Medication Errors: Will Punitive Measures Help to Decrease the Occurrence? A Case Study

Irene J. Su

Veterans Affairs Healthcare System, Ann Arbor, Michigan, USA
*Corresponding Author: suirene@umich.edu

Abstract　　This article is a case study of medication errors in a psychiatric hospital in the Midwestern region of the United States. A survey was conducted among nursing staff regarding the likelihood of reporting medication errors. A few case scenarios were presented for discussion. Measures to improve safety of medication administration were proposed.

Keywords　　Medication Errors, Punitive Measures for Medication Errors, Psychiatric Medication Safety

1. Introduction

In recent years, medication errors have been a growing concern for both the health care providers and consumers. The Institute of Medicine (IOM) reported in its landmark study *To Err is Human: Building a Safer Health System* that over 7,000 deaths in the United States during 1993 were caused by medication errors.[1] In the press release of *Preventing Medication Errors: Quality Chasm Series*, IOM further reported that medication errors harm at least 1.5 million people, and that "the extra medical costs of treating drug-related injuries occurring in hospitals alone conservatively amount to $3.5 billion every year".[2]

Medication errors are defined as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer"[3] Medication errors can occur in any healthcare setting, whether it is in a hospital or an ambulatory clinic. They are also complex issues that can happen at any point of the healthcare spectrum, be it related to prescribing, dispensing, administering, or monitoring.[4] The key word here, however is that it is "preventable". Researchers have estimated that almost 50% of medication errors can be prevented.[5] Regardless of the outcome of the error, an ounce of prevention is always worth a pound of cure. Since nursing plays a critical role in day-to-day patient care some studies suggest that healthcare professionals perceive patient safety as primarily a nursing responsibility.[6]

2. More Than Meets the Eyes

2.1. How Medication Errors are Being Handled Currently

Various factors contribute to the occurrence of medication errors from the nursing perspective. While human deficiencies are definitely a major contributing factor, an increasing number of healthcare organizations have come to realize that adopting a system approach is a more efficient way in reducing the rate of errors than the traditionally finger pointing and individual blaming approach. However, a large number of employers continue to embrace the methodology of "three strikes and you are out". These organizations fail to recognize the fact that using punitive measures not only is ineffective in preventing the recurrence of the same errors within the system, but also leading to untoward effects that might cause further patient harm because healthcare providers involved in making such errors tend to hide or mask the problem anticipating punitive actions being brought against them.

It is estimated that on average there is at least one medication error per hospital patient per day, with error rates varying widely across facilities.[7] Medication errors happen routinely in a psychiatric hospital, which this paper uses as case examples despite the fact that a lower rate of errors was reported compared with the national average. These numbers are only the tip of the iceberg. This is not a problem of any one health care facility alone. Various studies show that only 0.01% to 0.05% of medication errors ever go into an incident report.[8] Direct daily observation in the hospital generally confirms these study results.

Many hospitals have a policy of self-reporting of medication errors. However, in light of repercussion and punitive measures, it was virtually impossible to self-report an actual error, let alone any near misses or potential errors.

A punitive environment only encourages cover up of medication errors, which is the biggest obstacle for improving patient safety. Individuals involved would try to cover up errors such as omission, wrong time, wrong dose, or wrong patient unless there was adverse reaction or patient harm. For instance, a nurse would try to "make it right" by

catching up the missed dose or simply getting rid of the extra pill.

Only when people are willing to come forward with an error, can a cause analysis be conducted and strategies to prevent it from happening be explored. People will not be willing to speak up freely unless they do not have concerns for consequences. While voluntary reporting will probably reveal more problems, error rates are no longer considered a standard of patient safety, but quality care is recognized as the best measure.[9]

Whenever a medication error occurs, nursing staff anticipates progressive repercussion such as counseling (verbal or written), reprimand, suspension, probation or sanction of nursing license. Even the "re-education" process may be perceived as part of a blame-and-shame game because it carries a derogatory message about the competency of the nurse who has made the error. Therefore, "error reports are a poor indicator of a nurse's competence".[10]

Punitive measure is demoralizing, counter-productive, and negatively impacts quality of patient care. Nurses reported being "stressed out" instead of being more alert or watchful after being reprimanded or disciplined in whatever manner. To avoid being caught up in a potential medication error, nurses either chooses to transfer to midnight shift where medications are not regularly administered, or to take a medical leave of absence, or simply resign from their positions. A high turnover rate can be very costly for the employer. International Council of Nurses has a very well said statement in its fact sheet. "Nurses and other health care professionals are among the most educated and dedicated of workforces. The problem with patient safety is not bad professionals in health care, but bad systems that need to be made safer."[11]

Various authoritative organizations have endorsed the system perspective and non-punitive approach in handling medication errors. For example, the Emergency Nurses Association declared in its position statements that:

"A culture of safety, including non-punitive approaches, should be adopted by health care organizations in order to encourage health care professionals to report errors and near-misses so that underlying factors contributing to errors can be identified and analyzed and improvements can be made."[12]

The American Academy of Pediatrics also recognized that search for individual culpability is an obstacle to openly discussing or reporting errors. It further stated, "The reporting systems should be non-punitive, ensure anonymity, focus on system failures"[13]

In the late 1990's through mid-2001, JCAHO revised its policy on reporting medication errors, shifting the emphasis from public notice and punishment to process-oriented investigation and development of an internal system to correct the error.[14]

When an organization endorses punitive measures in handling medication errors, it assumes that errors occur due to human deficiencies. It is undeniable that certain medication errors are caused by overt negligence. If policies and protocol were strictly followed, the rate of error occurrence would be greatly diminished. Nonetheless, a system should still be set up in such a manner that medication safety does not depend on any one individual alone. In other words, it should be a fail-safe system, which has internal mechanism to prevent errors from happening and to detect errors when they do happen.

Vignettes in the following section would prompt one to reconsider the effectiveness of punitive measures in preventing medication errors.

2.2. The Case of an Expired Order

A psychiatric hospital in the Midwestern region of the United States has a policy that stipulates certain classes of medications are stopped automatically over a number of days, for instance, Clozaril (Clozapine) in seven days. Pharmacy is to generate an automatic stop order report as part of the medication profile, which is reviewed by authorized prescribers on designated days twice a week. The physician at this time must make a decision whether to continue or discontinue the prescription and write an order based on the decision.

Generally speaking, Clozaril should not be stopped abruptly to prevent patient de-compensation. However, in this case, the attending psychiatrist failed to renew the prescription at the end of the seven-day period. Unfortunately, staff nurses also overlooked the expiration date of the prescription and continued to administer several doses of the medication to a patient. Even though the incident did not cause any patient harm, it was technically a medication error because the medication was administered without a valid order. The nurses involved were counseled or disciplined by the hospital nursing management.

At the first glance, this is an error caused by personal failure where both the physician and nurses have violated the hospital protocol for medication administration. At a closer look, system deficiency is the real culprit. The fact is that this facility does not have a 24-hour pharmacy, medications are provided to each unit in quantity of 7-day supplies. Clozaril, among other medications, is also supplied for a full week. When a prescription order expires on any day of the week, there would be surplus medications in the patient's drawer. A simple remedy to prevent similar error would be to change the pharmacy policy so that the quantity of medications would last only until the day the prescription expires, leaving no chance for nurses to give the medication without an order. Running out of supply would also prompt nurses to remind the attending physician to revisit the original prescription. Simply punishing individuals who made the error would not resolve the problem.

Instead of depending on human efforts to watch for the expiration date of orders for certain high-risk medications, the pharmacy computer may be programmed in such a way that the remaining days on the MAR will be crossed out or darkened with a different shade after the expiration date.

Additionally, in the case of Clozaril, pharmacy may only provide enough supply to last till the expiration date of the order even though most of the time the order will eventually be renewed by the psychiatrist.

2.3. The Case of Narcotic Discrepancy

Each unit of the hospital keeps a floor stock of most frequently used medications, among which are narcotics in tablet and injection forms. These floor stocks are stored in a locked drawer. Hospital policy requires counting of all narcotics as a part of shift report procedure between the handing off shift and the on-coming shift. Over time, nursing staff became lax of the counting procedure. People often times just signed the form, but skipped the actual counting.

Until one day a nurse initiated the counting and discovered a one milligram Ativan (Lorazepam) tablet was missing. No one knew for sure what happened to the missing tablet. It was speculated that it might be given to a patient by mistake as the appearance of the Ativan tablet resembled another frequently administered medication, for instance, 0.5 milligram of Cogentin (Benztropine) tablet. If this were the case, no adverse effect was reported. However, nurses who admitted that they did not count the narcotics on the day of the discovery were reprimanded for violation of hospital policy.

Again, there is no dispute about the importance of following hospital policy and procedure. In this case, nevertheless, it would not change the outcome that a wrong pill might have been given to a patient who was potentially allergic to the drug. Counting could possibly narrow down the time frame, during which the Ativan was dispensed, but it would still only expose the problem after it had happened. In other words, the counting procedure itself, regardless how strictly it was followed, would not help to improve patient safety.

The system allowed floor stock medications to be stacked together in separate zipped bags in the same drawer, none of which was clearly labeled. When a nurse was in a hurry to administer a STAT medication, there was a good chance that the nurse would inadvertently grab the wrong bag of pills. Reprimanding nursing staff for not counting properly had no effect in preventing recurrence of a similar problem in the future.

Until an automated medication dispensing *system becomes available to use,* the floor stock narcotics or other look-alike medications should be stored in separate locked compartments. Medications that are contained in a similar package need to be marked individually with an eye catching color to draw the attention of the nurses administering these medications since pharmacy provides a 7-day supply of medications for patients, and all the medications are mixed together in each patients drawer.

2.4. Change or Discontinuation of Orders: A Loophole

In an inpatient pediatric psychiatric setting, where short-term hospitalization has become an increasingly popular modal, clinicians have to frequently change or adjust the dose of psychotropic medications to ensure the therapeutic level. Due to the lack of a medical unit clerk in the hospital, it was the nurse's responsibility to note and process the order. Too many variables could happen potentially leading to an error. For example:

● The nurse was distracted while processing the order and forgot to follow it through;

● The nurse sent the noted order to pharmacy, but failed to cancel the outdated order on the MAR (medication administration record);

● The nurse or the pharmacist failed to return the discontinued medication to pharmacy stock.

● The medication strip was placed on the MAR of the wrong patient.

Distraction of the nurse's cognitive workflow is an important contributing factor to medication errors. In a French study, Tissot and colleagues reported that interruption during medication administration contributed to the 6.6% error rate. [15] Another mixed method study revealed that each nurse averaged 30 interruptions per shift. [16]

Regardless of what had actually caused the error, the wrong medication or dose would continue to be administered until another person noticed the discrepancy. Nurses involved in errors related to processing orders were disciplined in the past. Disciplinary actions however, did not seem to curb these variables from happening on a daily basis. The simple reality was that nurses were still required to multi-task. In the absence of a reassurance system, even the most cautious and conscientious nurses were not immune from such an oversight.

Unless the hospital has a unit clerk to note orders from the physician, time line for noting routine medication orders should be more realistic and practical so chances of new orders being over looked will be minimized. For example, until an electronic order entry system is adopted by the hospital, any new orders written outside of regular time must also be communicated verbally from the physician to the responsible nurse so the nurse will be looking out for the new orders. As mentioned previously, any new medication order should have one nursing staff to note, namely, handwritten on the MAR. Then after the order is processed and filled by a pharmacist, the nurse will review the order by placing the printed medication strip next to the handwritten entry, which will be canceled out with a yellow highlighter. This checking and double-checking system should greatly reduce the incidents when a pharmacy strip is placed on the wrong patient's MAR.

2.5. What Staff Nurses Say about Punitive Measures

To validate the hypothesis that punitive measures will not help to decrease medication errors, a questionnaire was given to 23 registered nurses of the hospital, including part-time/contractual nurses, who are responsible for daily medication administration to pre-adolescent and adolescent

clients (n=23) in November 2007. These are primarily psychotropic medications although some patients are admitted to the hospital with pre-existing health conditions, such as diabetes, asthma, and epilepsy, etc, which require concurrent medical treatment.

The survey has an overwhelming response rate of 96%. Out of 23 nurses, only one chose to opt out. As expected, the survey result is congruent with routine practice in the hospital. 21 out of 22 survey respondents answer "No" to questions 1 and 2. Majority of the nursing staff tends not to report a medication error involved themselves or others if they believe the error does not cause harm to the patient. When there is potential harm to the patient, the survey result skews heavily to "reporting the error" although a certain number of respondents are still "sitting on the fence".

On one hand, this is a reflection of a group of dedicated and accountable nurses who regardless of repercussion, will uphold the idea of "do no harm" to their patients. On the other hand, it is a disturbing fact that error prone processes will continue to go unnoticed as long as people think patient safety is not compromised. Nevertheless, a seemingly minor error can potentially become a fatal error. For instance, the wrong drug is given to a patient who is allergic to it.

Although the survey result was representative of a typical in-patient psychiatric hospital, there are certain limitations. Due to the size of the survey setting, it was not possible to conduct random sampling of responses. Participants of the survey came from a homogenous pool. The result would be more convincing if a comparative study could be done with another setting where a non-punitive measure for error reporting was the norm. Additionally, there was certain degree of psychological bias of the survey participants, some of whom admitted that they answered the hypothetical questions on reporting of medication errors based on what they thought was the right thing to do, not on what they would have done in reality.

3. Conclusion

Obviously, hospital administration has much at stake when rate of medication errors stays high. Throughout the years, the psychiatric hospital has implemented various measures of quality improvement to target problem prone areas, as errors become evident. However, a more proactive approach needs to be adopted to replace the current approach of "fixing it after it is broken".

Whenever a problem is discussed, a quality improvement initiative must be suggested at the same time with measurable outcome indicators. The risk management team will follow up after the initiative is implemented and evaluate the effectiveness within a predetermined time frame.

A non-punitive environment is imperative in encouraging self-reporting of medication errors. The hospital administration should acknowledge the fact that any medication error with the exception of overt negligence or

malignance is a system failure. It exemplifies a necessity to re-examine the entire process instead of blaming the individuals involved. It is expected that medication error rate will go up initially due to increase of self-reporting. However, with the implementation of error reduction measures, error rate should gradually go down over time.

The policy should specify "no repercussion" if the individual reports the error as soon as it is discovered.

Management should promote open communication in the workplace. Open communication helps to develop strategies to decrease medication errors. Open communication includes anonymous, non-judgmental discussion among health care providers so everyone can benefit from experience of others. The focus should be on what went wrong, how it happened, and why it occurred, not on who was involved.[17] Such a culture will make each error incident a valuable learning experience for all nurses.

Open communication also means dissemination of medication information to the patients. Patients need to be kept abreast of the name, time, dose, purpose, and potential side effects of the medication they are taking. Nurses should always encourage their patients to ask question about any medications given to them. If patients are ever in doubt, chances are the medication might be wrong and it is worth double-checking.

In Recent years, bar-coded medication administration (BCMA) is promoted as the most effective way to reduce administration errors and is being implemented widely. Conceptually this technology should catch nearly all error.[18] However, nothing will ever be able to replace a culture of patient safety and continuous improvement of the system of medication administration in a healthcare organization.

4. Survey Questions

1. Do you think the hospital's handling of medication errors encourage self-reporting?

    Yes   No

2. Do you think that the hospital's management of medication errors facilitates communication and improvement in medication safety among nurses?

    Yes   No

3. How likely is it that you would report your own medication errors if there was no harm to the patient?

  1(definitely not)
  2(unlikely)
  3(might or might not)
  4(probably)
  5(definitely)

4. How likely is that you would report another nurse's medication errors if there was no harm to the patient?

  1(definitely not)
  2(unlikely)

3(might or might not)
4(probably)
5(definitely)

5. How likely is it that you would report a potentially harmful medication error by yourself?

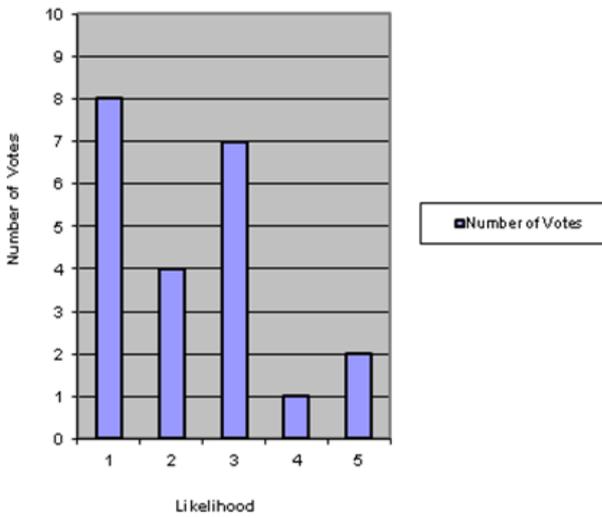1(definitely not)
2(unlikely)
3(might or might not)
4(probably)

5(definitely)

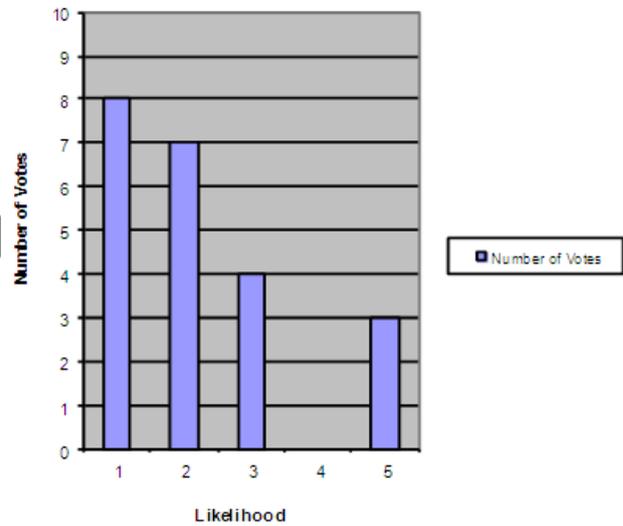6. How likely is it that you would report a potentially harmful medication error by another nurse?

1(definitely not)
2(unlikely)
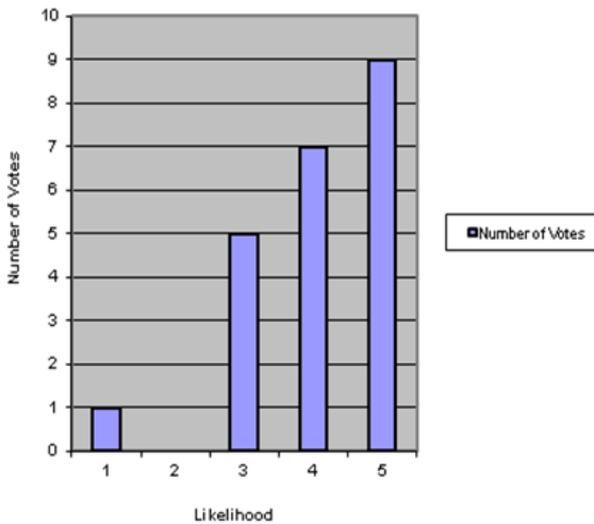3(might or might not)
4(probably)
5(definitely)

Survey Result

Question 3

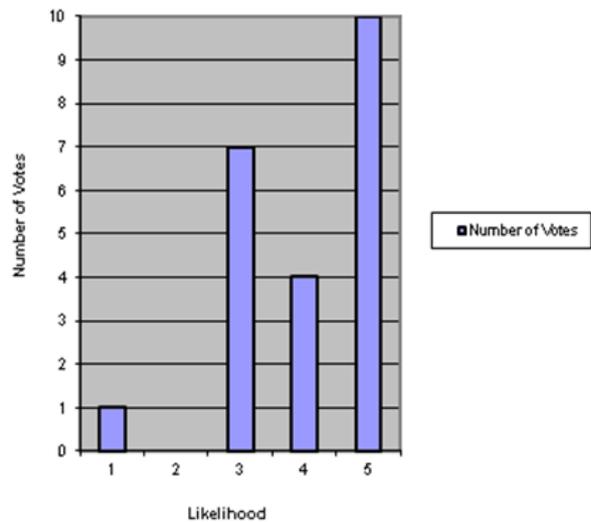Question 4

Question 5

Question 6

Acknowledgements

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