Developing pharmacy services in a home hospital program: The Mayo Clinic experience

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Purpose. Home hospital programs are rapidly becoming a more common patient care model in the market. The impact on hospital pharmacy practices is not well defined. This article describes the development of pharmacy services in a home hospital program in an attempt to help other organizations create their own home hospital pharmacy programs.

Summary. Caring for acutely ill patients in their home was a novel idea when Mayo Clinic began considering this in January 2020. Since then, the coronavirus disease 2019 (COVID-19) pandemic has rapidly escalated interest in and pursuit of these programs. One question we asked ourselves, and many colleagues are asking us today, is "How does pharmacy fit in?" Through 2 years of active engagement, innovation, and persistence, our team has developed a robust pharmacy presence in the home hospital care team and a well-articulated approach to medication management for our patients. We have tightly aligned and blended our clinical efforts to mirror our typical inpatient and ambulatory care clinical activities. We have also developed and modified our dispensing functions to serve the unique needs of the care model.

Conclusion. Home hospital medication management is both complex and ripe with opportunities for pharmacy engagement.

Keywords: dispensing, experience, home hospital, innovation, medication management, pharmacy

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Caring for hospitalized patients in their homes was thought to be a care model of the future.[1] A global pandemic has a way of expediting services and pushing us beyond what we thought were our limits.[2] Home hospital (ie, hospital at home, acute hospital care at home) is here and is now a care model of today.[3,4]

More than ever, we need a way to care for our patients in the safety of their homes and maintain access to our brick-and-mortar hospitals for those truly needing specialized acute care.[5] Our healthcare system believes in this care model and began piloting home hospital for patients with select conditions (eg, pneumonia, heart failure) before the start of the coronavirus disease 2019 (COVID-19) pandemic.[6] The hospital surges encountered in the pandemic and a Centers for Medicare & Medicaid Services waiver allowing for home hospital reimbursement catapulted the care model forward, resulting in hundreds of organizations across the country initiating a similar approach to care.[4] The question we set out to answer is, "How does pharmacy fit in?"

The beginning

Our pharmacy leadership team was approached in January 2020 to engage in development of a home hospital program. Mayo Clinic had already partnered with a leader in the virtual hospital space, and that partner provided a basic infrastructure for how to successfully deliver care with supportive technology. The plan was to enroll patients in 2 states, Florida and Wisconsin. Care would be delivered via a virtual command center of nurses and

providers, along with hands-on care from local team members.

Initial concern

The clinical care model presented to our team by our business partner included no pharmacists. Complex delivery of care to the home comprised 20 supplier networks. Two of these were pharmacy-based infusion services and retail services. This presented our first challenge to overcome. We as a profession see ourselves as members of the core patient care team and not simply "suppliers." We wanted to bridge the gap with the home hospital leaders to justify the importance of incorporating clinical consultative pharmacy services into the model, in addition to our dispensing services.

Literature review

Our pharmacy team scoured the literature and available pharmacy networks for the best way to provide high-level pharmacy care to home hospital patients. We learned that home hospital patients typically transition through inpatient and outpatient phases of care within a 30-day episode, so they require a unique blend of inpatient and outpatient services.[7] Initial patient acuity in the acute phase of care matches that of typical medical inpatients with frequent medication therapy changes, creating a host of medication use process challenges in the home. Patients then transition to an outpatient restorative phase of care, with many of the same challenges as our patients who undergo a traditional hospital discharge and must learn to master a revised or new medication regimen. Our review of medication-focused home hospital literature was fruitless and yielded the realization that we needed to develop a new way of caring for these patients.

Stepping back and considering pharmacy practice

As a pharmacy practice, we have advanced practice standards in inpatient and outpatient settings that are evidence based, document the value of pharmacy services, and set the expectations for how we care for patients. We decided that our home hospital patients deserve the same level of pharmacy services as patients in each of these traditional settings. The challenge we faced was how to seamlessly deliver comprehensive, high-quality pharmacy services to our patients across the continuum of care.

KEY POINTS

- Home hospital programs are rapidly becoming a more common patient care model in the market and have been accelerated by the coronavirus disease 2019 (COVID-19) pandemic.
- Pharmacy departments should invest effort into understanding this care model, including its complexities and opportunities for the department.
- Home hospital medication management requires innovation and is ripe with opportunities for pharmacy engagement.

Dispensing decision points

Now that we knew we needed inpatient and outpatient pharmacy practice expertise and resources, our next obstacle was determining which pharmacies would be responsible for dispensing intravenous and oral medications to our home hospital patients. The model proposed by our business partner was developing service contracts with local vendor pharmacies responsible for dispensing and delivering medications to homes. In their model, a contract is developed with a home infusion pharmacy and a retail pharmacy, with multiple redundancies in place to ensure patients have access to medications 24 hours a day, 7 days a week. Our preference has always been to insource pharmacy services whenever possible for flexibility, quality, and safety purposes. In Wisconsin, we were certain that we could meet the terms of the service contracts through our internal pharmacy services. We developed a plan to utilize our long-term care pharmacy for oral and bulk medications, our home infusion pharmacy for intravenous medications, and our inpatient pharmacy as our redundancy and 24/7 pharmacy option. In Florida, we do not have long-term care pharmacy or home infusion pharmacy permitting. These limitations stifled interest in insourcing dispensing and led to the development of contracts with vendor pharmacies for their dispensing services. Decisions regarding which pharmacies to utilize for dispensing, and how dispensing can occur (especially related to controlled substances), rely heavily on pharmacy permitting and board of pharmacy rules in each state. Existing regulations were not designed to support this care model and present barriers to efficiently and safely delivering optimal acute care pharmacy services in the home. We challenge pharmacy leaders to explore the dispensing boundaries, live within regulations, be creative with solutions, and advocate for changes if needed.

Patient volume and staffing decision points

We learned that our initial plans were to admit about 1 to 2 patients per day and ramp up to a census of 10 to 20 patients in both Florida and Wisconsin. We used this information and our typical hospital pharmacy staffing ratios to approximate our pharmacist and technician staffing needs. We requested a 1.0 full-time equivalent (FTE) pharmacist position to work in our virtual command center and be the point person for virtual rounds and clinical care. We structured this position to work clinically just like our other clinical pharmacist positions, including working under the same organizational policies and collaborative practice agreements and managing orders and documenting work in the electronic health record

(EHR). We requested a 1.0 FTE pharmacy technician in Wisconsin to manage the insourced dispensing and operational workload. We adapted our staffing models to manage the additional daytime, evening, and weekend workload we anticipated in caring for hospital-level patients.

Launch and early learnings

Our pilot launched in August 2020. Our EHR, Epic (Epic, Verona, WI), provides the communication and medication assessment tools needed for optimal care. We leverage the EHR for home hospital patients in a similar manner as we do for brick-and-mortar hospital patients. All home hospital medication orders are verified by hospital-based pharmacists in the same state as the patient, and medication administrations are documented in the electronic medication administration record (MAR) by nurses in the command center. The EHR enables us to perform clinical monitoring for these patients in the same way as for our traditional hospital patients. We are providing the same consultative pharmacy services as if patients were admitted to a floor in our brick-and-mortar hospital. In Wisconsin, our initial pharmacy dispensing workflow involved transcribing EHR orders into 2 other software programs, the long-term care and home infusion software, as we planned to dispense out of these 2 pharmacy settings. We quickly realized that this transcription to independent dispensing systems added both time and risk for transcription error. These long-term care and home infusion pharmacy programs are also not built to support high-acuity patients, inpatient medications, and frequent dose changes. Our initial dispensing utilized strip packing of oral medications as a 3-day supply. This became a challenge.

Pivot in dispensing in Wisconsin based on patient acuity

The acuity of the patients led to frequent dose changes and reissuing of strip packs, causing confusion for everyone involved. Additionally, our patients are witnessed via video by a nurse in the command center for each medication administration, and this is documented via proxy in the MAR. To enable verification by the nurse, the medication is held up to a camera for validation before administration. Multiple medications in a single packet made identification difficult for nursing staff. Two weeks into the program, we pivoted. We moved to daily dispensing with a single medication per strip packet out of our long-term care pharmacy. It was soon evident that we were mirroring unit-dose inpatient dispensing, so we explored ways to dispense medications from our inpatient pharmacy using inpatient automation. Our department decided to transition to completing a daily cart fill from our central hospital pharmacy, utilizing unit-dose medications and delivering daily through paramedics and nurses to patient homes. We modified our inpatient dispensing labels to ensure they met outpatient labeling requirements. We also transitioned dispensing for intravenous medications to daily dispensing and began using our inpatient EHR for the dispensing profile. These adjustments drastically decreased workload for our pharmacy team and improved nursing satisfaction related to documenting administration. We also wasted fewer medications by moving to a daily dispensing model as medications cannot be returned after they have entered a patient's home. We were able to implement a similar dispensing approach in Florida during a COVID-19 emergency management executive order but returned to outsourcing dispensing when the order expired.

Incorporating ambulatory pharmacy services

During our 30-day home hospital program, the patient transitions from an acute phase of care to a restorative phase. The patient remains in their home, eliminating a physical transition. However, our approach to medication management shifts at this phase-of-care transition. We switch from the home hospital program providing the medications to the patient being responsible for picking up any new prescriptions and taking medications from their own supply. We as a healthcare team coach the patient in medication adherence and understanding. The goal is for the patient to successfully manage their own medications on discharge and prevent readmission related to medications. From the initial planning stages of this program, our pharmacy team felt that it was crucial that our patients benefit from the expertise of our medication therapy management (MTM)/Medication Management Service (MMS) pharmacists. A virtual video visit was conducted with the patient around the time of their transition into the restorative phase of care to provide consultation on self-management of their medication therapies. We explore options for adherence, suggest therapy optimizations to providers, and follow up with high-risk patients as needed.

Current state

In the current state of the program, our pharmacy team is engaged as soon as patients are admitted to the program. We support medication history collection and transfer medication reconciliation activities. In Wisconsin, we dispense all oral and intravenous medications throughout the acute phase of care. For all locations, we virtually attend rounds and clinically monitor each patient. On transition into the restorative phase of care, we again support medication reconciliation activities and complete an MTM/MMS virtual video consultation visit. We also fill any needed restorative phase outpatient prescriptions for delivery to patients' homes in a manner similar to a meds-to-beds service provided in our brick-and-mortar hospital. We continue to clinically monitor each patient through the restorative phase, dispensing medications as needed. At discharge, we support discharge

medication reconciliation activities and counsel the patient as they complete the home hospital program. We have worked tirelessly to leverage every pharmacy service we can to provide the highest level of pharmacy care possible.

Conclusion

This care model combines our inpatient and outpatient pharmacy practices like never before, addressing issues of transitions of care. Operationally, this is new territory for our profession. Inpatients are being cared for in their homes. We need to develop best-practice standards and concurrently drive legislation to support appropriate and safe dispensing models. We are blurring the lines between inpatient and outpatient dispensing and need rules that apply. Our profession should work together to push boundaries and advocate for legislative change that decreases barriers and puts the needs of our patients first.

In our journey, we have learned that home hospital patient care is ripe with opportunities for pharmacy engagement. Our pharmacy team has developed a novel medication use process that blends and integrates the best practices of our inpatient and outpatient worlds. Our presence and perseverance as a profession in this care model are crucial to our future. We encourage all pharmacy teams to engage to the fullest extent in development of home hospital care models across the country.

Disclosures

The authors have declared no potential conflicts of interest.

Previous affiliations

At the time of writing, Dr. Peinovich and Dr. Dow were affiliated with Mayo Clinic Health System, Eau Claire, WI.

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