efficiency tools for inputting their notes. For example, some talked about how they have transcription tools (e.g., Dragon) that allow them to dictate their note and the program types what they are speaking:

One thing that I have done is I've gotten training in dictation. It's where you speak and it types it out for you, so I do use that from time to time, but not as consistently as I should. (C1P12)

However, some participants commented that transcription tools such as Dragon actually made them less efficient:

We did pilot Dragon, and I think Dragon is probably better than when we piloted it 10 years ago, but most of the people that used Dragon at that time felt like it was easier to just type...I think Dragon is helpful for some of our more seasoned practitioners that maybe aren't efficient typers, and I've seen that with our physicians, too. Those that are really efficient typers, Dragon is not helpful. (C2P1)

Many primary care providers have transcriptionists that work with them and can type the visit note as the provider is conducting the visit. One of the focus group members mentioned how, in an ideal practice, this would be a useful service to also provide pharmacists:

[My student] and I were just talking about having scribes. If you had someone to take your note for you while you were visiting with the patient, that would be super awesome. (F1)

Because documentation takes up a significant amount of the pharmacist's time, many participants noted the importance of creating documentation improvement initiatives. This includes taking steps to improve the efficiency and effectiveness of documentation to ensure it meets auditing standards and utilizing committees or team members to create shortcuts (e.g., dot phrases, templates). Also, having someone who can train the pharmacists on how to navigate the electronic health record more efficiently is helpful as this participant points out:

We have Epic here, and she's called like our Epic optimization team member...and she was just giving us tips and tricks of how to use Epic more

efficiently. So how to find things in the chart better, how to filter so you're not spending time going through a long list of labs. She gave us a lot of tips yesterday, so we continuously look for things like that to help us. (C1P10)

Others described having a documentation committee made up of several pharmacists that met periodically to create shortcuts and efficiency tools that could then be shared with the larger group of pharmacists. Others talked about simply bringing up documentation issues during staff meetings and working as a group during those meetings to create documentation improvements:

We've worked a lot with our SOAP (subjective, objective, assessment, plan) note over the years to try and make things more efficient so it cuts down our charting time. Usually once a year, we bring it up and discuss things, and we kind of did a major overhaul on it not too awfully long ago, and I find that it's a lot more efficient than what it used to be. It's just something that we have all, over time, when we find things, we're always trying to look for things that make us more efficient. (C1P1)

Additionally, one of the pharmacists brought up the importance of having the technology support to carry out any documentation improvements:

The biggest frustration and the hardest thing that we've dealt with at [our organization]...is having the IT resources needed to make those changes. There are pieces of our documentation, like the way we document drug therapy problems right now, that we're not necessarily happy with...but because of competing IT needs, we are low man on the totem pole for getting that changed. (C2P1)

One important piece of documentation that was discussed among participants was the documentation of medication therapy problems. Some discussed not having a consistent process for how they identify and document medication therapy problems:

We don't really have a systematic way of capturing [medication therapy problems]. We don't classify them in any way; we kind of just do them. (C1P4)

Others, on the other hand, are more methodic in their process and categorize and possibly even subcategorize their medication therapy problems, include the intervention that they made, and whether the problem was eventually resolved:

In terms of every time we have a drug therapy problem, we stratify it based on indication, effectiveness, convenience, and the different options there, and then

also have that systematic approach in terms of resolving drug therapy problems and getting that drug therapy confirmation report. (C2P4)

One of the nuances of documentation that was brought up was whether the pharmacist's note needs to be signed by a physician. Many participants indicated that their notes were complete without a physician co-signature, however, some pharmacists stated that they were required to have physicians sign off on all their documentation:

Pharmacists do require another provider co-signature and that is something that we're really toggled with here within our system. Some of our providers do not like doing that, but from our corporate compliance has requested that we do so because, ultimately, our services are being billed out attached to the attending provider, so they want them to co-sign that. (C2P7)

Finally, one of the managers suggested how completion of documentation is important to practice management to ensure that pharmacists are completing their documentation in an efficient and timely manner:

If you really wanted to think about the practice management aspect, it would be that they can get their documentation done in a timely manner...It's dependent, I'm sure, on practices, but you may have that you need to get your notes done within 24 hours or 72 hours, versus it takes me two weeks to get my notes done. (F2)

Summary

The three components of care delivery process are methods for identifying patients in need of CMM, scheduling CMM services, and care documentation. Pharmacists employ a variety of methods to identify patients for CMM. However, certain methods, like using an algorithm or identification tools, are preferred to free up pharmacist time. In addition, it is important for pharmacists to be able to keep track of the patients that they see through patient panels. There are many facets to scheduling, so it is important that scheduling can occur in the EHR to ensure efficiency and consistency. Furthermore, having a process in place to send appointment reminders, schedule follow-up visits, and track referrals make the delivery of CMM more seamless. Finally, care documentation is essential to delivering CMM and there are many efficiency strategies available to minimize the amount of time pharmacists spend documenting.

Evaluating CMM services

Measuring CMM data

Many of the CMM managers mentioned measuring CMM data as important to the practice. This is not surprising because in their roles, they are often required to show the value or impact of CMM in order to justify pharmacists' role or expand CMM services. Participants described measuring a variety of factors associated with CMM, such as the number of medication therapy problems identified and resolved, clinical outcomes, fiscal measures, descriptive measures of their patient population, pharmacist productivity, and satisfaction of pharmacists as well as the satisfaction of patients and providers with CMM. There was some debate, however, on whether certain measures were useful to CMM. For example, one focus group participant commented on how clinical outcomes are more impactful in his workplace than medication therapy problems:

One thing there's a lot of focus on today is reporting of number of drug therapy problems and resolutions. While I think that's kind of an obvious place to start, I don't personally like that very much because they're really good for storytelling, but for anything else they don't really tell me much. I think it's important to measure clinical outcomes whenever you can since that's what our main focus is, how many people we can get it to controlled in diseases where we have that objective clinical information. (F1)

A pharmacist shared a similar sentiment when she discussed how tracking medication therapy problems is not as useful to obtain more CMM positions:

We know that pharmacists can identify a medication therapy problem. That's an established thing. That's what we do. That's what CMM is. So I think when we're trying to make the conversation of how that translates into positions, we need to put it into verbiage that our leadership [understands]... I don't know that from a position-establishing purpose that it's helpful, unless we have that ability to tie those dollars to that. (C2P2)

However, other pharmacists spoke of the positive impact tracking medication therapy problems can have in their practice:

I think it would be great to be able to track [medication therapy problems]. I think that would be useful feedback to give the physician providers and so forth of the things that we're doing; and also, as you do that, it also helps define CMM for them...It's very helpful when you find a medication-related problem that the current system is not built to detect, and you show the practice that, and that you had an impact on the patient getting better, identifying the problem and the patient

getting better. Those are big-impact things, so I think that's really, really important in the practice. (C3P3)

Many participants spoke of the importance of collecting clinical data:

I think our data is the strongest; specifically, the clinical data. That really speaks to providers. It speaks to their quality measures; it speaks to the clinic quality measures. And within our team, that was the most meaningful for our practitioners to work on, their clinical data. (C1P10)

However, some participants felt certain measures were not important to measure because they had already achieved buy-in from their administration. This participant described why she felt they no longer needed to measure clinical outcomes:

We used to [measure clinical outcomes] for years. We used to do it all the time. We've had pharmacy services here for 16 years. That used to be something we would do all the time...that was a pretty consistent student resident project that we would do. Every couple years we would run that data and just see how we were doing. So we used to do it all the time. We used to do it with A1C and blood pressures and coag (anticoagulation), time and therapeutic range with INR, all sorts of things that we would look at. But in the past three, four, five years, that's just nothing that we've needed to do. It's not something that our administration wants us to [do]. We feel like there's enough literature out there that shows the value of the pharmacist; I don't need to keep showing it. (C2P3)

Another participant echoed this sentiment:

The people here have drunk the Kool Aid; we don't have to necessarily show that our A1Cs are improving. We're pharmacists, that's what we do, you know? We help with those things—kind of like physicians, you don't make them show those sorts of things. I feel like they've already drunk the Kool Aid from that perspective. I feel like our administration recognizes the value of pharmacy, so we don't have to keep proving the value of pharmacy to them. It's important, yes, but there's not this constant need to prove ourselves. (C3P8)

Whether certain measures are tracked can also depend on the practice. For example, one pharmacist brought up that his practice is small enough that he does not need to assess physician satisfaction. He commented that you would know whether a physician was satisfied with the service or not because there are only a few physicians and he works closely with all of them.

However, having data on a variety of different measures was mentioned as useful because certain members of the organization are interested in different measures:

A lot of us [in the focus group] have talked about telling your story, so how can you tell your story? By having a myriad of data points, you can tell different stories to different folks. If I'm going to primary care leaders I might want to tell them this story. If I'm going to our ACO or payer relations leaders I might want to tell this story. So having access to a myriad of data, so I can tell my own story and decide how I want to tell my story has been very helpful. (F1)

When measuring certain CMM measures, participants discussed measuring outcomes for various reasons. Some discussed measuring certain outcomes because they were required by insurers:

We have to report back for Medicare part D on certain reports too, so we do have reports set up. (C1P8)

Others described tracking certain measures based on an external organization (e.g., Alliance for Integrated Medication Management (AIMM)) or working to align CMM measures with institutional quality measures. Furthermore, pharmacists and pharmacy managers then use the data they collect for a variety of purposes. Some use CMM data simply to meet the requests of third party compliance requests, while others use the data to facilitate continuous quality improvement and to demonstrate the value of the CMM. However, one pharmacist commented that they do not have any measurement strategy in place because she felt it was not necessary for her practice:

So we don't have any sort of strategy in place to measure outcomes because it just hasn't really been needed in order for us to expand and do what we're doing. (C2P11)

While tracking data related to CMM is important, there was definite variation among participating sites regarding if they tracked data, what measures or outcomes they choose to track, and how those data are used.

Reporting CMM data and outcomes

How CMM data are extracted, to whom the data are reported, and how the data are being reported is also an important piece of CMM program evaluation. Participants talked about the various people they share CMM data with, such as their CMM team, the clinic where they practice, leadership, their health system, and reporting data externally through

publications. One pharmacist commented on how sharing CMM data with the rest of her clinic and her supervisor helps to show the impact of CMM:

It helped me to tell my clinicians in September this year, okay, it's only September, but we've already beat all of last year's numbers for number of patients, like we're really growing and thank you for that. It also helps, I think, from a systems perspective. I can see, and my supervisor can see, that I'm seeing a lot of diabetes [patients], and I'm seeing a lot of hypertension [patients], and smoking cessation [patients], and those are all quality metrics that affect our pay for performance for the health system. (C1P12)

Another pharmacist spoke of how sharing CMM data with providers helped them to see the value of the service:

I think it helps them to see the value of it. If they're going to refer, they want to see the outcomes, and they see that in a patient-by-patient case. Like this patient's A1C got better after they saw us, or this patient gave us great feedback. But then seeing the big picture, too, and maybe the long-term benefits that we can reduce readmission by ten percent, and that's very impactful, I think. (C1P10)

In terms of obtaining data, some participants discussed how they had to manually extract CMM data because their electronic health record was not set up to pull any CMM data. Unfortunately, because manually pulling data is very time intensive, that means CMM data does not get reported, as one participant remarked:

I don't think that any data is extracted from my work. (C1P9)

A CMM manager stressed the importance of being able to easily pull data from the electronic health record:

I've felt it's really important to own your own outcomes... So we own our outcomes and then it needs to be efficient and non-intrusive to practice, so it can't be manually collected or manually gathered. For the practitioner to document them, it has to be an easy way to document them. And then to the extent that you can engage your IT department or your recording department to help build easy reports, so you can get that information on the turn of a dime, versus OK, now my resident is going to work on this for three months doing manual chart reviews on every patient that we saw to gather the data. (F1)

Finally, participants mentioned some barriers that limited their ability to collect and report on certain measures. For example, one pharmacist spoke about a lack of resources to measure certain data:

A lot of these things we are not doing. For instance, there's not a systematic approach to track appointments, there's not a systematic approach to track referrals, per se. It's hard for me...to imagine that we would ever have support for doing that, so that would probably fall to the pharmacy department, and that's just not something that's feasible. (C3P8)

Another participant also highlighted a lack of resources as a reason why more data are not tracked at his practice:

We're not tracking MTPs (medication therapy problems) because we really have no way to do it and no resource to be able to do it. (C3P3)

On the other hand, some pharmacists discussed having IT resources to help them track and report on CMM data, but having those requests completed is often a lengthy process. An ideal practice, it was noted, was one with sufficient IT support where data requests were completed in a timely manner.

Summary

Measuring and reporting CMM data and outcomes are necessary when evaluating CMM services. While what is measured may depend on the needs of the organization, several participants discussed measuring clinical markers, revenue generated from CMM, identification of MTPs, and other measures. In addition, CMM data can be reported at many different levels. For example, data can be reported within just the CMM team or all the way up to the entire health care organization. Also, the degree to which data can be extracted is often dependent on the functionality of the EHR and the amount of IT support available to CMM.

Ensuring consistent and quality care

Practitioner training

The process of training pharmacists was discussed as being essential to ensuring consistency and standardization of CMM. However, this is an essential component that may only be applicable within health systems or larger practices. For example, there were a number of participants that did not have a training process, simply because they were the only pharmacist within their organization or their team did not frequently hire new pharmacists. Of those that did do practitioner training, participants discussed training new pharmacists on aspects of the patient care process such as ensuring documentation is

standard and consistent with the rest of the care team, providing training on the electronic health record, patient interviewing, and their practice model. One focus group participant described their approach to onboarding new pharmacists and why having a training process is necessary for consistency:

Basically, when we hire pharmacists on we walk them through all the steps that are required to complete the visit from prescreening the patient, identifying them, bringing them in, working the patient up, having the visit, documentation, medication reconciliation, providing the patient with a list. That's all standardized and then there are sub bullets of each one of those steps of how to reach the providers' offices if they're not part of our EMR. Each step, how long should each one take and what's your follow-up period and how do you document follow-up from each of your recommendations that you've submitted because I think for us the rate limiting step often is getting provider feedback and acting on the recommendations that we have submitted to them. For us this is important because we have sort of branded our program and our process and we try to hire people that come in with the background and training in doing MTM or CMM, but we really want them to understand the process of the way that we do it, so we always tell them, forget everything you learned prior and let's learn it new, so that we're standardizing and making sure everybody is doing things the exact same way. (F1)

Participants described several strategies that they use for training, such as verifying pharmacists' notes until they feel they are ready to document on their own, having scheduled progress meetings, reviewing mock patient cases to ensure medication therapy problems are accurately identified, shadowing more senior pharmacists performing CMM, and having supervised visits where the trainee conducts visits while the trainer or supervisor watches.

Another important piece of the training process that was brought up was having a designated trainer so all new pharmacists receive consistent training about CMM. As one focus group participant stated:

One of the things that I've tried to do is ensure that it's the same pharmacist doing all the training and therefore they're getting the same message over and over. (F1)

After a new practitioner has been trained, it is important that they receive continual retraining on various aspects of the practice in order to stay current on therapeutics and guidelines and meet quality standards. During the focus group, managers discussed strategies that they employ to ensure that their pharmacists stay up-to-date clinically.

For me, again, it's that consistency, so ongoing training that is at a frequency that is consistent across the board, so everyone is involved and engaged in it and participates in it...I do think it's important that it is somewhat customized to the pharmacist, but in my experience what I have found is if you leave it up to the pharmacist to stay up to date on certain areas, they'll read things, but there are things that may come out that are very pertinent to what we're doing today, so it behooves us as leadership to make sure that that's on the table and carve out some time to allow them to stay up to date, so that we're consistent and I have confidence that all the pharmacists that work in the clinic, they know the new guidelines and they're ready to practice with those. (F4)

Another area that came up was the need to continuously retrain on clinic policies and procedures. One pharmacist commented that over time, pharmacists begin to develop habits that may deviate from clinic standards so they regularly retrain their pharmacists:

A very important thing that we've learned, that just because you train somebody initially to do something right, they develop weird and bad habits... So we've started to understand the importance of certain annual retraining aspects, whether it's around appropriate documentation, having another person shadow them, or them going to shadow other people, or having their manager sit in on visits. We update our practice model every year and have people sign off on it to say that they've read it and that they will follow it. Those types of things I think are important as well. You can't just train once, unfortunately. (C2P1)

When discussing training, one of the managers had suggested including minimum requirements for hiring a new pharmacist as an essential component. However, while many of the managers noted that they frequently put certain requirements in job postings such as residency completion, ambulatory care experience, and minimum number of patient encounters, the requirements were not consistent across institutions. Another pharmacist spoke of how the absence of hiring requirements has not affected the quality of their practice:

In my personal experience, we have hired people from a variety of different backgrounds. We've hired several people who've never taken care of a patient face-to-face before, people that came from hospitals, people who came from retail pharmacy. It didn't really seem to matter. I think they were slower to get up to speed sometimes than people that obviously came out of a direct patient care residency, but certainly I didn't see deficiencies that I would feel like going forward we would need to change our hiring requirements. (C2P1)

Given the experience of this pharmacist and the fact that hiring standards were not consistent, it was determined that having minimum hiring criteria was not an essential part of CMM practice.

Quality assurance processes

Pharmacists engage in a variety of quality assurance processes to ensure quality and consistency in care. For example, some described not having any quality assurance processes:

Looking through the CMM documentation, I think there are also things that we don't do consistently and that's things like put indications for each of the medications on their med list, which I think we can and should do a better job of. I don't know if the other pharmacists are doing that consistently either. I don't think that they are. We might all be doing it the same way, but I'm not sure... I guess almost the quality of our pharmacy services are not necessarily being evaluated. (C1P4)

One quality assurance strategy that participants employ is doing a peer chart review to ensure that quality standards are being met and that CMM is being delivered with sound clinical care. One CMM manager described their peer review process during the focus group:

We do quarterly peer reviews, so we pair a pharmacist with a pharmacist and we deliberately change it up every time, so every quarter they will meet and they will review a new note and a follow-up note and then go through a quality assurance documentation and talk about are all the required elements there, clinical decision making that the pharmacists made. Are there standardization questions that need to be brought back to leadership to make a decision on? We found that very helpful, and it's more of a peer-to-peer conversation. It's not seen as punitive necessarily. (F1)

Another quality assurance strategy that is used is chart audits. This involves pulling random notes documented by the pharmacist to ensure that documentation is being filled out correctly and consistently. There is usually less discussion centered around chart audits compared to peer reviews since the main objective is simply to verify that the correct information is being included in documentation and that notes are complete. Some discussed having a rubric that they use during chart audits, however, others do not. One participant discussed their chart audit process and how it is key for maintaining consistency among pharmacists:

We randomly audit notes every quarter. We just randomly select notes just to make sure, again that the notes are consistent. Consistency in documentation, for us, includes making sure that the notes have the exact same format...so just

making sure that our notes are consistent, that you're always going to find the same information in each note. (C1P2)

Participants also mentioned that they may be audited by an insurance company, so an insurer may review their documentation to ensure it includes all the components necessary for payment.

Finally, participants talked about using information gleaned from their quality assurance processes as a way of identifying changes that need to be made across the system in order to improve CMM. One pharmacist remarked how her organization was taking data from their quality assurance process to direct improvement work:

Right now we're stepping back and we're like okay, we're all consistently seeing this problem with our documentation, so what do we need to change about our templates so that we don't all keep making the same mistake. (C1P12)

Summary

Training and quality assurance processes are essential to ensuring consistent and quality care related to CMM. Training may only be applicable to larger organizations with more than one pharmacist, but when it occurs, it is ideal to have the same trainer train new pharmacists to ensure consistency and it is necessary to have ongoing retraining of certain concepts. Quality assurance, similarly, is important to ensure that CMM is being delivered consistently and with sound clinical care. Two approaches to achieve quality assurance include peer review and chart audits.

Developing a CMM practice management assessment tool

Tool content

Using the responses of participants in Cohort 1, an initial version of the practice management tool was drafted. The initial tool was made up of 14 essential components and was comprised of 68 items. During the second series of focus groups with the CMM managers as well as the cohorts 2 and 3 interviews, significant feedback on the tool was received. Table 8 describes examples of changes that were made in each section of the tool. The final tool (Appendix I) has 13 essential components and 78 items.

Table 8: Examples of revisions that were made to the CMM practice management assessment tool

Essential component	Change	Rationale
Organizational support		
Leadership support	MODIFIED: “Pharmacy managers” to “MTM managers”	One pharmacist commented that there could be several different managers within pharmacy, so MTM manager is clearer.
Availability and adequacy of clinic space	DELETED: Proximity of pharmacists’ workspace to other care team members	One participant had experience working at two clinics and commented that proximity was not always relevant because the pharmacist’s workspace could be located next to other care team members, but they may not be care team members with whom the pharmacist generally collaborates.
	ADDED: Care space equipment	One participant commented how she did not have a phone available in her patient care space and how having one would be helpful when she needs to call a pharmacy or another member of the care team.
Billing and revenue	ADDED: Response option: “Increased clinic revenue is generated because pharmacists engage in co-visits with providers allowing them to bill at a higher level”	This was a strategy one participant had commented that they do in her clinic.
Care team engagement		
Interprofessional collaboration	ADDED: Placing new referrals to other care team members	A pharmacist from cohort 2 mentioned that this was missing from the tool.
	ADDED: Orienting new care team members	Another participant discussed how he has a process of orienting new care team members to pharmacy services. It was felt that this was important and therefore it was added as an item because many care team members may not know how to appropriately utilize a CMM pharmacist, so a brief orientation of CMM may be beneficial.
Presence and scope of collaborative	MODIFIED: “make changes to medications” to “adjust dosing of	A pharmacist in cohort 2 pointed out that this language was vague and could lead to confusion.

practice agreements (CPAs)	medications”	
	ADDED: Durable medical equipment	A pharmacist pointed out that this could also be included in a CPA.
	ADDED: Imaging	A pharmacist pointed out that this could also be included in a CPA.
Availability and use of support staff	MOVED: Having transcription services available from “Availability and use of support staff” to “Care Documentation”	Because transcription would happen during documentation, we decided it fit more appropriately in that section of the tool.
Care delivery processes		
Methods for identifying patients in need of CMM	MODIFIED: “Team member referrals” to “Non-provider referrals”	The term “team member” was meant to distinguish from “providers,” however, many participants commented that providers are also team members.
	ADDED: Payer referrals	Several participants mentioned payer referrals as a source of identifying CMM patients.
	ADDED: Generated quality care lists	Several participants mentioned generated quality care lists as a source of identifying CMM patients.
Scheduling CMM services	DELETED: Question asking if there was a systematic approach to schedule visits when an interpreter is needed	Per manager feedback, scheduling interpreters was a reflection of the clinic and not the CMM practice.
Care documentation	ADDED: Documentation completion	This was suggested by a manager as an aspect of documentation practice management.
	ADDED: IT support to modify documentation processes	Suggested addition by one of the pharmacists.
Evaluating CMM services		
Measuring CMM data	MODIFIED: “Fiscal measures (e.g., revenue generated, cost savings)” was broken into two separate questions – “Fiscal measures – Revenue generated” and “Fiscal measures – Estimated cost savings”	One of the pharmacists pointed out that revenue generated is very different than cost savings and that people may want to answer one way for one and not for the other.
	DELETED: Question related to participants CMM measurement	Many participants were confused by what was meant by CMM measurement strategy.

	strategy	
	MODIFIED: Language in the patient satisfaction question was changed from “Our organization assesses...” to “Patient satisfaction of CMM is assessed...:	One participant who is employed by a university pointed out that this language creates confusion because her organization could be the university or the clinic where she practices.
Reporting CMM data and outcomes	ADDED: IT support for extracting data	A pharmacist mentioned that their ability to collect data is often determined by the level of IT support they receive and how quickly that data request can be carried out.
Ensuring consistent and quality care		
Practitioner training	ADDED: Continual policy, procedure, and standards of practice training	One pharmacist mentioned the need to retrain on CMM policy and procedures to ensure consistency.
Quality assurance (QA) processes	DELETED: Performance review	Some participants were unsure what this meant and because the performance review does not necessarily lead to ensuring consistent and quality care, this was removed as an item.

The tool is composed of three parts: Part I - Global assessment of the domains of CMM practice management, Part II - Assessing the domains and essential components of CMM practice management, and Part III - Prioritizing and guiding areas for improvement. Part III is meant to give users of the tool some guidance on how to take next steps towards practice development. One participant pointed out the need for such a process during her interview:

I think it might feel if someone was at a CMM where they were ranking on the less optimal, is it can seem somewhat overwhelming to how do you get all of these things? How do you fix all of these areas? Yes, in an optimal, ideal world, these things would occur, but then how do you focus on where to start and what’s most critical? I think it would be a lot. If I was just starting a CMM practice, and I was like oh my gosh, I’m in all these less optimal, then what do you do with that? Where do you go from there? (C3P11)

Part III is not a thorough resource on how to achieve practice development, but rather it is meant to guide users in their next steps as they decide how to tackle the aspects of practice management they would like to improve.

Format of the CMM practice management assessment tool

During the second focus group, one of the managers commented that some of the questions were duplication of text with the only difference being the word “NOT.” An example would be in the section “Availability and adequacy of clinic space” with the question asking about privacy of clinic space:

Figure 3: Example of tool question

Privacy of space	<ul style="list-style-type: none"> ○ There is <u>NOT</u> space that satisfies privacy requirements for <u>ALL</u> CMM visits, whether they are face-to-face, phone, or video 	<ul style="list-style-type: none"> ○ There is space that satisfies privacy requirements for <u>ALL</u> CMM visits, whether they are face-to-face, phone, or video
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For that reason, during the final focus group, four different versions of the tool were mocked up (Appendix F) and shown to the managers to see which one they preferred. Most of the managers preferred the fourth option which looked like the following:

Figure 4: Alternative formatting of the CMM practice management assessment tool

Clinic space

Availability of patient care space	<p>Which of the following <u>BEST</u> describes the availability of care space to conduct CMM visits at your clinic?</p> <ul style="list-style-type: none"> ○ We do <u>NOT</u> have a designated room to see CMM patients <u>AND</u> it is sometimes difficult to find space to see patients in a timely fashion ○ We do <u>NOT</u> have a designated room to see CMM patients, but finding an exam room to see patients in a timely manner is never an issue ○ We have a designated room to see CMM patients that is always available ○ We have two or more designated rooms that are always available to see CMM patients
Utility of space ➤ Privacy	<p>We have space that satisfies privacy requirements for all CMM visits, whether they are face-to-face, phone, or video calls</p> <ul style="list-style-type: none"> ○ Yes ○ No
Utility of space ➤ Size	<p>We have rooms that are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist,</p>

	<p>patient, family members, interpreters)</p> <ul style="list-style-type: none"> ○ Yes ○ No
<p>Utility of space ➤ Design</p>	<p>We have rooms that always meet our needs (e.g., desk space to set patient’s medications, a layout that facilitates conversation)</p> <ul style="list-style-type: none"> ○ Yes ○ No
<p>Pharmacist workspace ➤ Proximity</p>	<p>We have a workspace that is in close proximity to other health care team members making them easily accessible for collaboration</p> <ul style="list-style-type: none"> ○ Yes ○ No
<p>Pharmacist workspace ➤ Visibility</p>	<p>My workspace is visible and easily accessible by the majority of the care team</p> <ul style="list-style-type: none"> ○ Yes ○ No

Despite the managers’ suggestion, it was ultimately decided to keep the tool in its current format (response options laid out horizontally from least optimal to optimal). While the current format of the tool certainly has a lot of text, it was felt that it was best to keep it in this format so that pharmacists filling out the tool would clearly understand the spectrum of response options and know what the ideal state was.

The use of pronouns in the questions was also discussed among the research team. As can be seen from the example above, initially, “we” and “your” had been used in the questions. Since this is meant to be a tool to assess practice management at a particular site, the “we” was to imply all pharmacists that work at that site. However, during cognitive interviewing, one pharmacist commented:

So in terms of the ‘we’ here, and the ‘we’, what’s the ‘we’—all the pharmacists in one site, or all the pharmacists in the system? (C2P4)

From that comment, it was discovered that including “we” could create confusion. For similar reasons, changing the question format to “I” in was not an option in case there

was more than one pharmacist that worked at the clinic. Therefore, it was decided to use passive language throughout the tool to avoid any unnecessary confusion.

Guidance for use

There was also discussion about who would complete various sections of the tool. It became apparent during the interviews that pharmacists that were part of larger health systems were unaware of various aspects of the practice because they had a CMM manager that oversaw those aspects. For example, some pharmacists were unsure of exactly what CMM measures were being tracked, if there was an algorithm in place to identify patients, etc. On the other hand, there are some clinic specific questions in the tool such as the clinic space available, presence of a CMM champion, and questions related to support staff that a CMM manager would not be able to answer on their own. As a result, in the instructions, it is stated that this is a tool to be filled out for an individual practice site by the CMM pharmacist(s) who work there, but some questions may require input from other members of the team, such as a clinic manager or CMM manager. Throughout the interviews, a few participants mentioned that they did not feel certain questions or concepts applied to their practice. For example, this pharmacist talked about how his practice is so small that certain things like a training process for newly hired pharmacists may not apply:

Most operations in which CMM's being done, it's usually in the health system or something of that nature, and we're an itty-bitty, small, individual practice, just integrated into a private physician practice that's not associated with any health system. So a lot of it, I guess, may be not pertain, but may be overkill, like we don't have teams and all this kind of stuff that's associated with that system, so it wouldn't necessarily pertain to us, that type of thing. I guess that'd be my main feedback. (C3P3)

Similarly, some commented that they did not need to measure certain CMM measures because their management did not require it of them. For those reasons, it is included in the instructions that some questions of the tool may not apply depending on the practice setting. Finally, in health care, things are normally completed on a yearly basis (e.g., budgets), so it is recommend that users of the tool complete the tool, in whole or in part, at least once a year to guide continual practice development.

Usability feedback

When asked at the end of the interview if the participant had any remaining feedback or ideas to share, several pharmacists spoke of how the tool had caused them to reevaluate their practices in ways they had not considered before:

One thing that we agreed on is that going through it did give us some things to think about. You get into a way of doing things, and you forget about what else is possible, so it did give us some things to think about as far as measurement strategies and other things to work on. (C3P3)

Other pharmacists discussed that the tool could be a useful resource for those just starting out in CMM:

I think this is a nice tool, definitely, to use especially for people that are newer in CMM, I think. It's hard for me, because I've been here at this same place for almost twelve years doing it, and a lot of it is already in the optimal section of things just because of time. I do think it would be helpful for other people to look ...at what's an option, potentially, to utilize. (C3P9)

However, even pharmacists that have been practicing CMM for many years commented that they still found the tool useful:

I think this made me sit down and really think about my process, my service, what are barriers, what are positives. What's really interesting is I've been a part of this very much since its inception and [its] progress so far and there are still things we need to work on. (C3P2)

Finally, a number of people commented that they initially found the tool off-putting because of its length, but then once they started filling it out, they found it to be manageable and appreciated the level of detail that was included:

I guess I appreciated how the tool drilled down to this level, because I had a lot of middle of the road answers for some, and I thought, well, that's a great way of idea generating for our sites... So I think this is an absolutely valuable tool to help us assess where we're at currently and then also to be able to move in a forward direction for development. (C3P5)

Chapter 5: Discussion

Summary of the findings

The purpose of this research was to determine the essential components of CMM practice management and to use these essential components to develop a CMM practice management assessment tool. Through interviews and focus groups with a total of forty CMM managers and pharmacists currently practicing CMM, thirteen essential components of CMM practice management were identified and grouped into five domains.

Organizational support stresses the importance of having leadership at all levels – pharmacy, clinic, and executive – understand, support, and champion CMM. In addition, having patient care and non-patient care space dedicated to pharmacists that adequately meets their patient care needs and provides the ability to collaborate with other members of the health care team is important to achieving an ideal CMM practice. Also, financing of CMM services occurs within *Organizational support* and financing can occur through many avenues, such as billing fee-for-service, allowing providers to bill at a higher level because a co-visit with a pharmacist occurred, and engaging in value-based payment.

Care team engagement includes interprofessional collaboration which is necessary for delivering CMM in a team-based environment and achieving care team buy-in of CMM. Additionally, the presence of support staff highly influences the efficiency in which CMM can be carried out. Support staff assist in many important aspects of care delivery, such as scheduling, rooming the patient, and assisting with drawing of any labs. This allows pharmacists more time to devote to CMM. Furthermore, the presence and scope of collaborative practice agreements also contribute to CMM efficiency because pharmacists are able to directly order certain labs, durable medical equipment, and imaging as well as initiate, discontinue, and adjust dosing of patients' medications without provider approval.

Care delivery processes consists of important steps in delivering CMM and begins with identifying patients. There are a variety of methods that can be used to identify patients most in need of CMM, however, the most efficient methods rely on external mechanisms

such as algorithms or registries so that the pharmacist does not have to spend a significant amount of time self-identifying patients. Similarly, while there are many options in place to schedule patient visits, reach out to potential candidates for CMM, and ensure patients complete their appointments, scheduling occurs most seamlessly when it can be done within the electronic health record and scheduling assistance exists. Finally, documentation can be a very time-consuming task that is part of the *Care delivery process*, so an ideal practice has efficiency tools built into the electronic health record to facilitate and decrease the amount of time it takes to complete documentation. In addition, having IT support and improvement teams are important to make sure that documentation improvement initiatives occur and are carried out in a timely manner.

Program evaluation is necessary to improve and demonstrate value of CMM. There are a variety of areas where CMM can be measured, but frequently clinics track the medication therapy problems identified and resolved by pharmacists, clinical markers, financial measures, and satisfaction among patients, pharmacists, and other providers. In addition to measuring data, the ability to report on measures and to whom that data is reported is equally important. Clinics must have the infrastructure to be able to pull necessary data in a timely fashion, which often requires support from IT. Finally, data may be reported to a variety of stakeholders including the CMM team, the clinic, leadership, the organization at-large, or externally through meetings and publications.

Ensuring consistent and quality care is of particular importance when there is a team of pharmacists delivering CMM. Consistency begins with training when the pharmacist is initially hired, but ongoing re-training must occur as needed to ensure all pharmacists are practicing CMM consistently. Another strategy that is used to maintain consistency and quality care is quality assurance processes. Chart audits and peer reviews can both be used to assess consistency of CMM delivery and clinical competency of CMM pharmacists. Lastly, it is important that information gleaned from quality assurance processes be used to inform CMM improvement activities to foster increased efficiency and productivity of CMM.

Each of the essential components that were identified is complex and composed of several subcomponents. Taking what participants described about these essential

components during the interviews and focus groups, a practice assessment tool was developed that can be used by an individual practice site to assess their CMM practice management and identify areas for improvement. The iterative process of conducting the focus groups and interviews in rounds led to simultaneous development and validation of the CMM practice management framework and tool. Through the focus groups and cognitive interviews, participants offered feedback on the domains, components, and subcomponents that had been developed. This process also served as a form of member checking which is a validation strategy used in qualitative research where the researcher solicits participants' input on the credibility of the findings and interpretations and is often considered the most critical technique for establishing validity of the results.⁶² The final result was a CMM practice management framework and CMM practice management assessment tool. The tool is broken into three parts to prioritize areas for practice improvement. The first part provides a global assessment of the practice management domains, the second part includes detailed questions relating to all essential components, and the third part guides users in the next steps of practice management improvement.

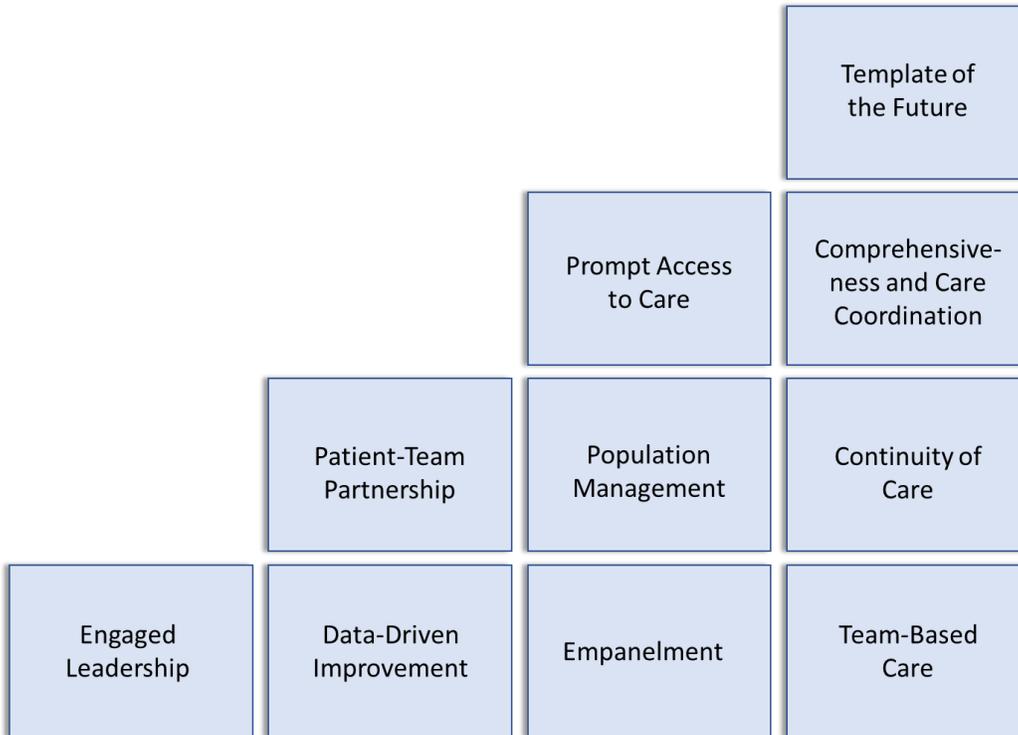
Comparison between resulting CMM framework and existing frameworks

In 2014, Bodenheimer and colleagues formulated a list of essential elements of primary care, which they refer to as the 10 building blocks of high-performing primary care practices. Using case study methods with 23 highly regarded practices, the authors own experiences as practice facilitators, and a review of existing models and research on primary care improvement, they developed their 10 building blocks (Figure 5).⁶⁵

There are a number of overlaps between Bodenheimer et al.'s 10 building blocks and the CMM practice management framework. For example, two building blocks, Engaged Leadership and Team-Based Care, align with the CMM essential components of Leadership Support and Interprofessional Collaboration, respectively. The authors define the building block of Data-Driven Improvement as data systems that track clinical, operational, and patient experience metrics, which all appear in the CMM essential component Measuring CMM Program Data.⁶⁵ While the building blocks of Empowerment and Population Management are not essential components of CMM practice management

in and of themselves, they are both subcomponents that occur within Identifying Patients for CMM.

Figure 5: The ten building blocks of high-performing primary care⁶⁵



Three of the building blocks were not specifically addressed by participants when developing the CMM practice management framework. For instance, Prompt Access to Care was not mentioned, likely because patients can be seen for a CMM appointment relatively quickly. In fact, a number of participants commented that they were able to see patients the same day if their schedule allowed. As the need to manage patients' medications becomes more pressing, the demand for CMM may also grow, and unless there are enough pharmacists available to deliver the service, access to CMM may decrease. However, at this time, access to CMM was not seen as an issue by CMM pharmacists and managers. Care Coordination was also not brought up by participants in this study. Care Coordination, as Bodenheimer and colleagues define it, is coordinating care that occurs outside of primary care, such as with hospitals, pharmacies, and specialists. They go on to state that high performing practices often have care coordinators or referral coordinators who manage care coordination.⁶⁵ CMM pharmacists

often contribute to care coordination by performing CMM on transitions of care patients, such as patients that have recently been discharged from the hospital. However, care coordination is a larger issue within the health care system, and not specific to CMM practice management. This may explain why participants in this research did not see it as one of the essential components of CMM practice management. Lastly, a Template for the Future is the top building block. This is described as the “ultimate goal” of primary care and is defined as “a daily schedule that does not rely on the 15-minute in-person clinician visit but offers patients a variety of e-visits, telephone encounters, group appointments, and visits with other team members.”⁶⁵ When discussing the Template for the Future, Bodenheimer et al. also discuss the importance of moving away from fee-for-service payments and paying for primary care based on quality of care and patient experience. Template for the Future was not its own CMM practice management essential component. However, on the CMM practice management assessment tool, there are several items to choose from for each essential component and the most ideal items are listed to the right. Therefore, a “template for the future” could be seen as all of the practice management items that occur to the far right on the CMM practice management assessment tool. Finally, Patient-Team Partnership and Continuity of Care did not appear in the practice management framework because both of these building blocks are part of the CMM patient care process, and therefore separate from practice management.

Bodenheimer and colleagues then used their building block framework to develop an assessment tool meant to facilitate and evaluate practice improvement. Their tool was adapted from an instrument developed by the MacColl Center for Health Care Innovation titled the Patient-Centered Medical Home Assessment (PCMH-A). The PCMH-A is intended “to help sites understand their current level of ‘medical homeness’ and identify opportunities for improvement.”⁷⁷ The PCMH-A was developed as part of the Safety Net Medical Home Initiative, a 5-year demonstration project aimed to assist 65 safety net clinics in five states to accelerate patient-centered medical home (PCMH) adoption. In order to guide clinics as they worked to become medical homes, the authors of the PCMH-A tool first defined a set of specific practice characteristics and behaviors to describe a PCMH. After conducting a literature review, they developed a framework of eight domains, or change concepts. This framework was confirmed by a series of expert

panels who also helped identify three to five specific key changes within each change concept.⁷⁸ The change concepts that were developed are: (1) engaged leadership, (2) quality improvement strategy, (3) empanelment, (4) continuous and team-based healing relationships, (5) organized, evidence-based care, (6) patient-centered interactions, (7) enhanced access, and (8) care coordination.^{78,79} The PCMH-A consists of 33 questions associated with the eight change concepts. Each item is scored from 1 to 12 based on the extent to which each item has been implemented at a given site. The individual item scores of each change concept are aggregated to compute a subscale score reflecting the level of implementation of each change concept, and the change scores are averaged to create an overall PCMH implementation score.⁸⁰ It is recommended that the PCMH-A be completed by a multidisciplinary group of clinic staff and that staff members complete the assessment individually and then meet to discuss the results to produce a consensus version. The resulting scores of the tool are then meant to guide discussion on opportunities for improvement.

Bodenheimer and colleagues relied on the PCMH-A to create a survey designed to assess the organizational change of a primary care practice according to the 10 Building Blocks of High Performing Primary Care. The survey includes all of the items from the PCMH-A, but reorganized into the framework of the 10 Building Blocks, and includes some additional questions to examine areas not addressed by the PCMH-A.⁸¹ Figure 6 is an excerpt from the Building Blocks of Primary Care Assessment. The format of the Building Blocks assessment is very similar to the format of the CMM practice management assessment tool in that each domain is made up of several components that are laid out linearly from least optimal to most optimal. However, the objective of the two tools are different. The objective of the Building Blocks tool is to track implementation of a site towards becoming a PCMH, while the objective of the CMM practice management assessment tool is to assess and prioritize areas of improvement for CMM practice management. In addition, the way in which items are answered are different between the two tools. In the CMM tool, participants select the response option that most closely aligns with their practice. The Building Blocks tool, on the other hand, instructs participants to mark the number that best corresponds to their practice. However, given that each level has three numbers to choose from, it is unclear how

participants choose their scores. Finally, the CMM practice management assessment tool ends with a worksheet to identify and guide areas of practice improvement, while the Building Blocks tool provides numerical scores for each block, with a perfect score indicating that that block has been fully implemented.

Figure 6: Excerpt from the Building Blocks of Primary Care Assessment⁸¹

Building Blocks of Primary Care Assessment

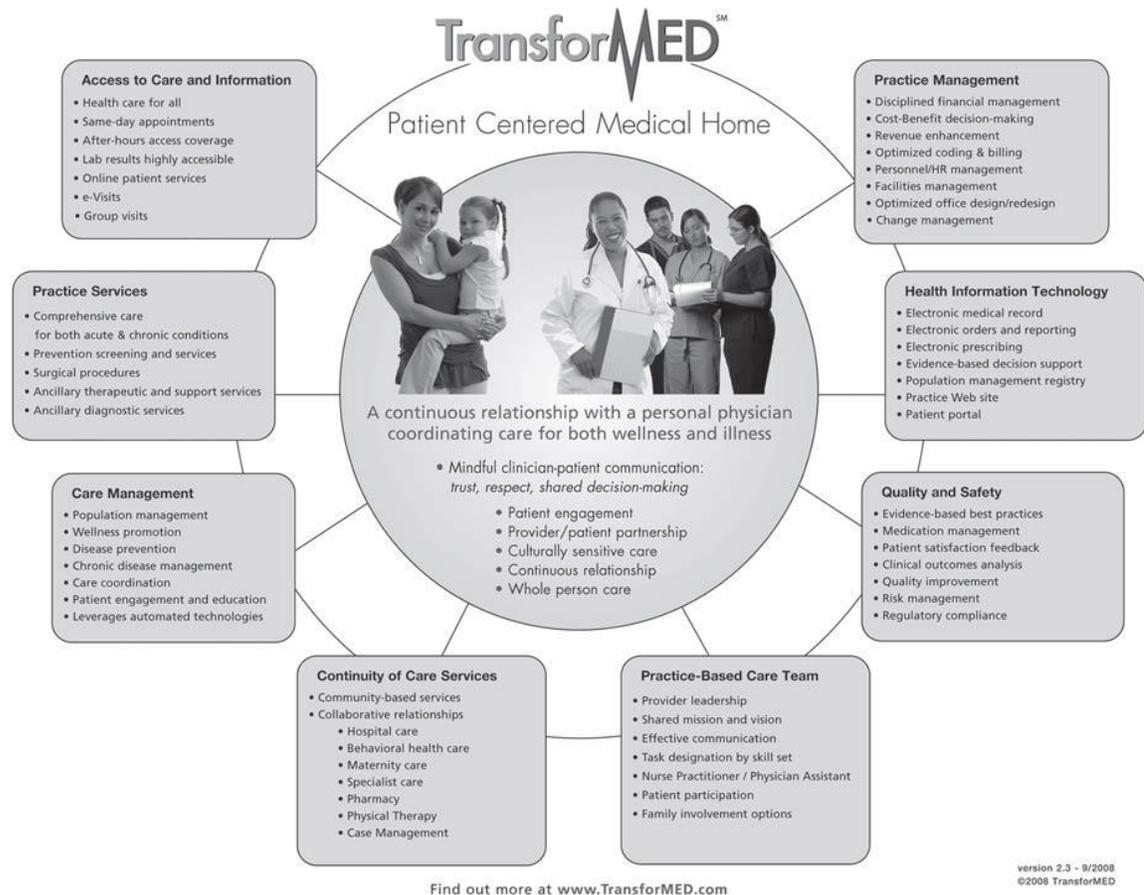
(version 12.27.12)

Block 1: Engaged leadership

Components	Level D	Level C	Level B	Level A
1. Executive leaders	...are focused on short-term business priorities.	...visibly support and create an infrastructure for quality improvement, but do not commit resources.	...allocate resources and actively reward quality improvement initiatives.	...support continuous learning throughout the organization, review and act upon quality data, and have a long-term strategy and funding commitment to explore, implement and spread quality improvement initiatives.
Score	1 2 3	4 5 6	7 8 9	10 11 12
2. Clinical leaders	...intermittently focus on improving quality.	...have developed a vision for quality improvement, but no consistent process for getting there.	...are committed to a quality improvement process, and sometimes engage teams in implementation and problem solving.	...consistently champion and engage clinical teams in improving patient experience of care and clinical outcomes.
Score	1 2 3	4 5 6	7 8 9	10 11 12
3. The responsibility for conducting quality improvement activities	...is not assigned by leadership to any specific group.	...is assigned to a group without committed resources.	...is assigned to an organized quality improvement group who receive dedicated resources.	...is shared by all staff, from leadership to team members, and is made explicit through protected time to meet and specific resources to engage in QI.
Score	1 2 3	4 5 6	7 8 9	10 11 12
4. Quality improvement activities	...are not organized or supported consistently.	...are conducted on an ad hoc basis in reaction to specific problems.	...are based on a proven improvement strategy in reaction to specific problems.	...are based on a proven improvement strategy and used continuously in meeting organizational goals.
Score	1 2 3	4 5 6	7 8 9	10 11 12
5. Quality improvement activities are conducted by	...a centralized committee or department.	...topic specific QI committees.	...all practice teams supported by a QI infrastructure.	...practice teams supported by a QI infrastructure with meaningful involvement of patients and families.
Score	1 2 3	4 5 6	7 8 9	10 11 12
6. Goals and objectives for quality improvement	...do not exist.	...exist on paper, but are not widely known.	...are known by staff, but are only occasionally discussed in meetings.	...are the centerpiece of multi-disciplinary meetings aimed at developing strategies to meet objectives.
Score	1 2 3	4 5 6	7 8 9	10 11 12

In 2005, the American Academy of Family Physicians (AAFP) funded a 2-year National Demonstration Project to implement a new model of care for family medicine that would “increase patient access and satisfaction, improve efficiency and work flow, produce higher-quality measures of care, maximize use of technology, and enhance working conditions for physicians and staff.”⁸² A division of AAFP, TransforMED, had sole responsibility for the design and implementation of the demonstration project and designed a care model to guide the demonstration project. The model TransforMED developed underwent several modifications throughout the project, ultimately leading to a final patient-centered medical home model of care (Figure 7).

Figure 7: The revised model of practice tested in the TransforMED National Demonstration Project⁸²

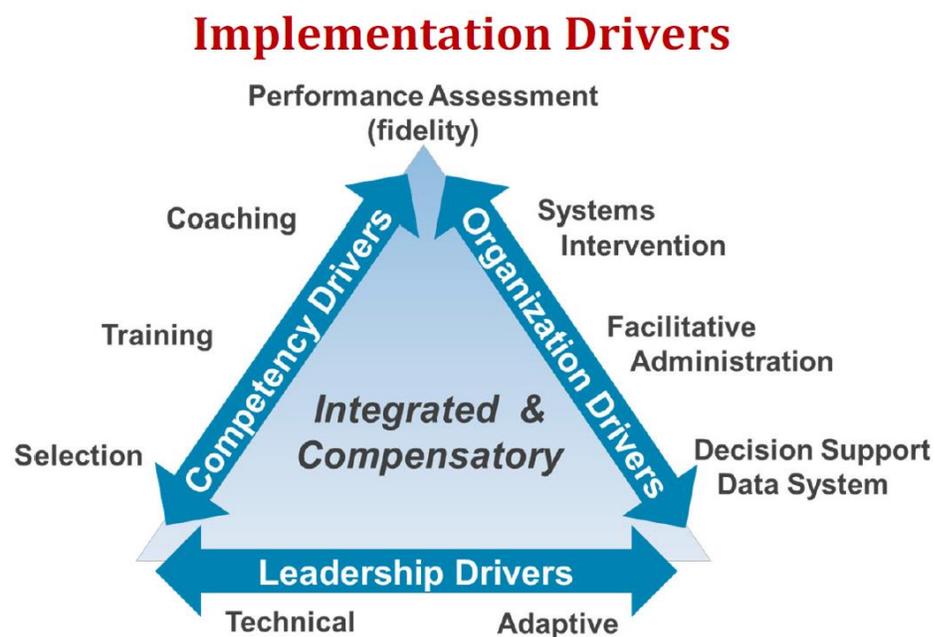


No specific methods are included describing how the model was created, only that it was influenced by PCMH literature and input from the Commonwealth Fund. One of the eight components that is included in the model is practice management. However, the components that are included in practice management are limited to finances, staff management, facilities management, and leading change. These are typically the duties of a clinic manager and do not necessarily describe the necessary resources and support to deliver a service in an efficient and productive manner, the definition of practice management chosen for this work. Still, a number of other components and subcomponents that are listed in the TransforMED model also appear in the practice management framework. For example, “effective communication” which appears in Practice-Based Care Team is an important subcomponent in the CMM practice management component of Interprofessional Collaboration, as are “collaborative

relationships” which are presented in Continuity of Care Services. Other subcomponents that are presented in the TransforMED model that also appear in the CMM practice management framework include patient satisfaction, clinical outcomes analysis, quality improvement, decision support within the EHR, and registries. The TransforMED model was designed to help existing primary care practices transition to practices more focused on providing coordinated, patient-centered care. While the model includes practice management and has some overlap with components presented in the CMM practice management framework, the model is more geared towards changing the system in which primary care is delivered rather than describing the essential components of a service, which explains the difference between the TransforMED model and the CMM practice management framework.

The National Implementation Research Network (NIRN) developed a framework of the enabling factors that facilitate change which they refer to as Implementation Drivers (Figure 8).⁸³

Figure 8: National Implementation Research Network Implementation Drivers⁸³



To develop their Implementation Drivers, the authors reviewed concepts from the literature, interactions with purveyors who have been successfully implementing evidence-based programs on a national scale, meta-analysis of leadership literature, and

analysis of leadership in education.⁸³ There are three categories of implementation drivers: competency, organization, and leadership. Competency drivers “are the mechanisms to develop, improve and sustain one’s ability to implement an intervention as intended,”⁸³ organization drivers “are the mechanisms to create and sustain hospitable organizational and system environments for effective services,”⁸³ and leadership drivers focus “on providing the right leadership strategies for the types of leadership challenges.”⁸³

Competency drivers comprise three drivers: (1) selection, (2) training, and (3) coaching. Selection involves choosing practitioners and staff for implementation teams. NIRN argues that certain practitioner characteristics are difficult to teach and therefore must be part of the selection process. However, they go on to say that some programs may not require careful selection.⁸⁴ Training is necessary to bring about behavior change required for the effective use of an innovation. The content of training varies depending on the innovation, but the methods of training are somewhat standard and include approaches such as demonstrating skills and abilities, providing information about the history and rationale for the program, and lecture and discussion.⁸⁵ The next step in competency is coaching. Most of the skills necessary of a successful practitioner are learned on the job with the help of a coach, according to NIRN. “Coaches not only expand the knowledge and skills taught in training, they also impart craft knowledge (e.g., engagement, ethics, managing work flow, clinical judgement).”⁸⁶ In addition, coaches also offer emotional and personal support.

At the top of the Implementation Drivers is performance assessment. Performance assessment, sometimes called practitioner fidelity assessment, is used to assess the skills that are taught in the training and coaching processes. Performance assessments include context measures that describe the necessary precursors to high-level performance of an implementation, compliance measures which outline the core intervention components and their use by the practitioner, and competence measures which determine the extent to which core intervention components were executed appropriately and skillfully. The results of the performance assessment can be used to target coaching, assess the quality of training and coaching, or as a baseline outcome measure.⁸⁷

Organization drivers are made up of: (1) decision support data system, (2) facilitative administration, and (3) systems intervention. Decision support data systems are sources of information used to make decisions regarding the organization. These data systems include financial data collection and collection and reporting systems for processes and outcomes and play an important role in continuous quality improvement.⁸⁸ Facilitative administration is support that is “proactive, vigorous and enthusiastic attention by the administration to reduce implementation barriers and create an administratively hospitable environment for practitioners.”⁸⁹ It includes “internal policy analyses and decisions, procedural changes, funding allocations and a culture that is focused on what it takes to implement with fidelity and good outcomes.”⁸⁹ Facilitative administration is important for enabling implementation, receiving and addressing feedback from practitioners, and ensuring resources and supports are in place. Lastly, systems intervention are the influences played by agency, community, state, and federal systems.⁹⁰

Good leadership is key behind any implementation and NIRN describes their leadership drivers as technical and adaptive. Technical leadership is the more managerial tasks, such as responding to issues that arise and producing desired outcomes. Adaptive leadership, on the other hand, occurs when there is less certainty and requires leaders who can succeed in the complexity of large-scale changes. While both facets of leadership are important, adaptive leadership is essential to manage the change process of a new innovation.⁹¹

Similar to the other frameworks, there are a number of overlaps between NIRN’s implementation drivers framework and the CMM practice management framework. For instance, training was mentioned by CMM pharmacists and managers as an important piece of CMM practice management because it ensures that everyone has a clear understanding and expectation of what is expected of CMM. While not entirely in line with NIRN’s definition of coaching, pharmacists that engage in quality assurance processes by completing chart audits and peer reviews, receive continuous feedback on their work to supplement what they learned in their training. However, this process likely more closely relates to what NIRN defines as performance assessment because it assesses

the skills of the practitioner and fidelity to the CMM process. Measuring and reporting results, which were essential components of the CMM practice management framework, may align with the decision support data system driver. The decision support data system driver emphasizes having a mechanism to capture data, but not what is collected or with whom it is shared. Facilitative administration has a very broad definition; therefore, most of the essential components would likely be grouped under facilitative administration, including availability and adequacy of clinic space, presence and scope of collaborative practice agreements, availability and use of support staff, methods for identifying patients in need of CMM, scheduling CMM visits, and care documentation.

There were also implementation drivers that were not essential to CMM practice management. While many practices have selection criteria that they prefer in new hires, one of the managers pointed out that they have hired pharmacists of various backgrounds and that this did not affect CMM delivery. She commented that the onboarding process may need to be adjusted slightly, but that selection criteria were not essential to CMM practice management. In addition, systems intervention did not emerge as an essential component of this work. Participants spoke of the importance of having support for CMM across multiple levels of their organization, but did not mention policy or economic factors as critical to CMM practice management. These aspects are likely outside of the scope of practice management since they relate to the entire pharmacy profession. Similarly, pharmacists and managers spoke about the importance of leadership support and ways in which leadership supports them, but it was not distilled down to a level of technical and adaptive leadership.

NIRN's model is meant to represent the facilitators of implementation for any initiative in any setting. However, a limitation of this is that many of the drivers lack practice-specific definitions. Additionally, NIRN points out that not all of the drivers may be necessary.⁹² Furthermore, because pharmacy literature and the perspectives of pharmacists were not included in the development of the implementation drivers, this limits the transferability of the model to pharmacy. Finally, an additional difference between the implementation drivers model and the practice management framework is

that implementation drivers stress what is needed to *implement* an innovation, whereas practice management is about the resources to support *existing* CMM practices.

The CMM practice management framework and other pharmacy frameworks

When Cipolle et al. wrote about practice management in their textbook, they stated that practice management consisted of: (1) a clear understanding of the mission of the practice, (2) all the resources required to deliver the service, (3) the means by which the service can be evaluated in the short term to determine “patient-specific experiences”, and in the long term to represent quality of the service, and (4) the means to reward the practitioner, and financially support the longevity of the practice.³³ A clear understanding of the mission of the practice, as the authors describe it, is “a clear description of the service provided...[that] defines the standards and expectations for the service.”³³ This definition is more in line with the patient care process which is separate from practice management. The means by which the service can be evaluated is presented in the essential component “measuring CMM data” and the means to reward the practitioner occurs in the essential component “billing and revenue.” When Cipolle et al. wrote about “all the resources required to deliver the service,”³³ they stated that this included “physical, financial, and human resources; it includes documentation and reporting aspects, and appointment management processes, among others.”³³ This description is very broad and could encompass all aspect of practice management. Therefore, the results of this work add significant clarity and definition from the CMM practice management framework put forth by Cipolle and colleagues.

There are components of previous pharmacy practice management frameworks that also appear in the practice management framework of this research. For example, evaluating and monitoring outcomes,^{21–23,25} interdisciplinary care,²² financing pharmacy services,^{21–25} and quality assurance/improvement^{22,24} are all components that are presented in existing frameworks that were also essential components of this work. However, most components of practice management that have been presented previously in pharmacy were not identified as essential by the managers and pharmacists in this study. Marketing and promotion of services is a component that is often cited in many pharmacy practice management frameworks, but was not considered essential by the participants of this

study. This is likely because the practices that were involved in this project had established CMM services, so marketing and promotion were not as necessary as someone just beginning their practice. Also, clinics may have used marketing strategies that were less successful than others, leading them to have a negative perception of marketing and promotion. Similarly, developing a business model is a component of other pharmacy practice management frameworks^{22,24} that did not present as essential in this study. It was initially included on the interview guide, so a few pharmacists spoke about their business plans. However, of those that did, they said it was mostly helpful with their long-term planning, such as expanding pharmacist full-time equivalents (FTEs), but did not feel the business plan affected their day-to-day work. Since many of the previous pharmacy practice management frameworks center around building a CMM practice,^{21,23-25} the focus is on specific aspects of starting a practice, such as conducting a needs assessment, determining site location, and developing a care model. In addition, most of the frameworks are based on the authors' experience of practice and the authors did not rely on scientific methods to create their frameworks. This work, however, relied on robust methods and the focus was on identifying the essential components of providing CMM in an efficient and productive manner within clinics that already had established CMM practices.

The CMM practice management assessment tool and other practice assessment tools

In the introduction, two pharmacy practice management tools were discussed that had been developed previously, the ASHP tool and the MI-AMMP tool. An advantage of the ASHP tool is that it provides two tracks – a systems-based track and a practitioner track. When developing the CMM practice management assessment tool that resulted from this work, the research team and lead investigator discussed who would complete the tool. Some questions are specific to an individual clinic and therefore are best suited for the pharmacist to answer while some questions, like tracking data and systems for identifying patients, occur at the managerial level. However, rather than split the questions of the tool up into two tracks, as the ASHP tool did, the research team and lead investigator felt that to get a complete understanding of one's practice management, *all* questions needed to be completed. The concern was that if a pharmacist, for example, just completed the practitioner specific questions and did not take into consideration the results of the

manager-focused questions, they would not obtain a full picture of their practice management. For that reason, it is suggested in the instructions for use of the tool that the questions be completed with input from other members of the care team, if necessary.

After completing the ASHP tool, participants are presented with resources specific to the concepts that they indicated as areas of opportunity. The research team and lead investigator discussed to what extent participants should be “guided” in their efforts to achieve practice advancement after completing the CMM practice management assessment tool. The thought was that if participants were provided with resources related to quality improvement frameworks, such as plan-do-study-act (PDSA) cycles, there would then have to be additional coaching provided on how to effectively use PDSA cycles, how to manage the data, what to do moving forward, etc. In other words, providing them with the next steps could prove to be an endless process. However, the research team and lead investigator felt that there needed to be some type of guidance for the user to act upon their results. For that reason, a basic action plan worksheet is provided at the end of the tool to guide participants in taking the next steps towards practice improvement. A worksheet approach is also preferable to providing resource links because the resources may become outdated over time or the links may become inactive.

A major difference between the CMM practice management assessment tool and the MI-AMMP tool is that the MI-AMMP tool provides the user with a numeric score signifying the ability of the user’s practice to deliver CMM. Initially, the intent was for the CMM practice management assessment tool to be a quantitative tool that would classify the level to which CMM was being operationalized within a pharmacist’s practice. However, as data were being coded and the tool was being developed, it became clear that creating a quantitative tool would have added significant difficulty. For example, while participants agreed that the items presented in the tool were important to practice management, it could be argued that some items are more important than others. Therefore, to develop a quantitative tool, items would likely need to be weighted which would require additional consensus processes with experts to determine which items should receive weighting and to what extent. Moreover, statistical analysis such as factor

analysis or item response theory would have been necessary to ensure that the items of the tool accurately represented practice management and, with only 36 clinics participating in this study, that number would not have been sufficient for such analyses. Finally, it was determined by the research team and lead investigator that providing a descriptive practice improvement tool would be more beneficial at this point in time than a quantitative, summative assessment. While having a quantitative score is useful for characterizing and describing practices, these scores are often of little use to the individual user. Because many CMM practices still have room to grow and develop, creating a tool focused on practice improvement will likely be of greater benefit to the profession of pharmacy.

Limitations

While this study relied on a robust set of methods and included responses from pharmacists and managers working in several different health systems and clinics across different states, there are certain study limitations that need to be considered. First, although a variety of practice sites participated in this research, it was not a nationally representative sample. This was a convenience sample where the majority of practice sites were part of large integrated health systems and were located in Minnesota or North Carolina. Therefore, the experiences participants expressed in their interviews and focus groups may not be representative of all CMM pharmacists working in primary care. Also, while not a limitation, an important consideration is that this tool is meant to be used for CMM practices in primary care. CMM practices in other settings, such as community pharmacy, hospitals, and other locations, will likely have a different practice management framework due to their unique settings and resources available to them.

Second, certain parts of the tool may not be applicable to every practice given their culture, organizational structure, resources, practice setting, and/or state laws. As Cipolle et al. write, “the patient care process changes minimally with the practice setting...it is the practice management system that changes with the physical, social, political, and economic environments.”³⁴ For example, the presence and scope of collaborative practice agreements may be limited by states laws and pharmacy practice acts. In some states, for instance, prescribers can delegate responsibility to a pharmacist through a collaborative

practice agreement while other states limit the prescribing authority offered to pharmacists.⁹³ In addition, certain sections of the tool may not be applicable to some practices due to their practice settings. One site that was interviewed, for example, was a very small practice with just one physician, one pharmacist, one nurse, and one front desk staff. Because this pharmacist is in such a small practice, certain aspects of interprofessional collaboration, for example, such as communication with providers, orienting new team members to CMM, and organizational presence at provider meetings likely will not be relevant to her clinic. In addition, smaller practices may not engage in the activities that fall within the domain of *Ensuring Consistent and Quality Care*. Sites that only have one pharmacist and are not part of a larger system likely will not have a pharmacist training process and opportunities to engage in quality assurance processes may be limited. However, this limitation is addressed in the guidance for use of the tool.

Third, the CMM practice management assessment tool is not static. Health care delivery and payment models are ever-changing, meaning this tool will need to be modified and updated as health care and pharmacy evolves. While the framework will probably not see significant changes over time, the various aspects that make up the essential components will likely need to be modified to keep up with current practices. For example, when addressing the component of clinic space, one of the managers pointed out that a clinic that had recently been built was designed so that no one has desks anymore. Therefore, as clinic design changes to be more collaborative and efficient, the space requirements of pharmacists delivering CMM may also change.

In addition, as technology becomes more sophisticated, methods that are used to identify and schedule patients, as well as documentation systems will also change. It was only a couple of decades ago that an electronic health record system was widely endorsed in place of a paper-based system.⁹⁴ Therefore, it is difficult to predict what types of technological advancements may change the landscape of health care delivery in the coming years, but changes will certainly impact practice management. As a result, both the framework and the tool will need to be critically reviewed by a panel of CMM experts every couple of years to revise items the panel deems have become outdated and update items to fit current or future practices.

Implications for future research

As this was the first study to examine the essential components of CMM practice management and develop a CMM practice management assessment tool using those essential components, there are several areas of opportunity for future research. The tool that was developed out of this research was meant to assess CMM practice management and facilitate practice management improvement. Further research is needed to examine the utility of the tool in helping pharmacists understand their practice management and identify areas for improvement. Local health systems have asked for the tool and have had their pharmacists complete it, so further qualitative research could evaluate pharmacists' perceptions using the tool, if it has benefited their practice, and how it benefited them.

The tool could also be adapted to create a quantitative practice management tool. As was stated above, additional research would need to be conducted to determine what items would be included in a quantitative assessment, how items would be weighted, and a larger national sample would be necessary to validate the instrument. A quantitative assessment would be helpful to determine the landscape of CMM practice management across the country. In addition, such an analysis would identify clinics with high performing practice management. Practices that are just initiating CMM services or practices with low performing practice management could then reach out to the high performers to learn the strategies that they used to achieve optimal practice management. Therefore, the results of a quantitative tool could stimulate a collaborative learning environment.

To the author's knowledge, this was the first study to create a practice management framework in any pharmacy setting. Therefore, additional research is needed to determine the practice management frameworks of pharmacists practicing in other settings outside of primary care, such as hospitals, community pharmacies, and other locations. It would be interesting research to compare and contrast practice management frameworks across different areas of pharmacy to determine if there are significant differences, or if pharmacy can rely on a single practice management framework.

Finally, it was mentioned among participants that the CMM practice management framework and tool would be a useful educational resource to present to pharmacy students and residents. Therefore, future research could be directed at examining the benefit of the practice management framework and tool for educating pharmacy learners and new practitioners. Also, additional educational materials, activities, and tools could be developed using the practice management framework. For example, students could be asked to develop a documentation rubric that they would use to meet the needs of the essential component of quality assurance processes, or students could be presented with a case in which they have to convince their senior leadership why they need designated support staff for CMM. All of these types of activities could be studied to evaluate if they are a necessary addition to pharmacy curricula and if so, how do students benefit from them.

Conclusions

The results of this work produced a framework to describe CMM practice management. This framework comprises five domains and thirteen essential components. This framework led to the development of a descriptive CMM practice management assessment tool that can be used to aid in CMM practice advancement. Pharmacy has established a patient care process for CMM. However, a resource that described the necessary components to deliver CMM in an efficient and productive manner was lacking in pharmacy literature. To the author's knowledge, this is the first study to evaluate and articulate the core domains and essential components of practice management that support the efficient and effective delivery of CMM in primary care medical practices. As the need for CMM intensifies given the increasing cost, complexity, and specificity of medications, as well as the high number of patients taking medications, understanding the intricacies of CMM practice management will be essential to create successful and sustainable practices and, in turn, decrease medication-related morbidity and mortality.

The CMM practice management assessment tool that resulted from this work will be the first tool available to primary care medical practice sites to assess the core domains and essential components of CMM practice management and serve as a guide for practice development and advancement. This will be an important resource for new practices

looking to develop an ideal practice management system and existing practices wanting to identify areas for improvement and understand what is needed to obtain more optimal CMM practice management.

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Appendices

Appendix A: First focus group email

Subject: ACCP CMM Study: Focus Group Request

Dear [INSERT NAME],

As part of the CMM in Primary Care research project, we will be seeking to identify the essential components that make up a CMM practice management system, define these components and create a process by which organizations can self-assess their progress in adopting a robust system. For the purposes of this project, we define a practice management system as the necessary resources and support to provide CMM in a proficient and productive manner.

To kick off this process (which will have multiple phases of evaluation and development), we would like to conduct a focus group with CMM managers. We believe you will have critical insights into the design and execution of a CMM practice management system and should be the first source of input in this evaluation. The results of this work will be influential to the project as a whole as these findings will drive much of the improvement cycle work that will be completed by study sites.

In order to maximize discussion and participation, I have put together a Doodle poll requesting your preferences of the date and time of the focus group: [INSERT DOODLE POLL]

We request that you please complete the Doodle by 9/8/16

For those in Minnesota, we would like to convene you on campus for this discussion. Individuals in North Carolina would join the focus group by video conference. The focus group will be about 90 minutes.

I look forward to discussing CMM practice management with you and if you have any questions in the meantime, please do not hesitate to ask.

Sincerely,

Debbie Pestka

--

Debbie Pestka, PharmD
PhD Candidate - Social and Administrative Pharmacy
University of Minnesota College of Pharmacy
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308 Harvard St. SE

Appendix B: Focus group discussion guide

Focus Group Introduction

Hello and thank you for joining us. My name is Debbie Pestka and I am a pharmacist and PhD student here at the University of Minnesota. We also have Lori Armistead joining us from North Carolina. Lori is also a pharmacist and she will be assisting me today. We are interested in talking to you today about your comprehensive medication management (CMM) program and the infrastructure that is needed to support CMM. We refer to this as the practice management system. What we talk about today will help inform directions of this project, as well as an assessment tool we plan to create. You were all invited because you are currently involved in the management and oversight of CMM services within your clinic or organization.

I will be audio recording our discussion today to make sure that we don't miss any of your responses, however your names will not be attached to the final results. I ask that if you have a cell phone if you could please silence it, and if you do need to step for a minute that is okay, just join us again once you are able.

My role here is to help guide the discussion. There are no wrong answers, only differing points of view. Please feel free to share your point of view even if it differs from what others have said. Also, if someone says something, feel free to follow-up on it or share a different point of view. You don't need to address all of your comments to me. I will help to make sure that we get through all of the questions in the time that we have so I apologize in advance if I interrupt you in order to move to the next question.

Let's get started. If you could, let's begin by saying your name, where you work, and what you enjoy doing outside of pharmacy.

Essential Components of CMM Practice Management Systems		
Purpose: To obtain the perspectives of CMM management on what the essential components of CMM practice management are. Objectives are to: <ul style="list-style-type: none"> • Identify essential components of CMM practice management system • Determine what the highest standard is for each component • Define essential components Participants: The 8 CMM managers participating in this study will be invited		
	Questions	Minutes
	Opening: Tell us who you are, where you work, and what you enjoy doing outside of pharmacy.	10
	(Participants will receive a Qualtrics link prior to the focus group asking them to list at least 3 essential components of a CMM practice management system. The list of components from Qualtrics survey will be compiled and listed in a Word document. I will share my screen so that all participants can see the list.) This is a list of the components that you developed. We will begin our discussion by talking about them. <ul style="list-style-type: none"> • How would each of these components look in an ideal practice? <ul style="list-style-type: none"> ○ Possible probes (if not included on initial list). <ul style="list-style-type: none"> ▪ Targeting patient populations ▪ Engaging patients in the service ▪ Training ▪ Hiring ▪ Collaboration ▪ Communication ▪ Marketing ▪ Buy-in ▪ Creating a shared vision ▪ Documentation ▪ Supportive technologies and tools ▪ Business plan ▪ Outcomes ▪ CQI 	60
	We have been using the term practice management system today. I am curious if you all use the term practice management system, or what other terms you use.	5
	What advice would you give to a new CMM manager about practice management?	5
	Is there anything else that we didn't talk about that you feel should be mentioned?	5
	Total minutes	85

Appendix C: Cohort 1 interview guide

Interview Guide

Introduction:

Thank you for taking the time to participate in this interview that is being done through the CMM in Primary Care grant. My name is _____ and I am a _____ (e.g., pharmacist and researcher at the University of Minnesota). Today I wanted to talk to you about the components that you have identified as necessary to support CMM in your practice. You may use a different term, such as MTM, at your clinic, but I will be referring to it as CMM in our discussion today. Our goal is to take what we learn from these interviews to develop a self-assessment tool that other clinics can use to evaluate their CMM practice. The interview should last about 60 minutes.

I have a list of questions here in front of me to serve as a guide for our discussion, however if there are questions that you prefer not to answer, that is okay. Similarly, if there are topics that you think are important that I do not bring up, please feel free to share those. To facilitate my note taking, I would like to audio tape our discussion today. People say really insightful things during these interviews and I just can't write them down fast enough. Shall we begin?

Ice breaker:

I have reviewed your surveys that you submitted a while ago, but I was wondering if you could give me a brief overview of your practice.

What has been one of the biggest successes of your CMM practice?

Interview guide:

We recognize that there is a continuum of CMM practice development and that sites are at different places within this continuum. Today we wanted to understand where your site is at with regards to your CMM operations and infrastructure. This may include things like scheduling, staff support, having a standard practice model, etc.

For the purposes of this project, we define CMM operations as the necessary resources and support to provide CMM in an efficient and productive manner. Given that, what components do you think are most important for CMM operations and infrastructure?

- (With each of the things that the mention, ask something like, “You mentioned _____, can you tell me about that?”)

- (With each thing that they mention, also ask if there are any limitations, areas where it could be improved, and/or what it would look like in an ideal practice)

(Then, move into the following topics if they were not covered:)

Targeting patient populations		Map to survey questions*	Notes
	Out of all the patients who receive care within your clinic, can you describe how it is determined who receives CMM services?	B13, B14	
	<ul style="list-style-type: none"> • What populations are you or your organization targeting? 	B16	
	<ul style="list-style-type: none"> • How did you or your organization decide to target those populations? 		
	Are you individually identifying patients? If so, what is your process?		
Engaging patients in the service			
	How are you engaging (i.e. recruiting) patients in the service? <ul style="list-style-type: none"> • What are the strengths of this process? • What are the limitations? 		
	If I were a physician, for example, and I had a patient that I thought would benefit from CMM, how would I go about setting up that visit? <ul style="list-style-type: none"> • Are there any areas where this could be improved? 	B20	
	How are CMM visits scheduled in your clinic? <ul style="list-style-type: none"> • Who is involved in this process? • How does the process work? 	B21	
	How have you or your organization been able to engage new patients (i.e., those not currently receiving this service)?		
Documentation			
	Tell me about how you document CMM visits.	B36, B37 B34, B35	

	<ul style="list-style-type: none"> • How do you capture DTPs in your documentation? 		
	<ul style="list-style-type: none"> • What have you done to create efficiency in documentation? <ul style="list-style-type: none"> ○ What have you or your organization done to collaborate with IT/informatics/software vendors to improve documentation? 	B38	
	<ul style="list-style-type: none"> • What have you done to be able to extract data from your documentation? 		
	<ul style="list-style-type: none"> • Is your documentation reviewed in any way to assess consistency and accuracy of CMM services 		
Communication			
	<p>Once a CMM visit has been completed, how do you communicate findings from the visit and plan with other care team members?</p> <ul style="list-style-type: none"> • Are there any areas of improvement in this process? 		
	<p>How do you communicate your care plan with patients?</p> <ul style="list-style-type: none"> • Are there any limitations or areas where this could be improved? 		
Collaboration			
	<p>Tell me about how you work with some of the other providers in the clinic. (probe for the interviewer: do you discuss patient cases together, do you ever have team visits, etc.)</p> <ul style="list-style-type: none"> • How does collaboration support efficiency? 	B77, B78	
	How have you worked to build relationships with other care team members?		
	Once a CMM visit has been completed, how does the team work together to implement the care plan?		

Marketing		
	<p>What are you currently doing or what has been done to create awareness about the service among clinic providers?</p> <ul style="list-style-type: none"> • Administrators? • Staff? 	
	<p>What have you or your organization done to create awareness about the service among patients?</p>	
Buy-in		
	<p>What have you or your organization done to create buy-in with clinic leadership (e.g., managers, directors) regarding your CMM program?</p>	
	<ul style="list-style-type: none"> • Who has contributed to generating buy-in? <ul style="list-style-type: none"> ○ Anyone outside of pharmacy? 	
	<p>What have you done to create buy-in with other care team members (e.g. physicians, NPs, PAs) regarding your CMM program?</p>	
	<p>What have you done to create buy-in with patients?</p>	
Creating a shared vision		
	<p>[If B69 = yes] How did you develop your CMM mission and vision?</p>	B69
	<p>Have you promoted your mission and vision to those outside of pharmacy, such as the clinic or patients or leadership?</p> <ul style="list-style-type: none"> • (If yes) Please explain what has been done. 	B70, B71, B72, B73, B75
Staff support and resources		
	<p>Tell me about the role support staff have with regards to your practice.</p>	B42, B43, B44

	<ul style="list-style-type: none"> • Are there any gaps or areas where you could receive more assistance? • Are there any other staff or personnel that contribute to your CMM program? • Any other resources? Doesn't necessarily have to be staff. 		
	What additional resources to you think would be helpful to supporting your CMM practice?	B45, B46	
Business plan		B58	
	<p>Tell me about your business plan.</p> <ul style="list-style-type: none"> • What does your business plan entail? 		
	How has your business plan affected your CMM practice?		
	What strategies do you have in place for capturing revenue?	D66	
Outcomes			
	<p>Can you describe the outcomes you are evaluating or measuring as part of your CMM practice?</p> <ul style="list-style-type: none"> • How did you or your team determine to track those particular measures? • What has been the outcome of these measures? • How frequently are these outcomes being assessed? 	B52, B53	
Standard care model			
	Knowing that clinics have standard operating procedures, do you have any standard operating procedures for CMM and delivering CMM?		
	What do you do to ensure a consistent and accurate delivery of CMM services?	B54, B55	

	Do you have any type of quality assurance for you CMM program? (If yes, please describe) <ul style="list-style-type: none"> • Are there any areas where this could be improved? 		
Continuous quality improvement			
	How is the CMM program evaluated overall?		
	As a pharmacist, how is your CMM performance evaluated?	B54, B55	
	How are pharmacists participating in quality improvement?	B56, B57	
Wrap-up			
	Is there anything about CMM operations that we did not talk about that you would like to share or mention?		

*B: Baseline survey, D: Demographic survey

Conclusion

Thank you again for taking the time to participate in this interview. Did you have any questions before we leave?

Appendix D: Cohort 1 interview invitation email

Subject: CMM in Primary Care Study: Interview Request

Dear [INSERT PHARMACIST NAME],

As part of the CMM in Primary Care research project, we are looking to learn more about the infrastructure and components necessary to support CMM practices. These components may include scheduling, documentation, staff support, having a standard practice model, etc.

As a pharmacist that is practicing CMM, you have valuable insights to share regarding this aspect of practice. We would like to schedule a 60-minute phone interview with you to discuss your CMM practice infrastructure and operations at [INSERT PRACTICE SITE]. The expected outcomes of this research are two-fold. First, we expect to identify the essential components of CMM operations and infrastructure. Second, we expect that the learnings we will gather from these interviews will allow us to develop a self-assessment tool that will support the planning and development of CMM operations.

I have listed below times that I will be available over the next two weeks:

10/26	10/27	10/28	11/2	11/3	11/4
8:00–9:00 ET	8:00–9:00 ET	8:00–9:00 ET	8:00–9:00 ET	8:00–9:00 ET	8:00–9:00 ET
12:00–1:00 ET	3:00–4:00 ET	9:00–10:00 ET	12:00–1:00 ET	1:00–2:00 ET	9:00–10:00 ET
1:00–2:00 ET	4:00–5:00 ET	10:00–11:00 ET	1:00–2:00 ET	2:00–3:00 ET	10:00–11:00 ET
2:00–3:00 ET	5:00–6:00 ET	11:00–12:00 ET	2:00–3:00 ET	3:00–4:00 ET	11:00–12:00 ET
		12:00–1:00 ET	3:00–4:00 ET	4:00–5:00 ET	12:00–1:00 ET
		1:00–2:00 ET	4:00–5:00 ET	5:00–6:00 ET	1:00–2:00 ET
		2:00–3:00 ET			2:00–3:00 ET
		3:00–4:00 ET			3:00–4:00 ET
		4:00–5:00 ET			4:00–5:00 ET
		5:00–6:00 ET			5:00–6:00 ET

1. Please let me know 2-3 times that would work with your schedule. If you are unavailable during the times listed above, please let me know and I can provide additional days and times.

2. On the demographics survey we sent out, you indicated that [INSERT PHONE NUMBER] is the best number to reach you. Is this the number you would like me to call for the interview?

I look forward to discussing your CMM operations with you and if you have any questions in the meantime, please do not hesitate to ask.

Sincerely,
Debbie Pestka

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Debbie Pestka, PharmD
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Appendix E: Second series of focus groups invitation email

Subject: CMM in Primary Care: Focus Group Request

Dear [INSERT NAME],

Over the past months, we have been working to develop a CMM operations assessment tool as part of the CMM in Primary Care study. We have combined what we learned in our first focus group with CMM managers with what we heard in 12 interviews with CMM pharmacists to create our first draft of the tool. This tool will undergo a validation process, but first we would like to get your feedback and input. As a manager, you have critical insights into the design and execution of CMM and therefore your feedback is of great value to us.

Our expectation is that this tool will allow pharmacists to expand their awareness of the spectrum of strategies employed to support efficient and effective CMM services in primary care clinics. Ultimately, the tool will assist users with identifying opportunities to enhance the operations and support structures for CMM and determine priorities for development.

In order to maximize discussion and participation, I have put together a Doodle poll requesting your preferences of the date and time of the focus group: [INSERT DOODLE POLL]

We request that you please complete the Doodle by 2/10/17

The focus group will be about 90 minutes and will occur via Webex. Once a date is confirmed, I will send out our draft of the tool so that you may review it ahead of time.

I look forward to discussing this tool with you and if you have any questions in the meantime, please do not hesitate to ask.

Sincerely,
Debbie Pestka

--

Debbie Pestka, PharmD
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Appendix F: Mockup of different tool formats

Option A

Availability patient care space	○ We do NOT have a designated room to see CMM patients AND it is sometimes difficult to find space to see patients in a timely fashion	○ We do NOT have a designated room to see CMM patients, but finding an exam room to see patients in a timely manner is never an issue	○ We have a designated room to see CMM patients that is always available	○ We have two or more designated rooms that are always available to see CMM patients
Utility of space ➤ Privacy	○ We do NOT have space that satisfies privacy requirements for all CMM visits, whether they are face-to-face, phone, or video calls		○ We do have space that satisfies privacy requirements for all CMM visits, whether they are face-to-face, phone, or video calls	
Utility of space ➤ Size	○ We do NOT have rooms that are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters)		○ We do have rooms that are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters)	
Utility of space ➤ Design	○ We do NOT have rooms that always meet our needs (e.g., desk space to set patient’s medications, a layout that facilitates conversation)		○ We do have rooms that always meet our needs (e.g., desk space to set patient’s medications, a layout that facilitates conversation)	
Pharmacist workspace ➤ Proximity	○ We do NOT have a workspace that is in close proximity to other health care team members making them easily accessible for collaboration		○ We do have a workspace that is in close proximity to other health care team members making them easily accessible for collaboration	
Pharmacist workspace ➤ Visibility	○ My workspace is NOT visible and easily accessible by the majority of the care team		○ My workspace is visible and easily accessible by the majority of the care team	

Option B

1. Which of the following **BEST** describes the availability of care space to conduct CMM visits at your clinic?
 - We do **NOT** have a designated room to see CMM patients **AND** it is sometimes difficult to find space to see patients in a timely fashion
 - We do **NOT** have a designated room to see CMM patients, but finding an exam room to see patients in a timely manner is never an issue
 - We have a designated room to see CMM patients that is always available
 - We have two or more designated rooms that are always available to see CMM patients
2. We have space that satisfies privacy requirements for all CMM visits, whether they are face-to-face, phone, or video calls
 - Yes
 - No
3. We have rooms that are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters)
 - Yes
 - No
4. We have rooms that always meet our needs (e.g., desk space to set patient's medications, a layout that facilitates conversation)
 - Yes
 - No
5. We have a workspace that is in close proximity to other health care team members making them easily accessible for collaboration
 - Yes
 - No
6. My workspace is visible and easily accessible by the majority of the care team
 - Yes
 - No

Option C

7. Which of the following BEST describes the availability of care space to conduct CMM visits at your clinic?
- We do **NOT** have a designated room to see CMM patients **AND** it is sometimes difficult to find space to see patients in a timely fashion
 - We do **NOT** have a designated room to see CMM patients, but finding an exam room to see patients in a timely manner is never an issue
 - We have a designated room to see CMM patients that is always available
 - We have two or more designated rooms that are always available to see CMM patients
8. On a scale from 0-10, how would you rate the following components of your clinic space?

	0	1	2	3	4	5	6	7	8	9	10
Space that satisfies privacy requirements for all CMM visits, whether they are face-to-face, phone, or video calls											
Rooms that are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters)											
Rooms that meet our needs (e.g., desk space to set patient's medications, a layout that facilitates conversation)											
A workspace that is in close proximity to other health care team members making them easily accessible for collaboration											

Option D

Availability of patient care space	<p>Which of the following BEST describes the availability of care space to conduct CMM visits at your clinic?</p> <ul style="list-style-type: none"> ○ We do NOT have a designated room to see CMM patients AND it is sometimes difficult to find space to see patients in a timely fashion ○ We do NOT have a designated room to see CMM patients, but finding an exam room to see patients in a timely manner is never an issue ○ We have a designated room to see CMM patients that is always available ○ We have two or more designated rooms that are always available to see CMM patients
Utility of space ➤ Privacy	<p>We have space that satisfies privacy requirements for all CMM visits, whether they are face-to-face, phone, or video calls</p> <ul style="list-style-type: none"> ○ Yes ○ No
Utility of space ➤ Size	<p>We have rooms that are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters)</p> <ul style="list-style-type: none"> ○ Yes ○ No
Utility of space ➤ Design	<p>We have rooms that always meet our needs (e.g., desk space to set patient’s medications, a layout that facilitates conversation)</p> <ul style="list-style-type: none"> ○ Yes ○ No
Pharmacist workspace ➤ Proximity	<p>We have a workspace that is in close proximity to other health care team members making them easily accessible for collaboration</p> <ul style="list-style-type: none"> ○ Yes

	<input type="radio"/> No
Pharmacist workspace ➤ Visibility	My workspace is visible and easily accessible by the majority of the care team <input type="radio"/> Yes <input type="radio"/> No

Appendix G: Cohort 2 interview invitation email

Subject: CMM in Primary Care Study: Interview Request

Dear [INSERT PHARMACIST NAME],

As part of the CMM in Primary Care research project, we are looking to learn more about the management and operations infrastructure necessary to support CMM practices in primary care settings. Using information collected from focus groups and interviews with other study participants, we have developed an initial draft of a CMM operations and infrastructure assessment tool. We now would like to receive your input on the content, applicability and usability of this tool. You will have valuable insights that will enhance the design of this tool.

We would like to schedule a 60-minute interview with you to discuss the tool and how it reflects CMM practice infrastructure and operations at [INSERT PRACTICE SITE]. The expected outcome of this research is a practice assessment tool that will support the planning and development of CMM operations.

I have listed below some upcoming times that I will be available:

3/20	3/21	3/22	3/23	3/24
8:00 – 9:00 ET	8:00 – 9:00 ET			
9:00 – 10:00 ET				
10:00 – 11:00 ET				
11:00 – 12:00 ET				
12:00 – 1:00 ET				
1:00 – 2:00 ET				
2:00 – 3:00 ET				
3:00 – 4:00 ET				
4:00 – 5:00 ET	4:00 – 5:00 ET	4:00 – 5:00 ET		

1. Please select 2-3 times that would work with your schedule. If you are unavailable during the times listed above, please let me know and I can provide additional dates and times.

2. To maximize interaction with the tool, we would like to conduct the interview via Webex, an online video conferencing platform. However, if your clinic does not have the capability for video conferencing or if you would prefer to do the interview by phone, please indicate this in your response and we can make arrangements for a phone interview.

I look forward to discussing your CMM operations with you and if you have any questions in the meantime, please do not hesitate to ask.

Thank you,
Debbie

--

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Appendix H: Cohort 3 interview invitation email

Subject: ACCP CMM in Primary Care Study: Interview Request

Hi [INSERT PHARMACIST NAME],

As part of the CMM in Primary Care research project, we have been looking to learn more about the practice management and operations infrastructure necessary to support CMM practices in primary care settings. Using information collected from focus groups and interviews with other study participants, we have developed a CMM operations and infrastructure assessment tool. Now, we would like to get pharmacists' input on the content, applicability, and usability of the tool. Your insights will be highly valuable as we work to enhance the design of the tool.

We would like to schedule a 60-minute interview with you to discuss the tool and how it reflects CMM practice infrastructure and operations at [INSERT PRACTICE SITE]. The expected outcome of this research is a practice improvement tool that will support quality improvement within CMM.

I have listed below some upcoming times (in ET) that I will be available:

6/1	6/2	6/5	6/6	6/7	6/8	6/9
8:00-9:00	8:00-9:00	8:00-9:00	8:00-9:00	8:00-9:00	8:00-9:00	8:00-9:00
9:00-10:00	9:00-10:00	9:00-10:00	9:00-10:00	9:00-10:00	9:00-10:00	9:00-10:00
10:00-11:00	10:00-11:00	10:00-11:00	10:00-11:00	10:00-11:00	10:00-11:00	10:00-11:00
11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00
12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00
1:00-2:00	1:00-2:00	1:00-2:00	1:00-2:00	1:00-2:00	1:00-2:00	1:00-2:00
2:00-3:00	2:00-3:00	2:00-3:00	2:00-3:00	2:00-3:00	2:00-3:00	2:00-3:00
3:00-4:00	3:00-4:00	3:00-4:00	3:00-4:00	3:00-4:00	3:00-4:00	3:00-4:00
4:00-5:00	4:00-5:00	4:00-5:00	4:00-5:00	4:00-5:00	4:00-5:00	4:00-5:00

Please let me know 2-3 times that would work for you and your schedule. If you are unavailable during the times listed above, please let me know and I can provide additional dates and times.

I look forward to discussing your CMM operations with you and if you have any questions in the meantime, please do not hesitate to ask.

Thank you,
Debbie

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Appendix I: CMM practice management assessment tool



Comprehensive Medication Management Practice Management Assessment Tool

January 2018



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Background and Guidance for Use

Purpose

This is a tool used to assess and prioritize areas of improvement for comprehensive medication management (CMM) practice management (i.e., the necessary resources and support to provide CMM in a proficient and productive manner). While pharmacists may engage in many patient care services (e.g., disease state management, patient education, annual wellness visits), this tool was designed to specifically assess CMM.

What is Comprehensive Medication Management?

Comprehensive medication management (CMM) is defined as:

The standard of care that ensures each patient’s medications (whether they are prescription, nonprescription, alternative, traditional, vitamins, or nutritional supplements) are individually assessed to determine that each medication is appropriate for the patient, effective for the medical condition, safe given the comorbidities and other medications being taken, and able to be taken by the patient as intended. CMM includes an individualized care plan developed in collaboration with the health care team and the patient that achieves the intended goals of therapy with appropriate follow-up to determine actual patient outcomes. This all occurs because the patient understands, agrees with, and actively participates in the treatment regimen, thus optimizing each patient’s medication experience and clinical outcomes.⁸

The practice of CMM is comprised of three key elements



1. Philosophy of practice: The professional values and beliefs held by practitioners that guide their actions and decisions in practice
2. Patient care process: The step-by-step process of delivering CMM

3. Practice management: The necessary resources and support to provide CMM in a proficient and productive manner

Structure of the practice management tool

This tool consists of three parts:

- Part I: A global assessment of all domains of CMM practice management to prioritize areas for further assessment
- Part II: A comprehensive assessment tool of all domains and essential components of CMM practice management
- Part III: A worksheet to identify and guide areas of practice improvement after completing part II

Guidance for use

This tool is meant to be filled out for an individual practice site by the CMM pharmacist(s) who work there. However, some questions may require input from other members of the team (e.g., clinic or health system manager, CMM manager). Depending on the practice setting, some questions may not apply. It is recommended that this tool be completed, in whole or in part, at least once a year for an individual clinic to guide continual practice development.

Part I – Global Assessment of the Domains of CMM Practice Management

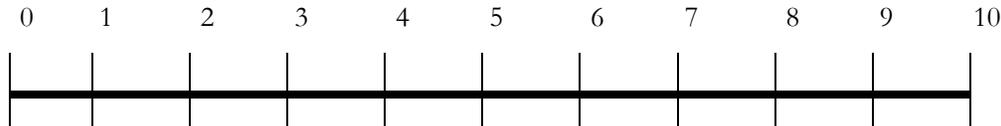
Directions: There are five domains of CMM practice management: (1) Organizational support, (2) Care team engagement, (3) Care delivery processes, (4) CMM program evaluation, and (5) Ensuring consistent and quality care. To determine which domains to focus on, please rate how well your CMM practice performs and the feasibility for improvement within the following domains.

Organizational support

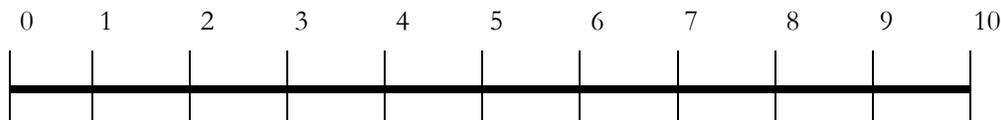
When thinking of *organizational support*, consider the following:

How well does your leadership (both clinic level and executive) understand CMM? Does your leadership support and champion CMM? Do they support you in obtaining necessary resources? Do you have adequate patient care and non-patient care workspace dedicated to you? Are your services aligned with value-based payment?

Performance: On a scale of 0-10, with 10 being most optimal, how would you rate *organizational support* for your CMM practice?



Feasibility: On a scale of 0-10, with 10 being most feasible, how would you rate the feasibility of improving *organizational support* of your CMM practice?



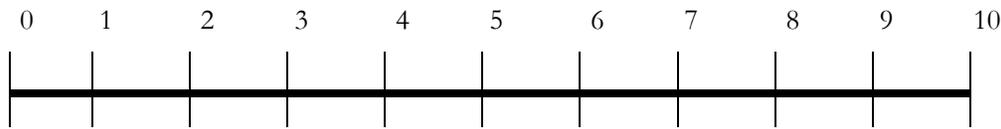
Care team engagement

When thinking of *care team engagement*, consider the following:

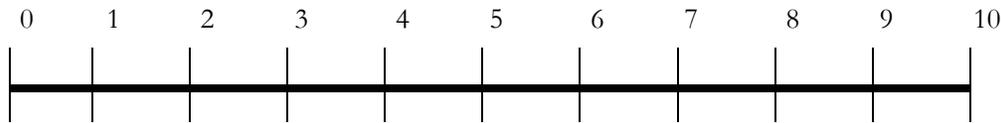
How would you rate your level of collaboration and communication with the rest of the care team? Do they have a good understanding of CMM? Do you receive referrals from most clinic providers? Do you have collaborative practice agreements in place that allow you to initiate, modify, and

discontinue medications from numerous conditions and drug classes? Do you have designated support staff to room and take vitals of your CMM patients?

Performance: On a scale of 0-10, with 10 being most optimal, how would you rate your *care team's engagement* with CMM?



Feasibility: On a scale of 0-10, with being 10 being most feasible, how would you rate the feasibility of improving your *care team's engagement* with CMM?

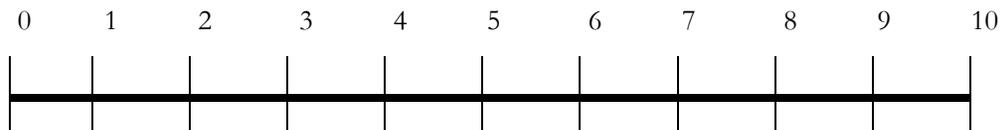


Care delivery processes

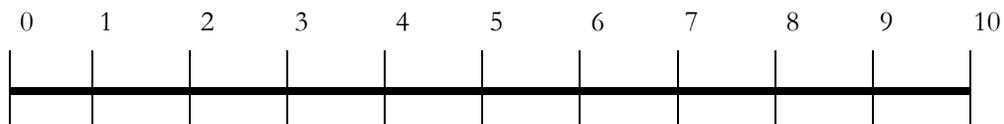
When thinking of *care delivery processes*, consider the following:

Are you responsible for identifying most of your CMM patients? Do you use tools such as algorithms to identify patients most in need of CMM? Are these algorithms built into the EHR to maximize efficiency? Are there automated pop-ups for patients in need of CMM? Does your EHR allow you to identify and manage a panel of CMM patients? Is there a process in place to ensure patients complete follow-up visits? Do you receive assistance with scheduling patient visits? Are you double documenting? Are efficiency tools for documentation built into the EHR such as clinical decision support (e.g., computerized alerts and reminders, condition-specific order sets)?

Performance: On a scale of 0-10, with 10 being most optimal, how would you rate your *care delivery processes* of CMM?



Feasibility: On a scale of 0-10, with being 10 being most feasible, how would you rate the feasibility of improving *care delivery processes* in your CMM practice?

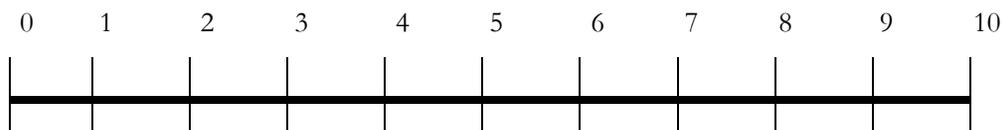


Evaluating CMM services:

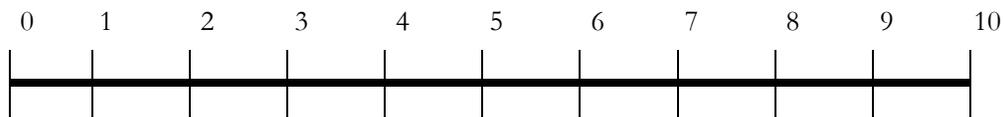
When thinking of *Evaluating CMM services*, consider the following:

Is the identification and resolution of medication therapy problems being tracked? Are other CMM measures such as clinical markers, patient satisfaction, and pharmacist productivity being tracked? Are the data that are being collected from these measures being used to enhance and improve the CMM practice? Are results being reported to the clinic, leadership, and/or external audiences (e.g., presentations, publications)?

Performance: On a scale of 0-10, with 10 being most optimal, how would you rate your *evaluation of CMM services*?



Feasibility: On a scale of 0-10, with being 10 being most feasible, how would you rate the feasibility of improving *evaluation of CMM services* in your CMM practice?

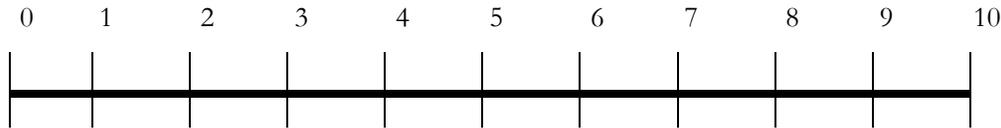


Ensuring consistent and quality care:

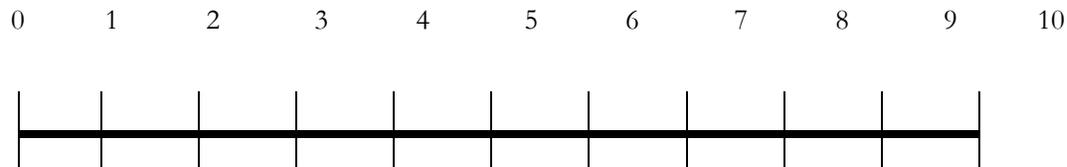
When thinking of *ensuring consistent and quality care*, consider the following:

If a new pharmacist is hired, do you have a consistent training process in place to ensure that they are well trained on the philosophy of CMM practice and the patient care process? Does your employer provide you with money and time for continuing professional development? Do you receive consistent retraining on CMM? Do you have a process in place to ensure that your documentation is clinically sound and accurately completed (i.e. quality assurance)? If you have a process, is the information gleaned used to improve your CMM practice?

Performance: On a scale of 0-10, with 10 being most optimal, how would you rate *ensuring consistent and quality care* of your CMM practice?



Feasibility: On a scale of 0-10, with being 10 being most feasible, how would you rate the feasibility of improving *ensuring consistent and quality care* in your CMM practice?



Preparing for part II: Comprehensive assessment tool

Below, write down the score that you gave each of the domains of CMM practice management. Taking into consideration performance and feasibility, select the two domains that you think would be most relevant to focus on improving. Answer all the questions that pertain to those two domains on the corresponding page numbers listed below.

Optional: For a more thorough practice management assessment, you may complete the entire assessment tool answering the questions for all five domains

Domain	Performance score	Feasibility score	Domain questions available on
Organizational support	_____	_____	(p. 149 - 152)
Care team engagement	_____	_____	(p. 153 - 157)
Care delivery processes	_____	_____	(p. 158 - 162)
Evaluating CMM services	_____	_____	(p. 163 - 165)
Ensuring consistent and quality care	_____	_____	(p. 166 - 167)

Part II – Assessing the Domains and Essential Components of CMM Practice Management

Organizational Support

Directions: Listed below are the essential components of organizational support. For each item listed under the essential component, mark the box that best describes your current CMM practice.

Less optimal

Optimal

Availability and adequacy of clinic space				
Availability of patient care space	<ul style="list-style-type: none"> There is NOT a designated room for each pharmacist to see CMM patients AND it is sometimes difficult to find space to see patients in a timely fashion 	<ul style="list-style-type: none"> There is NOT a designated room for each pharmacist to see CMM patients, BUT finding a room to see patients in a timely manner is never an issue 	<ul style="list-style-type: none"> There is a designated room for each pharmacist that is available to see CMM patients 	<ul style="list-style-type: none"> There are two or more designated rooms for each pharmacist that are available to see CMM patients
Availability of non-patient care space	<ul style="list-style-type: none"> There is NOT designated non-patient care workspace available to CMM pharmacists 	<ul style="list-style-type: none"> There is non-patient care workspace available to CMM pharmacists, BUT it is NOT easily accessible (i.e., to facilitate frequent communication) to other care team members 	<ul style="list-style-type: none"> There is non-patient care workspace available to CMM pharmacists AND it is easily accessible to other health care team members 	

Privacy of space	<ul style="list-style-type: none"> ○ There is NOT space that satisfies privacy requirements for ALL CMM visits, whether they are face-to-face, phone, or video 		<ul style="list-style-type: none"> ○ There is space that satisfies privacy requirements for ALL CMM visits, whether they are face-to-face, phone, or video 	
Size of space	<ul style="list-style-type: none"> ○ Rooms are NOT large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters) 		<ul style="list-style-type: none"> ○ Rooms are large enough to comfortably fit all people that may be present during CMM (e.g., pharmacist, patient, family members, interpreters) 	
Care space equipment	<ul style="list-style-type: none"> ○ Rooms do NOT have necessary equipment to meet CMM needs (e.g., desk space for patient’s medications, computer, phone) 		<ul style="list-style-type: none"> ○ Rooms have necessary equipment to meet CMM needs (e.g., desk space for patient’s medications, computer, phone) 	
Leadership support				
Source of support <ul style="list-style-type: none"> • Clinical pharmacy manager 	<ul style="list-style-type: none"> ○ Not applicable, there is not a clinical pharmacy manager for CMM 	<ul style="list-style-type: none"> ○ The clinical pharmacy manager has a good understanding of CMM 	<ul style="list-style-type: none"> ○ The clinical pharmacy manager has a good understanding of AND supports (e.g., responds to barriers, ensures necessary resources are available) CMM 	<ul style="list-style-type: none"> ○ The clinical pharmacy manager has a good understanding of AND supports (e.g., responds to barriers, ensures necessary resources are available) AND champions CMM (e.g., proactively advocates for the practice)
Source of support <ul style="list-style-type: none"> • Clinic leadership (e.g., lead physician, clinic 	<ul style="list-style-type: none"> ○ In general, clinic leadership does NOT have a good understanding or 	<ul style="list-style-type: none"> ○ In general, clinic leadership has a good understanding of CMM 	<ul style="list-style-type: none"> ○ In general, clinic leadership has a good understanding of AND supports (e.g., respond to barriers, 	<ul style="list-style-type: none"> ○ In general, clinic leadership has a good understanding of AND supports (e.g., respond to barriers, ensure

<p>manager)</p> <p>Source of support</p> <ul style="list-style-type: none"> Executive leadership 	<p>support CMM</p> <p>○ In general, executive leadership does <u>NOT</u> have good understanding or support CMM</p>	<p>○ In general, executive leadership has a good understanding of CMM</p>	<p>ensure necessary resources are available) CMM</p> <p>○ In general, executive leadership has a good understanding of <u>AND</u> supports (e.g., respond to barriers, ensure necessary resources are available) CMM</p>	<p>necessary resources are available) <u>AND</u> champions CMM (e.g., proactively advocates for the practice)</p> <p>○ In general, executive leadership has a good understanding of <u>AND</u> supports (e.g., respond to barriers, ensure necessary resources are available) <u>AND</u> champions CMM (e.g., proactively advocates for the practice)</p>
<p>Form of support</p>	<p>In what ways does leadership (pharmacy, clinic, or executive leadership) support CMM pharmacists? <i>(Check all that apply)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> CMM pharmacists' presence in the clinic <input type="checkbox"/> Participation in provider meetings <input type="checkbox"/> Clinic space <input type="checkbox"/> Recruiting CMM patients <input type="checkbox"/> Scheduling CMM patients <input type="checkbox"/> Encouraging use among other care team members of CMM services <input type="checkbox"/> CMM pharmacists working at the top of their licenses <input type="checkbox"/> Supplying equipment (e.g., phone, blood pressure cuff) <input type="checkbox"/> Addressing concerns related to CMM operations or service delivery <input type="checkbox"/> Advocating for resources (e.g., informatics time) 			

Billing and revenue

CMM revenue

(Check all that apply)

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> Pharmacists bill fee-for-service off non-pharmacy mechanisms (e.g., Medicare annual wellness visits or incident-to) | <input type="checkbox"/> Increased clinic revenue is generated because pharmacists engage in co-visits with providers allowing them to bill at a higher level | <input type="checkbox"/> Pharmacists bill fee-for-service through pharmacy mechanisms (e.g., MTM CPT codes) | <input type="checkbox"/> Pharmacists are engaged in value-based payment |
|--|---|---|---|

Care Team Engagement

Directions: Listed below are the essential components of care team engagement. For each item listed under the essential component, mark the box that best describes your current CMM practice.

Less optimal

Optimal

Interprofessional collaboration				
Communication with providers	<ul style="list-style-type: none"> There is <u>NOT</u> a consistent communication strategy for contacting providers with CMM recommendations 	<ul style="list-style-type: none"> There is a consistent communication strategy for contacting providers with CMM recommendations 	<ul style="list-style-type: none"> There is a consistent communication strategy for contacting providers with CMM recommendations <u>AND</u> ensuring recommendations are followed through 	
Collaborative visits • Workflow	<ul style="list-style-type: none"> Not applicable; collaborative visits do not occur 	<ul style="list-style-type: none"> If a collaborative visit occurs, there is <u>NOT</u> a defined workflow that is consistently executed for seeing those patients 	<ul style="list-style-type: none"> If a collaborative visit occurs, there is a defined workflow that is <u>SOMETIMES</u> executed for seeing those patients 	<ul style="list-style-type: none"> If a collaborative visit occurs, there is a defined workflow that is <u>CONSISTENTLY</u> executed for seeing those patients
Collaborative visits • Implementing collaborative care plans	<ul style="list-style-type: none"> Not applicable; collaborative visits do not occur 	<ul style="list-style-type: none"> After a collaborative patient visit is complete, there are <u>NO</u> defined roles that articulate which member of the care team is responsible for executing various parts of the CMM care plan 	<ul style="list-style-type: none"> When conducting collaborative visits, <u>SOMETIMES</u> there are defined roles that articulate which member of the care team is responsible for executing various parts of the CMM care plan 	<ul style="list-style-type: none"> When conducting collaborative visits, there are <u>CONSISTENTLY</u> defined roles that articulate which member of the care team is responsible for executing various parts of the CMM care plan

		(e.g., who will send prescriptions, educate the patient)	(e.g., who will send prescriptions, educate the patient)	(e.g., who will send prescriptions, educate the patient)	
Organizational presence	○ CMM pharmacists are NOT consistently invited to attend clinic meetings	○ CMM pharmacists are consistently invited to attend clinic meetings	○ CMM pharmacists are consistently invited to attend clinic meetings AND CMM is represented in organization-wide clinical program meetings		
Champion	○ Within the care team, currently there is NO non-pharmacist champion of CMM services		○ Within the care team, there is at least one non-pharmacist champion of CMM services		
Direct provider referrals	○ Currently, NO providers within the clinic refer patients for CMM	○ Of the providers in clinic, ≤ 25% refer patients for CMM	○ Of the providers in clinic, 26-50% refer patients for CMM	○ Of the providers in clinic, 51-75% refer patients for CMM	○ Of the providers in clinic, 76-100% refer patients for CMM
Placing new referrals to other care team members	○ CMM pharmacists CANNOT place new referrals to other care team members in the EHR		○ CMM pharmacists can place new referrals to other care team members in the EHR		
Orienting new care team members	○ When a new (non-pharmacist) care team member is hired, there is NOT a process in place to orient them to CMM (e.g., shadowing opportunities, discussing patients to refer for CMM)		○ When a new (non-pharmacist) care team member is hired, there is a process in place to orient them to CMM (e.g., shadowing opportunities, discussing patients to refer for CMM)		
Presence and scope of collaborative practice agreements (CPAs)					
Medications • Ability to adjust dosing of	□ Pharmacists do NOT have a protocol or CPA to adjust dosing	□ Pharmacists can adjust dosing of medication(s) through an algorithm with a	□ Pharmacists can adjust dosing of medication(s) through condition-specific CPAs (e.g.,	□ Pharmacists can adjust dosing of medication(s) through broad CPAs limited only by the	

existing medications <i>(Check all that apply)</i>	of any medication(s)	defined series of actions (e.g. protocol)	hypertension, diabetes) which allow for clinical decision making	<u>exclusion of certain drug classes or conditions</u>
Medications • Ability to initiate or discontinue medications <i>(Check all that apply)</i>	<input type="checkbox"/> Pharmacists do <u>NOT</u> have a protocol or CPA to initiate or discontinue any medication(s)	<input type="checkbox"/> Pharmacists can initiate or discontinue medication(s) through an algorithm with a defined series of actions (e.g. protocol)	<input type="checkbox"/> Pharmacists can initiate or discontinue medication(s) through <u>condition-specific CPAs</u> (e.g., hypertension, diabetes) which allow for clinical decision making	<input type="checkbox"/> Pharmacists can initiate or discontinue medication(s) through <u>broad CPAs limited only by the exclusion of certain drug classes or conditions</u>
Labs	<input type="checkbox"/> Pharmacists <u>CANNOT</u> order any lab monitoring	<input type="checkbox"/> Pharmacists can order labs, <u>BUT ALL</u> labs ordered by a pharmacist need provider approval	<input type="checkbox"/> Pharmacists can order lab monitoring <u>WITHOUT</u> provider approval under their CPA	
Durable medical equipment (DME) (e.g., blood pressure cuff)	<input type="checkbox"/> Pharmacists <u>CANNOT</u> order any DME	<input type="checkbox"/> Pharmacists can order DME, <u>BUT ALL</u> DME ordered by a pharmacist needs provider approval	<input type="checkbox"/> Pharmacists can order DME <u>WITHOUT</u> provider approval under their CPA	
Imaging (e.g., DXA scan)	<input type="checkbox"/> Pharmacists <u>CANNOT</u> order any imaging	<input type="checkbox"/> Pharmacists can order imaging, <u>BUT ALL</u> imaging ordered by a pharmacist needs provider approval	<input type="checkbox"/> Pharmacists can order imaging <u>WITHOUT</u> a provider co-signature under their CPA	
Availability and use of support staff (These roles could be fulfilled by multiple team members, such as MAs, nurses, pharmacy techs, pharmacy interns)				
Scheduling encounters	<input type="checkbox"/> There is support staff to schedule CMM referrals	<input type="checkbox"/> There is support staff to prospectively schedule CMM	<input type="checkbox"/> There is support staff to schedule CMM patient follow-up	

<i>(Check all that apply)</i>	<ul style="list-style-type: none"> ○ Yes, but only for some patients ○ Yes, support staff schedule <u>ALL</u> CMM referrals 	<p>patient visits from lists of patients</p> <ul style="list-style-type: none"> ○ Yes, but not enough support staff is available to prospectively schedule all identified patients ○ Yes, and sufficient support staff is available to prospectively schedule <u>ALL</u> identified patients 	<p>appointments</p> <ul style="list-style-type: none"> ○ Yes, but only for some patients ○ Yes, support staff schedule <u>ALL</u> CMM follow-up appointments 	
Rooming	<ul style="list-style-type: none"> ○ Pharmacists are responsible for rooming <u>ALL</u> CMM patients 	<ul style="list-style-type: none"> ○ Pharmacists have dedicated support staff to assist with rooming <u>SOME</u> CMM patients 	<ul style="list-style-type: none"> ○ Pharmacists have dedicated support staff to assist with rooming <u>ALL</u> CMM patients 	
Vitals	<ul style="list-style-type: none"> ○ Pharmacists are responsible for taking necessary vitals of <u>ALL</u> CMM patients 	<ul style="list-style-type: none"> ○ Pharmacists have dedicated support staff to assist with taking necessary vitals of <u>SOME</u> CMM patients 	<ul style="list-style-type: none"> ○ Pharmacists have dedicated support staff to assist with taking necessary vitals for <u>ALL</u> CMM patients 	
Billing and coding	<ul style="list-style-type: none"> ○ Not applicable, pharmacists do not bill for CMM 	<ul style="list-style-type: none"> ○ Pharmacists are responsible for processing billing and coding for reimbursable CMM patients 	<ul style="list-style-type: none"> ○ Pharmacists have support staff to process billing for reimbursable CMM patients 	
Point of care testing	<ul style="list-style-type: none"> ○ Pharmacists perform all their own point-of-care testing 		<ul style="list-style-type: none"> ○ Pharmacists can utilize staff support to perform point-of-care testing 	
Dedicated support person (e.g., MA, LPN)	<ul style="list-style-type: none"> ○ Pharmacists have no staff resources available 	<ul style="list-style-type: none"> ○ Pharmacists can use clinic staff, if available <ul style="list-style-type: none"> ○ I would benefit from additional staff support resources ○ I have sufficient support staff to efficiently provide 	<ul style="list-style-type: none"> ○ Pharmacists share staff with the rest of the care team <ul style="list-style-type: none"> ○ I would benefit from additional staff support resources ○ I have sufficient 	<ul style="list-style-type: none"> ○ Pharmacists have dedicated CMM staff <ul style="list-style-type: none"> ○ I would benefit from additional staff support resources ○ I have sufficient support staff to efficiently provide

		CMM	support staff to efficiently provide CMM	CMM
Additional staff support	<p>Pharmacists have adequate technical support in the following areas: <i>(Check all that apply)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Contracts with third party payers <input type="checkbox"/> Pulling reports (e.g. transitional care patients, patients that need follow up) <input type="checkbox"/> Managing refill requests <input type="checkbox"/> Insurance issues (e.g. completing prior authorizations) <input type="checkbox"/> Patient triage (e.g., managing patient messages and phone calls) <input type="checkbox"/> Patient communication (e.g., following up with normal lab results) <input type="checkbox"/> Administering vaccinations <input type="checkbox"/> Putting reminders in the chart for when a patient should be seen again 			

Care Delivery Processes

Directions: Listed below are the essential components of care delivery processes. For each item listed under the essential component, mark the box that best describes your current CMM practice.

Less optimal

Optimal

Methods for identifying patients in need of CMM				
Pharmacist identification	<input type="radio"/> Pharmacists are responsible for identifying <u>MOST</u> CMM patients		<input type="radio"/> Other methods exist (e.g., algorithm, referrals) so that pharmacists are <u>NOT</u> responsible for identifying <u>MOST</u> CMM patients	
Applying an algorithm <i>(Check all that apply)</i>	<input type="checkbox"/> There are <u>NO</u> criteria to prospectively identify patients in highest need of CMM	<input type="checkbox"/> There are criteria to identify patients in highest need of CMM that <u>must be manually applied</u>	<input type="checkbox"/> There is an automated algorithm that is used periodically to prospectively identify patients in highest need of CMM. Manual outreach is needed to schedule these patients for a CMM visit	<input type="checkbox"/> There is an automated algorithm that identifies patients in highest need of CMM and produces an alert in the course of care (e.g., a pop-up alert in the EHR) to encourage provider referral of the patient for a CMM visit.
Non-provider referrals (e.g. desk staff, community pharmacy, case managers, protocol-based nurse service)	<input type="radio"/> Non-providers do <u>NOT</u> identify patients who would be good candidates for CMM		<input type="radio"/> Non-providers identify patients who would be good candidates for CMM	
Payer referrals	<input type="radio"/> <u>NO</u> CMM patients are identified by payer referrals		<input type="radio"/> CMM patients are identified by payer referrals	
Generated quality	<input type="radio"/> <u>NO</u> CMM patients are identified by clinic generated		<input type="radio"/> CMM patients are identified by clinic generated lists or	

care lists	lists or registries based on quality measures	registries based on quality measures
Patient panels	<ul style="list-style-type: none"> The EHR does NOT allow pharmacists to identify the patients who have been seen for CMM by creating their own CMM panel OR the EHR allows CMM empanelment, but pharmacists do not use it 	<ul style="list-style-type: none"> Pharmacists use the EHR to identify patients who have received CMM and assign them to a panel Pharmacists use the EHR to identify AND manage a panel of patients who are receiving CMM
Scheduling CMM services		
Scheduling in EHR	<ul style="list-style-type: none"> The EHR does NOT enable CMM scheduling 	<ul style="list-style-type: none"> The EHR enables CMM scheduling
Referrals	<ul style="list-style-type: none"> There is NOT a referral system for CMM in place 	<ul style="list-style-type: none"> There is a referral system for CMM in place, but it is NOT within the EHR There is a referral system for CMM in place within the EHR
Automatic appointment reminder	<ul style="list-style-type: none"> There are NOT automatic appointment reminders generated for patients for CMM visits 	<ul style="list-style-type: none"> There are automatic appointment reminders generated for patients for CMM visits
Follow up	<ul style="list-style-type: none"> There is NOT a process in place to ensure patients complete recommended follow-up visit(s) 	<ul style="list-style-type: none"> There is a manual process in place to ensure patients complete recommended follow-up visit(s) There is an automated process in place to ensure patients complete recommended follow-up visit(s)
Appointment management	<ul style="list-style-type: none"> There is NOT a systematic approach to track appointments 	<ul style="list-style-type: none"> There is a systematic approach to track appointment management including: <ul style="list-style-type: none"> How many initial appointments turn into completed visits How many completed visits result in scheduled follow up appointments How many targeted patients (e.g., cold calling patients or sending out letters) turn into completed

			visits <input type="checkbox"/> How many no shows turn into completed visits <input type="checkbox"/> In-person visits vs. remote <input type="checkbox"/> Initial encounter vs. follow up visit	
Referral management	<input type="checkbox"/> There is <u>NOT</u> a systematic approach to track referrals		<input type="checkbox"/> There is a systematic approach to track referrals including: <input type="checkbox"/> How many referrals become scheduled appointments <input type="checkbox"/> Number of visits that were referrals <input type="checkbox"/> Referral source <input type="checkbox"/> Reason for referral	
Scheduling assistance <i>(Check all that apply)</i>	<input type="checkbox"/> There is <u>NOT</u> support staff or processes in place to assist with CMM scheduling	<input type="checkbox"/> There is a consistent scheduling processes in place solely managed by the pharmacist including: <input type="checkbox"/> Local/clinic-level scheduling <input type="checkbox"/> Preparing patients for visits/setting expectations <input type="checkbox"/> Reminder calls <input type="checkbox"/> Ensuring referrals get scheduled <input type="checkbox"/> Ensuring follow-up appointments get scheduled	<input type="checkbox"/> There is CMM scheduling assistance (i.e., the pharmacist is not solely responsible) with: <input type="checkbox"/> Centralized scheduling <input type="checkbox"/> Local/clinic-level scheduling <input type="checkbox"/> Preparing patients for visits/setting expectations <input type="checkbox"/> Reminder calls <input type="checkbox"/> Ensuring referrals get scheduled <input type="checkbox"/> Ensuring follow-up appointments get scheduled	<input type="checkbox"/> Patients can schedule their own CMM appointments online
Outreach	<input type="checkbox"/> Currently <u>NO</u> outreach strategies are utilized to		<input type="checkbox"/> Outreach strategies are in place to schedule eligible	

	schedule eligible patients for CMM	patients for CMM including: <ul style="list-style-type: none"> <input type="checkbox"/> Outbound calling <input type="checkbox"/> Letters <input type="checkbox"/> Other mailings (e.g. brochure) <input type="checkbox"/> Electronic messaging (e.g., portal messaging) <input type="checkbox"/> Other _____ 	
Care documentation			
Documentation system access	<ul style="list-style-type: none"> ○ Pharmacists document CMM visits in a system visible ONLY to the CMM pharmacist 	<ul style="list-style-type: none"> ○ Pharmacists document CMM visits in a system visible ONLY to the CMM pharmacist AND have read-only access to the care team EHR 	<ul style="list-style-type: none"> ○ Pharmacists document CMM visits in an EHR that the rest of the care team uses
Double documenting	<ul style="list-style-type: none"> ○ Pharmacists document components of CMM visits in more than one system 	<ul style="list-style-type: none"> ○ Pharmacists document ALL components of CMM visits in one system 	
Documentation completion	<ul style="list-style-type: none"> ○ Pharmacists are NOT consistently held accountable for completion of their CMM visit notes within a defined timeframe (e.g., within 24 hours of visit) 		<ul style="list-style-type: none"> ○ Pharmacists are consistently held accountable for completion of their CMM visit notes within a defined timeframe (e.g., within 24 hours of visit)
Documentation efficiency • EHR tools (Check all that apply)	<ul style="list-style-type: none"> <input type="checkbox"/> Pharmacists document the majority of their CMM notes using free text 	<ul style="list-style-type: none"> <input type="checkbox"/> Information from the patient's EHR can be auto-populated into CMM notes (e.g. dot phrases) 	<ul style="list-style-type: none"> <input type="checkbox"/> There is clinical decision support (e.g., computerized alerts and reminders, condition-specific order sets) built into CMM documentation
Documentation efficiency • Inputting notes	<ul style="list-style-type: none"> <input type="checkbox"/> Pharmacists are responsible for individually typing the majority of CMM notes 	<ul style="list-style-type: none"> <input type="checkbox"/> Pharmacists have access to transcription tools (e.g. Dragon) 	<ul style="list-style-type: none"> <input type="checkbox"/> Pharmacists dictate the majority of CMM notes which a transcriptionist transcribes OR have a scribe present during the majority of CMM visits

<i>(Check all that apply)</i>			
Medication therapy problems (MTPs)	<ul style="list-style-type: none"> ○ Pharmacists do NOT consistently document medication therapy problems 	<ul style="list-style-type: none"> ○ Pharmacists consistently document medication therapy problems 	<ul style="list-style-type: none"> ○ Pharmacists consistently document medication therapy problems AND their resolution
Documentation improvement initiatives (e.g., documentation committees to create documentation shortcuts or enlisting the services of EHR experts to learn efficiency tools; NOT peer chart reviews)	<ul style="list-style-type: none"> ○ Pharmacists do NOT review documentation processes to identify areas for improvement on a regular basis 		<ul style="list-style-type: none"> ○ Pharmacists review documentation processes to identify areas for improvement on a regular basis
IT support to modify documentation processes	<ul style="list-style-type: none"> ○ Pharmacists do NOT have IT support to modify documentation processes 	<ul style="list-style-type: none"> ○ Pharmacists have IT support to modify documentation processes, BUT requests are not completed in a timely manner and/or not all requests are accepted 	<ul style="list-style-type: none"> ○ Pharmacists have IT support to modify documentation processes and requests are completed in a timely manner and most requests are accepted
Require a physician's co-signature	<ul style="list-style-type: none"> ○ Pharmacist documentation REQUIRES another provider co-signature 		<ul style="list-style-type: none"> ○ Pharmacist documentation is final WITHOUT another provider co-signature

Evaluating CMM services

Directions: Listed below are the essential components of CMM program evaluation. For each item listed under the essential component, mark the box that best describes your current CMM practice.

Less optimal

Optimal

Measuring CMM data			
Medication therapy problems (MTPs) <ul style="list-style-type: none"> • Identification 	<ul style="list-style-type: none"> ○ The identification of MTPs are NOT tracked for the entire CMM population 	<ul style="list-style-type: none"> ○ The number of MTPs identified are tracked for the entire CMM population 	<ul style="list-style-type: none"> ○ The number AND types of MTPs identified are tracked for the entire CMM population
Medication therapy problems <ul style="list-style-type: none"> • Resolution 	<ul style="list-style-type: none"> ○ The resolution of MTPs are NOT tracked for the entire CMM population 	<ul style="list-style-type: none"> ○ The number of MTPs resolved are tracked for the entire CMM population 	<ul style="list-style-type: none"> ○ The number AND types of MTPs resolved are tracked for the entire CMM population
Clinical markers (e.g., ACT score, blood pressure, A1C)	<ul style="list-style-type: none"> ○ Clinical markers are NOT tracked for the entire CMM population 	<ul style="list-style-type: none"> ○ Clinical markers are tracked for the entire CMM population periodically when deemed necessary 	<ul style="list-style-type: none"> ○ Clinical markers are tracked for the entire CMM population consistently and frequently
Fiscal measures <ul style="list-style-type: none"> • Revenue generated 	<ul style="list-style-type: none"> ○ CMM revenue generated is NOT tracked 	<ul style="list-style-type: none"> ○ CMM revenue generated is tracked periodically when deemed necessary 	<ul style="list-style-type: none"> ○ CMM revenue generated is tracked consistently and frequently
Fiscal measures <ul style="list-style-type: none"> • Estimated cost savings 	<ul style="list-style-type: none"> ○ Estimated cost savings through CMM is NOT tracked 	<ul style="list-style-type: none"> ○ Estimated cost savings through CMM is tracked periodically when deemed necessary 	<ul style="list-style-type: none"> ○ Estimated cost savings through CMM is tracked consistently and frequently
Descriptive measures (e.g., payer mix, number of	<ul style="list-style-type: none"> ○ Descriptive measures of the entire CMM patient population are NOT tracked 	<ul style="list-style-type: none"> ○ Descriptive measures of the entire CMM patient population are tracked 	

medications patients are taking, types of conditions seen in CMM population)					
Pharmacist productivity	○ CMM pharmacist productivity is <u>NOT</u> tracked		○ CMM pharmacist productivity is tracked including: <input type="checkbox"/> Time spent in patient care <input type="checkbox"/> Charting time <input type="checkbox"/> Number of interventions to prevent and resolve MTPs <input type="checkbox"/> Types of interventions to prevent and resolve MTPs <input type="checkbox"/> Patient volume (e.g., number of CMM visits)		
Patient satisfaction	○ Patient satisfaction of CMM is <u>NOT</u> assessed	○ Patient satisfaction of CMM is assessed, <u>BUT NOT</u> regularly	○ Patient satisfaction of CMM is regularly assessed		
Provider/team satisfaction	○ Provider or team satisfaction with CMM is <u>NOT</u> assessed	○ Provider or team satisfaction with CMM is assessed, <u>BUT NOT</u> regularly	○ Provider or team satisfaction with CMM is regularly assessed		
Pharmacist satisfaction	○ Pharmacist job satisfaction is <u>NOT</u> assessed	○ Pharmacist job satisfaction is assessed, <u>BUT NOT</u> regularly	○ Pharmacist job satisfaction is regularly assessed	○ Pharmacist job satisfaction that <u>includes questions specific to CMM</u> is regularly assessed	
Use of CMM collected data (e.g., clinical, descriptive, or financial data) <i>(Check all that apply)</i>	<input type="checkbox"/> There is <u>NOT</u> a consistent strategy to use CMM data	<input type="checkbox"/> CMM data is used to meet third party compliance requirements (e.g., in case of audit)	<input type="checkbox"/> CMM data is used to describe CMM services (e.g., to justify pharmacist FTEs)	<input type="checkbox"/> CMM data is used to improve CMM services (e.g., through targeted quality improvement initiatives)	<input type="checkbox"/> CMM data is used to demonstrate value of CMM services (e.g., to senior leadership and external partners)

Reporting CMM data and outcomes						
Reporting data (e.g., clinical outcomes, patient satisfaction) <i>(Check all that apply)</i>	<input type="checkbox"/> CMM data is <u>NOT</u> reported	<input type="checkbox"/> CMM data is reported within the CMM team	<input type="checkbox"/> CMM data is reported within the clinic	<input type="checkbox"/> Pertinent CMM data is reported to leadership	<input type="checkbox"/> Pertinent CMM data is reported across the organization	<input type="checkbox"/> CMM data is reported externally (e.g., meetings and publications)
Data extraction <i>(Check all that apply)</i>	<input type="checkbox"/> CMM data is <u>NOT</u> extracted		<input type="checkbox"/> CMM data is extracted, but <u>ONLY</u> through manual chart review	<input type="checkbox"/> Some CMM data is extracted through automated reports		<input type="checkbox"/> Most CMM data is extracted through automated reports
Extracting aggregate-level data	<input type="checkbox"/> It is <u>NOT</u> possible to extract aggregate-level CMM data from the documentation system through an automated process			<input type="checkbox"/> It is possible to extract aggregate-level data from the documentation system through an automated process		
Extracting patient-level data	<input type="checkbox"/> It is <u>NOT</u> possible to extract patient-level CMM data from the documentation system through an automated process			<input type="checkbox"/> It is possible to extract patient-level CMM data from the documentation system through an automated process		
IT support for extracting data	<input type="checkbox"/> There is <u>NOT</u> IT support available to complete CMM IT requests		<input type="checkbox"/> There is IT support available to complete CMM IT requests, <u>BUT</u> requests often take longer than desired to complete		<input type="checkbox"/> There is IT support available to complete CMM IT requests in a timely manner	

Ensuring Consistent and Quality Care

Directions: Listed below are the essential components of ensuring consistent and quality care. For each item listed under the essential component, mark the box that best describes your current CMM practice.

Less optimal

Optimal

Practitioner training				
Training process <ul style="list-style-type: none"> CMM philosophy of practice 	<input type="radio"/> There is NOT a standard process in place for training newly hired CMM pharmacists (excluding residents) on CMM philosophy of practice		<input type="radio"/> There is a standard process in place for training newly hired CMM pharmacists (excluding residents) on CMM philosophy of practice	
Training process <ul style="list-style-type: none"> CMM patient care process (e.g., reviewing mock cases, shadowing opportunities) 	<input type="radio"/> There is NOT a standard process in place for training newly hired CMM pharmacists (excluding residents) on the CMM patient care process		<input type="radio"/> There is a standard process in place for training newly hired CMM pharmacists (excluding residents) on the CMM patient care process	
Training process <ul style="list-style-type: none"> CMM practice management 	<input type="radio"/> There is NOT a standard process in place for training newly hired CMM pharmacists (excluding residents) on CMM practice management		<input type="radio"/> There is a standard process in place for training newly hired CMM pharmacists (excluding residents) on CMM practice management	
Trainer	<input type="radio"/> There is NOT a consistent trainer for training all newly hired CMM pharmacists		<input type="radio"/> There is a consistent trainer for training all newly hired CMM team members	
Ongoing clinical development <i>(Check all that apply)</i>	<input type="checkbox"/> There is NOT a standard process for ongoing pharmacist CMM development	<input type="checkbox"/> The organization facilitates topics (e.g., journal clubs, speakers) for ongoing CMM	<input type="checkbox"/> Pharmacists are required to have individualized professional development plans for	<input type="checkbox"/> Pharmacists are provided resources (e.g., time or monies) to support learning

<i>apply)</i>		development	ongoing CMM development (beyond CE)	plans
Continual policy, procedure, and standards of practice training (e.g., documentation standards, regulatory requirements)	<ul style="list-style-type: none"> ○ Policy, procedure, and standards of practice retraining is limited to regulatory requirements (e.g., HIPAA, fraud waste and abuse) or credentialing as needed 	<ul style="list-style-type: none"> ○ Policy, procedure, and standards of practice retraining (beyond regulatory requirements/credentialing) (e.g., documentation standards) occurs as needed 	<ul style="list-style-type: none"> ○ Policy, procedure, and standards of practice retraining (beyond regulatory/credentialing) occurs on a consistent basis 	
Quality assurance (QA) processes				
Ensuring pharmacists are providing consistent and quality care (e.g., peer review)	<ul style="list-style-type: none"> ○ A process is NOT in place to assess whether pharmacists are providing consistent and quality care at least biannually 	<ul style="list-style-type: none"> ○ A process is in place to assess whether pharmacists are providing consistent and quality care at least biannually 	<ul style="list-style-type: none"> ○ A process is in place to assess whether pharmacists are providing consistent and quality care at least biannually WITH a consistent form 	
Ensuring notes have met documentation requirements (e.g., chart audits)	<ul style="list-style-type: none"> ○ A process is NOT in place for ensuring that pharmacists are meeting standards established for documentation 		<ul style="list-style-type: none"> ○ A process is in place for ensuring that pharmacists are meeting standards established for documentation 	
Using QA processes for improvement	<ul style="list-style-type: none"> ○ Data from QA processes are NOT used to inform CMM improvement activities 		<ul style="list-style-type: none"> ○ Data from QA processes are used to inform CMM improvement activities 	

Part III – Prioritizing and Guiding Areas for Improvement

Directions: To identify potential areas of practice improvement, review the sections of the tool you have completed and identify 2-3 items that you consider to be your greatest area of need or opportunity. As a first step to guide your practice management improvement, complete the worksheet below.

What practice management items you would like to improve?	What is your goal?	How will this impact your practice?	What are the action steps to achieve this goal?	What people and resources do you need to achieve this goal?	Who will be responsible for the actions needed to achieve this goal?

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Glossary

CMM: Comprehensive medication management

Collaborative visits: The primary care provider and the pharmacist seeing the patient at the same time or back-to-back provider/pharmacist visits

CPA: Collaborative practice agreement

CPT: Current procedural terminology

EHR: Electronic health record

Generated quality care lists: Lists or registries of patients that are generated based on quality measures

IT: Information technology

LPN: Licensed practical nurse

MA: Medical assistant

MTM: Medication therapy management

MTPs: Medication therapy problems

Patient panel: A list of all patients receiving CMM

QA: Quality assurance

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