

# Medication Optimization: Integration of Comprehensive Medication Management into Practice

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One of the primary interventions in the treatment and prevention of disease is the use of medications. However, the unintended consequences from the use of medication regimens that are not optimized for the patient have been estimated to cost the United States \$528 billion (based on 2016 data) and have resulted in more than 275,000 deaths annually.<sup>1</sup> How can we optimize the benefits to the patient and the use of medications, while minimizing the adverse consequences that are inherent in their use?

## Achieving Medication Optimization

Medication optimization occurs when a patient's medication has been optimized by the healthcare team and the patient uses the regimen in the ideal manner to improve health outcomes.<sup>2</sup> Several processes have been developed in an effort to achieve medication optimization. Medication therapy management (MTM) was the first widely adopted effort to provide medication optimization. This practice was introduced into clinical practice with passage of the Medicare Prescription Drug Improvement and Modernization Act in 2003.<sup>3,4</sup> This act made MTM a covered benefit under the Medicare Part D prescription drug program and required drug plans to initiate MTM for Medicare beneficiaries.

MTM focuses on 5 core elements, including medication therapy review, a personal medication record, a medication-related action plan, intervention and referral, and documentation and follow-up.<sup>4</sup> MTM is a medication-focused optimization strategy by definition, and although core elements have been suggested, no common process exists for MTM, making consistent implementation and practice standardization of this strategy challenging.

MTM may be conducted as a component of interdis-

ciplinary team care, but when provided by pharmacists who are not fully integrated into a team-based patient care model, its benefit is limited by a lack of access to necessary resources, such as the electronic health records and real-time updates in a patient's profile.<sup>5</sup>

## The Value of a Comprehensive Approach to Medication Management

As pharmacists began to recognize the limitations of MTM, several large practices began to expand the MTM steps, developing a more advanced and holistic medication optimization strategy. Although still referring to their work as MTM, several of these practice sites laid the foundation for what would become known as comprehensive medication management (CMM).

This new strategy was designed as a patient-centered approach, typically provided by a pharmacist working directly with the patient and with other members of the interdisciplinary patient care team. CMM uses a process in which the patient's medications—including prescription, nonprescription, alternative, traditional, vitamins, or nutritional supplements—are individually assessed to determine that each medication has an appropriate indication; is effective for the clinical condition and for achieving defined patient and/or clinical goals; is safe in the context of the patient's potential comorbidities; and that the patient is able to take the medication as intended and to adhere to the prescribed regimen.<sup>6</sup>

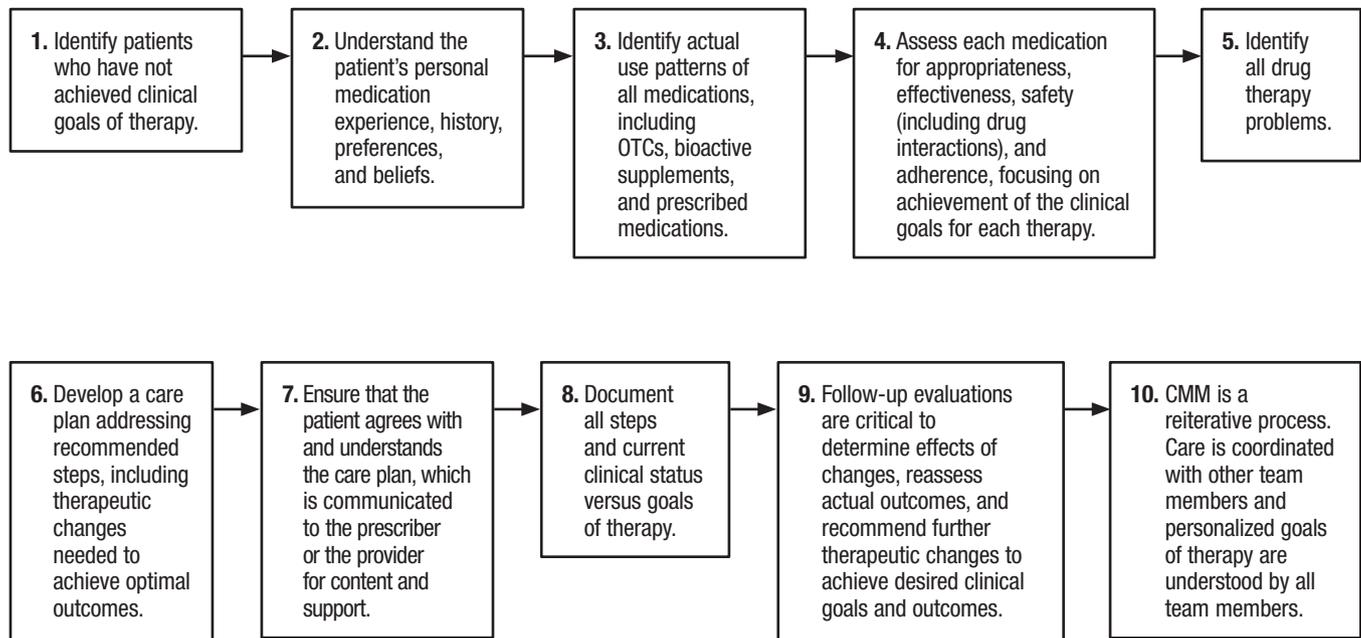
The transition from MTM to CMM has been gradual, with early studies still referring to this new approach as MTM rather than CMM. Consistent use of "CMM" was established in a 2018 publication from the CMM in Primary Care Research Team.<sup>7</sup>

Unlike MTM, CMM has a well-defined process of care,

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**Figure 1** Ten Steps to Achieve Comprehensive Medication Management

CMM indicates comprehensive medication management; OTC, over-the-counter.

Adapted with permission from GTMR Institute. <https://gtmr.org/what-is-the-comprehensive-medication-management-process/>.

with assessment tools available to ensure consistent application of the process (Figure 1).<sup>7,8</sup> Although MTM was linked to Medicare Part D and is traditionally intended for high-risk patients who are receiving multiple medications, CMM is intended to be used in all patients. CMM has the opportunity to be incorporated into value-based payment models.<sup>9</sup>

Pharmacists providing CMM services typically operate within a collaborative practice agreement initiated by an individual provider, group, or healthcare system that permits initiating, modifying, and/or discontinuing medications, as well as ordering laboratory tests. Figure 2 provides an example of clinical pharmacist CMM integration, where the provider sees a patient for an initial visit and then refers that patient to the pharmacist for CMM.

The provider meets the patient back as clinically indicated, whereas the pharmacist sees the patient in between, to achieve the CMM-related goals. The clinical pharmacist's work is conducted using a standardized process to provide consistent results and is documented within the group's or health system's electronic health records, ensuring access by all members of the team.

The results of implementing CMM services in primary care have been impressive.<sup>10</sup> A growing body of real-world studies now highlights the value of CMM (regard-

less of the term used) in achieving all 4 components of the quadruple aim of healthcare: improving clinical outcomes, increased patient satisfaction, enhanced provider well-being, and reducing the total cost of care.<sup>9-11</sup>

## CMM Integration Produces Results

### M Health Fairview

M Health Fairview (previously Fairview Health Services) is an integrated health system that includes 12 hospitals and 56 primary care clinics, with more than 100 specialties working in collaboration with the University of Minnesota Physicians practice. CMM has been integrated as a component of the care offered by this health system since 1998, although it continued to be referred to as MTM for many years (reflecting the preferred use of MTM for billing and reimbursement in Minnesota). The CMM program has grown to include 45 pharmacists in 54 clinic locations. These pharmacists now serve 13 specialty practices, with the rest based in primary care clinics. In 2020, these pharmacists provided care for more than 12,400 unique patients during more than 28,000 visits.

M Health Fairview was an early adopter of CMM to ensure that pharmacists were a part of an accountable care organization (ACO) performance-based payment strate-

gies. These types of contracts account for approximately 60% of the patients seen within the system, with 30% of them being covered by at-risk ACO models (based on unpublished internal data). M Health Fairview has built referral pathways and tools that identify high-risk patients who are the most likely to benefit from CMM, so that pharmacists can serve as key contributors to how M Health Fairview manages its high-risk populations.

Much of the success of the M Health Fairview program results from the outcomes that have been demonstrated by the CMM program.<sup>9,11-14</sup> In a 2010 retrospective analysis, Ramalho de Oliveira and colleagues identified improvement in clinical outcomes among a group of 4849 adult patients with a total of 12,851 medical conditions that were not under control.<sup>9</sup> After a visit with a CMM pharmacist, 7068 (55%) conditions had significant clinical improvement correlated with medication optimization. In a subset of patients with diabetes, the number of patients achieving all 5 treatment goals increased from 17.3% at baseline to 42.7% at study completion compared with only 13% of patients in statewide diabetes data.<sup>9</sup>

In a 2013 study, Brummel and colleagues focused on the care of patients with complex diabetes, and demonstrated that a significantly greater percentage of patients were optimally managed in the CMM program compared with patients who did not receive CMM services (45.45% vs 21.49%, respectively;  $P < .01$ ).<sup>11</sup> A later study demonstrated that patients who had a CMM visit after hospital discharge, typically within a week, had a significantly lower rate of 30-day readmissions (8.6% vs 12.8%;  $P < .001$ ) than patients who did not have CMM services.<sup>12</sup>

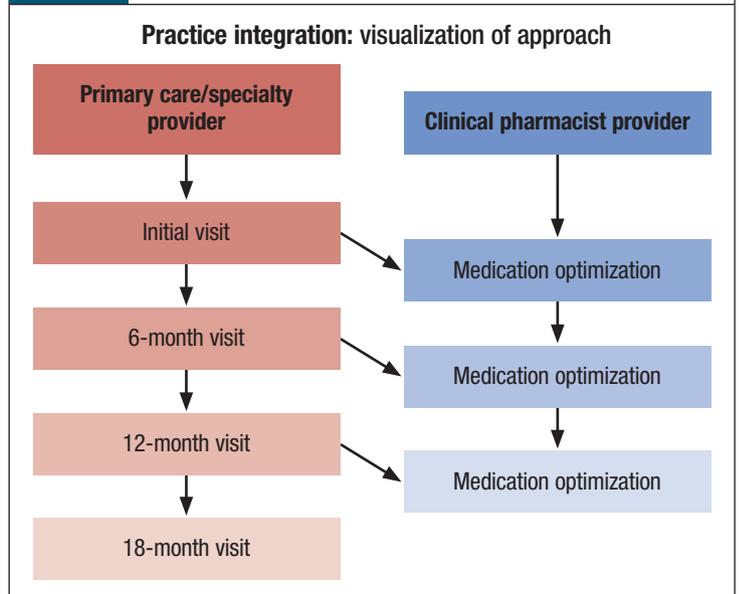
The M Health Fairview program also assesses the impact of CMM on patient and provider satisfaction, using internally developed surveys. In the study by Ramalho de Oliveira and colleagues, 95% of patients agreed or strongly agreed that their overall health and well-being had improved by seeing a CMM pharmacist.<sup>9</sup> In 2019, an internal (unpublished) patient satisfaction survey sent to patients seen by the pharmacist performing CMM showed that 95% of patients rated their pharmacists as a 9 or 10 (scale, 1-10), and 87% of medical providers strongly agreed that they feel confident in the recommendations given by M Health Fairview's pharmacists.

Brummel and colleagues demonstrated a significant reduction in the total cost of care in a 2014 study with a matched cohort of 186 patients, which revealed an average cost of \$8197 per patient in the CMM group versus \$11,965 in the matched controls ( $P < .001$ ), resulting in a 31.5% reduction after 1 year of CMM services, and demonstrating a 12:1 return on investment.<sup>13</sup>

**Department of Veterans Affairs**

The Department of Veterans Affairs (VA) is the larg-

**Figure 2 Practice Integration of Clinical Pharmacist–Provided Comprehensive Medication Management**



est integrated healthcare system in the United States, providing care at 1255 healthcare facilities across the country, including 171 VA medical centers and 1112 outpatient sites of care of varying complexity.<sup>15</sup> The VA has implemented the patient-centered medical home (PCMH) model in primary care since 2010.

A key component of the PCMH model in the VA is the integration of clinical pharmacy specialists as members of patient care teams to provide CMM. These advanced practice providers have a defined scope of practice that includes prescriptive authority. The scope of practice for VA clinical pharmacy specialist providers is similar to a collaborative practice agreement used by a pharmacist practicing outside of the VA. The scope of practice allows the clinical pharmacy specialist to perform CMM activities, including prescribing medications, ordering laboratory tests, and performing specific physical examinations.

Access to healthcare has been a significant focus for veterans, and VA pharmacists have the potential to make a substantial impact on reducing patients' wait time to be seen: there are more than 4812 clinical pharmacy specialists who have a broad practice area–based scope VA-wide, and 1850 clinical pharmacy specialists who provide CMM in primary care clinics within the VA system are increasing access to care.

In a 2018 study, 87% of VA physicians and nurse practitioners stated that a clinical pharmacy specialist increased access to their clinic, decreasing the time veterans waited for primary care services.<sup>16</sup> In addition, a study from 2016 showed that 27% of primary care return

appointments could be transitioned to clinical pharmacy specialists, which would open even greater access to the primary care provider.<sup>17</sup>

Multiple studies performed within the VA system have demonstrated improved quality of care with CMM services.<sup>18</sup> One study evaluated clinical pharmacy specialist management of diabetes and demonstrated a significant reduction in median hemoglobin A<sub>1c</sub> values to 7.7% (interquartile range [IQR] (0.5);  $P < .001$ ) from a baseline of 10% (IQR +0.7).<sup>19</sup> These patients also had significant reductions in median systolic blood pressure (BP) and diastolic BP from a baseline of 142/83 mm Hg (IQR +10 for systolic BP and 8 for diastolic BP) to 134/79 mm Hg (IQR +7 for systolic BP and 7 for diastolic BP;  $P < .001$ ).<sup>19</sup>

The value of clinical pharmacy specialist care coordination in reducing readmissions was assessed in patients after discharge from a hospital or an emergency department for chronic obstructive pulmonary disease (COPD) within 30 days.<sup>20</sup> Patients who received care from a clinical pharmacy specialist had a 0% composite readmission rate to the emergency department or hospital for COPD exacerbation within 30 days of discharge.<sup>20</sup>

The integration of clinical pharmacy specialists to provide CMM also improves providers' work-life.<sup>16</sup> A study evaluating the perceptions of integration of the clinical pharmacy specialist into the PCMH model showed that 93% of physicians and nurse practitioners responded that CMM integration by a clinical pharmacy specialist improved their job satisfaction.<sup>17</sup>

In the VA, clinical pharmacy specialists who provide CMM improve access to healthcare, clinical outcomes, and cost-effectiveness when integrated as active members of the patient care teams.<sup>15-20</sup>

## Conclusion

The implementation of CMM services provides a means to achieve medication optimization and improve health outcomes. Unlike MTM, which traditionally has focused on the disease state, CMM provided by a pharmacist working with the patient in a team-based care model takes a holistic approach to developing a medication regimen that is individualized, effective, and safe. In addition, CMM promotes optimal medication use by the patient.

The benefits of including CMM in the services provided to primary care patients are without debate. As administrators and payers increasingly focus on tools to achieve the quadruple aim of healthcare, published research supports the integration of CMM into practices to improve clinical outcomes, reduce healthcare expenditures, increase patient satisfaction, and improve work-life balance and job satisfaction for members of the healthcare team. CMM offers a targeted strategy to

achieve these aims and is a powerful addition to enhance patient care. It is time for the widespread inclusion of CMM services in healthcare coverage for patient care.

## Author Disclosure Statement

Dr McFarland, Dr Finks, Dr Smith, Dr Buck, and Dr Ourth have no conflicts of interests to report. Dr Brummel is on the Advisory Board of Boehringer Ingelheim, a consultant to Pfizer, and is a speaker for Boehringer Ingelheim, Lilly, and Pfizer.

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