

Medication Optimization Use Case

ADVOCATE AURORA HEALTH/ADVOCATE MEDICAL GROUP—Southeast Center, Chicago, IL	
Focus Area	Model managing multiple chronic diseases, incorporating the clinical pharmacist to optimize medication use through CMM services in practice at the primary care level. The model focuses on a process of care seen when the clinician provides CMM with the goal of producing positive outcomes for multiple primary care conditions such as cardiovascular disease, diabetes, etc.
At-a-Glance	<ul style="list-style-type: none"> ■ Organization Type: Accountable Care Organization (ACO), Primary Care Medical Home (PCMH) ■ Launched: 2009 ■ Payment and Funding Sources: <ul style="list-style-type: none"> ▪ Medicare Advantage Full Risk ▪ Medicare Shared Savings ▪ Commercial Full Risk
Organization Details	<p>Advocate Medical Group (AMG) provides primary care, specialty care, imaging, outpatient services and community-based medical practices throughout Chicago and Illinois. AMG is part of Advocate Aurora Health, the largest health system in Illinois and one of the largest health care providers in the Midwest. AMG has more than 1,500 clinicians in nearly 50 medical and surgical specialties at more than 350 locations.</p> <p>Advocate Medical Group Southeast Center (AMG-SE) is located in a lower-income neighborhood in Chicago, Illinois where 70% of patients at the site are under a full-risk global payment model through Medicare Advantage or commercial payers, and 20% are under a shared savings program.</p>
Brief History of CMM Program	<p>The care team, through a clinical pharmacist-led process, provides CMM services with interventions that includes initiating and titrating guideline-directed medical therapy for heart failure (HF); assessing patients' reported symptoms and clinical status; adjusting diuretic therapy appropriately; identifying and removing any medications that may exacerbate heart failure; ordering and monitoring laboratory values, echocardiograms and electrocardiograms; and educating patients on self-management and monitoring techniques (e.g. daily weights, salt and fluid restriction, home BP monitoring).</p> <ul style="list-style-type: none"> ■ The CMM team also regularly monitored for barriers to adherence, such as costs of care and patient understanding of therapy importance. ■ Dieticians, nurses and care managers also helped with nutrition and lifestyle education related to chronic disease state management, prior authorizations and patient outreach and care access. ■ During heart failure patient visits, the clinical pharmacist identified a need for improvement in the management of comorbid conditions to (e.g., diabetes mellitus, dyslipidemia, hypertension, thyroid disorders, gout, COPD and asthma), which resulted in the expansion of the scope of collaborative practice to cover all internal medicine chronic disease state management. ■ Due to the demand for clinical pharmacy services, two additional clinical pharmacists for CMM were recently hired at AMG-SE. There are now three clinical pharmacists working collaboratively with six primary care physicians at the center. They also provide CMM services for Medicare Advantage and commercial full risk patients at a nearby AMG clinic with two primary care providers locations.

<p>Results & Achievements</p> <p><i>Focus on the Quadruple Aim:</i></p> <ul style="list-style-type: none"> ■ <i>Better Outcomes</i> ■ <i>Cost Savings</i> ■ <i>Patient Satisfaction & Engagement</i> ■ <i>Clinician Satisfaction</i> 	<p>Better Outcomes:</p> <ul style="list-style-type: none"> ■ In the first 10 months of the PCMH pilot, the clinical pharmacist conducted visits for 111 chronic HF patients. A pre/post-analysis of the 111 patients in the 10 months prior to and after CMM showed a 50% reduction in hospitalizations, from 63 in the 10 months prior to 30 in the 10 months after clinical pharmacist integration. <p>Cost savings:</p> <ul style="list-style-type: none"> ■ This translated into a cost avoidance of \$280,000 based on the average HF hospitalization cost at Advocate Trinity Hospital of \$8,500. The result was used to demonstrate the benefit of the clinical pharmacist on the CMM team. ■ Outcomes improved further with greater clinical pharmacist integration and rapport with the medical team. In an 18-month analysis, only three of the 153 HF patients managed had a 30-day readmission for a HF exacerbation. ■ Expansion of CMM resulted in the recognition of AMG-SE as one of the top five sites for diabetes management in 2012, out of approximately 250 Chicago metropolitan area AMG sites. This recognition was based on improved AMG diabetes quality metrics, including the percentage of patients receiving an annual eye exam, annual foot exam, annual nephropathy screening, a hemoglobin A1C performed, the percentage of patients with a hemoglobin A1C < 8% and those reaching guideline recommended blood pressure and cholesterol targets. ■ Additional quality metrics improved post-CMM, including rates of generic medication use and number of patients on an angiotensin-converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) and beta-blocker for HF management. <p>Patient Satisfaction & Engagement:</p> <ul style="list-style-type: none"> ■ No formal patient satisfaction evaluation has been conducted; however, patients continue to provide outstanding informal reviews of the service. <p>Clinician Satisfaction:</p> <ul style="list-style-type: none"> ■ Clinical pharmacists' discussions with physicians facilitated further improvement in their knowledge of chronic disease management. ■ The value of CMM is frequently acknowledged. The clinical pharmacists at AMG-SE participate in physician meetings and collaboration in all patient care discussions and activities is the expectation.
<p>Patient Success Story</p>	<p>A 64-year-old female was referred to the clinical pharmacist for CMM due to a transitions of care clinic visit after a hospitalization for recurrent pericarditis and new-onset heart failure reduced ejection fraction (HFrEF) with a left ventricular ejection fraction (LVEF) of 20-25%. She also had a past medical history significant for type 2 diabetes. She was discharged home on candesartan 32 mg daily, metoprolol succinate 100 mg daily, furosemide 40 mg twice daily, atorvastatin 40 mg daily, metformin 1000 mg twice daily, glipizide 5 mg twice daily, ibuprofen 600 mg three times daily and colchicine 0.6 mg BID for recurrent pericarditis. The patient read that colchicine was for gout and, therefore, had not started this medication upon discharge. At the initial visit, the clinical pharmacist discussed the use of ibuprofen in the setting of HFrEF with the cardiologist. It was agreed upon to change the ibuprofen to high-dose aspirin to treat the pericarditis, and the clinical pharmacist simultaneously started pantoprazole 20 mg daily for GI bleed prophylaxis. In addition, the patient was counseled on the benefits of colchicine to reduce the cardiac inflammation, which</p> <p style="text-align: right;"><i>continued</i></p>

<p><i>continued</i> Patient Success Story</p>	<p>lead to improved adherence. The clinical pharmacist followed up with the patient weekly to assess volume status and heart failure symptoms and optimized guideline-directed medical therapy (GDMT) for HFrEF. This included titrating metoprolol succinate to target dose, changing candesartan to sacubitril/valsartan, initiating and titrating spironolactone and adjusting furosemide as needed. The clinical pharmacist also worked with the primary care physician to order a sleep study, and the patient was diagnosed with obstructive sleep apnea and initiated on CPAP therapy. After three months of therapy on target dose GDMT and complete resolution of pericarditis, the aspirin was tapered down to 81 mg daily for primary prevention of cardiovascular disease in the setting of diabetes and multiple cardiovascular risk factors, and dapagliflozin was added for the management of both diabetes and HFrEF. Glipizide and furosemide were discontinued upon the initiation and titration of the SGLT2 inhibitor based on a review of the patient's blood glucose readings and volume status. The patient's LVEF corrected to 40%, and the patient is now experiencing minimal signs and symptoms of heart failure. The patient continues to monitor her weight, blood pressure, heart rate and blood glucose at home daily and calls the clinical pharmacist weekly to report her objective findings. Through increased monitoring and optimization of her medication therapy, the patient saw a resolution in her pericarditis and an improvement in her LVEF, HF symptoms and diabetes management.</p>
<p>Team-Based Care Strategy</p>	<ul style="list-style-type: none"> ■ Interprofessional Team: <ul style="list-style-type: none"> ▪ Created as an interdisciplinary team including six primary care physicians, an advance practice nurse (APN), the clinical pharmacist, a dietician, a nurse, three patient care managers and a physician assistant who is responsible for acute care appointments. ■ Delivery Model: <ul style="list-style-type: none"> ▪ Integrated with office space in internal medicine clinic ▪ Primarily face-to-face ▪ Telephonic follow-up as needed ▪ The clinical pharmacist has their own schedule and conducts eight to 18 CMM visits per day. Most visits are conducted independently by the clinical pharmacist; however, if the patient is scheduled for a physician visit around the same time as the clinical pharmacist's follow-up, then a combined physician/clinical pharmacist visit is scheduled. ▪ Pharmacy students are used to collect vital signs, perform medication reconciliation and conduct initial patient interview. ■ Average Visit Length: <ul style="list-style-type: none"> ▪ Initial visits, post-hospital discharge visits and complex patients: 60 minutes ▪ Established care visits: 30 minutes ■ Collaborative Practice Agreement: <ul style="list-style-type: none"> ▪ Yes—clinical pharmacists can initiate, discontinue and adjust medications, as well as order laboratory and diagnostic or follow-up tests, such as echocardiograms, ECGs, pulmonary function tests and sleep studies. They are also able to generate referrals for ophthalmology, podiatry and other preventative care services.

<p>Patient Referral Criteria</p>	<ul style="list-style-type: none"> ■ Eligible Patients: Each clinical pharmacist covers a panel of approximately 200 to 350 unique patients. ■ Invited to Participate: Initially, patients were identified for the clinical pharmacist’s interventions based on HF diagnosis codes and the daily hospitalization list; however, once the clinical pharmacist’s role in CMM expanded to all chronic disease states, new referral processes were created. The clinical pharmacist receives referrals via four different avenues: 1. the provider can refer a patient during their visit (curbside consult); 2. the electronic medical record (EMR) communication system portal, which enables CMM team members to send messages regarding patient referrals or patient questions; 3. referral via phone or fax; 4. a daily list of AMG-SE patients discharged from the hospital. For referrals based on a hospital discharge, the clinical pharmacist is responsible for contacting the patient within the first two days of discharge to address any initial barriers to adherence or gaps in therapy and to set up an appointment within seven days of discharge. <ul style="list-style-type: none"> ▪ Patients are unable to self-refer; however, if they have a PCP at AMG-SE, they can ask their physician to be referred to the clinical pharmacist. They must have had at least one initial visit with an Advocate Medical Group PCP or cardiologist to have a referral placed.
<p>Size of CMM Program</p>	<p>Number of:</p> <ul style="list-style-type: none"> ■ Clinical Pharmacists: 13 (3 at AMG-SE) <ul style="list-style-type: none"> ▪ FTE: 11.2 (2.5 at AMG-SE) <ul style="list-style-type: none"> - Six are co-funded by a college of pharmacy (one at AMG-SE) - Seven are fully funded positions by AMG (two at AMG-SE) ■ Practice Sites: six South Region Sites ■ Resident Pharmacists: one PGY2 ambulatory care resident at AMG-SE ■ Support Staff: <ul style="list-style-type: none"> ▪ Physician assistant to help with acute care triage ▪ Dietician ▪ Patient services representatives for scheduling and clerical needs ▪ Nurses for prior authorizations ▪ Patient care managers for patient outreach and support ■ Members Using Services (Health Plan): <ul style="list-style-type: none"> ▪ 2,626 full-risk contracts at AMG-SE <ul style="list-style-type: none"> - 1420 Medicare Advantage full risk - 1206 commercial full risk ▪ 1,524 full-risk contracts at nearby AMG center <ul style="list-style-type: none"> - Patients are eligible to receive CMM services provided by AMG-SE clinical pharmacists at AMG-SE location ■ Unique Patients Using Services (Care Delivery) <ul style="list-style-type: none"> ▪ ~250-350 unique patients per clinical pharmacist ▪ 160-200 CMM visits per month; ~2,000 CMM visits per clinical pharmacist FTE per year

<p>Program Success Factors</p>	<ul style="list-style-type: none"> ■ Leverage CMM to Achieve the Quadruple Aim ■ Demonstrate Efficiency and Effectiveness of Cross-Setting Team-Based Care <ul style="list-style-type: none"> ▪ Clinical pharmacists ease primary care workload ■ Expanded Roles and Responsibilities of the Clinical Pharmacist <ul style="list-style-type: none"> ▪ Organization culture recognizes clinical pharmacist as patient care professional ▪ Broad collaborative practice agreements ▪ Utilizing all staff effectively so pharmacist focuses on patient care ▪ Consistent care process & follow-up <ul style="list-style-type: none"> - Advanced training and credentialing - PGY2 residency training or equivalent work experience required ■ Other CMM Team Members <ul style="list-style-type: none"> ▪ Diet and lifestyle education are delivered by dietitians, prior authorizations are completed by nurse, and care managers are available to help with coordination of care. This allows for more time for clinical pharmacist to focus on CMM visits. ■ Convenient Patient Access and Simple Program Entry <ul style="list-style-type: none"> ▪ High-risk factor (e.g., high health care utilization, polypharmacy/ medication complexity) triggers pathway for program entry ■ Immediate/Ongoing Access to Real-Time Patient Data
<p>Next Steps, Future Goals</p>	<ul style="list-style-type: none"> ■ Standardizing clinical pharmacist services across AMG sites and increasing provider awareness of the value of CMM ■ Integrating diabetes-related technology to further support endocrinology services ■ Continue to review and develop outcomes tracking in EPIC to continue to support expansion of CMM
<p>References</p>	<p>Schumacher C, Moaddab G, Colbert M, Kliethermes MA. The Effect of Clinical Pharmacists on Readmission Rates of Heart Failure Patients in the Accountable Care Environment. <i>J Manag Care Spec Pharm.</i> 2018;24(8):795-799.</p> <p>Schumacher C. "Advocate Medical Group." In: Wettergreen S (ed). Successful Integration of Pharmacists in Accountable Care Organizations and Medical Home Models: Case Studies. Washington, DC: <i>American Pharmacists Association</i>; 2020:7-11. https://pharmacist.com/Portals/0/PDFS/Practice/APhA_Medical_Home_ACO_Report_Final.pdf?ver=0vbHcscSN_2-3x3UmFLZ5Q%3D%3D.</p> <p>Schumacher C. Pharmacist Involvement in a Patient-Centered Medical Home. <i>PPMI Case Study.</i> 2012. https://www.ashpmedia.org/pai/docs/casestudy-Midwestern.pdf.</p>
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