Title Page

**A Case Study: The Implementation of the Meds to Beds Program On the Gynecology/Oncology Unit at a UPMC Hospital**

by

**Maira Undavalli**

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This essay is submitted

by

**Maira Undavalli**

on

April 2, 2020

and approved by

**Essay Advisor:**

Samuel A. Friede, MBA, Assistant Professor, Health Policy and Management, Graduate School of Public Health, University of Pittsburgh

**Essay Readers:**

Lucas A. Berenbrok, PharmD, MS, BCACP, TTS, Assistant Professor, School of Pharmacy, University of Pittsburgh

Johnanne Ross, PharmD, BCPS, Senior Operations Manager, Vice President of PCS, UPMC Magee-Womens Hospital, Pittsburgh, Pennsylvania

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**Abstract**

Samuel A. Friede, MBA

**A Case Study: The Implementation of the Meds to Beds Program On the Gynecology/Oncology Unit at a UPMC Hospital**

Maira Undavalli, MHA

University of Pittsburgh, 2020

**Abstract**

Patients with complex conditions are being discharged with treatment plans, often with specialized medications they cannot afford or not readily available in retail pharmacies. By not taking the prescribed discharge medications correctly, a patient can experience a worsening of their health condition and a decreasing effectiveness of their treatment plan. 5800 is a 28-bed Gynecology/Oncology Unit at UPMC Magee-Womens Hospital and provides care for all types of women’s cancers. In June 2018, 5800 and the outpatient pharmacy (OPRx) piloted the Meds to Beds (MTB) program, a bedside delivery program for discharge medications, to ensure patients leave the hospital with their prescribed medications, follow their medication regimen and treatment plan, and reduce the unit’s readmission rates. Using 30-day readmission data and survey responses from 5800 nursing staff and from the outpatient pharmacy (OPRx) staff, this paper evaluates the implementation of the MTB program, its success in reducing 30-day readmission rates, and staff satisfaction with the program.

The implementation of the MTB program has a public health relevance because it addresses the Institute for Healthcare Improvement’s (IHI) triple aim: improving patient quality, reducing costs for the hospital, and increasing patient accessibility to prescribed medications.

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# Introduction

Non-adherence to a medicine regimen is frequently noted as a contributing factor to readmission rates within hospitals and can even lead to death (NCPA, 2013). However, unlike easily identifiable conditions and causes of death such as cardiovascular disease, medication non-adherence is not identified on the death certificate or as an obvious concern to patients, families, and health professionals. Medication non-adherence causes around 125,000 avoidable deaths each year and about $100 to $300 billion annually in preventable health care costs (Kleinsinger, 2018). Traditionally, the physician’s responsibility of ensuring their patient takes their medication ends when the physician prescribes the appropriate medication to the patient. However, simply diagnosing, and prescribing medication to a patient fails to motivate patients to adhere to their medication regimen 40-50% of the time and results in primary medication non-adherence (Aungst, 2018). Primary medication non-adherence occurs when a new medication is prescribed for a patient, but the patient does not pick up the medication from their pharmacy within an acceptable period of time (Adams & Stolpe, 2016).

Meds to Beds (MTB) is a hospital bedside delivery program for discharge medications. The program provides a patient’s care team, namely the physician and pharmacist, a tool to ensure proper education and counseling and the opportunity to address barriers to a patient’s adherence such as high co-pays, inaccessible medications, and low health literacy levels (Gardenier, Le, Baker, 2018). As a result, MTB proves to be an ideal choice for hospitals to address readmissions related to medication non-adherence, to increase patient quality, and to lower costs.

At UPMC Magee-Womens Hospital, readmissions due to medication non-adherence became a growing concern to leadership in both the administration and pharmacy departments from a patient quality and financial standpoint. The Hospital Readmissions Reductions Program (HRRP) introduced by the Centers for Medicaid and Medicare (CMS) lowers payments to hospitals for unplanned 30-day readmissions (Centers for Medicaid and Medicare, 2020). The implementation of the MTB program within three units allowed the hospital to address readmissions due to medication non-adherence and also better identify the barriers the hospital’s low-income population faced to medication adherence. The MTB program at the hospital is further enhanced by the hospital’s 340B designation which allows the hospital to buy outpatient drugs at a discounted.

The purpose of this paper is to describe the MTB program’s success in preventing readmissions due to medication non-adherence on 5800, the design and implementation of the program in the unit, and to identify challenges perceived by the staff involved and potential solutions to better the program.

# Literature Review

## Causes and Concerns of Medication Nonadherence

Medication non-adherence is defined as the inability of the patient to follow the recommended prescribed treatments (Hugtenburg, Timmres, Elfers, Verloet, and van Dijk, 2013). A patient’s reason for not following their prescribed medications can be unintentional or intentional and stem from various attitudes and behaviors that discourage proper medication use. Lee et al. (2018) found non-adherence to a medicine regimen caused by one or more of five factors: (1) patient factors, (2) medication factors, (3) health care providers factors, (4) health care system factors, and (5) socioeconomic factors (see Table 1).

Table 1. Five Factors Related to Medication Non-adherence

|  |  |
| --- | --- |
| Factor | Causes of Medication Non-adherence |
| Patient Factors | * Patient’s perceptions toward the effectiveness, risks, and necessity of their prescribed medications * Demographics including age, gender, and race * Poor health literacy rates |
| Medication Factors | * Complex dosing regimen * High cost of medications * Type of medications * Drug handling:   + Left over medications at home   + Medication sharing   + Medication saving   + Medication packaging |
| Health Care Provider Factors | * Physician-patient relationship   + Lack of communication   + Lack of shared decision making   + Distrust in healthcare provider * Limited years of experience of prescribing provider |
| Health Care System Factors | * Unequal access to healthcare * Inability to accommodate non-English speaking patients |
| Socioeconomic Factors | * Financial hardship and income level * Accessibility of pharmacies * Lack of insurance |

**Table 1 Continued**

Non-adherence to a medicine regimen happens often and can negatively affect the patient’s overall recovery process. In a systematic review and meta-analysis of 24 studies including a total of 26,494 patients, medication non-adherence accounted for about 4% of the hospital admissions and were considered preventable (Mongkhon, Ashkront, Scholfield, and Kongkaew, 2018).

Hospitals bear financial repercussions due to medication non-adherence. The Centers for Medicaid and Medicare Services (CMS) introduced the Hospital Readmissions Reduction Program (HRRP) in 2012. This program is a Medicare value-based purchasing program that lowers payments to Inpatient Prospective Payment System (IPPS) hospital with unplanned 30-day readmissions for six specific conditions/procedures: (1) Acute Myocardial Infarction (AMI), (2) Chronic Obstructive Pulmonary Disease (COPD), (3) Heart Failure (HF), (4) Pneumonia, (5) Coronary Artery Bypass Graft (CABG) Surgery, and (6) Elective Primary Total Hip Arthroplasty and/or Total Knee Arthroplasty (THA/TKA) (Centers for Medicaid and Medicare, 2020). CMS defines a 30-day readmission as any unplanned admission to any hospital within 30 days after discharge (NEJM Catalyst, 2018). In 2019, of the 3,129 general hospitals evaluated by the HRRP, 83% received a penalty which cost hospitals up to $563 million over the next year (Rau, 2019).

Hospitals have an incentive to prevent unnecessary readmissions, including readmissions due to medication non-adherence. Medication non-adherence can be a significant predictor in 30-day readmissions. In a retrospective study conducted at Cedars-Sinai Medical Center (CSMC), researchers found that out of 385 patients with chronic conditions, patients with low and intermediate medication adherence had readmission rates of 20% compared to 9.3% readmission rate for patients with high medication adherence (Rosen, Fridman, Rosen, Shane, & Pevnick, 2017).

Healthcare providers play a significant role in stressing the importance of taking medications as prescribed to their patients, monitoring side effects a patient may experience that may compromise a patient’s adherence, and keep the patient well-informed about their health diagnosis. A patient’s care team, especially the pharmacist, can help reduce non-adherence by working with the patient to find the most affordable medication options, a key indicator in increasing medication adherence (NCPA, 2013). In a study that collected readmissions data to improve quality of patient care and identify preventable medication-related hospital admissions, 26% of 401 readmissions were determined to be medication-related (Pellegrin, Lee, Uyeno, Ayson, and Goo, 2017). Non-adherence due to patient choice, incorrect dosage, and untreated conditions for which the prescribed medications indicated were the top reasons. Closer attention to discharge instructions with the oversight of a pharmacist may increase medication adherence due to proper counseling.

## Benefits of Meds to Beds

MTB has been implemented in hospitals across the United States and strengthened the collaboration between pharmacists and a patient’s care team for a smoother discharge transition and a decrease in readmissions. In a retrospective cohort study evaluating the likelihood of 30-day readmissions among two hospitals over two years, one utilizing the MTB program and one not, patients who were not a part of the program were two times more likely to be readmitted within 30 days compared to the intervention group (Kirkam, Clark, Paynter, Lewis and Duncan, 2014). The MTB program also allows pharmacists to counsel patients on their discharge medications. Patients will often get discharged with medications they have never heard of and are not familiar with how to use them appropriately. However, because the MTB program is offered in-hospital, an ample amount of time can be set up between a patient and their pharmacist to discuss their medication regimen in the comfort and privacy of their hospital room.

Another significant aspect of the program is that because the prescribing physician is in the hospital if an issue with the patient’s prescriptions does arise, it is easier to contact the doctor. Dr. Reece Uyeno, a clinical pharmacy manager, at PharmaCare Hawaii describes the conventional barriers of care patients face when having to fill discharge medications at a community pharmacy rather than in the hospital, “For patients in Oahu, who often live in remote, rural areas, just getting home is a challenge. An extra stop at the pharmacy can involve a 1- to 2-hour wait. Then, if the medication used in the hospital is not a preferred drug on the patient's outpatient prescription drug plan formulary, the pharmacist calls the doctor to request a switch to a similar drug. If the doctor's shift has ended, that request is triaged to another doctor, adding to the time it takes the patient to get home” (Collins, 2019). The benefit of the MTB program for issues outlined by Dr. Uyeno is that an in-hospital pharmacy is familiar with the types of medications physicians prescribe, the brand, and the quantities so the pharmacy stocked with the appropriate inventory.

Finally, the MTB program can identify financial barriers to care. Patients who are unable to pay for their discharge medications are less likely to fill them at their community pharmacy (Cardinal Health, n.d.). However, in-hospital pharmacies are a part of the patient’s care team and can work alongside social workers and case managers to ensure the patient can obtain their discharge medications through the use of Patient Assistance Programs when appropriate.

A few studies show that the MTB program has had a positive effect on patients. For example, researchers at Ohio State University’s Wexner Medical Center found that their readmission rate for stent patients fell from 17.8% from July 2015 to June 2016, to 10% from June 2016 to November 2016 for 75 patients who participated in the medical center’s MTB program (Kritz, 2017). Furthermore, numerous articles describing the positive experiences patients had with the program have been written including testimonials from patients describing their convenience with the program and the increased quality of care they were able to obtain from their in-patient hospital care team.

# UPMC Magee-Womens Hospital Meds to Beds Design and Implementation

After continued discussion between the chief nursing officer and the pharmacy department, it was agreed upon that 5800: Gynecology/Oncology Unit would be the first pilot patient care area and later the program would be implemented on, 5300: Medicine/Surgical Unit and 4100: Orthopedic & Bariatric Unit (see Table 2). This paper will focus on the implementation and effects of the MTB on 5800.

Table 2. Meds to Beds Piloting Schedule

|  |  |  |
| --- | --- | --- |
| Unit | Complete By | Task |
|  | April 1, 2019 | Outline of program set in place |
| 5800 | April 1 – April ,15 2019 | Meet with 5800 stakeholders and train unit staff |
| April 16 – April 30, 2019 | Implement program |
| May 1, 2019 | GO LIVE |
| May 1 – May 7, 2019 observe and support 5800 | | |
| 5300 | May 8 – May 22, 2019 | Meet with 5300 stakeholders and train unit staff |
| May 23 – June 6, 2019 | Implement program |
| June 7 | GO LIVE |
| June 7 – June 13 observe and support 5300 | | |
| 4100 | June 14 – June 28, 2019 | Meet with 4100 stakeholders and train unit staff |
| June 29 – July 14, 2019 | Implement program |
| July 15 | GO LIVE |
| July 15-July 22, 2019 observe and support 4100 | | |

## 340B Hospital Designation

In 1992, Congress created the Federal 340B Drug Pricing Program through the Veterans Health Care Act to provide discounted drug prices to qualified hospitals that serve a large population of low-income patients (340B, n.d.). The program offers significant discounts to hospitals for the purchase of outpatient drugs, especially traditionally expensive brand name drugs and allows providers to offset the cost of uncompensated care and use the savings from the program to expand or improve patient services provided (Ruley, Belcher, Sayre, and Coustasse, 2019). UPMC Magee-Womens Hospital is a 340B Hospital and under 340B law, is only allowed to sell to individuals considered covered entities. The Health Resources and Services Administration defines a covered entity patient as (Hospital Readmissions Reduction Program, 2018):

1. Having an established relationship with the hospital such that the hospital maintains records of the patient’s care,
2. Receiving care from a professional employed by the hospital or is under contract with the hospital, and
3. Receiving health services from the hospital that are consistent with grant funding provided to the hospital if services fall under a grant

## Achieving Stakeholder Buy-In

Open communication allows everyone involved in the program to voice their concern and collectively work together to find solutions for any perceived problems. For the implementation of the MTB program on 5800, the key stakeholders represented are:

1. Outpatient Pharmacy Staff
2. Nursing Staff on 5800
3. Physicians Staff on 5800

The Director of Pharmacy, Senior Operations Manager in the pharmacy, and Administrative Resident at Magee spoke with the outpatient pharmacy (OPRx) staff, nursing staff on 5800, and physician staff on 5800 about the MTB program. The OPRx staff provided feedback into how they would feel comfortable implementing the program in the OPRx including the redesign of the OPRx workflow and designation of workstations (see Figure 4 and 5). Pharmacy technicians were given training on speaking with patients about the program and the process of MTB.

The nursing staff on 5800 was asked questions about when it would be best to speak with the patients about the program and if it was possible to speak with patients earlier than their day of discharge. A script that the pharmacy technicians would be using to speak with patients, approved by the quality department, pharmacy department, and nursing leadership at Magee, was also shared with the nursing staff to obtain approval (see Appendix B). It was agreed that the pharmacy technicians would speak with patients the day of discharge and if known, to patients that will be discharged the following day. The nursing staff advised that because the common discharge times are 12pm and 3pm, medications should be delivered during these times depending on the patient’s preference. All patients leaving over the weekend will be spoken to Friday of that week since the OPRx is closed on the weekend. Patient education material was shared with nursing staff as well (see Figure 1 and 2). Nurses were encouraged to mention the program to their patients and their family using a variation of the prescription since they spent the most time with their patients and were seen as a trusted source of information. If the patients were interested in the program, the nurses were told to contact the OPRx with the patient’s room number so a pharmacy technician could speak with the patient with more detail about the MTB program.

Physician staff on 5800 were given education material on how to electronically prescribe a patient’s medications and send them to the outpatient pharmacy at Magee (see Figure 3). Physician staff were also encouraged to speak with their patients about the MTB program if appropriate since the physician has a strong relationship with their patients. After all three stakeholders were aware of the structure and expectations of the program and were trained, the program started to become implemented on April 16, 2019.

## Creating Patient Physician Education Program Material

A patient’s interactions with their care team can significantly be benefited by the use of proper patient education materials. For the MTB program, the OPRx team at UPMC Magee-Womens hospital worked with UPMC Community Pharmacies and UPMC Enterprises to create patient education materials. These materials promoted awareness among patients on a program that allows them to conveniently have their discharge medications delivered to their bedside and go home rather than having to pick them up at a pharmacy on their way home. The materials focus on convenience so the patient can transition into their discharge treatment plan easier under the guidance of instructions from their care team.

The materials were given to the Unit Director on 5800 to be put into the admission folder given to patients. The front side of the material answers the three main questions that UPMC Community Pharmacies identified as information patients will prioritize for wanting to join the MTB program (see Figure 1):

A screenshot of a cell phone

Description automatically generated

Figure 1. Front Side of Meds to Beds Patient Education Material

On the backside of the material, payment options are given with an emphasis that payment is due at the time of medication delivery (see Figure 2). Patients should always be a decision maker in the care they are receiving, especially when it comes to their medicine regimen. UPMC Magee-Womens hospital started the program to increase patient quality, health, and decrease admissions but staff acknowledged the patient’s needs and wants first when implementing this program. The material, created to be patient-centered, allows the patient to take responsibility for their care by providing the patient an option for higher medication adherence.

**A screenshot of a cell phone

Description automatically generated**

Figure 2. Back Side of Meds to Beds Patient Education Material

Education was also given to physicians on how to send a patient’s medications to the OPRx using PowerChart, an electronic medical record (see Figure 3). When the MTB program was implemented in April 2019, physicians would still print out a patient’s prescription, and these prescriptions would be picked up by a pharmacy technician at the front desk at 5800. However, there was previous knowledge that on October 24, 2019, according to the Act 96 2018, “practitioners, excluding veterinarians, are required to issue electronic prescriptions for Schedule II-V controlled substances” (Pennsylvania Department of Health, n.a.). As a result, the OPRx staff wanted to prepare physicians for this change from paper prescriptions to electronically prescribe early during the program.

A screenshot of a social media post

Description automatically generated

Figure 3. Physician Education Material for Meds to Beds

## Redesigning the Outpatient Pharmacy Workflow

The management of the workflow in the OPRx was re-analyzed to accommodate the high volume of dispensed prescriptions brought upon by the MTB program. Previously in the OPRx, the workflow was inefficient, caused long wait times, and put stress on the pharmacists when it came time to verify the filled prescriptions. The goal was to create a lean workflow with pharmacists only engaging in value-added steps. Lean manufacturing/lean production is a methodology is based on an MIT Study that detailed the Toyota Production System and its ability to reduce operating costs, improve product quality, and reduce lead times by identifying waste and through continuous feedback (Rouse, 2018).

Value-added pharmacist activities include activities that utilize the specific expertise of the pharmacist to contribute appropriate medication dispensing and use while non-value-added activities are any activities that can be performed by nonpharmacist staff (Jenkins & Eckel, 2012). Using value stream mapping, the current state of the workflow was mapped out to identify non-value-added pharmacist activities (see Figure 4). Examples of value-added pharmacist activities include patient counseling, pharmacotherapy recommendations, verification of dispensed medications, and communication with prescribing physicians about drug-drug interaction concerns. In the old version of the OPRx workflow, the third step when the pharmacist verifies the patient’s information and filled prescriptions, fills any narcotic prescriptions, and contacts the prescribing physician about drug interaction concerns, was found to be the significant bottleneck. Another bottleneck found was that there was no defined workstation for each activity causing confusion and a disorganized workplace.

There are a total of three pharmacy technicians (two pharmacy technician – associate and one pharmacy technician – intermediate) and three pharmacists (two full-time and one part-time) working in the OPRx. Appendix D includes a detailed list of responsibilities for the pharmacy technicians and pharmacists working in the OPRx. One of the pharmacy technician’s duties was to oversee the MTB program and deliver medications to patients enrolled in the program. Because the pharmacists had to perform all their assigned duties of verifying patient information and prescriptions, fill narcotic prescriptions, and contact prescribing physician of any issues, in one step, patients’ medications were often delayed. Also, the OPRx staff had trouble balancing and prioritizing a patient’s prescriptions since they have to serve patients enrolled in the MTB program while serving the patients who arrived at the window.

**BOTTLENECK**

Figure 4 Old Outpatient Pharmacy Workflow

Two significant changes were made in the OPRx to increase efficiency, create a healthier work environment, and to ensure duties were value-added (see figure 5). First, a second check was implemented where two pharmacists checked a patient’s prescriptions. The first pharmacist verifies the patient’s information and the patient’s prescriptions. If there are any issues such as drug interactions, the pharmacist contacts the prescribing physician to ensure proper steps are taken for the patient to use the medication safely. The second pharmacist (generally this is a two pharmacist workflow) verifies that the correct medications were filled and fills any narcotic medications since pharmacy technicians are not allowed to fill narcotics in the OPRx. Splitting the value-added steps between two pharmacists ensured the timely processing of a patient’s prescriptions. Second, workstations were created to eliminate confusion and organize the workspace. Each step in Figure 5 has a workstation, so the patient's prescriptions can go from one station to the next and can be easily be identified in the new OPRx workflow.

**BOTTLENECK REMOVED**

Figure 5. New Outpatient Pharmacy Workflow

The two new changes implemented in the OPRx allowed the staff to adhere to the two-hour turnaround time promised to the nurses and patients involved in the MTB program while also tending to the needs to all other patients using the OPRx. The pharmacists found the new workflow to be manageable and sustainable even during times with a high volume of patients. Furthermore, the reallocation of the pharmacist workload enabled an increased focus on direct patient interactions. Increased opportunity for pharmacist-patient interactions improved the efficiency of the new workflow while also improving a patient’s access to education on their prescribed medications.

## Training Staff

To ensure that the MTB program was communicated to patients appropriately, the Senior Pharmacy Manager and Director of Pharmacy at UPMC Magee-Womens Hospital created a script (see Appendix B). This script also aligned with AIDET, a communication framework developed by the Studer Group and stands for Acknowledge, Introduce, Duration, Explanation, and Thank You (Studer Group, n.a.). AIDET is a critical communication technique at UPMC Magee-Womens Hospital, and all department directors and senior managers are required to train their staff on AIDET to improve patient experience and increase compliance for better clinical outcomes.

Each member of the OPRx staff was required to practice AIDET using the script when speaking with patients about the MTB program during the training phase of MTB on 5800. The construction of the script allowed the OPRx staff, most importantly, the pharmacy technicians who would be communicating with the patients the most, to speak of the convenience of the program. Outside of the script, staff was encouraged to highlight two components of the program: (1) the price for the patient’s medication will generally not be more than what they would traditionally pay at their community pharmacy and (2) if the patient is prescribed a medication requiring a prior authorization from their insurers, it is more convenient for the patient to have their authorization addressed in the hospital rather than at their community pharmacy.

The pharmacy technicians coordinated the program on the units so the pharmacists can continue to do value-added tasks in the OPRx. The process flow shown in Figure 6 explains the teamwork approach used in the effective implementation of the program. Communication between the pharmacy technicians and the charge nurse was critical to ensure that medications were delivered on time, and any issues that arose were communicated with the patient.

A crucial part of the process flow is that pharmacy technicians are required to ask patients if they would like to speak with a pharmacist. If a patient has any questions, the pharmacy technician contacts an outpatient pharmacist using a wireless mobile phone for in-hospital use, and the patient can speak directly with the pharmacist. This step is critical because it instantly gives the patient access to a pharmacist who can counsel them.

Figure 6. Meds to Beds Process Flow

Two major changes to this process flow were made since it was first created in April 2019.

1. In October 2019, after electronic prescribing became mandatory for narcotics, physicians began to electronically transmit a patient’s prescriptions to the OPRx. The pharmacy technician no longer picked up discharge prescriptions for MTB patients. Instead, electronic prescriptions show up in the OPRx software system called Enterprise Rx.
2. In August 2019, a pharmacist was hired for the 5800 unit. Instead of the pharmacy technician speaking with patients about the MTB program, the pharmacist began coordinating the program on the unit and communicating with the charge nurses about the patients who want to participate in the program. The pharmacist faxes a sheet noting the enrollees, number of prescriptions for each enrollee, day of discharge, and time of discharge. The pharmacist would also educate each patient closely about their medicine regimen.

# Impact of the Meds to Beds Program on Readmission Rates in 5800

The first unit to pilot MTB was 5800 because it has the second highest 7-day readmission rate with a large number of high-risk patients on the unit. Medication adherence for high risk patients allows them to obtain the most benefits from their treatment plan. Also, patients on 5800 are prescribed a similar discharge medicine regimen with medications such as enoxaparin, ibuprofen and oxycodone and so it is easier to for the OPRx to predict and monitor inventory levels for these medications. 5800 is the optimal unit to pilot MTB because of the program’s ability to ensure high-risk patients with gynecology/oncology-related health concerns obtain discharge medications critical to improving their health.

While CMS has financial penalties set in place for 30-day readmission rates, UPMC Magee-Womens Hospital looks closely at preventing 7-day readmission rates due to its direct impact on 30-day readmission rates. For this paper and the readmission goals of Magee, nine months of 7-day readmission data pre-implementation (July 2018 – March 2019) and nine months of data post-implementation (May 2019 – January 2020) was used to determine the effect of the MTB program on readmission rates. Figure 7 shows 7-day readmission rates over nine months of pre- MTB implementation and nine months post-implementation of the program. The data shows that while there is fluctuation in readmission rates post-implementation over nine months, the average 7-day readmission rate decreased from 6.01% pre-program implementation to 4.41% post-program implementation (Figure 8). The results show post-implementation is lower than pre-implementation by 1.6%. The 7-day readmission rate goal for 2019 is 5.59%, and 5800 outperformed this goal at a rate of 4.57% for the year. This further indicates more direct evidence that MTB had a role in decreasing readmission rates and aligning with Magee and the UPMC system’s readmission goals.



Implemented MTB on 5800 during April 2019

Figure 7. 7-day readmission rates over nine months before and after Meds to Beds implementation on 5800

The are many contributing factors to readmission rates, and at UPMC Magee-Womens Hospital, many programs and actions are taking place to reduce readmission rates and increase the quality of care collectively. For example, social workers on 5800 will call high risk patients 48-72 hours after the high-risk patient is discharged with follow-up questions to address how well the discharge plan is working for the patient and any improvements to the plan that can be made.

As a result, the program cannot be directly tied to the decrease in readmission rates post-implementation. However, from the perspectives of the nursing staff on 5800 and OPRx staff, the program is seen as a positive way to offer better quality care for patients.

# Staff Perception of Meds to Beds

Nursing staff on 5800 and in the OPRx were given surveys to understand their perception on the success of MTB, the challenges they faced, and their ideas for improvement (see Appendix A). The staff had two weeks to complete the survey and at the end of the two weeks, the Administrative Resident collected the surveys from the Unit Director on 5800 and Lead Pharmacist in the OPRx. This survey was approved by the Director of Quality & Innovation at Magee and distributed on paper. Staff engagement and approval is critical for patient outcomes. Job performance in a hospital can depend on relationships staff have with other departments, how involved in the decision-making process they are, and how much support and resources are provided to ensure a positive work environment (Bogaert, Wouters, Willems, Mondelaers and Clarke, 2013). As a result, staff input into the function of the MTB program on their ability to do their duties and their ability to offer quality care to their patients is critical when thinking about the sustainability of the program and continued support of the stakeholders when implementing the program on other units.

A total of 24 survey responses out of 55 were obtained (36.6% response rate for 5800, 52% response rate for OPRx, and 43.46% response rate overall), 11 out of 30 survey responses from 5800 and 13 out of 25 responses from the OPRx (Table 3). All survey responses were inputted into and analyzed using Microsoft Excel. Survey results were anonymous and only the department and position were asked to get an understanding of any differences in the experiences with the MTB program between 5800 and the OPRx. A detailed view of the responses for questions 1-4 can be found in Appendix C. Table 4 illustrates the most frequent responses (MFR) total for questions 1-4 and their corresponding total percent (*MFR/Total Response*). *OPRx: MFR/Total Responses* and *5800: MFR/Total Responses* show the corresponding breakdowns for each department by the overall MFR.

Table 3. Description of Survey Responses by Department and Position

|  |  |  |  |
| --- | --- | --- | --- |
| Position | 5800 | OPRx | *Total* |
| Nurse | 8 | - | 8 |
| Pharmacist | 1 | 8 | 9 |
| Pharmacy Technician | - | 4 | 4 |
| Billing Specialist | - | 1 | 1 |
| Social Worker | 2 | - | 2 |
| *Total Responses* | 11 | 13 | 24 |
| *Total Surveys* | 30 | 25 | 55 |
| *Total Response Rate* | 36.67% | 52% | 43.64% |

Table 4. Analysis of Survey Responses in 5800 and the Outpatient Pharmacy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Question | Most Frequent Response (MFR) | MFR/Total Responses | OPRx:  MFR/Total Responses | 5800:  MFR/Total Responses |
| *Q1. The patient is better prepared to efficiently manage their care upon discharge due to the meds to meds program.* | Agree | 15/24 =  62.50% | 7/13 = 58.85% | 8/11 = 72.73% |
| *Q2. The Meds to Beds program improves a patient's access to specialized discharge medications not readily available in other community pharmacies.* | Strongly Agree | 7/24 = 29.17% | 4/13 = 30.77% | 3/11 = 27.27% |
| Agree | 7/24 = 29.17% | 2/13 = 15.38% | 5/11 = 45.45% |
| *Q3. Who do you think is the best person to introduce the Meds to Beds program to a patient?* | Nurse | 15/24 = 62.50% | 10/13 = 76.92% | 5/11 = 45.45% |
| *Q4. The Meds to Beds program sometimes negatively affects my workflow.* | Disagree | 11/24 = 45.83% | 5/13 = 38.46% | 6/11 = 54.44% |

Overall, 5800 staff and the OPRx staff felt positive about the MTB program and its ability to help patients transition into their discharge plan easier. When looking at the effect of the program on the ability of staff to efficiently do their duties, staff did not feel like the program added an extra burden to their day. One change in expectation that was found is that staff felt a nurse is better suited to introduce the MTB program to the patient rather than a pharmacist or doctor. Initially, it was thought that a doctor would be the best person to speak with the patient since they are the first to meet the patient before surgery or treatment and are prescribing the medications to the patient. However, a nurse may be better suited to introduce the program due to their familiarity with the patient and accessibility to the patient. Currently, a pharmacist is speaking with the patients on the day of discharge about the MTB program, but there is potential for involving the nurses more in the program. For example, nurses can speak with the patient about the program the day the patient is admitted onto the unit and refer to the program throughout the patient’s stay. Continuous reminders about the program and its benefits may increase enrollment rates and, as a result, decrease medication nonadherence.

Questions 5-6 are open ended questions and ask about the challenges a staff member has faced with the program and opportunities for improvement. Responses for challenges faced fell into one or more of the following categories:

Table 5. Survey Responses: Challenges Faced with Meds to Beds Program

|  |  |  |
| --- | --- | --- |
| Category | OPRx Quote | 5800 Quote |
| Lack of Communication | *“Doctors send us scripts [without] asking the patient first, [they send] multiple scripts throughout the day making us return the scripts and re-running them…”* – pharmacy technician | *“difficulty getting in contact with prescribers when med changes are needed*.” – social worker |
| Insurance/Co-pay Issues | *“Sometimes patients [have] not have been introduce[d] with [the] Meds to Beds program, they don’t have money on them after procedure to pay co-pay. I think [the] patient should be asked if they want to fill their prescriptions in our pharmacy somewhere else before*.” – pharmacy technician | *“Pts do not know payment must be made by time the meds are delivered and [it] delays d/c if no payment.”* – nurse |
| Delay in Medication Deliveries | “*We are told patients are being discharged at "noon", we try to deliver scripts by noon then are told patient isn’t ready/family isn’t here/Dr. sent more scripts. Or we deliver to patient then 3 hours later get mores scripts for a "noon" [discharge] at 3pm. Constantly running up and down [without] being able to deliver because patient isn’t ready or awake during time, we were told they need to be [discharged] by.”* – pharmacy technician | *“The meds don’t arrive in a timely fashion and inconvenience the patients time frame for discharge.”* – nurse |

**Table 5 Continued**

**Lack of Communication**

Overall, staff felt that it is hard to get in contact with providers when an issue arises with a patient’s prescriptions. A pharmacy technician responded that, *“Doctors send us scripts [without] asking the patient first, [they send] multiple scripts throughout the day making us return the scripts and re-running them…”* A social worker on 5800 responded that there is a, *“difficulty getting in contact with prescribers when med changes are needed.”* In addition, staff felt that there is a gap in communication between the OPRx and nurses on 5800. A nurse stated that it is confusing as to when a medication will be delivered. Also, if there is an issue with a patient’s prescriptions, the nursing staff are not informed of this and so the patient is upset that their discharge is being delayed. A pharmacy technician stated that there are too many phones calls coming into the pharmacy from the nursing staff and because the OPRx also serves other units where MTB has implemented, it becomes stressful to meet the time demands of the nurses.

**Insurance/Co-pay Issues**

Staff responses from the OPRx highlighted the challenges with patient insurance information. At times, a patient’s insurance information is not correct in the system. Tracking down the patient or their family member to obtain updated insurance information can cause a delay in filling the patient’s medications. Another challenge that can arise is that although the prior insurance authorization for a patient’s medications is expedited, a patient may still be unwilling to wait although their discharge orders have already been entered and submitted for approval. Unfortunately, there is no way to speed up the process and a patient may need to pay a high cash price for their medication, or they leave the hospital without obtaining their discharge medication. Regarding co-pay challenges, one pharmacy technician noted that, *“Sometimes patients [have] not have been introduce[d] with [the] Meds to Beds program, they don’t have money on them after procedure to pay co-pay. I think [the] patient should be asked if they want to fill their prescriptions in our pharmacy somewhere else before.”* If the patient is unable to pay for their medications, they may have to wait for a family member to come and pay the co-pay, delaying the delivery of medications and discharge.

**Delay in Medication Deliveries**

A delay in medication deliveries was a common concern of all staff but 5800 and the OPRx faced challenges from the delay in different perspectives. A nurse on 5800 stated*, “The meds don’t arrive in a timely fashion and inconvenience the patients time frame for discharge.”* Other nurses on the unit expressed their concern on delays in medication deliveries and its negative impact on patient experience. From the OPRx side, a pharmacy technician stated, “*We are told patients are being discharged at "noon", we try to deliver scripts by noon then are told patient isn’t ready/family isn’t here/Dr. sent more scripts. Or we deliver to patient then 3 hours later get more scripts for a "noon" [discharge] at 3pm. Constantly running up and down [without] being able to deliver because patient isn’t ready or awake during time, we were told they need to be [discharged] by.”* The difference in perspectives on delay of medication deliveries may suggest a need for better communication between the nurses and OPRx and the need for a general understanding of what challenges both sides face.

Responses for opportunities for improvement fell into one or more of the following categories:

Table 6. Survey Responses: Opportunities for Improvement for The Meds to Beds Program

|  |  |  |
| --- | --- | --- |
| Category | OPRx Quote | 5800 Quote |
| Lack of Communication | *“A system/workflow that every employee followed, including prescribers, nurses, pharmacy where we each knew our roles and who did what, who contacts who, for certain problems. Some nurses are better at communication than others.”* – pharmacy technician | *“better education for all involved about expectations vs. realistic turn-around of filled meds (All = nursing, prescribers, [patients]).”* – nurse |
| Delay in Medication Deliveries | *“Communication between all delivery units and outpatient pharmacy! Doctors should not send a few scripts at a time hours or even days apart, we will have a patient done and/or delivered to them get more scripts, or they change something we already delivered to [the] patient, and we have to keep running back and forth. If doctors could send scripts all at the same time when they know what the patient needs, that would be tremendously helpful.”* – pharmacy technician | *“Availability of meds earlier than noon.”* – nurse |

**Lack of Communication**

A nurse from 5800 responded that *“better education for all involved about expectations vs. realistic turn-around of filled meds (All = nursing, prescribers, [patients]).”* A pharmacist responded similarly, saying, *“A system/workflow that every employee followed, including prescribers, nurses, pharmacy where we each knew our roles and who did what, who contacts who, for certain problems. Some nurses are better at communication than others.”*Better communication and understanding of the duties of all stakeholders in this program may need to be refined and can be done so by holding a meeting inviting representatives from all stakeholder groups to discuss their concerns with the program.

**Delay in Medication Deliveries**

Lack of communication from the providers and lack of space and staff from the OPRx tied in jointly with a delay in medications. One pharmacy technician said, *“Communication between all delivery units and outpatient pharmacy! Doctors should not send a few scripts at a time hours or even days apart, we will have a patient done and/or delivered to them get more scripts, or they change something we already delivered to [the] patient, and we have to keep running back and forth. If doctors could send scripts all at the same time when they know what the patient needs, that would be tremendously helpful.”*Other staff members from the OPRx commented on prescribers using the notes section on prescriptions to include details of any patient allergies or if they reviewed the Prescription Drug Monitoring Program (PDMP). This information would allow the pharmacists to process the patient’s prescriptions faster and pharmacist would need to contact the prescribers less. More space for inventory and more than one pharmacy technician for Thursday and Friday, the busiest dates of the week, may speed up the process of deliveries as well. Meeting with physician stakeholders to look at the efficiency of sending prescriptions, what to include on the prescriptions, and what time is best to send the prescriptions so their patients get their medications on time can help address the direct relationship between lack of communication and delay in medications.

Overall, the challenges and improvements faced by staff in 5800 and the OPRx can be addressed through group meetings with all stakeholders to build a stronger communication system between the OPRx, nurses on 5800, and the prescribing providers. Closer observation to the communication process flow will yield more insight into where communication becomes fragmented, why this happens, and how it can be fixed.

# Conclusion

Offering MTB in a hospital is an effective way to increase patient satisfaction, quality of care, and reduce readmission rates due to medication non-adherence. At UPMC Magee-Women Hospital, the MTB program has given the hospital an opportunity to build a stronger care team for a patient. The multidisciplinary approach to creating the workflow in the OPRx, creating the process flow for the program, and creating educational materials for patients and providers about the program highlighted the group efforts of staff at Magee and their goal to improve patient care and outcomes beyond the hospital continuously.

Despite the opportunities for improvement highlighted by the survey responses, MTB is a sustainable program with the support of all stakeholders, and the implementation of the program will continue to other units by taking the challenges learned at 5800 and refining the program for other units in the future.

## Challenges and Limitations

Several challenges were faced during the implementation of the MTB program. Although all stakeholders felt the program increased the quality of patient care, when identifying the duties for each stakeholder in the program, not all stakeholders shared the same opinions. A limitation of this study is that not all staff members in 5800 and the OPRx filled out their survey responses. The survey response rate for 5800 was 36.67%, for the OPRx was 52.0% and overall was 43.64%. A higher response rate may would give more qualitative data to understand the more complex traits of medication non-adherence among patients identified by the staff in 5800 and OPRx and to identify challenges to the MTB program and improvements to the program’s process. Another limitation is the lack of quantitative data. This program does not have sufficient 7-day readmission rates on 5800 for succeeding months after the implementation of the MTB program. The collection of 7-day readmission data for the succeeding months would allow a stronger relationship to be established between the MTB program and an increased rate of medication adherence. This study also neglected to keep other factors related to addressing high readmission rates on 5800 constant while implementing and observing the effects of the MTB program. As a result, despite a decrease in 7-day readmission rates on the unit, a relationship cannot be established between the decreased readmission rate and the MTB program alone.

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* + - * 1. : Meds to Beds Survey Questions

Department/Unit: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Position: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The patient is better prepared to efficiently manage their care upon discharge due to the Meds to Beds program.
   1. Strongly Agree
   2. Agree
   3. Neutral
   4. Disagree
   5. Strongly Disagree
2. The Meds to Beds program improves a patient’s access to specialized discharge medications not readily available in other community pharmacies.
   1. Strongly Agree
   2. Agree
   3. Neutral
   4. Disagree
   5. Strongly Disagree
3. Who do you think is the best person to introduce the Meds to Beds program to a patient?
   1. Nurse
   2. Doctor
   3. Pharmacist
4. The Meds to Beds program sometimes negatively affects my workflow.
   1. Strongly Agree
   2. Agree
   3. Neutral
   4. Disagree
   5. Strongly Disagree
5. What challenges have you faced with the Meds to Beds program?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What opportunities for improvement do you think there are for the Meds to Beds program?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + - * 1. : Meds to Beds Pharmacy Technician Script

*\*\*\*Wash your hands BEFORE & AFTER speaking with the patient!*

* Hello, Mr. or Ms. \_\_\_\_\_, my name is \_\_\_\_\_\_\_\_\_ and I work in the Outpatient Pharmacy at Magee. Is it okay if I take a few minutes to speak with you about our Discharge Medications Program?
* This program is designed to make it convenient for you to leave the hospital with your intended medications and make sure you are properly counseled on these medications.
* Would you be interested in filling your discharge prescriptions at Magee’s Outpatient Pharmacy?
* If you choose to fill your prescriptions with us, we can have them ready for you or a family member to pick up or arrange for them to be delivered to you. This way you will not have to make a stop at your regular pharmacy on your way home.
* Prescriptions are filled during our business hours from 9:00 am to 5:00 pm Monday through Friday.
* We will either notify you that your prescriptions or ready to be picked up, or we will deliver them to you at a time a time that is convenient depending on which option you choose.
* The pharmacy can also fill prescriptions beforehand and keep them aside for you are being discharged after business hours or Saturday through Sunday.
* If any of your prescriptions have refills, with one short phone call from your regular pharmacy, the refills can easily be transferred to your regular pharmacy.
* Is this something you would be interested in?
* If so, do you have your prescription information with you today?
  + *If the patient does not have their insurance card, but are interested in the service, you can attempt to call their preferred pharmacy to obtain this information.*
* Thank you for your time!
  + - * 1. : Graphical Representation of Survey Responses

***Survey responses for questions 1 through 4 by total responses***

***Survey responses for questions 1 through 4 by unit/department***

* + - * 1. . Job Responsibilities of The Outpatient Pharmacy Staff

Table 7. Job Responsibilites of The Outpatient Pharmacy Staff

|  |  |
| --- | --- |
| Job | Responsibilities |
| Full-time/Part-time Pharmacist | * Interpret and evaluate physician orders to prepare, calculate, and dispense appropriate medications, dosage forms for inpatient and outpatient treatment in accordance with the Pennsylvania Pharmacy Practice Act, Federal Drug Laws, and other regulatory organizations * Review, maintain, and screen patient medication records and profiles for allergies, drug interactions and therapeutic duplications while entering orders and/or verifying medications * Organize daily operational duties and assist in the supervision of pharmacy technicians, pharmacy aids, student interns and other ancillary personnel involved in providing pharmaceutical care * Communicate with physicians and nurses to ensure prompt clarification or offers that are unclear, illegible, or incomplete * Uses TheraDoc (and/or iVent in EPIC) to document clinical monitoring and interventions with physicians and prescribers. This includes, but is not limited to: anticoagulation regimen review; automatic renal dosage adjustment; drug selection or dosing recommendations; Formulary drug recommendations; drug regimen review; nutrition support/TPN monitoring; anticoagulation; and IV to PO conversion * Provide drug information and/or education programs to healthcare professionals and pharmacy students. Teach/work with pharmacy interns on rotations, as assigned, to provide experiential learning experience * Utilize all available technologies in the provision of pharmaceutical care (i.e., computer systems and databases, Acu-Dose, pneumatic tube system, ect) * Identify and report suspected adverse drug events (medication errors and ADRs) accurately and in a timely manner * Sustain the formulary by minimizing non-formulary procurements, utilizing therapeutic interchange protocols, and promoting rational drug therapy selection * Create and evaluate policy, procedure, and training materials regarding operational workflow |
| Pharmacy Technician – Associate/Pharmacy Technician – Intermediate | * Assist in filling medication orders through correct labeling, counting, and stocking practices. Initial and date products as required * Retrieve medications that have been discounted and return (and credits if necessary) them to the appropriate pharmacy area * Develop and maintain positive and productive service relationships during medication distribution process * Assist in the procurement, accountability, storage, preparation and distribution of investigational and study drugs * Provide and receive information (via telephone, person-to-person, or written) to hospital personnel, patients and visitors. Refer all drug information questions to Staff Pharmacists * Ensure that all medication areas in all areas have been safely and securely stored according to Department of Health, The Joint Commission, and State Board of Pharmacy Regulations * Develop and maintain a clean, organized, and adequately stocked work environment * Maintain all pertinent documentation as required per designated area of expertise * Use computer skills to process and document information as needed for Operations Specialist’s designated area * Practice appropriate hand hygiene both in the pharmacy and in the units * Finalize sales using the cash register, follow proper cash handling policies and procedures * Comply with Federal and State laws such as HIPAA, regulations such as OSHA, and PBM contracting requirements such as FWA and CMS * Maintain all patient information and records Maintain the pharmacy computer system as required * Procure and maintain adequate inventory levels on daily basis in applicable in the pharmacy * Speak with patients about the Meds to Beds program when needed. Coordinate the program with nurses, pharmacists, and physicians. * Deliver medications to patients enrolled in the Meds to Beds program * Create and evaluate policy, procedure, and training materials regarding operational workflow |

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