



Nurse Advise-ERR®

Educating the healthcare community about safe medication practices

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Diabetes In Control—A website for medical professionals

ISMP is pleased to announce that we have established a partnership with Diabetes In Control (www.diabetesincontrol.com), an online resource for medical professionals to help enhance their understanding of the care and treatment of diabetic patients. According to the Centers for Disease Control and Prevention (CDC),¹ diabetes affects 25.8 million Americans, 7 million of whom remain undiagnosed. Among those diagnosed with diabetes, about a quarter are treated with insulin—a high-alert drug—or a combination of insulin and oral medications, and about half are treated with just oral medications. The CDC also estimates that 79 million American adults have pre-diabetes, a condition in which individuals have blood glucose or HbA1c levels higher than normal but not high enough to be classified as diabetes, which increases the risk of developing type 2 diabetes. In addition to a multitude of diabetes complications such as heart disease, stroke, kidney disease, vascular neuropathy, and visual changes, the risk of death for people with diabetes is about twice that of people of a similar age without diabetes.

Diabetes In Control offers medical professionals a free weekly electronic newsletter (subscribe at: www.diabetesincontrol.com/articles/uncategorized/9177-Subscribe). The newsletter and website provide critical, action-oriented information gathered from hundreds of scientific periodicals on new drugs, devices, treatments, and services; special topics of interest, such as drugs that affect blood glucose levels; medication safety topics, including ISMP articles and interviews; and unbiased reviews of diabetic medical products. The site also offers free tools to medical profes-

sionals, such as QuickChek™—a tool for patients to monitor and trend blood glucose testing results using simple traffic light colors to see patterns of high or low results (www.niprodiagnostics.com/diabetes_resources/downloads/true_insight/MKT0168.pdf)—and a HbA1c conversion table for estimating average blood glucose control (www.diabetesincontrol.com/images/issues/2011/Feb/average_blood_glucose.pdf). Free CE and CME for lectures and articles by international experts are also available via the website.

One of the regular features of the Diabetes In Control newsletter is a column called “Diabetes Disaster Averted.” This series presents real-life stories submitted by medical professionals about near misses and errors associated with medications, treatments, and devices used by diabetic patients. Several examples follow (original content paraphrased).

Insulin pumps and waterbeds

A patient with an insulin pump suddenly started experiencing hypoglycemia in the morning, 30 minutes after rising but prior to her bolus insulin dose before breakfast. She was advised to change her infusion set and insertion area, but she continued to experience hypoglycemia in the morning despite making these changes. The pump was inspected, and the patient reviewed how she used and cared for her pump, but no problems were identified. Another diabetes educator was consulted, who had a patient with a similar problem with an unusual cause—a heated waterbed. The patient was asked whether she slept on a heated waterbed, which she did. After she was directed to sleep on a regular mattress for a few nights, the

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Dear Readers...

The ongoing economic downturn has affected most healthcare publications, and ISMP's newsletter for nurses is no exception. Due to a reduction in outside funding, **ISMP Nurse Advise-ERR** will transition from a free newsletter to a subscription-based newsletter in January 2012.

We anticipate that the annual **facility-wide subscription rate will be \$85**, which will still allow redistribution of the newsletter to all nurses and clinical staff within a single facility. Discounts will be available for large health systems with multiple facilities. We also will be offering an **individual annual subscription rate of \$15**, which will not allow sharing of the newsletter with others.

The decision to charge a nominal amount for subscriptions has not been made lightly; it has always been our goal to provide the newsletter free to all US nurses. However, despite our best efforts we have been unable to obtain grants to cover all of our publication costs, and as an independent, nonprofit agency, we do not fund publications by selling advertising. Despite the current generous support of Baxter and past support of McKesson, it will be necessary to charge a small annual fee in 2012 in order to continue the newsletter.

We will begin accepting registration for 2012 subscriptions to the **ISMP Nurse Advise-ERR** in October 2011; you will receive an email alert with a link.

Your support is truly appreciated, and we hope you will continue to subscribe to the **ISMP Nurse Advise-ERR** to help safeguard your patients in 2012.

Warmest regards,

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episodes of hypoglycemia disappeared. The insulin pump manufacturer could offer no explanation; however, it is believed that the constant heat from the waterbed caused the plastic tubing on the insulin pump set to expand, much like a garden hose in the sun. When the patient got out of bed in the morning, the tubing cooled and contracted, delivering a small bolus of the extra insulin that was in the previously expanded tubing.

Common insulin pump error

A patient who recently received a new pump was asked to demonstrate changing the pump set in front of a nurse. Although the patient said he was having no difficulty with the process, the nurse identified an error related to filling the cannula with insulin. The amount for filling the cannula was set at 5 units, but the 6 mm cannula was supposed to be filled with only 0.3 units of insulin. The amount to fill the cannula depends on the type and size of the infusion set. It is unclear why a 5 unit fill amount was entered in this case, but the overfilling and subsequent overdosing of insulin may have been going on for some time.

Label literacy

A diabetic educator taught a patient insulin-to-carbohydrate (I:C) ratios so he could match insulin doses to the amounts of carbohydrates he consumed. (The I:C ratio specifies how many grams of carbohydrates are covered by each unit of insulin.) Patients need to read food labels and understand portion size to dose their mealtime insulin correctly. When reviewing the patient's food and insulin dose log, the educator questioned the carbohydrate content for a food item that seemed high. As the patient answered, the educator realized that the patient had been looking at the **total weight** in grams of the food item/serving size instead of the **total carbohydrates** in the item/serving size. This

resulted in calculating a higher insulin dose than needed. Fortunately, the patient did not experience significant hypoglycemia. Some patients have also mistaken the percent of daily allowance of carbohydrates in each serving as the weight of carbohydrates in grams.

Patient injection mistakes

A nurse visited a homebound patient who continued to experience high blood glucose levels despite doubling her insulin dose about 2 weeks prior. The nurse questioned the patient about factors that may be causing the sudden need for more insulin. The patient had been eating her usual diet; she had no signs of infection or a decrease in physical activity; she was sleeping well and there were no major emotional stressors. Her blood monitoring technique was appropriate; the testing strips had not expired; and the glucose control solution produced a reading within an appropriate range on her glucose monitor.

The patient did have poor vision, so the nurse asked her to demonstrate drawing up a dose of insulin. Using a syringe magnifier, she measured an accurate amount of air into the syringe and injected it into her insulin vial. As she lifted the vial to withdraw the dose, the nurse realized that the vial was empty. Poor vision had prevented the patient from seeing that the vial was empty, and she had never been taught how to determine when to discard a vial of insulin (www.diabetesincontrol.com/images/Mastery_Series/2011/Jan/drawing_insulin_with_vial_and_syringe.pdf). For an undetermined time, the patient had been injecting air into her abdomen. Not only was this patient possibly headed for hospital admission for uncontrolled blood glucose, she could have experienced complications from the injection of air into her body, or serious hypoglycemia when she eventually began using a new vial since the physician had doubled her usual dose.

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Serious adverse drug reaction.

The US Food and Drug Administration (FDA) notified parents, caregivers, and healthcare providers not to feed **SimplyThick**, a thickening agent for management of swallowing disorders, to infants born before 37 weeks gestation. The product may cause necrotizing enterocolitis (NEC), a life-threatening condition characterized by inflammation and death of intestinal tissue. FDA first learned about this adverse event and its link to the product on May 13, 2011. The agency is aware of 15 cases of NEC in patients fed SimplyThick for varying amounts of time, leading to two deaths. The product had been mixed with breast milk or infant formula. Illnesses have been reported from at least four different medical centers around the country. The product is available from distributors and local pharmacies in packets of individual servings and in 64-ounce dispenser bottles. Healthcare providers should avoid administering the product to premature infants and advise parents and caregivers accordingly. For details, visit: www.ismp.org/sc?k=ucm256257.



ActHIB component of two-vial Pentacel is missed. PENTACEL

is a multi-component vaccine for active immunization against diphtheria, tetanus, pertussis, poliomyelitis, and invasive disease due to *Haemophilus influenzae* type b. The vaccine is available in a five-dose carton containing vials of DTaP-IPV liquid component (blue capped vials) used to reconstitute each single dose vial of the lyophilized *Haemophilus influenzae* type b vaccine (**ActHIB**) component (green capped vials). Again and again, ISMP has received reports involving infants who must return with their parents to the doctor's office unnecessarily to receive the inadvertently omitted *Haemophilus influenzae* type b component. In the most recent case, a nurse checking inventory opened a carton and found an extra green capped vial (Figure 1). It was later learned that another nurse failed to first use the DTaP-IPV component to dilute the ActHIB lyophilized powder in the other vial. The clinic is

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CE CREDITS

One hour of **free CE credit** covering the January—June 2011 issues is available at: www.ismp.org/nursingce.

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Dosage mix-up consequences

A nursing home resident receiving tube feedings had a blood glucose level of 418 mg/dL prior to her usual dose of insulin at noon. At 2 p.m., her blood glucose had risen to 453 mg/dL. A physician prescribed 10 units of regular insulin IV. Although the telephone order was transcribed correctly, the nurse administered 10 mL of insulin (1,000 units). She immediately recognized the mistake. However, when the physician was called, he was told that the resident had received 100 units—not 1,000 units—instead of the correct dose of 10 units. The resident's blood sugar was monitored throughout the afternoon and evening, with a low of 78 mg/dL at 8:55 p.m. and 87 mg/dL at 9:25 p.m. At 9:30 p.m., the resident was found without an audible heart rate and was not breathing. CPR was performed, but the resident died. Even though the physician thought the resident received a 10-fold overdose, not a 100-fold overdose, this patient should have been immediately transferred to an emergency department after the error. Insulin is a high-alert drug, and even small doses can be deadly when given inappropriately, particularly in children, the elderly, and critically ill patients.

We hope you will visit the Diabetes In Control website often. The site has a separate section on safety, where it posts some ISMP articles, a link to the ISMP National Medication Errors Reporting Program, as well as other medication safety information, including descriptions of reported errors and lessons learned. Look for more shared stories and newsworthy information about advances in diabetic treatments in our newsletter in the future. According to the Diabetes In Control website, there are currently more than 4,900 ongoing studies in the US for new drugs, devices, and treatments associated with diabetes. In the past 15 years, dozens of new drugs, glucose meters, and over-the-counter aids have been added to the market. We can anticipate more of the same in the coming years. The Diabetes In Control website can help busy medical professionals stay informed about new treatments as well as the safety risks associated with diabetes care.

Reference: 1) Centers for Disease Control and Prevention (CDC). National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: US Department of Health and Human Services, CDC, 2011.

Special Announcements

ISMP Webinars:

On **July 26**, ISMP will present **Exploring Medication Safety Off the Beaten Path: Unique Medication Safety Challenges in Diagnostic and Procedural Areas**. Have medication safety improvements been made in areas such as invasive radiology, GI suites, perioperative areas, or ambulatory clinics? Take a tour of these distinct locations with ISMP consulting staff to learn what unique medication safety risks have been uncovered "off the beaten path." For details, go to: www.ismp.org/educational/webinars.asp.

On **August 17**, ISMP will present **The Joint Commission Update**. Learn about the 2011 requirements for medication management standards and medication-related national patient safety goals. For details, go to: www.ismp.org/educational/webinars.asp.

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Report medication errors to ISMP by going to: www.ismp.org/MERP.

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now using rubber bands to keep one green top and one blue top vial together to avoid this mistake. Ask your pharmacy to do this, or to use another process to keep the vials together, such as placing them together in a zip-lock bag. (Pharmacy should also place an auxiliary label on the five-dose carton if the entire box is dispensed and stored in patient care units.) To confirm administration of both components, staff should also make sure the NDC number for each vial has been documented in the vaccine log before administration, although documentation of actual vaccine administration should occur after it is administered.



Figure 1. Pentacel—a two-vial product. Vial on right contains DTaP-IPV, which is added to the vial on the left containing ActHIB.

We spoke to FDA recently to suggest that the manufacturer could improve vial labeling and recognition that the DTaP-IPV component is to be used as the DILUENT for the ActHIB medication in the other vial. Perhaps if the vials were also marked as vial #1 and vial #2, errors would be less likely.

⚡ Teva's lansoprazole ODT clogs tubes. The Food and Drug Administration (FDA) recently stated they received reports of Teva Pharmaceuticals' lansoprazole orally disintegrating tablet (ODT) clogging and blocking oral syringes and feeding tubes when the drug was administered as a suspension through these devices. Tablets may not fully disintegrate when water is added or may later form clumps that adhere to the walls of oral syringes and feeding tubes. FDA noted that some patients had to seek emergency treatment to have their feeding tubes unclogged or removed and replaced. Teva has voluntarily withdrawn the product, but some organizations may still have a supply. If this product was purchased at your location, please assure that it is removed from inventory.



Free customized medication safety alerts for consumers and caregivers. Details at: www.consumermedsafety.org.