

***MEDICAL AND MEDICATION ERRORS:
HOW TO IDENTIFY & PREVENT THEM***

2.0 Contact Hours

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MEDICAL AND MEDICATION ERRORS: HOW TO IDENTIFY & PREVENT THEM

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Objectives

When the reader has completed this course they will be able to:

1. Name four causes of medical errors.
2. Name four methods by which medical errors can be prevented.
3. Name two reasons why medication errors happen.
4. Name three specific types of medication errors.

Introduction

Nursing – any job in health care, actually – is a difficult profession. When you say that, you automatically think of long hours, rotating shifts, and difficult work, and those are certainly all part of being a nurse. But perhaps the most stressful part of being a nurse is the demand for perfection.

Think about it. The only standard of care that is accepted and acceptable is one that is impossible to achieve: perfection. Nurses are taught that *any* error in patient care is a serious problem, and many nurses quickly learn that errors are dealt with harshly

Nurses are going to make mistakes; it's impossible *not* to make mistakes. But a medical error, although far from desirable, can be a learning opportunity for you and the system you're working in. Instead of a punitive response being the *only* response, it is much more productive to know *why* errors happen and take steps to prevent them from happening than to constantly worry that you may do something wrong.

You can't eliminate all medical errors and you certainly can't change the system by yourself. But a little forethought and education can help you reduce errors by knowing what types of errors are likely and developing some steps to prevent them.

How common are medical errors? No one knows for sure. The well-known study by the Institute of Medicine (IOM) in 1999 that generated so much attention stated that there were millions of medical errors in any given year, and that there was one preventable death for each 1000 hospital admissions. Other sources have stated that this figure is grossly exaggerated. Why is there confusion and discrepancies?

- ❑ First, suppose there is a medical error; who should be notified? Who is responsible for documenting medical errors? Certainly the immediate supervisor should be notified, but after that, who should be contacted? The

JCAHO, FDA, CDC? Who keeps track of the incidence of medical errors in the US?

- ❑ Second, there is no system in place for detecting medical errors; for the most part, the individual who made the error is the one who reports it and people are naturally reluctant to report small or inconsequential errors – or often times even significant ones. And this failure of self-reporting can be understandable. What if the patient, because of confusion on the part of the nursing staff, does not receive a needed consult? Who do you report that to as a medical error?
- ❑ Third, ask yourself this question: What is a medical error? How would you define it, or how should it be defined? You need to know the definition before you can recognize and report medical errors.

So, the problem is that no one knows how many medical errors occur in one year, what a medical error is or how it should be defined, and there is no uniform system for reporting errors. Those are big problems that will need to be solved before medical errors can be reduced significantly, but there is, at least, a good working definition of a medical error. According to the 1999 IOM study a medical error is **the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim.**

The Causes of Medical Errors

- ❑ **Communication errors**

Communication errors are probably the most common medical errors and it's not hard to see why: hospitals, clinics, etc, are very busy places, and communication is an inexact science. There are many types of communication errors. The nurse may neglect to document information in the proper way, in the proper time, and/or the proper place. Information can be documented properly – for the most part – but done so inaccurately. Information may not be documented in a timely manner, or it may not be documented or communicated at all. Example: During shift change, the departing nurse neglects to tell the arriving nurse that one of the patients seems to be more confused than is normal. One hour later, the nurse discovers the patient has pulled out his nasogastric tube and IV. This is an error that could have been prevented with accurate communication.

- ❑ **Equipment errors**

These can include improper use of equipment, not knowing how to properly use the equipment, using the equipment for a purpose for which it was not designed, or using the equipment incorrectly.

❑ **Errors in the clinical area**

These are the errors that everyone is concerned about, the ones that attract the most attention because the consequences of a clinical error can be severe. If symptoms are ignored or misunderstood, if a test is not carried out or performed incorrectly, when a therapeutic intervention is carried out improperly or not done, these are clinical errors that can have dramatic consequences. These errors can be minor (e.g., a patient is supposed to ambulate four times a day, but only does so three times) or they can be significant (e.g., the nurse fails to seriously consider a patient's complaint of chest pain, and the patient is found to be suffering a myocardial infarction). Clinical errors can be summed up simply as the failure to provide expected and necessary care.

❑ **Inattention**

Nursing is a job that demands your full focus and concentration, and the failure to do so is a major cause of medical errors. Nurses are the "sentinels." They spend more time with the patient than anyone else, and they must constantly be alert to small changes that may signify a serious problem. Example: A postoperative patient who has not yet been ambulated complains of a slight pain in the right side of her chest. The nurse assumes it is referred pain from the patient's incision and provides pain medication. It is subsequently discovered that the patient suffered a small pulmonary embolism.

❑ **Patient advocacy**

Patients often do not/cannot act as their own advocate; it's up to the nurse. This can involve working with physicians, social services, the laboratory, etc., and at times, given the hierarchal structure of a hospital, this is not easy. Example: You are caring for a patient with COPD and the patient has developed a fever of 102.8°. You call the intern who tells you not to bother him until the fever reaches 103°. You decide that you have done your job by contacting the physician, but later in the shift, the patient develops respiratory distress. It is subsequently revealed that he has a significant pneumonia

❑ **Inappropriate judgment**

Inappropriate judgment, along with clinical errors (the two are closely related), is a very common cause of medical errors. It's common because nursing demands constant decision-making. Poor judgment is a common cause of errors because making good decisions requires that the nurse have a lot of information – information that he/she can easily apply – about many different clinical situations. In many clinical situations there are definite indications that something is wrong, e.g., the patient's mental status has changed. But often, clinical situations will demand that the nurse make a judgment – and often make that judgment very quickly – but the situation will present the nurse with confusing or contradictory

information. It's not always obvious what the proper course of action should be. Remember, it has often been said that good judgment comes from experience and experience comes from bad judgment.

A Blueprint for Change

Knowing why errors happen is the first step, but this information must be used to prevent errors. No one knows exactly how many medical errors occur every day, but one study of an intensive care unit showed that there were 1.7 errors per patient per day. This meant that statistically, the unit was operating correctly 99% of the time. This sounds great but would you fly if there were a 1 in 100 chance of a crash? The health care system is good, but there is a lot of room for improvement.

Some people would say that errors are inevitable in health care – and they are right – and that some of the errors can't be eliminated because of the complexity of the system. It is also thought that because the health care system depends so much on human input, that lowering errors significantly would be very, very difficult. But there are other industries that are complex and that depend on a large amount of human input. e.g., the airlines, and their error rate is infinitesimal. How do they do it? How can nursing change to achieve similar results?

Nurses are expected to be perfect, and they are expected to be perfect while working under stressful conditions; perfect when tired; perfect even when operating with ambiguous information, and to be perfect *every day*. That is nursing culture. It is highly unrealistic and comparing nursing with the aviation industry – an industry with a very small rate of errors – is instructive. In the airlines, safety procedures are intended to prevent errors instead of reacting to them. They are intended to recognize situations that can cause errors, educate workers, provide effective ways to monitor crucial/risky situations, and promote teamwork and education. This approach has been highly successful. And although medical errors are common and the IOM study presented some scary statistics, the study also found that many medical errors are produced by poorly designed systems and poor organization. Think of the conditions in which many people must practice, and then ask yourself if those are optimal for preventing mistakes. Critics may say that all errors are human errors. And they are right. In the last analysis, almost every error is due to human failure, but humans always have and always will make mistakes. Why not accept this and try to correct the situations that cause errors and the underreporting of errors?

Of course, these are fine ideas, but you need practical suggestions. How can you avoid medical errors?

□ Do it the same way every time

Develop a routine for performing procedures, giving medications, etc., that works, and stick to it.

❑ **Forget your memory**

It's a lot safer and more sensible to depend on written information, computerized data, etc., than trusting your memory.

❑ **Standardize communication**

Poor communication is a *major* cause of medical errors. Certainly, you feel stressed with important tasks to complete, so when someone is speaking with you, you're not listening as closely as you should. But imagine how stressed you'll be when you find out you made an error because you didn't really pay full attention to some valuable communication.

❑ **Don't try and go it alone**

You're supposed to know everything, so it's hard to admit that you don't and that you need help. But good patient care, not pride, is the first priority.

❑ **Go slow**

There are lots of times when it seems as if you just don't have enough time. But any experienced nurse will tell you that trying to accomplish a lot by working faster only makes mistakes more likely, and you have more time than you think to accomplish what you need to do. Remember, true emergencies that demand immediate action to prevent dire consequences are rare. Slow down and do things right.

❑ **Be honest with yourself and others**

The aviation industry encourages their staff to approach the issue of safety as a process of not making mistakes. They encourage the staff to look at safety as an issue that involves the whole team, and this attitude has been very successful. Nurses can use this approach by acknowledging that errors are inevitable, identifying your vulnerable areas and trying to address them, and trying to encourage this behavior on your unit and in other nurses.

MEDICATION ERRORS

Medication errors are common and you will make one some time in your career. The exact number of medication errors is not known; the Food and Drug Administration, the United States Pharmacopeia, and the Institute for Safe Medication Practices report several hundred thousand medication errors a year, but the actual number is unknown because many medication errors are not detected and/or reported, and the definition of a medication error varies from source to source. Most medication errors cause no harm, e.g., a dose of acetaminophen is not given. But fatalities and serious adverse effects do occur as a result of medication errors.

Introduction

What is a medication error? How should it be defined? The answer is that there is no universally accepted definition of what a medication error is. But for practical purposes, a working definition can be that **a medication error is the inappropriate use of a medication that could have been prevented with reasonable, prudent care.**

Common Medication Errors

Medication errors occur during *prescribing*, *dispensing* and *administration*. Also, medication errors are either errors of *commission* (a medication was prescribed, dispensed or given incorrectly) or errors of *omission* (a medication that should have been given, prescribed or dispensed was not.)

- ❑ Prescribing errors: The wrong drug, the wrong dose, wrong route of administration or incorrect frequency of administration can be prescribed. The wrong medication can be prescribed for the wrong patient. The prescribed medication can be one that the patient is allergic to, or one that will interact with medications they are currently taking. The drug may be one that is contraindicated or dangerous for the particular patient. Prescribing errors could also include errors in transcription; the prescription was written correctly but incorrectly transcribed, or a verbal order may be transcribed incorrectly, etc.
- ❑ Dispensing errors: The wrong drug is dispensed to the wrong patient. The dispensed drug may be one that the patient is allergic to, or one that will interact harmfully with their current medications or one that is contraindicated because of that particular patient's medical conditions.
- ❑ Administration errors: Administration errors are essentially the same as prescribing and dispensing errors. In addition, the drug may be given at the wrong time, the drug may be given in an incorrect way (e.g., an otic preparation instilled into the eye, etc.) the wrong dose was given, the drug was given to the

wrong patient, or the drug administration policy of that hospital may not have been followed.

When Do Medication Errors Happen?

It was mentioned earlier that a successful approach to preventing medical errors is to recognize the situations in which they are likely to occur. Nurses learn in school a simple process for giving medications correctly – give the *right drug*, to the *right patient*, in the *right dose*, by the *right route* at the *right time*. Medication errors *will* occur somewhere along this process in certain situations.

- High-risk situations: Medications are given in a wide range of situations, and some of these are riskier than others.

Pediatric patients: Children, it is often said, are not just small adults. The doses, indications, contraindications and routes of administration of drugs in children, as well as drugs that are (and those that are not) used specifically in children. make children unique. Because they are so small, dosing errors can be very serious.

Geriatric patients: Many elderly patients take a lot of medications and the greater number of medications you give increases the chances that a medication error or a drug interaction will happen. Also, older patients may have poor hepatic and renal function. Absorption, distribution, metabolism and elimination of drugs are affected by this, but this fact may be overlooked when new medications are prescribed.

Critical care units: Critical care patients are very sick, and their clinical status is often very precarious. They receive a lot of medications, many of them IV medications that have powerful effects and act rapidly. Also, it's common for the nurse to need to be prepared to give these drugs with little or no notice, so an administration error (dose, route, timing, perceived lack of time to learn the side effects, drug interactions or the proper method of administration) due to the time pressure is increased.

Specific medications: Some drugs are simply more dangerous than others, and the margin for error (e.g., clonidine, verapamil) is slim. Also, some drugs (e.g., warfarin) interact with many other medications or they have more side effects. Some drugs are simply more complex in their actions and side effects and must be monitored more closely. And some drugs are frequently involved with medication errors because they are in very common use.

- Medications with confusing names:
 - Amaryl – Reminyl
 - Anafranil - enalapril
 - Clonidine – Klonopin

- Acutane - accupril
- Serzone – Seroquel
- Celebrex - Celexa
- Chlorpropamide – chlorpromazine
- Lamitcal – Lamisil
- Primacor – Primaxin
- Tizanidine (Zanaflex) – Tiagibine (Gabitril)
- Zantac – Xanax
- Zantac – Zytrec
- Zebeta – Zetia
- Zyprexa - Zyrtec
- Fosinopril – lisinopril
- Tenex – Entex
- Taxol – Taxotere
- Depo-Medrol – Solumedrol
- Levaquin - levsin
- Flomax – Volmax

Why Do Medication Errors Happen?

- Poor knowledge base about the patient: You need a lot of information about a patient and the drug to give a drug safely. You need the name (right drug for the right person), age, previous medical history, allergies to drugs and a working familiarity with the patient's medical history. You need to have (many times) a recent set of vital signs, a recent bedside assessment, the latest laboratory results, etc. A breakdown in any of these areas can lead to a medication error.
- Poor knowledge base about the drugs: For every drug you need to know the indications, contraindications, side effect, the proper route and the proper dose. Some times you can gather this easily, but often the information is complex, difficult to obtain, and must be learned under stressful conditions. There are always new drugs and new administration procedures and policies to be learned. Some drugs require complex calculations in order to be given safely.

Preventing Medication Errors

It is helpful to know how and when medication errors happen, but this information is of no use unless you can use it to prevent medication errors from happening.

Traditionally, nurses were punished for medication errors, re-educated and monitored until it was assured the mistake wouldn't happen again. There was no systematic effort to understand why mistakes happened or an effort to try and prevent them from happening again. "Name, blame, and shame" was the standard procedure.

But hospitals and health care facilities have re-evaluated this approach to medication errors, and they have decided that the best way to handle medication errors is to find out what went wrong, to learn from these mistakes and to make changes to prevent the mistake from happening again. The "name, blame and shame" approach has been replaced with one that stresses reporting and system changes to prevent medication errors.

The great majority of drugs given are given by nurses, and this can seem like a daunting task. It demands attention to detail, often under less than ideal circumstances, but you can greatly reduce the risk of a medication error by following a simple procedure.

- ❑ Know the indications, contraindications, and side effects
- ❑ Right drug: It's not uncommon for patients to receive the wrong drug because many drugs sound alike or are spelled similarly: Serzone for Seroquel, Klonopin for clonidine, Zyprexa for Celexa, Taxotere for Taxol, Zantac for Zyrtec or Lamictal for Lamisil or Lomotil. Another reason why patients might receive the wrong drug is that the nurse is insufficiently familiar with the patient's clinical condition; giving insulin or an oral hypoglycemic agent is appropriate for a diabetic, but could be disastrous for the wrong patient. You must have a thorough knowledge as to why your patient is in the hospital. You also need to know the patient's drug allergies and what other medications they are taking, and you must be aware of possible drug interactions.
- ❑ Right patient: Again, the nurse must know what conditions the patient is being treated for, their past medical history and the other drugs they are prescribed. In addition, the patient must be positively identified with two forms of identification before a medication is given.
- ❑ Right dose: Remember, this is especially important for patients in critical care units, pediatric patients, and geriatric patients. It is also crucial to check the dose for new medications, check the dose for medications you are unfamiliar with and if you need to do a calculation, check it with another nurse.
- ❑ Right route: Using the improper route to give a drug happens because of transcription errors and because of lack of knowledge of the drug.

- Right time: If you have more than one patient, you *can't* deliver all medications at *exactly* the right time. You have to set priorities.

Finally, make sure you document what drug was given as soon as possible after it was given. Get to know the “dangerous” drugs with narrow therapeutic indexes. Make sure you have uninterrupted time to give medications and make a plan to observe the patient for adverse events or side effects.

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