Contents

Look-Alike/Sound-Alike Medications — What can be Done?

By Keith W. Trettin, R.Ph., MBA, NCPS program manager

Look-alike/sound-alike (LA/SA) medications are a significant cause of adverse events and close calls. This article summarizes the problem and offers recommendations to help mitigate it, based on stronger actions outlined in the Root Cause Analysis (RCA) Hierarchy of Actions, as noted on the sidebar on page 4 of this *TIPS*. This and other RCA tools are available on our web site: *www.va.gov/ncps/CogAids/RCA/index.html*

A Brief History

U.S. Pharmacopeia noted in its March 2001 issue of *Quality Review* that 15 percent of all entries into the organization's Medication Errors Reporting System were associated with drugs having similar names. In May of that year, the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) also initially identified LA/SA drugs as a major safety issue in its *Sentinel Event Alert* article, "Look-alike, Sound-alike Drug Names."

In 2004, JCAHO approved a National Patient Safety Goal (NPSG) that addresses this issue. NPSG 3 states: "Improve the safety of using medications." Specifically, the goal notes: "Identify and at a minimum, annually review a list of look-alike/sound-alike drugs used by the organization, and take action to prevent errors involving the interchange of these drugs." The actions include a requirement for an organization to identify a minimum of 10 LA/SA drug pairs. As of 2005, JCAHO reported that three percent of all general hospitals receiving a full survey were not compliant with NPSG 3. Changes to the goal have been made since 2004, but it has not been retired and continues as a current NPSG.

NCPS has received a significant number of RCAs and safety reports that implicate either similarities in drug names or problems with a drug delivery system as a contributing cause to a medication event.

Along with what is available on the JCAHO web site (*www.jcaho.org*), a number of other lists of LA/SA medications and possible interventions to minimize incidences have been developed and are available online:

- Institute for Safe Med. Practices – *www.ismp.org*
- Federal Drug Administration – *www.fda.gov*
- U.S. Pharmacopeia – *www.usp.org*

Examples of the VA's Approach

The VA has developed a number of unique solutions to the LA/SA problem. For example, when the VA Pharmacy Benefits Management Strategic Healthcare Group (PBM) and VA Medical Advisory Panel review a drug for addition to the VA formulary, a list of drugs with LA/SA risk potential is reviewed. The list is generated by a pilot program developed by PBM and the Center for Medication Safety, VA MedSafe. The program queries a multi-attribute drug product search engine for medications with similar sound and appearance.

In a second example, the VA Office of Information and NCPS worked collaboratively to identify and correct human factors that cause LA/SA problems. In 2004, data from NCPS' Patient Safety Information System, commonly known by its nickname, "SPOT," was used to support modifications to the medication order program in the VA's Computerized Patient Record System. This was done to help eradicate wrong drug selection during the order entry process.

Previously, when the first several letters of a drug were used to generate a list of available formulary medications, the first drug on the list was highlighted and could easily be selected by pushing the enter key. This caused a significant number of drugs to be selected incorrectly. A modification to the program eliminated the automatic selection of the first drug, requiring a prescriber to actively select a drug. This has significantly reduced incorrect drug selection.

What Next Steps can be Taken?

What should be done next to minimize LA/SA-associated medication events? When a LA/SA issue has been identified, we recommend that RCA teams take *stronger actions* to mitigate the problem *whenever* possible. This may not seem "new" to those familiar with our recommendations, but it is important to state and restate.

Adult Learning — It's Important to Patient Safety

By Beth King, RN, BSN, MA, NCPS program manager

Teaching and learning are part of our daily routine in patient safety. In fact, they occur so frequently we may not even notice. It would come as no surprise to say adults learn differently than children. Interestingly, though, much of our teaching experience concerns children.

I would like to present some concepts about how adults learn differently than children. These concepts may be useful when bringing new caregivers into root cause analysis teams or at other times when teaching adults about patient safety.

In an article by Stephen Lieb,[1] adults are described as self-directed and goal-oriented learners. Adults spend time learning what they feel is useful to them; adults will learn if they believe it will help them achieve their goals.

If an adult does not feel the need to learn something, he or she may not become engaged in

mind when teaching adults, we must try and bring a common, related experience to a learning session so that the information can be better assimilated. It is also valuable to determine what an adult is most interested in and what past experiences he or she might have had with the topic. Approaching a topic using these techniques helps adults to better define the relevance of learning something new.

Supplying adults with facts without connecting them to things important to their own goals and/or experience can result in lower levels of learning. Any one of us could likely recall an educational session where our minds wandered to another topic we felt was more important than the one being discussed.

Androgogy, the art and science of adult learning, has different characteristics from child learning. These differing characteristics are defined in the table below.[2] Characteristics from both adult and

Child Learning	Adult Learning
Mandatory Attendance	Voluntary Attendance
Subject Centered	Problem Centered
Dependant Learners	Independent Learners
Inexperienced Learners	Experienced Learners
Teacher Prescribed Content	Learner Prescribed Content
Learners Grouped by Age Level or Ability	Learners Grouped by Interest or Needs
Learning for the Future	Learning for the Now
Learners Subordinate to the Teacher	Learners Equal to the Teacher
Rigid, Traditional Structure	Flexible, Alternative Structure
Passive Learners	Active Learners

the learning. For instance, observe the difference in motivation when you try teaching a medical procedure to someone you feel needs to know how to complete it, but believes he or she will never have to perform that task because it is the specific responsibility of another staff member, versus one who will use it.

Lieb also indicates that adults come with a foundation of life experience and knowledge, and that they look for an issue's relevancy to them. For example, learning how to complete retirement paperwork would be much more relevant for someone planning to retire soon than for someone in his or her mid-twenties who is just beginning a career.

As adults, when we are exposed to something new, we typically think about past experiences and identify how this information agrees with or differs from our current knowledge base. This helps us to assimilate the new information. With this in

child learning may sometimes be used during a single session, depending on the goals of the program.

To help adults learn, it is useful to understand the four critical areas that can enhance learning, as described by Lieb:[1]

1. *Motivation.* Adults must see the benefit of learning before they motivate themselves to learn the content. If the adult does not view the information as needed, the instructor may be working in vain. Barriers to motivation may include a lack of time, money, confidence, scheduling problems, etc. The instructor can help adults best by increasing the personal benefits to learning and by decreasing the barriers.

2. *Reinforcement.* Reinforcement can help achieve consistent, desired behavior. Positive reinforcement is normally used when teaching new skills.

3. *Retention.* Adults must understand, interpret, and apply the information. Practicing the application during the learning process is encouraged to help an adult maintain the desired performance. Successful practice episodes are helpful to increase retention for adults.

4. *Transference.* Learning can be enhanced when adults can associate the information to something they already know. Transference can occur when information is similar, there is a lot of new learning, or it is extremely beneficial or critical for their job.

It is also very important to recognize that adults bring their self-esteem and ego into the learning environment with them. When an adult perceives a high threat to self-esteem, learning may be slowed or even stopped. For example, if an adult participant in an audience is spontaneously asked if he or she will present at the end the session, a person's fear of giving a poor presentation may be a barrier to further learning during the remainder of that session.

Learning is enhanced when adults feel their self-esteem will not be harmed. An instructor must be able to support a learning environment where the participants feel they will not be vulnerable.

Much of the work on adult learning was pioneered by Malcolm Knowles (Learn more about his work: *www.infed.org/thinkers/et-knowl.htm*) and growth in this area of study can be anticipated in the future — reading up on it is well worth it!

1 Lieb, S. (1991). Principles of Adult Learning: *http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/adults-2.htm*

2 Jackson, W. H. (1998). Adult vs Child Learning: *http://cybermesa.com/~bjackson/Papers/Androgogy.htm*

Want further info? Zemke, R., Zemke, S. (1984). 30 Things We Know For Sure About Adult Learning: *http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/adults-3.htm*

"Out-of-the-Box Failures"
Problems With Disposable, Invasive Devices

By Bryanne Patail, NCPS biomedical engineer

Ever wonder why certain invasive medical devices are found "broken" after they have been inserted into a patient and have to be retrieved? This includes items such as cardiac catheterization catheters and other types of catheters, wound drainage tubes, and sump tubes.

During a recent review of a number of RCAs, we noted that RCA teams encountered difficulties finding a specific reason, such as nicking or suturing during placement, as to why an item broke inside a patient. This could be the case because the device might have been damaged sometime in the process of production, packaging, shipping, unpacking, or storage. Therefore, to mitigate vulnerabilities from damaged products, it is a good practice to inspect all medical devices prior to use.

In some situations it might be difficult to do this, but consider a pilot project that focuses on a specific department, to include documentation of likely cost savings.

If one department pilots a protocol to inspect invasive medical devices prior to use, an "out-of-the-box failure" will likely be found before it occurs and other departments will follow suit — not to mention that the patients involved will be safer!

Some of these devices are expensive and the supplier/manufacturer might not give your facility full credit to replace them once used, so inspecting them *before* use makes sense. Of course, remember to follow your facility's procedures, and involve your materiels management, logistics, and purchasing departments.

In the private sector, this was implemented at a rather large, very busy, teaching medical center. The savings were published on a monthly, quarterly, and annual basis. The employees were also given incentives to sustain the program and it turned out to be a "win, win, win" situation:

• Win for the patient — safer, less inconvenience.

• Win for the medical center — full credit for defective/broken devices, substantial cost savings.

• Win for the employees — pride in making the facility safer through an effective incentive program.

Wound drainage tubes can be inspected prior to use by pulling the ends taut and looking for flaws in the holes or other irregularities that can cause breakage.

Out of box failures?

An item may have been broken or damaged during production, packaging, shipping, unpacking, or storage.

Look-Alike/Sound-Alike Medications

Continued from page 1

Stronger actions, as defined by NCPS, are ones more likely to eliminate or greatly reduce the likelihood of an adverse event, such as physical plant or systemic fixes that apply human factors principles (see sidebar to the left).

Promoting weaker solutions is not only a significant waste of an RCA team's valuable time, but can cause harm to patients — the exact opposite of the team's goal. One of the most common corrective actions suggested in RCAs submitted to us is to implement "independent" double-checks, which been found to create major problems.[1]

We consider these weak actions because they are often prone to be influenced by "confirmation bias." This concept is generally defined as when you see what you think or expect you should see, rather than what is actually present. For example, please count and confirm there are only three F's in the following sentence:

FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF YEARS.

Did you find three? Please see the end of the article for the correct answer.**

Here is a clinical-based example of confirmation bias: In response to a medication event in which a wrong concentration of Heparin was given, a proposed action might be "double check all Heparins prior to administration." In this scenario, a caregiver double-checking Heparins could assume that the previous co-worker, likely known by the caregiver, is competent and selected the correct concentration. This confirmation bias might lead to an incorrectly selected concentration of Heparin because the first caregiver might not have recognized a problem for a number of reasons that have nothing to do with skill level — such as fatigue, workload, or distraction.

As an example of a stronger action in this case, an RCA team could recommend reviewing how well the number of concentrations of Heparin have been minimized within the facility. Though this is required by NPSG 3b, "Standardize and limit the number of drug concentrations used by the Organization," a team might find a new and better systems-based way to do this, perhaps a stronger action that might have been previously overlooked.

Another example of a stronger intervention might be to implement a closed drug delivery system that uses "Cubie Drawers™" (lidded bins). In such a system, only active drugs on the patient profile may be accessed from that system's dispensing machine. An action of this type is more likely to eliminate or greatly reduce the likelihood of an adverse event. Correct refilling of the drug can be assured by bar coding the replacement prior to replenishing the dispensing unit.

Mixing drug delivery product lines is another example of a stronger action. Using a combination of amps, vials, and syringe delivery systems helps to differentiate products, thus applying human factors principles. Implementing a mixture of delivery systems can also help to minimize drug mix-ups.

Most VA medical centers use the Carpuject™ syringe system for delivery of injectable drugs. Medication events have been reported because of the similarity of drugs stocked within this system. Using a mixture of delivery systems can help to minimize or eliminate drug mix-ups.

As a final example of a stronger, systemic action, RCA teams could consider the feasibility of using different companies or package sizes to differentiate products. Manufacturers often design a similar look and size for packaging to enhance brand recognition, not to promote patient safety. By mixing manufacturers' products, packaging is easier to distinguish. Further, using different sized packages for different forms of creams, ointments, and gels can also help to differentiate products.

As we can only provide a limited number of examples due to space limitations, we encourage RCA teams to contact NCPS and review their options with the appropriate program manager. We are always ready to help!

1 Tamuz M, Harrison MI. (2006). Improving patient safety in hospitals: contributions of high-reliability theory and normal accident theory. *Health Services Research;* 41(S.1):1654-1676.

Toft B, Mascie-Taylor H. (2005). Involuntary automaticity: a work-system induced risk to safe health care. *Health Services Management Research;* 18:211-216.

**The sentence contains six "Fs." If you agreed that there were only three, you were a victim of confirmation bias.

™Cardinal Health

Over seventy different medications are available in the Carpuject™ system. Problems have occurred because of the similarity in shape and size of the system.