Medication-Related Errors in the Healthcare System

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Introduction

Medication-related errors make up about 5-41% of all hospital admissions and 22% of all readmissions after discharge worldwide. These errors present a significant economic burden on both the patients and the hospital system as a result of the additional treatment provided. There is a positive correlation between medication errors and number of comorbidities, multiple prescribers, and age of the patient. Developing specific strategies based on the risk factors mentioned can be effective in reducing the admittance or readmittance of patients into hospitals. This preventable reduction would substantially minimize healthcare spending, and would yield positive outcomes in other aspects of healthcare, such as patient satisfaction.[1]

There is a difference between an adverse drug reaction, which is typically an annoyance to the patient, and a medication-error, which can result in death. The latter is more serious and has more widespread effects as a result. Recognizing what makes a healthcare professional susceptible to committing prescription-related errors and adopting strategies to prevent them can help manage and reduce the prevalence of these occurrences.[1] With patients, these errors impact length of stay, morbidity and mortality, and trust in future treatment. In turn, overall patient satisfaction with their visit is affected and there can be significant long term consequences regarding future medical necessities.[2]

There are a number of reasons why errors in a healthcare setting occur, related to the personnel themselves and factors out of their control. Large workloads, high expectations, and long hours can lead to burnout. Burnout is associated with a higher likelihood of committing an error and less attention given to a patient. On an administrative level, unsupportive culture, lack of spending, and inadequate communication can prevent personnel from reporting or admitting they made a mistake.[3] The integration of technology into hospital systems has been the response

to these errors in recent years. However, this technology is not completely supported by physicians, and has even led to more problems and more skepticism in the workplace as a result.[4]

Issues with Computerized Physician Order Entry (CPOE) Systems

Physicians have been increasingly resistant to computerized physician order entry (CPOE) systems, where they transfer their data to an online format rather than on paper. Computerizing data allows for hospitals to provide as efficient and as coordinated care as possible. CPOE adoption can reduce medical errors, control for unforeseen costs, and improve patient outcomes. Nearly half of all medication errors happen at the ordering stage, which has called for updated practices to cut down these errors. CPOE has been met with resistance by physicians, with only 29-34% of studied physicians believing that it can improve care and that major improvements need to be made before total implementation. Additionally, learning a new system, specifically one with constant updates, causes stress and anxiety to health personnel, leading to a refusal of acceptance.[5] Physicians noted that electronic health record (EHR) technology has decreased their satisfaction because entering data consumes too much time and interferes with patient care.[6]

At an administration standpoint, lack of adoption can be due to administrative and clinical factors. Hospital administration is responsible for ensuring legal compliance - related to regulatory, accreditation, and efficiency standards - which may create resistance. The other side, clinical, emphasizes increasing quality of care and employee and patient satisfaction, reducing errors, and improving access to data and records. One significant factor that can predict success is physician participation. Physicians believe that this reform is only for the good of the stakeholders in the healthcare system and not for the overall wellbeing of their patients. Physicians are also skeptical of an electronic system because of the technical difficulties they

may encounter. Transitioning from paper-based to electronic can present issues such as delays in patient care, loss of data, and financial challenges.[7]

Lack of or Insufficient Communication

Communication in the healthcare system involves reporting errors to the organizations and discussing these errors with fellow healthcare personnel in order to increase learning and support. Healthcare professionals who are honest, reflective, and compassionate are more likely to open up about mistakes they've made to prevent others from making them in the future. Not only are there individual level characteristics that encourage open communication, but organization-wide as well. Organizations who create a culture of opening up about prior errors, provide support, and remove judgment from distress felt afterwards, have better physician and patient outcomes than those who react the opposite.[8]

Disclosure to a patient is an unspoken expectation between themself and the physician, and it is critical for establishing trust and adhering to treatment protocols. Medical personnel who adopt the practice of self-monitoring and who adopt patient-centered and relationship-focused attitudes are more likely to yield positive interactions with their patients. Inadequate documentation of an error can affect a patient, their family, and the overall healthcare organization. As such, involving patients, families, and other personnel in the conversation of medical errors help improve safety and bridge confusion after the accident. Discussions in formal workplace settings can present challenges for those involved but are overall important to build and sustain workplace trust and relationships. [8]

Nursing Burnout

Rates of burnout in a hospital are significant when employees take on too many roles and become dissatisfied with their job. Specifically with nurses, taking on too many roles in their

workload causes them to be less attentive to changes in their patients' conditions. When physicians, or any other member of the medical team, offload tasks onto the nurses, productivity decreases while likelihood for errors increases.[6] The outcomes from having too many tasks is worsened when this is coupled with feeling pressured to complete those tasks in a timely manner. Being in a rush presents problems in relation to communication with patients, verification of drug dispensing, and preparation of the medications.[9] Allocating specific times/instances of data documentation into the EHR for each team member improves staff satisfaction and revenue, and shortens patient stays. Distributing the roles given to nurses from physician-written orders between other personnel such as medical assistants standardizes care and improves efficiency. This reduces the likelihood of mistakes made by nurses as they become more attentive to their patients and to charting the administration of medicine.[6]

Medication administration failure from a nurse is the result of many different factors. First, the extent to which a physician describes and/or explains the exact administration of the medication affects how accurately they dispense it. The experience a nurse has when a physician is explaining the routine to them affects whether they feel comfortable asking questions or are even aware of any potential errors they could make.[10] When physicians give verbal directions but fail to transcribe them into a written format and when they incorrectly transcribe or write down the directions the first time, the prevalence of medical errors is high.[11] Updates or changes to prescriptions after a physicians' rounds also present a risk as there is confusion as to what, or how much, needs to be administered. [9]

Role of the Patient

Besides the medical personnel themselves, patients have a role in preventing medical errors. Patients are the first to know if something feels off, so they have the responsibility to

speak up or report any abnormal sensations. Insufficient reporting is due to patients believing there is only a problem if the reaction is severe, being fearful of their doctors' reactions, or avoiding diagnosis. Although many patients do not have the training or knowledge to understand drug interactions, recent guidelines have been recommended for physicians to ask their patients if they have any worries about their prescribed medicine. Asking can not only help physicians double check their orders and confirm everything is correct, but can also help the patient know if any side effects they feel are normal or if they should legitimately be concerned.[12]

Implications of medical errors affect not only the patient, but the provider as well. Committing an error can cause feelings of shame, guilt, anxiety, depression, and other negative self-doubt feelings. These feelings then result in poor patient outcomes and high physician self-blame. In workplaces where the culture is to open up and discuss errors rather than shame the person, the outcomes are significantly better.[13] In relation to the patient, technological related errors can include insufficient and incorrect medication administration guidelines, leading to no change in the condition, or a worsening of state.[14]

Implications of Medical Errors

Medical errors leading to a longer length of stay for a patient can affect a patient's views of treatment for the future. Patients who stay in hospitals involuntarily, or at a length longer than they were expecting, are more skeptical of coercion and less adherent to medication in the future. Additional effects of an increased length of stay include higher spending on treatment from the hospital, and an increased amount of money paid by the patient. Besides a higher monetary bill, patients who are victims of a medical error are more likely to change physicians while having reduced satisfaction and trust in their practice. Reduced trust leads to a lower likelihood of trying or taking new treatments, and can thus worsen the condition. Additionally, it is likely that these

patients will look and for and move forward with legal advice to compensate for the unnecessary time spent in the hospital due to incompetence.[15]

On a larger scale, medication-related errors affect around 1.5 million people each year, costing $3.5 billion annually, on average. Additionally, length of stay in a hospital post-error can be prolonged by 1.7-4.6 days. It has been found that 24-33% of adverse medication administration events are preventable. These preventable errors affect over 7 million people and cost $21 billion annually across all care settings.[16]

Suggestions for Interventions

To combat resistance to computerized entry systems, effectively communicating the need and the implications of implementation can help ease the anxieties of the physicians. Studies have found that administration does play an effective role in reducing resistance and in successfully implementing these systems when they have productive conversations with their employees. As stated earlier, physicians believe that there are changes needed to be made regarding the technology before it can be implemented. Involving physicians in the correction phases would increase trust and decrease the time spent learning a new system.[5]

Improving communication could occur through educational training and simulated interaction scenarios. Training could involve providing physicians with appropriate phrases or rewording of phrases they use that may come off in an unintended manner. Simulated scenarios allow for direct feedback and practice of inherent or learned skills. Additionally, physicians can receive feedback on nonverbal behaviors that they don't even realize can have an effect on patient trust.[17]

Conclusion

The economic impact due to medication errors was reduced from $177.4 billion in 2001 to $21 billion in 2014 as a result of effective implementation of intervention strategies to control and reduce medication errors.[1] Because of factors such as skepticism of the computerized system, insufficient communication, and nursing burnout, medication-related errors occur daily and affect patients' trust. However, these mistakes are preventable, and learning how to become a more accepting organization produces favorable outcomes for physicians, patients, and the organization overall. Healthcare administration plays a pivotal role in the productivity of the healthcare system, and it is imperative that they recognize the importance of interventions and learn how to implement them effectively.

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