

Prospectus

**Development of Practices and Methods to Improve the Communication and  
Delivery System of Medications in a Hospital Setting**  
(Technical Topic)

**What are the Roles, Responsibilities, and Errors that Occur in the Stakeholder  
Groups for Administering Medication**  
(STS Topic)

By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## Introduction

Within various departments in a hospital, much of the treatment that occurs relies on time sensitive medication which must be administered at a certain interval in order to be successful. However, in many cases this medication is delayed causing medication administration errors (MAEs) and adverse drug events (ADEs) resulting in patients having to go through additional treatment in order to correct an avoidable error by the hospital. As a result of these MAEs, patients are required to increase the length of their hospital admission which ultimately leads to higher costs they must pay off and negatively affects their quality of care. Thus, as a part of my capstone project, I will be researching and determining other methods we can use, or changes we can implement to the existing systems, in order to facilitate the communication between doctors and pharmacists and minimize these MAEs. Throughout this project, I hope that by getting a better understanding of how the interactions occur between the various stakeholders when administering medication, and performing a systematic review on the causes of MAEs, we are able to specifically point to areas that may be flawed or need improving and can implement these changes to develop a better system. As for my STS research, I will be focusing on understanding the requirements and the process that is taken for the delivery and administration of medication by the stakeholder groups, doctors, nurses, and pharmacists. By breaking apart and recognizing the goals for each of these groups, we can create a better timeline of how the process works and then use this information to determine where the lack of communication, instruction, or clarity occurs resulting in MAEs and delays.

## Technical Topic

One of the biggest reasons for extended admissions in a hospital and poor patient care is due to medication problems. This includes MAEs, where the prescription may have been incorrect, the medication was out of supply, dispensing errors occurred in the pharmacy, access to medications was limited due to restrictions from the administration, or distractions that may have occurred because of a heavy workload (Keers RN et al., 2013). These avoidable errors and delays in treatment for patients cause them to accumulate a higher cost because of increased stay, increased mortality rates, and an increase in post discharge disability (Hughes, 2013). Therefore, finding a method to minimize MAEs and delays in receiving medication is essential to receiving successful treatment, improving patient care, and keeping readmission rates low.

The article by Wickware indicates that approximately 73% of the patients that experience delays in discharge from a hospital are because of medications not being received on time or being incorrect (wickware, 2019). This article represents the importance of finding a more reliable and error free method in order to reduce the number of avoidable mistakes by a hospital and provide excellent care for all patients. In this capstone project, I will first complete research to compile a detailed review of the current system in place for administering medication in a hospital and highlight the responsibilities and errors for each group. Then for the capstone project, I will fill in the gaps and provide a better understanding of the problems that are in the current delivery/administration system. Using this knowledge, I will also work to develop a more reliable system for administering medications for patients that minimizes potential error from these stakeholder groups.

The effectiveness of the proposed system will be evaluated by measuring the number of accurate and successful treatments that were provided to the patients on time. Additionally, I will measure the number of mistakes or errors that were caught and fixed before the medicine is

administered to the patient. This will be done by collecting data on the proposed solution through other experiments and performing interviews with professionals in the healthcare field to evaluate the effectiveness of the new system.

### STS Topic

In a research article determining the causes of MAEs from 2013, it states that the majority of errors are a result of lapses or slips in information (Keers RN et al., 2013). More specifically, many of the mistakes were written communication errors, supply errors, patient factors, and health staff status. In other words, examples of these errors are an incorrect prescription (wrong name, date, quantity, etc), a shortage of the medication in the supply for the pharmacy, the availability of the patient, or poor working conditions for the staff which may have caused a lapse in judgement. Thus, the causes for MAEs and delivery errors range from a variety of reasons involving the various stakeholder groups along the way.

### Doctors

The responsibility for doctors is similar to that of the pharmacist however, they focus on writing prescriptions based on their judgement and knowledge rather than performing the checks and filling the prescription as the pharmacist would do. As stated by Velo GP and Minuz P (2009), the role for doctors comes down to three primary aspects including, making a medical decision for which medication is best for the patient, writing prescriptions, and communicating this information with the nurse in charge of administering the medication. Throughout these three aspects, the most common error that arises is errors in writing the prescription, resulting in almost 70% of the errors, including, faults in dosage, incomplete prescriptions, and poor handwriting. Generally, these errors and faults by doctors are attributed to human error or a lapse in judgement however, these simple mistakes can lead to a negative and possibly life threatening

outcome in some situations. In many cases this human error is caused by the pressure the doctors are under, a heavy workload, and a lack of communication between the doctor and the rest of the team involved with the patient care.

### Pharmacist

One of the most important stakeholders involved in the delivery of medicine, and the second step to medication administration, is the pharmacist filling the prescription. According to the book by the American Pharmacist Association, “Pharmacists’ Impact on Patient Safety,” pharmacists have eight key responsibilities in this process including, ensuring access to medication, supplying medication information, evaluating the appropriateness of the medication ordered, improving the way the medication is taken per patient, medication management (making sure there is not interference with other medication the patient is on), assessing current health status, and coordinating care transitions. In other words, the pharmacist plays a crucial role in the delivery process of medications because if there are any errors in their responsibilities then a delay is inevitable.

ProficientRx highlights some of the errors that pharmacists face causing delays with one of the most common, 15% of errors, being incorrect entries of prescriptions (2019). This means that the prescription sent by the doctor was not legible, the name was entered incorrectly, dosage was written incorrectly, or other information was misprinted. This causes lots of delay because in these situations, the pharmacist must either make their best assumption as to what was intended or they must contact the doctor to confirm the prescription which can sometimes take hours. Additional errors from the pharmacist include, lack of patient education on the medicine prescribed which leads to errors taking the medicine, distractions that occur within the office causing a quick lapse in judgement, cross contamination between different medications which

can cause an allergic reaction, or providing the wrong medication to the patient, all of which are extremely dangerous and could be potentially fatal (2019).

### Nurses

In terms of the timeline for medication delivery, nurses are at the end of the line as they are the ones administering the medication. Ideally, any errors or flaws in the medication should be corrected by the time it's the nurse's role however, a study conducted in 2013 states that nearly 64.5% of nurses have made a medication error and the majority of errors in the process are caused by nurses (Cheragi MA et al., 2013). This article by Cheragi MA et al. illustrates that the primary reason for these medication errors is because of a lack of pharmacological knowledge. In other words, because the prescriptions from doctors contain abbreviations for the medication and sometimes the dosage may be unclear, nurses are required to make a judgement call which may lead to MAEs or delays because they must get clarification. Additionally, these errors can be linked back to poor communication between the doctors and nurses. In other words, because the heavy workload and constant pressure that both doctors and nurses are under, there may not be enough time to talk with the doctor and instead they are required to make a judgement call in order to start treatment on time, which can cause errors and ultimately lead to a failure in treatment. This article highlights a key error that must be resolved in order to minimize the MAEs as these nurses are the final step between a patient and their treatment.

### Next Steps

The next steps to completing this capstone project is to further my understanding of the current system for medication administration/delivery and fill in the gaps I still have. In order to do this, I will be conducting interviews with professionals in the healthcare field. This includes interviews with doctors, nurses, and pharmacists. During these interviews I will ask questions to

understand their roles and responsibilities as well as, determine what they consider the problems to be with the current system. Using this input from professionals in the field with real experience, I will be able to develop a more practical and realistic system that minimizes the avoidable MAEs and delays that patients face.

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