

Rx Errors, Mix-ups, and Near Misses

By Bruce R. Siecker, Ph.D., R.Ph.

Bruce Siecker is president of Paradigm Research & Advisory Services, Inc. based in Stone Ridge, Virginia. He trains, writes, consults, and testifies on drug program, regulatory, and corporate compliance.

E.L.F. Publications, Inc. is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmaceutical education. This program has been approved for 1.5 contact hour (0.15 CEU).

Universal Program Numbers:

406-000-08-009-H05P & 406-000-08-009-H05T

The expiration date for this program is 1/31/10.



Learning Objectives

Goals: To provide the pharmacist and pharmacy technician with current information on the ways to recognize and manage preventable errors, mix-ups, and near misses in a community pharmacy.

Objectives: After completing this article, the pharmacist and pharmacy technician should be able to:

1. Discuss why it is not a good idea to rely on “take as directed” instructions.
2. Summarize the problem of excessive technicians to pharmacists in pharmacy staffing.
3. Recall three examples of look-alike or sound-alike drugs.
4. Discuss an example of an error that occurs
 - a. when antibiotics are about to be dispensed and;
 - b. in interpreting dosage for iron supplements.
5. Describe the four-part error analysis scheme in terms of the questions asked.

The Focus is Medication Errors, Mix-Ups, and Near Misses

It was an unusually cold week in February, 2008, when *USA Today* published a front-page series of articles on medication errors in community pharmacies. The newspaper stated that chain pharmacies tend to focus on speed, rely heavily on technicians, and must pay a good share of out-of-court settlements of medication error lawsuits. Their major problem areas are staffing patterns and minimizing time to dispense medications - two major factors contributing to drug dispensing errors.

Americans may read about some of the basic problems associated with medication errors, but the real problem runs deeper. The basis for medication errors, mix-ups, and near misses is far more complex and insidious than the issues described in the *USA Today* series of articles. The problem can be found in every aspect of the practice of pharmacy.

Preventing Errors from Sound-Alike or Look-Alike Names

More and more pharmaceuticals have similar (sound-alike or look-alike) or confusing names. The potential for error between Mucomyst® and Mucinex® should be obvious. The same is true for Evista® and Avinza®. Among the generic medications, there is hydralazine and hydrochlorazine making vigilance an important trait for the pharmacist.

There are potential problems with Zyrtec® and Zyprexa®, though there are fewer problems since Zyrtec® became generic and is written as such.

Think about the confusion that is possible from the drug Lamictal® 100 mg. and levothyroxine 100 mcg. Consider also Lamictal® vs. lamivudine, Ludiomil®, labetalol, and Lomotil® and all the possible ways to confuse these pharmaceuticals.

For some really confusing names consider Yasmin® and Yaz®, both birth control and both stored together. They are close in the computer order entry screens. There are reports of some pharmacists abbreviating the name Yasmin to “Yas” when communicating in writing and orally. Other oral contraceptives are similarly abbreviated. Take for instance “OTC” for Ortho Tri-Cyclen® or

Ortho-Novum 7/7/7 as “ON 7/7/7”. These are all bad practices and can easily lead to an error!

With so many drugs on the market, the opportunity for error is obvious. Ideally, prescriptions should specify the drug name, dosage form, strength, complete instructions (not simply “as directed”), and indication. Most drugs with look-alike or sound-alike names have different uses or indications. Obviously, not every prescription conforms to this norm in writing prescriptions, so the pharmacist should verify the purpose of the medication with the patient (or caregiver) or prescriber before dispensing or administering.

The potential for error diminishes if the pharmacist specifies both the generic and brand name of the drug on the prescription, prescription label, computer screens, and medication records. Using the National Drug Code (NDC) in addition will also reduce the possibility of error when inputting information by drug name.

When accepting telephone orders, it is important to write down the order then read (or even spell) back the prescription drug, strength, quantity, and frequency and duration of dosage for verification purposes. It is also important to read back other information such as the patient’s name, date of birth, and the prescriber’s name, telephone number, and DEA registration number (if appropriate).

It is a good idea to review possible errors with staff, place warning signs where the drug is stored, and even make a note in the computer record. The idea is to maximize attention and minimize the chance for grave errors.

Labeling Confusion

Another problem is the frequent use of “take as directed” or “as directed” on the label. This assumes that the patient was given instructions by the physician and correctly understands these instructions. Clear instructions also allow the pharmacist to correctly interpret the physician’s prescription. As an example, consider the drug Clindesse® (clindamycin vaginal gel) with the instructions “as directed” and Clindets® (clindamycin plegets) with a similar direction. With directions for use, the possibility for error is greater especially when scribbled on a prescription pad.

Writing Makes It Worse

Sometimes the problem is in the way the prescriber writes prescriptions for certain products. It may be failure to provide enough information, using non-standard abbreviation, or confusion on the part of prescribers about a proper drug use.

Physicians who write simply “Depakote® 500 mg.” are not writing enough information to tell the pharmacist what dosage form he wants. Is the order for delayed release or should extended release be dispensed? There is simply no way of telling from the prescription.

A similar problem is evident with a drug indicated for rheumatoid arthritis, Humira® 40 mg, with the instructions to use “QOWEEK.” The prescriber’s intention is “once every other week”. This is a new, non-standard abbreviation that should be avoided because of the tendency to interpret this as “every week”.

There is also the potential for mix-ups between OxyContin® (oxycodone HCl controlled-release) tablets and oxycodone (immediate-release) tablets. These are not the same products and they are not substitutable for each other.

Errors Creep In Just Before Dispensing

There are also errors caused at the site of dispensing. Of special note is the case of a prescription for amoxicillin 250mg/5 mL for a child. Somehow unmixed amoxicillin powder was dispensed. At home, the father measured out 5 mL of powder, not 5 mL of liquid as intended. The father thought it odd and contacted the pharmacy, where upon the problem was corrected and the child was checked out as okay.

Virtually every pharmacy has explicit procedures to prevent this sort of error of omission, but it still happens.

One could say that this is not a serious problem. It was easily identified by the patient (or caregiver). The reason this problem is not reported as a “near miss” is because it is so easily corrected. But it is still an error!

Relying on a note on the prescription bag is not enough to prevent the problem. Consider placing all drugs that require reconstitution in a separate area.

Possibly a note over the whole area stating “*Not to be dispensed without speaking to a pharmacist*” will help.

Even OTC Errors!

Iron products offer another type of error that is quite common. The problem is between iron sulfate and elemental iron. The problem is serious because it can lead to massive overdoses, which result in gastrointestinal problems (constipation mostly), liver damage, and death.

Doctors frequently communicate dosage in terms of salts rather than elemental iron. If a prescriber tells the patient to take 325 mg of ferrous sulfate or 325 mg of iron, the patient may think he needs 5 x 65 mg. = 325 mg tablets.

Most iron products today are dually labeled, but it is a good idea to stay on top on this section. Placing over-the-counter iron and liquid iron supplements close to the pharmacy is often a good idea.

Job Structure and Errors

The organization of the pharmacy also affects medication error rates. The ratio of technicians to pharmacists is an important determinant. There is also a distraction factor in terms of error rates and drive-through windows.

It seems that the number of preventable medication errors increases as the ratio of technicians to pharmacists increase. While there is no magic formula that defines the ideal ratio, there is much concern about this issue among pharmacy leadership. There is an effort to limit the number of technicians supervised by one pharmacist and to be certified by the Pharmacy Technician Certification Board and complete an associate’s degree in pharmacy technology.

A study conducted by Ohio State University found that pharmacists who work at locations with a drive-through window believe this added distraction contributes to increases in dispensing errors. The study found that actual medication errors were higher when dispensing occurred via a drive-through window. The apparent explanation for this result is the number of added distractions that exist for this portal.

An obvious solution is to design fewer distractions into the drive-through window as a way to reduce error rates, but this remains to be seen. Pharmacists who must contend with a drive-through window should keep a keen eye out for actual errors, near-misses, and potential medication errors.

Use of Robotic Dispensing Systems

There is a growing school of thought that claims that automated, robotic systems act to reduce the number of medication errors. If adequate safeguards exist to ensure that the right drug (drug, strength, form) is placed in the right hopper, and all safeguards involving the checking of what the robot actually dispensed are followed, it follows that medication error rates should drop.

But there is still the problem of misreading the prescription in the first place. Is the prescription for amiodarone or amrinone? Does the physician want olanzapine or clozapine? Or, does he really want rofecoxib when the prescription looks like celecoxib? If rofecoxib is stored correctly in the robot, then rofecoxib will be dispensed — but the pharmacist must still first interpret the prescription correctly.

More experience will provide the answers. Until then, pharmacists have to remain wary of robotic dispensing systems.

Four-Part Error Analysis

Pharmacists should strive to shrink medication errors, reduce mix-ups, and eliminate near-misses. This goal is best achieved using a four-part error analysis system developed by the Institute for Safe Medication Practices.

The first two parts of this system can be described as **reactive** in nature. That is, the pharmacist reacts to events that have occurred and analyzes and compiles information on these events including:

1. errors in the pharmacy that result in patient harm, and
2. the aggregate (or total) error information.

The other half of the equation is equally important but is **proactive** in nature. Included in this analysis is:

1. “near misses” (errors with the potential to harm the patient) and
2. errors that have occurred in other pharmacies (and organizations).

Each segment of analysis contains valuable information, but the process in its entirety can really lead to effective error reduction. All four segments have equal importance. If a pharmacy focuses almost exclusively on questions 1 and 2, they will find themselves busy “putting out fires” rather than preventing them. The opposite situation is also true. A pharmacy that tries to prevent theoretical errors may fail to prevent the actual errors.

“Toolkit” Aims to Eliminate Errors

The Agency for Healthcare Research and Quality has developed a toolkit for use by hospitals when discharging patient. But this may also prove useful for the retail pharmacy. It consists of seventeen tools for improving communication among caregivers (physicians, nurses, pharmacists, and others) and for identifying patient risks factors associated with incorrect medication therapy.

For more detailed information on obtaining the toolkit, visit www.ahrq.gov/qual/pips/.

Pharmacists can also practice a three-part check of the prescription to help eliminate mistakes. The first check occurs when the drug is removed from the shelf. The second check occurs when the drug is entered into the computer and the third check occurs just prior to attaching the label. Whether done by one pharmacist or a pharmacist and several technicians, this is a good method for reducing errors.

Finally, more and more physicians and pharmacies are signing up for electronic prescriptions. This makes reading the prescription easier—you do not have to decipher handwriting—and the pharmacist gets a more descriptive name of the drug.

Summary

Preventable medication errors happen. With the rapid proliferation of new medications, new types of errors arise. The ongoing vigilance of a pharmacist remains the most effective means of prevention.