



Positive identification: Not just for patients, but for drugs and solutions

The next time you perform or assist in a procedure, examine if each drug product and solution is labeled. Even if using only one product or solution, misidentification has occurred, most notably when another product was unexpectedly added to the set-up. Consider these examples where patients were harmed by the absence of a simple label:

■ A woman died after being injected intravenously with chlorhexidine instead of contrast media during coil placement under cerebral angiography to repair a brain aneurysm. The clear pink-tinged chlorhexidine solution was placed in a basin identical to that used to hold the clear contrast media. Neither basin was labeled, so both solutions looked very similar. The hospital's recent decision to switch antiseptics from a brown povidone-iodine solution to a clear chlorhexidine solution resulted in a latent system failure—two look-alike, clear solutions on the sterile field that were previously distinguished by color. This failure was revealed when the unlabeled basins were inadvertently mixed up. The patient experienced acute, severe chemical injury to the blood vessels of her leg, restricting circulation to the muscles and causing profound injury and swelling of her leg. Within 2 weeks, her leg was amputated and subsequently she suffered a stroke and organ failure, leading to her death.

■ Another patient died after a surgical procedure to remove a cancerous eye. An unlabeled specimen cup filled with glutaraldehyde (used to preserve the enucleated eye) was mistaken as the unlabeled spinal fluid that had been removed from the patient to reduce cerebral pressure from metastasis to the brain. Near the end of the procedure, an anesthesiologist accidentally injected the glutaraldehyde intrathecally instead of the patient's spinal fluid.

Mix-ups during procedures are not limited to the operating room setting; they can occur in ambulatory

surgery units, labor and delivery rooms, physicians' offices, cardiac catheterization suites, endoscopy suites, radiology departments, emergency departments, and other areas where procedures may be performed. Two examples follow:

■ One patient received lidocaine instead of contrast media during angiography, and experienced a grand mal seizure.

■ A patient being treated for a wart in a physician's office sustained severe burns to his genitals when the physician mistakenly applied a germicidal detergent (pH 13) from an unlabeled bottle, believing it contained the vinegar needed to bleach the wart to improve its visibility.

Responses from more than 1,600 hospitals to our 2004 *ISMP Medication Safety Self Assessment® for Hospitals* showed that less than half (41%) always label containers (including syringes, basins, and other vessels used to store drugs) in the sterile field. An alarming 18% do not label medications and solutions on the sterile field at all, and another 42% apply labels inconsistently. A 2006 Joint Commission National Patient Safety Goal now focuses on labeling *all* drugs and solutions in all perioperative and other procedural settings. Likewise, ISMP applauds the Association of periOperative Registered Nurses (AORN) for bringing attention to this goal by choosing "safe medication administration in the operating room" as its 2005 focus for National Time Out Day in June, and for offering a Safe Medication Administration Tool Kit for practitioners (www.aorn.org/toolkit/safemed/mtkinthenews.asp). Consider the recommendations in **Check it Out!** for strategies to reduce errors resulting from inadequate labeling practices.

check it out! ✓✓✓

To reduce errors resulting from inadequate labeling practices:

✓ **Provide labels.** Purchase sterile markers, blank labels, or use preprinted labels prepared by the facility or commercially available (e.g., Healthcare Logistics, Sandel) that can be opened onto the sterile field during all procedures. Prepare surgical packs ahead of time with markers, and blank and preprinted labels for all anticipated drugs and solutions that will be needed.

✓ **Require labels.** Require labels on all medications, solutions (formalin, saline, Lugol's solution, radiocontrast media, etc.), and medication containers (e.g., syringes, medicine cups, basins), on and off the sterile field, even if there is only one medication or solution involved. Require labels on all solutions, chemicals, and reagents that are used during any procedure, in any setting (including the ED). Labels should include the drug/solution name and concentration.

✓ **Differentiate look-alike products.** If drug or solution names are similar, use tall man lettering on labels to differentiate them, or highlight/circle the distinguishing information. When possible, purchase skin antiseptic products in prepackaged swabs or sponges to clearly differentiate them from medications or other solutions and eliminate the risk of accidental injection/ingestion. Differentiate topical or external solutions from injectables in advance of use.

✓ **Label one at a time.** Individually verify each medication or solution by name and concentration and complete its preparation for administration, delivery to the procedural field, and labeling on the field *before* another product is prepared. Verify any medication listed on the physician's preference list with the

continued on next page

Extreme caution needed with flammable products

According to ECRI, a nonprofit organization that analyzes medical device and technology errors, there are an estimated 100 surgical fires each year, resulting in up to 20 serious injuries and 1 to 2 patient deaths.¹ A number of these fires have involved flammable medications in the form of various prepping agents (alcohol and alcohol-containing iodophors), eye lubricants, ointments, and wound dressings (tincture of benzoin and collodion). Consider these examples:

■ In an ambulatory surgery unit, an assistant surgeon had prepared an operative incision for bandaging by spraying it with tincture of benzoin (skin protectant and antiseptic). The primary surgeon had nearly completed suturing the patient's incision, but he noticed a small area of bleeding along the incision line and decided to cauterize it. The benzoin ignited briefly, but fortunately, the patient wasn't harmed.

■ During laser surgery to remove warts, a child's eyelids and periorbital areas were burned when **LACRI-LUBE S.O.P.** (56.8% white petrolatum, 42.5% mineral oil) ignited.

■ In a clinic, a nurse practitioner sprayed a 6-year-old child's infected toe with ethyl chloride to numb the area, and then proceeded to lance it with surgical cautery. As soon as she triggered the cautery device, the entire surgical field went

up in flames and the pad underneath the child's foot ignited. The child's mother immediately pulled him away and the child did not suffer any burns. Later, the nurse practitioner, who was unaware that ethyl chloride was flammable, noted she had observed a physician doing the same procedure previously without problems.



Warnings about flammability may not be prominent or distinctive on many packages. For example, the label on one brand of ethyl chloride (Gebauer) does not call much attention to the word "flammable"—it is enclosed inside a border with an icon that looks more like a flower than a flame (see photo).

Ensure all healthcare workers know about the dangers of flammable products, especially when used in conjunction with a heat source. Reevaluate the need for flammable products in your facility, be it an operating room, an ambulatory surgery center, or a clinic. There are often safer alternatives, especially for topical anesthetics. For more information on preventing surgical fires, see the JCAHO Sentinel Event Alert at: www.jcaho.org/about+us/news+letters/sentinel+event+alert/sea_29.htm.

Reference: 1. ECRI. A clinician's guide to surgical fires: how they occur, how to prevent them, how to put them out [guidance article]. *Health Devices* 2003; 32(1):5-24.

► Special Announcement

► **ISMP Teleconference: "Risk Reduction Strategies for Medication Errors in the Perioperative Setting,"** to be held **September 21st, 1:30 pm EDT**, will provide helpful advice in meeting the two new 2006 Joint Commission National Patient Safety Goals: labeling of medications and solutions on and off the sterile field, and standardizing the approach to hand-off communications. A nurse, pharmacist, and anesthesiologist will present this 90-minute program. For more information, visit: www.ismp.org/T/200509/index.htm. CE credit available.

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Report medication errors to ISMP at 1-800-FAIL-SAF(E).

check it out! continued

physician before delivery to the field, labeling, and/or administration.

✓ Confirm medications and labels.

In perioperative areas, require the scrub person and the circulating nurse to concurrently verify all medications/solutions visually and verbally by reading the product name, strength, and dosage from the labels. In any setting, when passing a medication to a professional performing a procedure, visually and verbally verify the medication, strength, and dose by reading the medication label aloud. Keep all original medication/solution containers in the room for reference until the procedure is concluded.

✓ **Re-verify with relief staff.** During hand-offs (i.e., shift change or breaks), require the entering and exiting personnel to concurrently note and verify all medications in use and their labels.

✓ Discard unlabeled medications.

Never assume you know what is contained in an unlabeled syringe, cup, or basin. Discard anything unlabeled and report the event. Nothing should be used or administered without a label.

✓ **Conduct walk-arounds.** Perform regular safety rounds in perioperative areas to observe labeling procedures, promote consistency, and inquire about barriers to implementing this practice.

✓ **Pharmacy presence.** Encourage the presence of pharmacists in the OR, ED, and other procedural areas (via regular on-site presence or satellites) to help identify system and practice changes that are needed to improve labeling practices.

✓ **Enhance awareness.** Tell memorable stories about tragic mix-ups that have occurred in other facilities when medications and solutions were unlabeled to help motivate practice changes. A multidisciplinary safety team may help to improve consistent labeling practices and enhance relationships.

Readership Survey for Nurse Advise-ERR™

Please take a few minutes to let us know what you think of ISMP **Nurse Advise-ERR** and how it has impacted your practice, your awareness of medication errors, or error reduction activities and system changes in your organization. Kindly submit your responses via our website at www.ismp.org/s/nursesurvey200508.asp or by fax (215-914-1492) by **September 16, 2005**. We sincerely appreciate your participation in this survey, which will help us to better serve you and your patients.

Tell us your thoughts about the content and format of **Nurse Advise-ERR** by checking the box that best describes your opinion. Use the following scale: 1=strongly disagree with the statement; 5=strongly agree with the statement.

Statements about content	Disagree					Agree				
	1	2	3	4	5	1	2	3	4	5
<input type="checkbox"/> The newsletter increases my understanding of the causes and prevention of errors.										
<input type="checkbox"/> The recommendations for error prevention are practical and helpful.										
<input type="checkbox"/> The information is relevant to my practice.										
<input type="checkbox"/> The content stimulates discussion among my colleagues.										
<input type="checkbox"/> The newsletter helps me use technology more safely in my everyday practice.										

Please check the appropriate responses to these statements and provide examples when applicable. You may attach additional pages. (NA/DN = "Not Applicable" or "Don't Know")

General statements	Yes	No	NA/DN
<input type="checkbox"/> I have used information from this newsletter to:			
a. Make changes in my workplace			
<i>If yes, please provide examples:</i>			
b. Make changes in my individual practice			
<i>If yes, please provide examples:</i>			
c. Collaborate with another unit, professional discipline (e.g., pharmacists), or department to implement medication error prevention strategies			
<i>If yes, please provide examples:</i>			
<input type="checkbox"/> The topics covered in the newsletter that I found <i>most</i> useful were:			
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Do you have access to the Internet to download the newsletter if it was provided via an email message containing a link to our website? Yes No Not sure

What is your profession? Nurse Pharmacist Physician Other **Level?** Staff Manager Administrator Other

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