



The insulin challenge

The complexity of insulin therapy has risen sharply in the past decade, contributing greatly to errors. An ISMP study revealed that 11% of all serious medication errors involve insulin misadministration.¹ One notable challenge is avoiding confusion between the dozens of different insulins on the market, many with sound-alike names and look-alike packages. The onset and duration of action varies widely among insulin products. Even the old rule that clear insulins can be given IV has changed. Some of the newer insulins are clear but not indicated for IV use (e.g., **NOVOLOG**, **LANTUS**). Add to the mix the persistent use of “U” for “units” and it’s not surprising that we often hear about harmful errors with this drug. Consider the following.

There have been a growing number of errors involving commercially available insulin mixtures. For example, numerous mix-ups have been reported between **HUMALOG MIX 75/25** (75% insulin lispro protamine and 25% insulin lispro) and **HUMULIN 70/30** (70% human insulin isophane and 30% regular human insulin). One hospital alone reported several cases in which Humalog was erroneously prescribed as a 70/30 mixture (no such ratio exists) and Humulin 70/30 was administered in error using other patients’ supplies. In another hospital, an internist prescribed “Humalog 70/30” and the pharmacist dispensed Humulin 70/30. Later it was learned that the internist wasn’t sure of the strength, but he intended for the patient to receive Humalog 75/25. In a third hospital, a nurse caught herself picking up Humalog 75/25

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instead of plain **HUMALOG** (insulin lispro) as prescribed. Along with similar names, the vials looked alike and had snap off caps in the same color. **NOVOLOG MIX 70/30** (70% insulin aspart protamine and 30% insulin aspart) has also been confused with **NOVOLIN 70/30** (70% human insulin isophane and 30% regular human insulin), sometimes leading to significant hypoglycemia.

Handwritten and oral orders for **LANTUS** (insulin glargine) have been mistaken as **LENTE** (insulin zinc suspension), especially since Lantus can now be given in the morning or at bedtime.

Insulin errors have also been reported in pediatric patients, often due to using the wrong dilution. To cite one example, sliding scale insulin had been prescribed for an infant with doses in tenths of a unit. Pharmacy diluted regular insulin to 10 units/mL and labeled the vial appropriately. Using a tuberculin syringe, the infant received the correct dose of 0.3 units for 1 week, but then was given 3 units after a nurse withdrew the dose from a vial of regular insulin, 100 units/mL.

Using “U” for “units” has also led to countless tenfold overdoses of insulin when the “U” was misread as zero (e.g., “4U” misread as 40 units).

These examples are just a sampling of the many ways that serious errors have occurred with this high-alert medication. To prevent errors, follow the suggestions in **Check it out!**

Reference: (1) Cohen MR et al. Survey of hospital systems and common serious medication errors. *J Healthcare Risk Management* 1998;18(1):16-27.

check it out! ✓✓✓✓

Consider these suggestions to help avoid errors with insulin therapy.

- ✓ **Obtain an accurate history** of insulin therapy from patients. Ask questions to detect possible confusion between look- and sound-alike insulin products.
- ✓ **Transcribe orders clearly** using the entire product name. Always write out “units.” Accept verbal orders only when necessary and read back the order, spelling the insulin’s name.
- ✓ **Prepare a chart** of insulin products used in your facility. Include generic/brand names; concentration; onset, peak, and duration of action; acceptable administration routes; times of administration in relationship to meals; and special precautions (e.g., mixing). Post the charts in areas where insulin is prescribed and administered.
- ✓ **Ask pharmacy to place a bold warning label** on vials/syringes of insulin in atypical concentrations (e.g., 500 units/mL, 10 units/mL), along with instructions for measuring the proper dose (and the type of syringe to use if supplied in vials).
- ✓ **For neonates**, have pharmacy prepare and label a 10 units/mL concentration for doses less than 5 units. Use a 1 mL tuberculin syringe with 0.01 mL graduations to draw up the dose (1 unit equals 0.1 mL).
- ✓ **Require an independent check** to verify the correct patient, drug, and dose before administering IV insulin. Use “smart” infusion pumps that will alert nurses when an unsafe infusion rate has been programmed.
- ✓ **Limit the variety of insulin** products stored in patient care units. Remove patient-specific insulins upon discharge or discontinuation.

Intimidation (part II): Mapping a plan for change on your unit

More than 2,000 hospital nurses, pharmacists, and others responded to our November 2003 survey on workplace intimidation. Our survey results reported in the March 2004 issue clearly showed that healthcare providers frequently employ intimidating behaviors when interacting with each other.

These behaviors, deeply rooted in a longstanding hierarchical culture¹, are not reserved just for impressionable new recruits. Instead, for many healthcare providers, intimidation has become a popular but damaging style of personal interaction spanning entire careers. Furthermore, enduring ongoing intimidation may have caused its victims to employ these tactics themselves.

Treating intimidation with more intimidation is not the solution. Unfortunately, there are no easy remedies. However, as with error prevention, the solution will reveal itself only when we admit there's a problem, begin to talk frankly about it, analyze its causes, and lay the groundwork for change. While intimidation clearly requires a system-wide solution, you and your unit/department can begin this long journey by taking the following steps.

Work with your nurse manager and seek his/her support for changing your unit's tolerance of intimidation. Recruit a few colleagues to begin investigating the issue.

Survey staff attitudes about intimidation, behaviors they find intimidating, and the levels of intimidation occurring.² The survey presented in the November 2003 newsletter offers examples of the types of questions to ask. Use the survey to garner information about whether staff feel valued in the

unit, how often they encounter intimidating behaviors, how they handle stress and intimidation, and how they treat others at work.

Open the dialogue about intimidation using your survey results as a starting point. Have a moderator guide a frank discussion, which may trigger a process of questioning the way staff interacts with each other. However uncomfortable, this is crucial to developing effective and respectful ways of interacting.

Define workplace intimidation and list examples of the many forms it can take. Consider this simple definition: *not being treated with respect, or any behavior, no matter how small, that causes another to doubt their self-worth.*² Specify blatantly unacceptable behaviors, including those that subtly undermine team cohesion, staff morale, self-worth, and safety. Develop a mission statement that defines the culture you desire for your unit — mutual respect, effective communication, and team collaboration — and create an action plan.

Develop values statements about staff interactions and include them in job descriptions and performance appraisals. Provide copies to staff for signature upon hire and annually thereafter.³

Establish a standard, assertive communication process for use among healthcare providers who must convey important information. For example, consider asking staff to use the first names of colleagues, even doctors, to get their attention when important information must be communicated.¹ Using a colleague's first name can help break down artificial barriers that may impede effective communication. Always state the problem along with

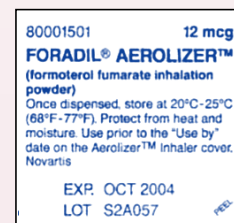
continued on page 3

safetywires



Unit-dose capsules for inhalation.

If you care for patients with asthma, you might benefit from knowing about a problem that surfaced 30 years ago. When cromolyn sodium (a mast cell stabilizer used for prophylaxis against allergy-induced asthma) was first marketed, it was available as a capsule in unit-dose (single dose) packages. But the capsule was not intended for oral use; it was supposed to be placed into a special inhaler that accompanied the drug. When placed in the inhaler, the capsule was punctured and powdered cromolyn was then dispersed into the lungs as the patient inhaled. These unit-dose capsules were often dispensed from the pharmacy along with oral medications in similar looking unit-dose packages. Since the manufacturer's label did not alert staff to inhalation use only, it did not take long for reports to surface of patients accidentally swallowing the capsules. Today, cromolyn is available as an inhalation solution or aerosol, not in capsules. However, a similar risk exists with a newer drug **FORADIL** (formoterol fumarate, a bronchodilator sympathomimetic) used to treat asthma. As with the original cromolyn product, Foradil is administered by inhalation, but it's a capsule that must



be placed in a special AEROLIZER inhaler. The capsules come in unit-dose packages without

cautions against oral use (see photo). Nurses who are used to seeing oral capsules in unit-dose packages have accidentally given the Foradil capsules to patients to swallow. To prevent errors, ask the pharmacy to dispense a small box of capsules and the special inhaler together. If dispensed as loose unit-dose capsules, ask the pharmacy to affix a label stating "for

continued on page 3

Intimidation continued

its rationale and a potential solution. Consider establishing a spoken code, such as “red light,” that can be used to halt any intimidating behavior immediately. If the response from a colleague is not acceptable, follow a conflict resolution process.

Establish a conflict resolution process to communicate effectively, rather than punish, embarrass, or coerce staff. Consider using the “two challenge rule.” This method requires communication of critical information twice to the same person. If there’s no resolution, the matter is automatically referred to at least one other person before a final decision is made. Be sure the process includes an avenue for resolution outside the typical chain of command in case a conflict involves a staff member and supervisor.

Implement a confidential reporting system where complaints of intimidation can be submitted. Be sure the method includes updates to complainants about how the issue is being addressed.

Develop a zero tolerance policy for intimidating behaviors on your unit. Anticipate intimidating behaviors and develop a process for dealing with each reported event.⁴ Include steps for confronting the offender with reported facts. Solicit the offender’s side of the story but stress that the behavior is unacceptable, regardless of circumstances. The process should not be punitive; that would not foster interpersonal skills or the desired culture.³

Plan initial and ongoing education that reinforces your unit’s commitment to a caring and respectful culture. Ask your staff educator for inservices using role-playing and vignettes to strengthen skills associated with assertive communication, conflict resolution, and interpersonal interactions.

Establish a method for rewarding outstanding examples of collaborative teamwork, respectful communication, and positive interpersonal skills. Several times a year, have staff select and recognize colleagues, including physicians, who demonstrate superior interpersonal skills.

Lead by example and let your behavior and your unit’s efforts to reduce intimidation serve as a role model for the rest of your organization. Your steadfast personal and professional commitment to reducing intimidation over time could well lead to full administrative support to pursue a system-wide culture change to break the cycle of disrespect among healthcare providers.

References: (additional references can be found at www.ismp.org/Survey0311.htm)

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To report medication errors to ISMP, please call 1-800-FAIL-SAF(E).

safetywires continued

inhalation using special inhaler only.” We’ve asked the manufacturer to place this caution on unit-dose packages. Hopefully you’ll see the label changes soon.

⚡ What’s your patient sniffing?

Inhalant ampuls of amyl nitrite and aromatic ammonia spirits are covered in cotton sheaths, which help protect your fingers from cuts when crushing the ampuls to activate the products. However, these sheaths make it difficult to read the labels and render the products nearly identical in appearance, so mix-ups between these products are not uncommon. A nurse retrieved what she thought was ammonia spirits (respiratory stimulant) for a patient who had fainted. This cotton-wrapped vial can be broken and placed beneath the nostrils of patients experiencing syncope, weakness, or threatened collapse. When she cracked open the ampul, the usual strong odor was absent and the patient did not arouse. Thinking the inhalant was inactive, the nurse crushed another ampul with the same poor results. She then noticed that the ampul contained amyl nitrite, a rapid-acting, short duration nitrate used to relieve angina pectoris, induce rapid vasodilation during cardiac procedures, or treat cyanide poisoning. The pharmacy had accidentally supplied the unit with amyl nitrite ampuls instead of ammonia spirits. The hospital now separates these products in the pharmacy and in patient care areas where both are stocked. Reported abuse of amyl nitrite for its alleged sex-enhancing property is another reason to secure its storage. Some facilities have opted to purchase ammonia spirits packaged in pads, similar to alcohol wipes. But the potential for error still exists; staff could use an ammonia pad as an alcohol wipe, or vice versa. If you choose this option, alert all staff to any changes.