Primary Intended Outcomes
1. Determine if there is a decrease in hospitalizations when frequent monitoring and medication management is provided by a pharmacist in a Patient-Centered Medical Home (PCMH).
2. Improve patient outcomes by implementing a pharmacist into PCMH for medication management and education.

Relevant PPMI Recommendations
B14. Through credentialing and privileging processes, pharmacists should include in their scope of practice prescribing as part of the collaborative practice team.
B22. Pharmacists should be part of accountable care organizations and medical homes.

Situation Analysis
The goal of the development of the PCMH model is to provide a high level of care coordination, improve patient engagement, and focus on quality and improved patient outcomes. Although comprehensive and coordinated medication management is an integral component of the model, the inclusion of the pharmacist as a critical team member is not always considered. Understanding the specific role of the pharmacist and his or her value and optimal integration with the work of other medical home team members has yet to be determined.

Advocate Medical Group, a subsidiary of the Advocate Health System, Chicago, included a pharmacist in their PCMH pilot, which has received National Committee for Quality Assurance recognition as a PCMH Level III. Pharmacist involvement in the development and administration of the PCMH within Advocate Medical Group led to the opportunity for a pharmacist to be considered as part of the chronic disease management team alongside a nurse practitioner.

The opportunity also allowed the pharmacist to sit on the PCMH operations and analytics committees. The inclusion of a pharmacist on the medical home team demonstrates the value of pharmacist-directed medication management through improved patient outcomes, primarily hospitalizations. It also serves to further define the role and identify the key services provided by a pharmacist in the PCMH.
Service Description

The PCMH at the Advocate Southeast Center was initiated by organizing a chronic disease management team, which includes six physicians, a cardiologist, a pharmacist, a nurse practitioner, a physician assistant, a nurse educator, and a dietitian. The pharmacist-created disease state management protocols, approved through Advocate Medical Group, were for heart failure, diabetes, hypertension, hyperlipidemia, COPD, and asthma.

Through collaborative practice agreements, the pharmacist is able to initiate, discontinue or titrate medications for the listed disease states based on patient results and tolerance. The pharmacist also provides medication reconciliation and education to help improve adherence. Furthermore, the pharmacist orders and interprets laboratory values, arranges appropriate medical referrals, and provides disease state and lifestyle education.

The pharmacist schedules eight to nine patients daily for disease management visits, allocating 60 minutes for initial visits and 30 minutes for follow-ups. In addition to chronic disease management, the pharmacist is available for physician consults, medication recommendations, dosing, and drug information questions.

Physicians and the cardiologist refer patients through a “task” message to the chronic disease management team in the electronic medical record (EMR) where the pharmacist, nurse practitioner, physician assistant, nurse educator and dietician determine which providers would be most appropriate for initial chronic disease state management. In addition to EMR task referrals, the pharmacist is available for same-day consults to meet the patient, create a care plan, and schedule an initial visit with the patient in clinic. Same-day consults are beneficial as they improve patient adherence to the initial scheduled appointment. The patient may be seen by the entire team at different times depending on the level of care needed. Care is documented and shared through the EMR. The chronic disease management team also works in close proximity to share information and facilitate patient care.

Example of Pharmacist’s Role

A patient is referred to the chronic disease management team by their primary care physician or cardiologist for heart failure management by paging the pharmacist or nurse practitioner for a same-day consult. If the pharmacist is not available for a consult, then a “task” is sent through the EMR with referral information. The pharmacist and nurse practitioner review the patient’s past medical history and medication list and determine if the patient needs more help with medication management and titration to goal, at which point they are referred to the pharmacist.

If the patient needs more lifestyle management and physical assessment needs, he or she would be referred to the nurse practitioner. For example, the cardiologist may recommend that the patient follow up with the pharmacist for ACEI initiation and beta blocker titration. Since the cardiologist and primary care physicians are not able to see the patient every two weeks, the pharma-
Cist will follow up with the patient every one to two weeks to titrate medications to goal, check vital signs, assess medication use and adherence, and perform a physical assessment.

Patients who require advanced physical assessment and medication management are seen by both the nurse practitioner and pharmacist. The patient is followed every one to two weeks until his or her medications are titrated to goal. The pharmacist will see patients with the physician during scheduled visits and also independently between primary care physician visits. Once the patient is on his or her optimal medication regimen and is stable, visits can be extended to monthly or bimonthly.

**Key Elements for Success**

2. Pharmacist presence in administration.
3. Strong communication skills to work with difficult populations—choosing the right person for the correct setting.
4. Good organization and workflow.
5. Partnership with a college of pharmacy to provide additional support and resources for the pharmacist.

**Resource Utilization**

**Personnel:** Six physicians, a cardiologist, a pharmacist, a nurse practitioner, a physician assistant, a nurse educator and a dietician.

**IT and other infrastructure:** Created chronic disease note template. Task system through EMR to facilitate communication.

**Supply Expense:** Office with full exam room and education room.

**Recognized Intangible Benefits**

Prior to the implementation of the pilot program, the physicians at Advocate Medical Group had never worked with a pharmacist in this capacity. The program served to increase the physicians’ awareness of the pharmacist’s clinical abilities and helped them to better understand the pharmacist’s role on the medical home team. The program had the additional benefit of increasing the patient’s comfort level interfacing with a pharmacist as part of his or her chronic care.

The program increased patients’ access to care by enabling a pharmacist to facilitate their chronic care. Through increased accessibility as well as continuous patient education, an improvement in patients’ chronic care management was demonstrated. Preventive medical care services, such as screenings, vaccinations and referrals, have also increased.

**Outcome Measures**

Advocate Medical Group is currently looking at hospitalizations, 30-day hospital readmissions, emergency room visits, BP, LDL, and HbA1c reductions in patients seen by the pharmacist in the PCMH.

In addition, medication changes made by the pharmacist (including but not limited to medica-
tions discontinued due to contraindications), dose titrations (including initiation and discontinuation of medications by the pharmacist), and renal dosing adjustments are also being tracked.

**Lessons Learned**

1. Having a pharmacist in an administrative position with a lead role on the PCMH operations and analytics committee was beneficial in implementation to help facilitate the addition of a pharmacist onto the PCMH team. The pharmacist in administration emphasized the need for a pharmacist on the team, developed documents on the pharmacist’s role, and outlined how the pharmacist would fit into the team.

2. As positive results flowed in and physician buy-in increased, pharmacist referrals increased to a point where demand could not be met. Mechanisms to address rapid growth and demand should be considered.

3. By initially focusing on the management of one disease state and gathering positive outcomes data, the pharmacist was able to garner trust with physicians and expand management of the service to include additional chronic disease states.

**Other Considerations**

The project took six months to implement in what was largely a smooth transition. However, it did experience some initial push-back from physicians, nurse practitioners, and patients. Physicians were at first wary as to the pharmacist’s clinical ability and physical assessment skills. The clinical pharmacist had four months of experience working with the cardiologist, who supported the pharmacist’s expertise and the proposed clinical pharmacist service within the medical home model. This support was critical to driving initial physician buy-in. Timely medication management and improved patient outcomes solidified physician support.

In addition, the pharmacist was able to make recommendations to the physicians regarding the management of other disease states, which led to physicians also referring patients to the pharmacist for the management of diabetes, hyperlipidemia, COPD, asthma, and hypertension. This, in turn, led to the expansion of the collaborative practice agreement.

The nurse practitioners initially saw the pharmacist’s new role as an infringement into their area of job responsibility, and had difficulty accepting the pharmacist in a similar role. However, through assistance with medication recommendations, information sharing about disease state management, and the overall demand for chronic disease services, the nurse practitioner was very welcoming of the pharmacist after the initial development stages.

Some patients were initially wary to include the pharmacist as part of their medical care team and wanted to know what information and help the pharmacist could provide them that their physician could not. Meeting the patient with the physician helped to increase patient acceptance.
Feedback was collected from the PCMH team in monthly meetings and incorporated into the program. The findings of this case study can likely be generalized across patient care settings as long as the pharmacist is adequately trained in disease state management.

**Suggestions for Other Hospitals/Health Systems**

1. Focus on one disease state initially and present positive outcomes. These outcomes will garner trust with physicians to help expand services further.

2. Pharmacist should provide in-service education to health care providers as this will help build awareness of the pharmacist’s clinical skill set.

3. Share results that are directly attributable to the pharmacist with the team. This will drive program support.

4. Frequently gather feedback from stakeholders and make necessary adjustments.

**Helpful References**
