

The Proposed Model for Pharmacy-Led Med-to-bed Discharge Service in Tertiary Care Hospital

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Abstract

Introduction: The pharmacy-led discharge medication delivery to bedside (Med-to-bed) service in a tertiary care Johns Hopkins Aramco Healthcare (JHAH) hospital aims to optimize medication management during patient transitions from admission to discharge, especially for those with chronic conditions. The service entails the direct delivery of discharge medications to patients at the pharmacy following their discharge from inpatient wards, accompanied by comprehensive medication counseling. The pharmacy-led Med-to-Bed service aims to reduce patient wait times and improve overall clinical outcomes. **Methods:** This article highlights common challenges in medication reconciliation and post-discharge prescription fulfillment, highlighting the need for standardized protocols and improved hospital adherence to ensure seamless care transitions. It also discusses future considerations for optimizing the Med-to-Bed service, including proposed pharmacy renovations, installing a dedicated robotic dispensing system, and providing private spaces for patient counseling during medication pickup. Additionally, the proposal suggests deploying more pharmacy staff to address delayed discharge orders and making systemic enhancements to the EHR system to streamline prescription pickup. **Result:** The successful implementation of the proposed pharmacy-led Med-to-Bed service demonstrates the efficacy of interdisciplinary collaboration among nurses, physicians, and pharmacists. Through this collaborative approach, the Med-to-Bed service has shown tangible improvements in operational efficiency and patient outcomes, underscoring its potential to transform healthcare delivery models. **Conclusion:** Overall, this proposed model provides valuable insights into the transformative impact of integrated care initiatives like the Med-to-bed service in tackling complex medication management and enhancing quality patient care in hospitals.

Keywords: Medication reconciliation, med-to-bed, medication management patient counseling, Patient discharge Instructions (PDI), Electronic Health Record (EHR), JHAH (Johns Hopkins Aramco Health Care).

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INTRODUCTION

Johns Hopkins Aramco Healthcare (JHAH), is a 330-bed tertiary care hospital in Saudi Arabia that offers a comprehensive range of inpatient and outpatient services across various clinics. JHAH dedicates itself to addressing community healthcare challenges and regularly organizes outreach events to encourage healthier lifestyles.

JHAH Hospital discharges patient with increasingly complex chronic conditions under complex care plans. These plans frequently incorporate a variety of medication regimens, including the discontinuation of some, the addition of new ones, the use of over-the-

counter medications, dose adjustments, and interactions between medications [1]. This complexity makes it more challenging for chronic patients to manage treatment regimens during the transition of care from hospital admission to discharge. The "Meds to Beds" tool addresses complex medication management and enhances positive patient outcomes during the care transition [2]. "Meds to beds" involves delivering discharge medications to hospitalized patients at wards prior to discharge and often includes a patient medication-counselor component. Before patient counseling at wards, and now the pharmacy department has taken the initiative to collect processed discharge medications from pharmacy [3]. The main purpose of this pharmacy-based medication-to-bed service is to

reduce patient waiting time and enhance patient medication counseling for positive clinical outcomes, thereby reducing hospital readmission rates for discharged patients [4]. Discharge Healthcare professionals associate with patients in medication reconciliation, a required hospital practice, to ensure accurate and complete medication information transfer at interfaces of care [2]. This process should occur in a standardized manner to reduce medication.

Errors lead to adverse events and patient harm. However, implementation challenges have resulted in poor hospital adherence. Patients expressed concerns about difficulty getting prescriptions filled after leaving the hospital; individuals had to wait in cars, in line, or at home alone after surgery. This situation affected patients' timely relief of pain or post-operative nausea, as well as patient satisfaction and the overall rating of the facility [2].

METHODS

Pharmacy -Led Implementation Process

The pharmacy-led Meds to Beds service provides discharge medication pick-up by patients from

the pharmacy before being discharged from the hospital. Physicians enter medication orders in the EHR. Clinical pharmacists then review and verify the order and send it to the pharmacy in the EHR system for preparation, ready for dispensing to discharge patients. Upon discharge, nurses will instruct the patient or caregiver to pick up discharge medications from the pharmacy. Patients or caregivers visit the pharmacy and pick up medications with all post-discharge instructions printed. Patients will have the opportunity to interact with pharmacists and receive advice about proper medication use [1].

• **Patient Selection**

- a. Patient selection for the Meds to Beds pathway excludes certain categories, such as tuberculosis patients, psychiatry patients, isolation unit patients, and CHF/ACS patients [1].
- b. Based on patient preference, the discharge medication process follows two pathways: the room delivery option (nurse pick-up) or the med-to-bed option (patient pick-up), which the nurse marks within the Electronic Health Record (EHR) [1].

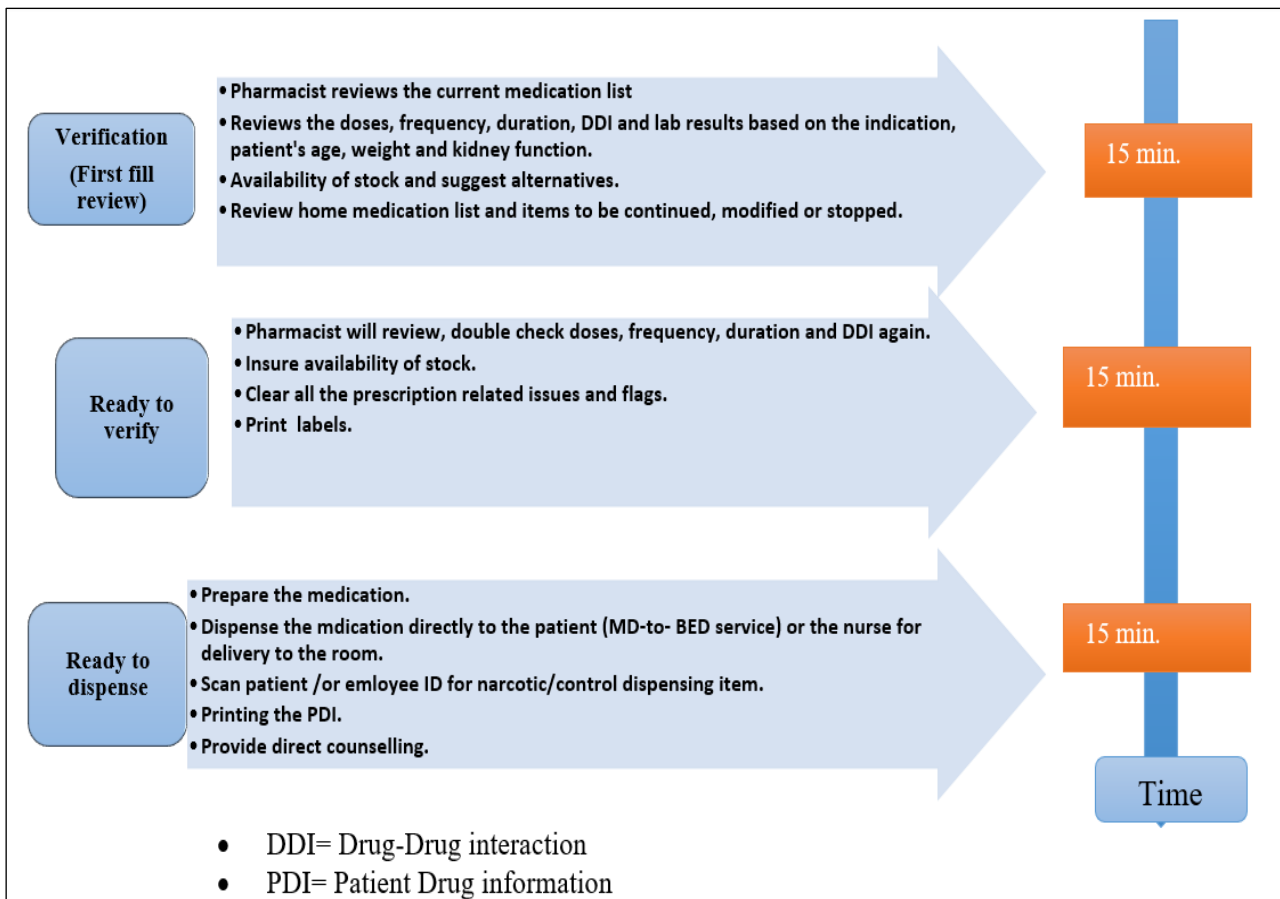


Figure 1: Verification Process by Pharmacist

• **Pharmacy led Med-to-bed workflow flowchart**

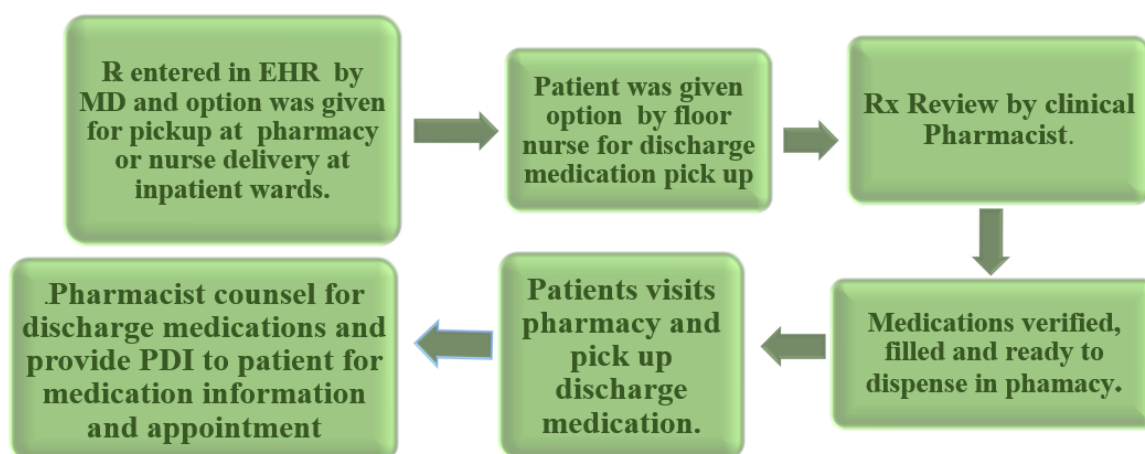


Figure 2: Med-to-bed workflow

• **Establish Collaboration**

The pharmacy department, nursing department, and physicians collaborate to establish the pharmacy-led med-to-bed service [1].

• **Workflow development**

Before discussing the impact of the med-to-bed service in pharmacy, it is essential to understand the below-mentioned workflow [1].

• **Discharge Medication Reconciliation Process:**

In every case, medication reconciliation is required at the point of care transition. Upon discharge, the clinical pharmacist must ensure thorough care during the verification process within 45 minutes to prevent the following delays [Figure 1].

The physician will enter all discharge orders in the EHR at the time of discharge, giving the patient the option of bedside delivery or self-patient pick-up at a hospital-affiliated pharmacy. The discharge medication order goes to the clinical pharmacist queue to complete the medication reconciliation process in the EHR system. The clinical pharmacist reviews discharge orders and confirms any medication order discrepancies with the physician. Once the clinical pharmacist has verified the discharge order, the pharmacy will proceed to fill the prescription. If the nurse flags the discharge order, the pharmacist should pick it up, process it, fill in the medications, and then send it to the nursing floor. If the discharge order is flagged as patient pick-up, after discharge, the patient visits the pharmacy and waits for his medication pick-up. The pharmacist verifies the patient information, processes all discharge medications in the EHR system, and prints PDI for patients. The pharmacist will counsel the patient on all discharge medications and provide the PDI. [Figure 2].

• **Managing assigned Med-to-bed patients**

Medication reconciliation is “the formal process in which pharmacists ensure accurate and complete medication information transfer at interfaces of care” [2]. This process aims at obtaining a review of past medication history and reducing unintentional discrepancies. Frequent discrepancies discovered during medication reconciliation include omission of (chronic) medications, lack of documentation (no clinical document available for medication reconciliation), addition of new medicines, and “making therapeutic substitution if stock is not available but not switching back to original agent upon patient discharge” [2]. Pharmacist-led medication reconciliation can reduce medication related problems during hospital transitions. This pharmacist led medication reconciliation process will be followed before verifying the orders in pharmacy. All medication relations problems will be resolved before dispensing discharge medications to patients [5].

The pharmacy-led Meds to Beds program fosters increased communication between prescribers, pharmacy staff, and nurses. The pharmacy prepares medications upon discharge, providing patients with ample time to interact with the pharmacist prior to their return home. Before the patient leaves the hospital, prescribers and pharmacy staff can discuss and resolve medication-related issues, ensuring a smooth transition to home [8].

• **Patient follow up for implemented Med-to-bed service**

After picking up medications from the pharmacy, patients can go home, and if they have any inquiries about medications, they can call the JHAH call center at 800305444 and select the pharmacy option to communicate with the pharmacist about medication-related queries. [8]. In addition, patients have the option of a video consultation with the pharmacist, allowing them to display their prescribed medications through

video. This enables the pharmacist to understand the medications in use and tailor their counseling accordingly. Furthermore, if there are any pending refill medications, patients can conveniently request home delivery services to ensure medication availability at their doorstep [8].

RESULTS

In the Meds to Beds service, a pharmacist who is capable of thoroughly discussing the patients’ medications with effective patient counseling delivers discharge prescriptions to patients. At the same time, pharmacists can review patients’ existing medications to prevent medication errors, which will also help improve medication adherence and enhance patient satisfaction. The following are the expected outcomes after implementation.

- i. There will be a reduction in the expected waiting time for patients receiving Med-to-bed services (RX pick-up from pharmacy). This will increase bed occupancy [1, 5].
- ii. Reducing the number of returned discharge medications from floors for cancellation would help minimize waste and reduce clinical time [1, 4].
- iii. Prior to the introduction of the Med-to-bed service, a significant number of returned discharge medication cancellations are experienced. However, since implementing the Med-to-bed service, we have observed a decrease in the number of returned discharge

medication cancellations. Numerous floors have chosen to adopt and promote the Med-to-Bed service, as it enables patients to conveniently collect their medications from the pharmacy and fulfill the necessary discharge formalities (PDI) [7, 8].

- iv. The addition of supply pharmacists to handle out-of-stock medications resulted in a reduction in waiting time for RX pick-up patients. Before implementing med-to-bed service, the waiting time was 45 minutes to 1 hour for patients on the floor, but now it is less than 15 minutes for med-to-bed service in pharmacies [5, 8].
 - a. The patient satisfaction scores for the med-to-bed service are available [9, 12].
 - b. The reduction of hospital readmission rates for served discharge patients is a priority (MED-TO-BED SERVICE in pharmacy) [11, 13].

DISCUSSION

The proposed implementation of the Pharmacy-led Med-to-bed service in our tertiary care hospital represents of hospital discharge making the process of medication reconciliation more efficient and leading to better patient outcomes [6]. The comprehensive approach outlined in this article emphasizes interdisciplinary collaboration among nurses, physicians, and pharmacists, ensuring the proposed implementation of the Med-to-bed service [Table 1].

Table 1: Interdisciplinary Collaboration in the Med-to-bed Service Implementation

Healthcare Professional	Role in Med-to-bed Service Implementation
<i>Physicians</i>	Provide medication orders and clinical oversight
<i>Nurses</i>	Coordinate medication delivery with pharmacy
<i>Pharmacists</i>	Conduct medication reconciliation and ensure accuracy

One notable aspect of our implementation is the focus on patient’s preference and convenience. Patients have the option to either pick up their medications from the pharmacy or have them delivered to their room [8, 10], addressing concerns about access, and waiting

times. Moreover, pharmacist-led medication reconciliation ensures accuracy in medication information transfer, reducing the risk of errors and adverse events during transitions of care [Table 2].

Table 2: Patient Choice and Convenience in the Med-to-bed Service

Options for Patients	Benefits
Pick up medications from pharmacy	Convenience and reduced waiting times
medications delivered by Nurse at bedside	Ease of access and enhanced patient experience.

Future considerations outlined in the article demonstrate a commitment to ongoing improvement and optimization of the Med-to-bed service. Initiatives such as renovating the Pharmacy, deploying additional staff, and implementing a separate Pharmacy for prescription pick-up reflect a forward-thinking approach to meeting patient needs and addressing potential challenges [6, 8]. Overall, the successful implementation of the Pharmacy-led Med-to-bed service highlights the importance of interdisciplinary collaboration and innovation in enhancing patient care within hospital settings [Table 3].

Challenges & Opportunities

- a) During the pharmacy-led med-to-bed process some patient’s discharge orders were flagged as “PRESCRIPTION PICK UP”, but nurses were visiting Pharmacy as nurse pick up explaining that the patients was unable to come by themselves. Nurses receive the discharge medication by adhering to the PDI formalities.
- b) Pharmacy has limited medications resulting in delays for Med-to-bed patients due to out-of-

stock medication situations or available in other pharmacies as special medications.

- c) There have been instances where some nurses mistakenly directed discharge patients to other pharmacies rather than the designated pharmacy for discharge medication pick up and again assigned pharmacists of that area sending back patients to the assigned pharmacy to collect discharge medication pick up.

This med-to-bed service in pharmacy is a viable concept in terms of pharmacist contribution to patient-centered care where patients can conduct comprehensive medication reviews, identify any gaps in medication reconciliation, promote medication adherence, and efficiently dispense medications to enhance patient satisfaction.

FUTURE CONSIDERATIONS

1. The JHAH pharmacy department will be implementing a Robotic medication dispensing system to automate the current manual filling process. The CONCIS automated dispenser offers multiple advantages:
 - Automates a significant proportion of daily dispensing packages.
 - Dispensing and stores up to 15,000 packages
 - Very fast dispensing time. (from 4+ seconds)
 - Allows multi-pick, parallel stocking and dispensing.
 - Delivers medications to pharmacist booths.
 - It reduces waits, enabling more patient counseling time.
 - Robotic medication dispensing systems help to reduce patient waiting time and in addition, it will allow pharmacists to get more time to provide effective patient counselling.

2. The workspace's layout and design have a big influence on patient care and efficiency in the complicated, time-sensitive setting of pharmacies. Individual cubicle is a dynamic design feature that has shown to be beneficial in pharmacy settings. Numerous advantages of these enclosed workstations can improve the pharmacy team's overall productivity and effectiveness in critical circumstances. The following are some benefits of having individual cubicles in pharmacies:

- **Improved Communication:** Patient-centered care is an indispensable aspect that ensures the well-being and satisfaction of patients in healthcare settings. Privacy, confidentiality, and personalized attention is paramount when it comes to pharmacies and medication dispensing. Implementation of individual cubicles within pharmacies during the dispensing process is one innovative approach to achieve patient positive outcomes. In addition, the cubicles can significantly enhance the patient experience during patient counseling and medication dispensing by improving the quality of care provided. Assurance of patient confidentiality is one of the key benefits of individual cubicles in pharmacies. Patients can discuss uninterruptedly about their medications without any distractions. Moreover, it creates a comfortable environment for patients to engage in medication-related clinical experiences, which fosters trust between patients and pharmacists, leading to more open and honest communication.
- **Privacy and Confidentiality:** In a healthcare setting, individual cubicles offer a level of privacy and confidentiality that is essential. Pharmacists can discuss sensitive information without fear of overhearing. This ensures the confidentiality and security of patient data in compliance with legal and ethical requirements.

Table 3: Future Considerations for Optimizing the Med-to-bed Service

Initiatives	Benefits
Renovating Pharmacy	Improved efficiency and workflow
Deploying additional staff	Enhanced service delivery and patient satisfaction
Implementing separate Pharmacy	Streamlined processes and reduced waiting times

- **Focused Work Environment:** In pharmacy, distractions can be abundant and can hinder the concentration of the pharmacy staff. Individual cubicles create a focused work environment where pharmacists can concentrate on their tasks without interruptions, leading to increased accuracy and efficiency in dispensing medications and providing patient care.
- **Infection Control:** Pharmacy staff can help prevent the spread of infections by using encased cubicles. Individual workstations can serve as a barrier in situations where infectious diseases may be a concern. This lowers the chance of cross-

contamination and fosters a safer environment for patients and staff.

- **Optimized and Efficiency:** Workflow can be made more efficient by customizing and organizing each cubicle to the pharmacist's preferences. Pharmacists can organize their inventory, resources, and medications in a way that optimizes and simplifies the dispensing process [Table 3].
3. Additional pharmacy staff will be deployed to address delayed discharge orders.
 4. A systemic enhancement in EHR will separate nurse and patient pickup discharge order queues in the pharmacy.

CONCLUSION

The JHAH pharmacy department successfully implemented proposed pharmacy-led med-to-bed services involving the collaborative efforts of physicians, nurses, and pharmacists, thereby significantly reducing patient waiting time. With effective patient counseling, the interdisciplinary collaboration enhances patient satisfaction, medication adherence, and understanding of medication. The implementation of this collaborative model demonstrated improvement in operation while significantly benefiting the patient, which clearly affects patient outcomes and decreases returned discharge medications from nursing floors. In conclusion, the implementation of the proposed pharmacy-led bed-to-bed service represents a significant advancement in patient-centered care within tertiary care hospitals.

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