

# The Outcomes of Implementing and Integrating Comprehensive Medication Management via Telehealth Modality in Team-Based Care: *A Review of the Evidence on Quality, Access and Costs, December 2022*

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[Comprehensive medication management \(CMM\)](#) is a team-based, person-centered and systematic approach to medications where physicians and pharmacists ensure that 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.<sup>1</sup> Use of telehealth has utility to increase CMM expansion as it allows members of the care team to use another delivery modality to ensure those in need receive the necessary care, overcoming geographic barriers to care. Telehealth, as defined by the Health Resources & Services Administration (HRSA), is “the use of electronic information and telecommunication technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration.”<sup>2</sup>

Telehealth is a promising modality to improve access to care, facilitate patient monitoring and maintain the needed connection with patients that improves their care and health. Multiple challenges however

remain to fully appreciate the potential of telehealth, including technology barriers, uncertain reimbursement policies and questions as to when this modality is appropriate and beneficial to improve access to care, its impact on care to be better or similar, improvement of patient and physician experience and reduction in cost.

Currently, the evidence on CMM services provided via telehealth modality is limited. Therefore, this document serves to provide evidence that (1) meets criteria for CMM fidelity (See [GTMRx’s 10 steps of CMM](#)) and has strong and replicable evidence, (2) has aspects of CMM but is not true to its fidelity but is quality evidence and (3) meets criteria for CMM fidelity but the evidence is not strong or replicable. As telehealth use expands, the expectation is more evidence will become available and gaps such as evaluation of costs and provider experience specifically for CMM will be addressed.

For more information on the evidence for in-person CMM please refer to the [Outcomes of Implementing and Integrating CMM in Team-Based Care: A Review of the Evidence on Quality, Access and Costs](#).

# 1

## Fully Meets CMM Criteria and Strong Evidence

The following study provides fidelity to the CMM process of care and has a strong study design that relays confidence that the outcomes and results were due to providing CMM via telehealth. Currently, only one article meets our criteria for strong evidence and meeting CMM requirements.

*Please note: The studies by Beran et.al. and Margolis et.al. are from institutions utilizing CMM; but due to documentation requirements in Minnesota, CMM is still referred to as medication therapy management (MTM). All payment in Minnesota is for MTM, however all of the plans who pay for MTM require pharmacists to utilize the CMM practice model for their MTM program.*

### ***Clinical pharmacy specialists providing consistent comprehensive medication management with increased efficiency through telemedicine during the COVID19 pandemic***

■ A retrospective, quality-improvement review of CMM services within the Veterans Administration (VA) Healthcare System was conducted during the COVID-19 pandemic. This review focused on comparing efficiency and objective patient metrics to evaluate quality of care with telehealth versus face-to-face delivery. The Patient-Aligned Care Teams (PACT) utilized telephone, VA Video Connect (VVC) and Clinical Video Telehealth (CVT) to provide services. A [PACT](#) involves each Veteran working together with health care professionals to plan for the whole-person care and life-long health and wellness.

- **Improved patient experience:** During the telehealth time frame, the total number of visits increased by 32%, the no show rate decreased by 2% and the patient cancellation rate decreased by 5%.
- **Better or similar care:** The use of telehealth did not change the quality of care based on A1c and blood pressure measurements.

*Thomas AM, Baker JW, Hoffman TJ, Lamb K. Clinical pharmacy specialists providing consistent comprehensive medication management with increased efficiency through telemedicine during the COVID19 pandemic. J Am Coll Clin Pharm. 2021; 4: 934-938.*

### ***Cardiovascular Events and Costs with Home Blood Pressure Telemonitoring and Pharmacist Management for Uncontrolled Hypertension***

■ A cluster-randomized trial of 450 patients in 16 primary care clinics at HealthPartners Medical Group. Pharmacists under a collaborative practice agreement provided CMM services with a focus on HTN. They assessed electronically submitted BPs from 228 participants (6 per week) and conducted telehealth visits biweekly for the first 6 months and bimonthly thereafter. The comparator group of 222 participants hypertension was managed by their primary care physician.

- **Better of similar care:** Systolic blood pressure (SBP) was significantly reduced in the telehealth cohort at 6 months through 24 months (10.6–6.6 mm Hg reduction), but did not differ from usual care 54 months. Composite cardiovascular events were reduced in the telehealth group with an incidence of 4.4% versus usual care at 8.6% but did not reach statistical significance as the study was not powered for this outcome (P= 0.09).

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- **Reduced costs:** Using intervention costs, cardiovascular event costs, medication costs (which were statistically greater in the CMM group) and adjusting for cost changes over the 5-year period, a net savings of \$1,942–\$2,510 per patient was calculated for the patients with CMM with an ROI of 178% and 228%.

*Margolis KL, Dehmer SP, Sperl-Hillen J, et.al. Cardiovascular Events and Costs with Home Blood Pressure Telemonitoring and Pharmacist Management for Uncontrolled Hypertension. Hypertension. 2020; 76(4): 1097–1103. doi:10.1161/HYPERTENSIONAHA.120.15492.*

### **Key components of success in a randomized trial of blood pressure telemonitoring with MTM pharmacists**

- Cluster randomized trial study of 450 hypertensive patients from an integrated health system multispecialty practice in Minneapolis-St. Paul. The intervention arm received an in-person 1-hour visit with a pharmacist and then subsequent telehealth appointments with the goal of reaching blood pressure targets based on at-home readings transmitted from an automatic blood pressure cuff to a remote portal. Patients recorded six blood pressure readings per week and pharmacists intensified treatment under a collaborative practice agreement.
- **Better or similar care:** Within the intervention arm, systolic blood pressure reduced from 143 to 122 mm Hg, diastolic blood pressure reduced from 85 to 72 mm Hg, percentage of patients having >75% of home blood pressure measurements at goal increased from 13.2% to 47.8% and medication adherence improved to >90% beyond the first visit.
- **Improved patient experience:** Focus groups conducted with study participants valued the following themes: (1) relationship with pharmacist (2) importance of individualized treatment plan (3) frequent contact.

*Beran M, Asche SE, Bergdall AR, et.al. key components of success in a randomized trial of blood pressure telemonitoring with MTM pharmacists. JAPHA 201858:614-621.*

## 2

### Fully Meets CMM Criteria with Limitations in Evidence

The following studies demonstrate reasonable fidelity to providing CMM but may not possess a strong enough study design or population size. They are presented as useful suggestive evidence of CMM provided via telehealth.

### **Impact of the clinical pharmacy specialist in telehealth primary care**

- A retrospective quality improvement assessment of CMM services within the Veterans Administration (VA) HealthCare System was conducted to demonstrate the impact on diabetes, hypertension, hyperlipidemia, tobacco cessation and access to care outcomes. The Virtual Integrated Multisite Patient Aligned CareTeam (V-IMPACT) provided care to 554 veterans using videoconferencing and telephonic outreach. The care team consisted of physicians, physician assistants, nurse practitioners, psychologists, licensed clinical social workers, psychiatrists, clinical pharmacy specialists and medical support assistants.

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- **Better or similar care:** Patients with diabetes and hypertension had statistically significant reductions in A1c (reduction of 1.61%,  $p < 0.0001$ ) with a mean of seven visits over five months, and systolic BP (reduction of 26.00 mm Hg,  $p < 0.001$ ) with a mean of five visits over three months. At discharge 82% of hyperlipidemia patients were taking a goal-indicated statin dose. Tobacco cessation was achieved in 42% of targeted patients, with a reduction in tobacco use in 39% with four visits over 3.6 months.

- **Limitations:** The report was a quality improvement report versus a controlled study. The population was primarily males over 60 years. The authors report relatively high loss to follow up and report results for diabetes in only 32% of the patients and for hypertension in only 11% of patients.

Litke J, Spoutz L, Ahlstrom D, et al. Impact of the clinical pharmacy specialist in telehealth primary care. *Am J Health Syst Pharm.* 2018 Jul 1;75(13):982-986.

### **Assessing the effect of a telepharmacist's recommendations during an integrated, interprofessional telehealth appointment and their alignment with quality measures**

- An interprofessional and integrated telehealth program was designed to expand access to care for rural-dwelling patients with epilepsy. The program consisted of a telepharmacist, epileptologist (physician), nurse, case manager and social worker who provided synchronous CMM telehealth services to patients using video conferencing and aligned their recommendations with Health Effectiveness Data Information Set (HEDIS) performance measures.

- **Better or similar care:** The pharmacist provided 306 recommendations for 159 conditions, with an average of 3.6 recommendations per patient (SD = 3.2), to the epileptologists, primary care providers and patients of which 13.4% of recommendations aligned with pre-selected (HEDIS) quality measures.

- **Limitations:** This retrospective program evaluation was limited by HEDIS measures aligned to the pharmacist's scope of practice rather than the study population. Small sample size and noted poor documentation also directly affected the results of study.

Tetuan C, Axon DR, Bingham J, et al. Assessing the effect of a telepharmacist's recommendations during an integrated, interprofessional telehealth appointment and their alignment with quality measures. *J Manag Care Spec Pharm.* 2019 Dec;25(12):1334-1339. doi: 10.18553/jmcp.2019.25.12.1334.

### **Cluster-randomized trial to evaluate a centralized clinical pharmacy service in private family medicine offices**

- A prospective, cluster-randomized trial to compare clinical pharmacists providing CMM telephonically to patients, identified from 11 Family Practice offices and one federal qualified healthcare center (FQHC) in Iowa, versus usual care. Remote pharmacists partnered with physicians to identify problems related to poor disease control, subject misunderstandings, poor medication adherence or failure to receive preventive health services, adverse effects, drug interactions or cost.

- **Improved provider experience:** Pharmacists made 331 recommendations during the intervention period, of which physicians accepted 294 (88.8%) in full and 20 (6.0%) were accepted with a modified plan.

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- **Better or similar care:** The intervention group found improvements in the adherence to guidelines metric at 12 months compared to the control group and had statistically significant improvement in appropriate statin therapy, body mass index and alcohol screening. They also showed slight improvements in uncontrolled hypertension, hyperlipidemia and diabetes mellitus; however, these changes were not statistically significant.

- **Limitations:** The population studied had much higher guideline adherence than initially predicted which limited the potential impact of additional telehealth services in this population. Pharmacists had inconsistent authority among subjects to modify therapy and initiate labs due to a lack of formalized collaborative practice agreements leading practice to be more recommendation based.

*Carter BL, Levy B, Gryzlak B, et.al. Cluster-randomized trial to evaluate a centralized clinical pharmacy service in private family medicine offices. Circ Cardiovasc Qual Outcomes. 2018;11:e004188. doi: 10.116/circoutcomes.117.004188.*

### ***Perceived benefits of geriatric specialty telemedicine among rural patients and caregivers***

- Researchers outreached rurally located veterans or caregivers who received geriatric telemedicine service in the past 30-days. Qualitative interviews with participants were conducted via videoconference or phone to explore the content and quality of their telemedicine visits.

- **Improved patient experience:** Participants described several benefits including improved health and increased knowledge, confidence, empowerment, hope and support. However, the study also reports that some experienced confusion in understanding instructions post-telemedicine visit and barriers to implementing recommendations such as system or geographical access to recommended services.

- **Limitations:** While the introduction of the paper explains that Veterans Health Administration's geriatric telemedicine services do provide comprehensive care and comorbidity management, in addition to dementia assessment and management, the paper's focus is limited to exploring patient satisfaction rather than an effect from an intervention. The study was limited to 30 responders.

*Dryden EM, Kennedy MA, Conti J, et al. Perceived benefits of geriatric specialty telemedicine among rural patients and caregivers. Health Serv Res. 2022 Aug 31.*

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## 3

## Does Not Fully Meet CMM Criteria but Strong Evidence

The following studies may not possess or does not document a strong fidelity to the CMM process of care (i.e., focus on a single disease state versus a comprehensive whole-person focus) but they do have a strong study design. They are presented as suggestive evidence that providing even singular components of CMM may improve patient outcomes and quality of care and contribute to a likely greater benefit when care is comprehensive.

### ***Effect of a Comprehensive Telehealth Intervention vs Telemonitoring and Care Coordination in Patients with Persistently Poor Type 2 Diabetes Control: A Randomized Clinical Trial.***

- A prospective randomized controlled study comparing a comprehensive telehealth service within the Veterans Administration (VA) consisting of monitoring, education and self-management support, diet and activity support, medication management and depression support over 12 months via telephone. Communication with the intervention participants was done by three home telehealth nurses who worked with a team that consisted of physicians, nurse practitioners, clinical pharmacists, dieticians and a psychiatrist. The control group received care from an existing service performed by home telehealth nurses.
  - **Better or similar care:** The intervention group demonstrated a significant decrease in HgA1c 1.59 vs 0.98 reduction from baseline ( $p=0.02$ ) at three months that persisted through the study period. Participants who completed more than 20 of the 26 visits had a 1.84% reduction vs those < 20 at 0.79%. There were no differences in BMI or adverse drug events. Depression had a non-statistically improvement by PHQ-8 scale at 12 months. Of note the control group had greater HgA1c improvement than expected based on previous data and the literature.
  - **Improved patient experience:** Diabetes distress (Diabetes Distress Scale), self-care (Diabetes Self-Management Questionnaire) and self-efficacy (Perceived Competence Scale) were significantly better in the intervention group at 12 months.
  - **Reduced costs:** Per patient intervention, costs were \$2465 in the intervention group vs \$946 for the year, a difference of \$1519 over 12 months.
- **Limitations:** The scope of care was limited to type 2 diabetes and no other medical conditions. The study was impacted by COVID-19 resulting in greater than expected missing data, however a sensitivity analysis with multiple imputation and inclusion supported the significant findings.

Crowley MJ, Tarkington PE, Bosworth HB, et al. *Effect of a Comprehensive Telehealth Intervention vs Telemonitoring and Care Coordination in Patients with Persistently Poor Type 2 Diabetes Control: A Randomized Clinical Trial.* *JAMA Intern Med.* 2022;182(9):943-952. doi:10.1001/jamainternmed.2022.2947.

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### ***Development and implementation of a pharmacist-led telehealth medication management program for Veterans receiving oral antineoplastic therapies through the MISSION Act***

- A pharmacist-led telehealth medication management program was developed for Veterans receiving oncology care outside of the Veterans Health Administration where all eligible Veterans were enrolled after an oral antineoplastic prescription was processed. The pharmacist reviewed therapy to ensure appropriate indication, dosing and then provides education. The pharmacist then provided necessary monitoring with regular follow-up encounters to perform an assessment and ensure the Veteran received the next refill.
  - **Better or similar care:** The pharmacist was able to see all Veterans prescribed a new antineoplastic, ensuring appropriate education, monitoring and refills were provided. This is all added value to usual care by oncology. The pharmacists documented 342 patient encounters with 101 interventions in care.
  - **Improved patient experience:** 53% of the Veterans enrolled responded to a provided satisfaction survey of the pharmacist's involvement in their care and all responders indicated being satisfied or highly satisfied with both the pharmacist and care provided by this program.
  - **Reduced costs:** This study demonstrated that a pharmacist's involvement in care saved >\$200,000 in medication-related costs for the duration of the study (one year). This was accomplished by changing to a more cost-effective medication, adjusting dose, limiting supply in order to ensure tolerability, identifying drug interactions and preventing/managing adverse drug events.
- **Limitations:** The study was limited in scope to oral antineoplastic therapies rather than whole-patient CMM thus limiting ability to generalize to other medical conditions. The study conducted was descriptive, with no comparator as all Veterans with a new anticancer prescription were enrolled with the pharmacist.

*Passey D, Healy R, Qualls J, et al. Development and implementation of a pharmacist-led telehealth medication management program for Veteran receiving oral antineoplastic therapies through the MISSION Act. AJHP. 2022 June 1;79(11):835-843.*

#### **Endnotes**

- <sup>1</sup> Patient-Centered Primary Care Collaborative (PCPCC). The patient-centered medical home: integrating comprehensive medication management to optimize patient outcomes resource guide, 2nd Ed. Washington, DC: PCPCC, 2012. [www.pcpcc.org/sites/default/files/media/med-management.pdf](http://www.pcpcc.org/sites/default/files/media/med-management.pdf).
- <sup>2</sup> What is Telehealth? Health Services and Services Administration (HRSA). March 2022. <https://www.hrsa.gov/rural-health/topics/telehealth/what-is-telehealth>.