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A medication therapy management residency rotation adjusts to coronavirus disease 2019 constraints

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The purpose of this commentary is to describe the Johns Hopkins Home Care Group’s (JHHCG) Community-based Pharmacy Residency Medication Therapy Management (MTM) rotation, summarize adjustments made to the rotation after the onset of the coronavirus disease 2019 (COVID-19) pandemic, describe key learnings from the adjustments, and provide a call to action for other residency programs seeking to improve their rotations amidst pandemic restrictions. MTM clinical pharmacists at JHHCG collaborate with patients to identify barriers to adherence, review medications, and develop plans for improvement. Through improved medication adherence, the goals for this program are to reduce adverse effects, patient cost, and medical visits or hospital admissions. Central to this practice is the belief that strong patient relationships are necessary to uncover the root cause of medication nonadherence. In Postgraduate Year-1 (PGY-1) community-based pharmacy residency training, new pharmacists learn the value of building relationships with patients and working through complex problems during this clinical experience. By assisting patients with complex medical conditions and social situations, new pharmacists gain skills in patient care, pharmacy operations, and medication access challenges. As the COVID-19 pandemic forced the discontinuation of face-to-face interactions in this setting, rotation experiences for residents were adapted with the goal of continuing high-impact patient interactions and keeping everyone involved safe. Although considerable changes were made to the MTM rotation because of the COVID-19 pandemic, residents were still able to provide meaningful clinical care telephonically and continued to learn valuable patient care skills. Most importantly, high quality care was still delivered to the patients despite considerable challenges. The major challenge for the residents’ clinical experiences as a result of the adjustments has been finding an impactful volume of complex patients to enhance their skills. Other residency programs are encouraged to consider three recommendations to improve their rotations moving forward.

Johns Hopkins Home Care Group (JHHCG) is a division of Johns Hopkins Medicine (JHM) and integrates home and community-based services to care for the Johns Hopkins community. Johns Hopkins Outpatient Pharmacy (JHOP), which is part of JHHCG, provides community and specialty pharmacy services for JHM. JHHCG started its first Postgraduate Year-1 (PGY-1) Community-based Pharmacy Residency Program (CPRP) in 2012 and later added a PGY-1 CPRP/PGY-2 Community-based Pharmacy Administration and Leadership Residency with a Master of Business Administration or Master of Science degree program in 2017.

Since the JHHCG CPRP’s commencement, residents are required to participate in a longitudinal, year-long Medication Therapy Management (MTM) rotation that takes a unique spin on traditional MTM services owing to JHHCG’s role within JHM. The MTM team offers 4 main services (Table 1): (1) Home-Based Medication Management (HBMM); (2) Pillbox Teaching Clinic; (3) Comprehensive Medication Reviews (CMR and Targeted Interventions); (4) Medication Adherence Counseling.

MTM rotation is the primary clinical component of the PGY-1 CPRP. Residents dedicate four hours per week to this rotation, and it makes up 10% of their total residency experience. During this rotation, residents are precepted by two clinical pharmacists who are medical doctors, nurse practitioners, or pharmacists with advanced degrees. The clinical pharmacists are rotation preceptors and serve as the primary clinical instructors for the residents. They provide guidance and feedback to help residents develop their clinical skills and understanding of medication therapy management. The clinical pharmacists also facilitate case discussions and help residents develop individualized patient care plans.

The primary goal of the MTM rotation is to improve patients’ adherence to their medication regimens. Residents work with patients to identify barriers to adherence, review medications for potential drug interactions or side effects, and develop strategies to improve adherence. This involves a combination of medication review, patient education, and counseling. Residents may also assist patients in navigating the healthcare system, such as helping them find affordable medications or arranging for home delivery.

Residents are assessed through a variety of methods, including case presentations, written assignments, and reflections. The assessment process is designed to ensure that residents are developing their skills and knowledge in medication therapy management. Residents are also required to participate in didactic sessions and case discussions to further develop their understanding of medication therapy management.

The MTM rotation is an integral part of the PGY-1 CPRP at JHHCG. It provides residents with valuable clinical experience and the opportunity to develop their skills in medication therapy management. The challenges posed by the COVID-19 pandemic have highlighted the importance of continued high-impact patient interactions and safe patient care. As residency programs adapt to the evolving landscape of healthcare, it is crucial to ensure that residents are provided with opportunities to develop their skills and enhance their understanding of medication therapy management.
Adjusting the rotation in response to COVID-19

By mid-March 2020, it was clear that in-person patient care aspects of the MTM rotation needed to be adjusted to mitigate the unnecessary risks of spreading coronavirus disease 2019 (COVID-19) to the community. Protecting the patients’ safety became a priority as most are in COVID-19 high-risk groups. Safety of the residents, preceptors, learners, and other pharmacy staff was also considered. Yet, residents were still expected to achieve the residency goals through quality patient care experiences. The goal was to adjust the learning experiences to preserve high quality patient care while minimizing risk to the individuals involved.

In-person home visits shift to telephonic CMRs

HBMM visits are the backbone of the MTM rotation, with each resident performing two to three home visits each month. Because referrals come from within the health system, extensive information about the patient is available in the medical record. Once a referral for a home visit is received, a pharmacy technician calls the patient to schedule a date and time for the appointment. Residents are responsible for independently leading MTM encounters of all types, with preceptor assistance available as needed. On the home visit, residents and an accompanying student pharmacist perform medication reconciliation by reviewing the medications the patient has on-hand and observing medication-taking behaviors in the home. Following each visit, residents write a comprehensive clinical note which is shared with the referring providers. Preceptors and residents meet weekly to review clinical notes and discuss the experience, resident decision-making, and rationale.

In mid-March, home visits by pharmacists were suspended because of the COVID-19 pandemic. The HBMM visit experience was quickly replaced with telephonic CMRs from an online platform, which more accurately reflects how MTM is practiced across the country. Residents perform CMRs for patients living in all parts of Maryland, and often these patients are not seen within JHM and do not fill their prescriptions with JHOP. Owing to these limitations, opportunities for reviewing the patient’s chart before the telephonic visit were scarce and meaningful follow-up with providers was more difficult. Resident feedback and clinical discussions revolve around the review of the patient’s personal medication record and medication-related action plan, which are now the written products developed after the patient encounter. Although the patient population has shifted from complex ambulatory patients in an academic medical center setting to the more traditional MTM patient population, this new telephonic MTM experience is providing the residents with broader MTM practice skills.

In-person Pillbox Teaching Clinic shifts to pillbox delivery

Residents also staff the Pillbox Teaching Clinic for four hours every month. In this clinic, pharmacists work one-on-one with patients to improve medication adherence and develop longitudinal relationships. Each resident class is expected to see 20 patients for at least three encounters throughout the year.

During the clinic visit, the pharmacist reviews the returned pillboxes to assess adherence and discusses reasons for any missed doses with the patient. If the patient sees providers within the health system, recent medical visit notes and the

Key Points

Background:

- As a component of its Postgraduate Year-1 (PGY-1) community-based pharmacy residency programs, Johns Hopkins Home Care Group requires residents to participate in a longitudinal, year-long Medication Therapy Management (MTM) rotation. This rotation serves as a major portion of their clinical experiences.
- In mid-March 2020, the in-person patient care aspects of the MTM rotation had to be adjusted because of the coronavirus disease 2019 pandemic. Protecting the safety of the patients, residents, preceptors, and other pharmacy staff while still providing high quality care was the priority.

Findings:

- In response to the coronavirus disease 2019 pandemic, in-person clinical activities within the patient’s home and in the pharmacy shifted to telephonic encounters.
- Residents and clinical pharmacists started personally delivering pillboxes to patient residences because of lack of confidence in commercial delivery services and the proximity of most patients.
- Despite considerable adjustments made to the rotation, residents still managed to experience valuable patient care situations and continued to learn how to provide clinically meaningful pharmaceutical care telephonically. An ongoing challenge is finding an impactful volume of complex patients for residents to enhance their pharmaceutical care skills.

pharmacists who specialize in MTM services and community outreach.

The MTM team primarily serves Baltimore residents from local neighborhoods. HBMM patients have an average age of 63 years and are predominantly African American. Diabetes, congestive heart failure, and asthma are the most common conditions in these patients. Likewise, the majority of pillbox patients are over 60 years old and have multiple comorbidities. The patients seen by the MTM team have varied barriers to adherence including physical, cognitive, and organizational. Common referral reasons include complex medication regimens and considerable changes to a medication regimen. Providers, case managers, and impatient clinical pharmacists provide the majority of the referrals.
current medication list are reviewed, along with medications the patient brought or picked up from the pharmacy. Patients are educated on medication indications, asked about common adverse effects, and medications are analyzed for potential adverse drug reactions. Pharmacists then guide the patient in pillbox assembly. Based on the patient’s ability, the pharmacist assists the patient in filling the pillbox and encourages the patient to take the lead.

Owing to COVID-19, JHOP discouraged patients from coming into the pharmacy if not necessary and offered prescription delivery. To foster patient safety, in-person pillbox filling with patients was suspended. However, pharmacists continued to fill pillboxes for patients on the same schedule. Owing to lack of confidence in commercial delivery services and the proximity of most patients, pharmacists hand-delivered pillboxes. The residents’ Pillbox Teaching Clinic experience changed to a predominantly operational role and required them to work through billing issues, filling pillboxes, and coordinating delivery. Symptom analysis and medication review transitioned to telephonic interviews. The residents’ safety was considered

Table 1
Description of MTM services at JHHC

| Service name                      | Description                                                                                                                                 |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| HBMM                             | HBMM is a referral-based service where pharmacists visit the patients at home to conduct medication reconciliation, provide patient education, and complete a comprehensive medication review. The pharmacists then follow up with the provider with medication-related recommendations. |
| Pillbox Teaching Clinic          | Pillbox Teaching Clinic meets weekly at one of the Johns Hopkins community pharmacies, and pharmacists work with patients to improve adherence by teaching them appropriate skills. The visit includes reviewing medication indication, administration and adverse effects, supervising filling a pillbox, or filling the pillbox for the patient. While some patients participate for just a few sessions to improve their skills, a standing panel of patients returns monthly or bimonthly for assistance. |
| CMR and targeted interventions   | Eligible patients are identified through an online MTM platform or referred by other providers within the health system. CMRs include the provision of a personal medication record, developing a medication-related action plan, and communicating with providers regarding the assessment and plan for medication-related problems identified. The encounter may take place over the phone or in person. |
| Medication adherence counseling  | Medication adherence services are provided to complex patients who have a history of nonadherence and are not able or willing to attend Pillbox Teaching Clinic. Pharmacists provide telephonic medication adherence services such as monthly refill reminders, medication filling and delivery assistance, medication synchronization, check-ins to reinforce medication-related education, and follow up with patients referred to patient assistance programs. |

Abbreviations used: CMR, Comprehensive Medication Review; HBMM, Home-Based Medication Management; MTM, Medication Therapy Management.

Table 2
Reflections on adjustments made to the MTM rotation

| Team Member                      | Reflection                                                                                                                                 |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Resident (Class of 2020)          | “Currently, eleven patients participate in our Pillbox Teaching Clinic and some have been under our care for several years. Most have no support for medication taking at home and rely on us to help them stay adherent to their medications. Our commitment to them is very important and we want to keep them safe. Almost all patients ride public transportation to get to our clinic. Certainly, we don’t want them coming to the pharmacy if that will expose them to infection. The shift in how we operate our clinic means more operational tasks for residents and preceptors, leaving less time for clinical evaluation and follow-up. Clinic now revolves around finding pillboxes and supplies, solving billing issues, assembling pillboxes, and driving to patients’ houses. These are necessary tasks, but are they valuable learning experiences for residents? Because we are delivering medications, our “no shows” have been eliminated and medication adherence is likely higher. Through delivering medications, we have gained a better understanding of our patients’ lives. We have chatted with them on the front porch and met their families. In July 2020, we surveyed our pillbox clinic patients, and almost all are willing to return to the pharmacy for in-person visits, so we know they are ready to return when we feel it’s safe.” |
| Preceptor                        | “When we realized the severity of COVID-19 in mid-March, the first clinical issue that came to my mind was providing care for this patient population. The uncertainty of how we were going to handle the situation at first was emotional because of the unique relationships we have with these patients. Shifting the HBMM visits to telephonic CMRs was a relatively easy adjustment and still provided valuable clinical learning experiences. The shift from in-person pillbox clinic to delivering pillboxes was logistically challenging initially. We spent so much time coordinating the pillbox fills and driving around the city that it was difficult to provide the same level of clinical care and counseling as sitting with the patients in-person. After adjusting to this new normal following the first month, the experience of personally delivering the pillboxes became a wonderful experience because we were able to build trust with our patients on a new level. The degree of human-to-human care and gratitude experienced on both the pharmacist and patient sides throughout this time is an experience I will never forget, and it has made me a more empathetic and compassionate clinician.” |
| Clinical Manager                 | “The Centers for Medicare & Medicaid Services (CMS) publishes star ratings to assess the quality of Part D prescription drug plans. Completion rate of CMRs is one quality measure that is included in the CMS evaluation of insurance plans. JHM’s managed care branch has Medicare Advantage Plans with corresponding drug coverage. Adjusting the residents’ MTM rotation to focus on CMRs has strengthened the relationship JHOP has with the managed care arm. There is also additional opportunity to perform MTM for patients with other third-party plans to improve performance of these plans and reduce direct and indirect renumeration fees associated with each prescription claim. Using the online platform allows for pharmacist to bill and get reimbursed for their cognitive services, whereas HBMM visits are currently not being billed. The team will need to consider how to maintain this level of service with CMRs when re-starting HBMM and Pillbox Teaching visits. Although HBMM and Pillbox Teaching visits may not be revenue generating like CMRs, they are clinically valuable and reduce health care costs to the health system and patients and should be continued.” |

Abbreviations used: CMR, Comprehensive Medication Reviews; COVID-19, coronavirus disease 2019; HBMM, Home-Based Medication Management; JHM, Johns Hopkins Medicine; JHOP, Johns Hopkins Outpatient Pharmacy; MTM, Medication Therapy Management.
with the new task of delivering pillboxes containing various medications directly to the patients’ homes. Residents attend a formal safety training before starting the rotation. For the transition to pillbox delivery, the residents were given the option to be accompanied by a preceptor if they were uncomfortable traveling alone.

**Learnings and takeaways**

The residents who experienced the transition to the outlined modifications in March 2020 for this rotation quickly adapted. The change from home visits to telephonic MTM was not a difficult transition for them because they had already built strong patient interviewing and counseling skills over the preceding nine months and were able to use those skills in the telephonic environment. Likewise, adjusting to the new pillbox clinic format went well because they had already formed strong relationships with their pillbox clinic patients and knew how to communicate with them. The most difficult part of the new pillbox clinic format was coordinating the logistics of filling and delivering the pillboxes, but after the first month the residents developed new workflows and became more efficient. Although it was unclear at first how fruitful this rotation would be for the residents once the changes were made, in the end the transition to the modifications was relatively smooth and the residents’ learning experience continued to be meaningful. The residents ended up learning new skills centered on care coordination and telephonic patient interactions. Refer to Table 2 for detailed reflections from a resident, preceptor, and clinical manager regarding the rotation changes.

Despite the changes made to the MTM rotation, it has become evident that it is possible to properly train new residents on conducting clinical work virtually at the same level as in-person training. Onboarding the new community residents who started their training in June 2020 went well. Given that COVID-19 constraints were still in effect, the rotation modifications continued. Resident orientation adhered to social distancing policies and was held outside of the pharmacy when practical. To ensure that the residents were still receiving comprehensive feedback from preceptors during the onboarding phase for telephonic MTM encounters, preceptors supervised scheduled CMR calls in-person in a socially distant manner and provided immediate feedback. In addition, productivity tools the organization subscribed to were leveraged in a forum format where the resident could post their clinical notes and the preceptor could provide direct written feedback. During the pillbox clinic training, the new residents were taught in-person to fill the pillboxes and coordinate patient care independently. In addition, preceptors introduced the residents to their patients over the phone to transition their care from the previous residents to the new residents.

Preceptors and residents have continued to meet just as often before COVID-19 to discuss feedback and resident progress, but the main difference is the meetings occur virtually rather than in-person. The majority of MTM activities this year are self-directed, which places more responsibility on the residents to evaluate their own progress and advocate for themselves. Preceptors encourage residents to engage in open communication and provide real-time feedback on what is working well and what should be improved. Promoting an environment of consistent communication has also helped everyone stay committed to patient care while allowing for timely rotation adjustments.

Providing several MTM patient care opportunities each week remains a goal for the rotation. However, it is more challenging this year. Despite scheduled MTM appointments, patients often do not answer the pharmacist’s call, and as CMRs are completed through online platforms, the number of eligible patients remaining declines. Unlike previous years, preceptors have actively been recruiting MTM patients from other referral sources and encouraging residents to engage patients, who would have been candidates for home visits in the past, in telephonic medication reviews.

**Moving forward**

As the COVID-19 pandemic continues for the foreseeable future, it is likely these rotation modifications will stay in place until the end of the 2020-2021 residency year. Although the COVID-19 modifications have continued to provide a meaningful clinical experience, the community residents will return to in-person home visits and pillbox clinic once it is safe to do so. There are several action items the residency program is taking on as a result of the pandemic which other residency programs also are encouraged to ponder over. First, JHHC G is currently considering new efficiencies, such as leveraging technology for more streamlined communication between preceptors and residents, that have resulted from changes because of the COVID-19 pandemic and is developing a plan to make them permanent changes to the residency program after the pandemic. Second, the residency program is continuing to think creatively, as the pandemic continues, about ways the residents can still be provided with meaningful patient care experiences that foster pharmaceutical care skill-building, regardless of the mode. Last, JHHCG has quickly realized how important it is to keep the lines of communication with residents open and honest to facilitate an environment which promotes quick adjustments based on resident feedback.

**Conclusion**

Despite several challenges posed to the MTM rotation because of the COVID-19 pandemic, adjustments were quickly made to ensure residents are still able to provide meaningful clinical care, patients are still receiving services, and everyone involved is protected. The shift from home visits to telephonic CMRs has continued to provide meaningful clinical experiences for the residents. Adjusting in-person pillbox clinic to a pillbox delivery service poses logistical challenges for the residents and preceptors but provides the pharmacists a chance to build deeper connections with patients. Overall, high quality care continues to be delivered to this patient population and residents continue to learn through the adjusted rotation experiences. The major challenge for the residents’ clinical experiences has been finding an impactful volume of complex patients for them to care for and learn from to enhance their skills. Other residency programs are encouraged to consider the new efficiencies resulting from the COVID-19 rotation adjustments and if they want to keep them after the pandemic, develop creative solutions to rotation activities because of pandemic restrictions to ensure the
residents are provided with similar patient care experiences, and keep the lines of communication with residents open to facilitate real-time changes to rotation activities based on feedback from the residents.

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