Letters

Conversion to insulin devices in the inpatient setting

Adverse drug events related to insulin errors are among the top-reported errors in the U.S. health care system. Methods for reducing the occurrence of these errors include minimizing floor stock of insulin and using patient-specific insulin devices.[1]

Our institution fully converted all of our formulary insulin from vials to patient-specific insulin devices in August 2007. The major lessons learned from the conversion at our institution were to gather the necessary support from key committees and clinicians, educate the staff educators to properly train the nursing staff, and proactively identify and address potential errors that may occur with insulin devices.

Throughout the entire process, it is important to maintain a multidisciplinary approach. A decision to convert will require approval from many governing bodies within the institution, such as the nursing practice committee, diabetes committee, drug safety committee, and pharmacy and therapeutics committee. A multidisciplinary team should create an institutionwide rollout that addresses staff education, quality assessment and assurance, online references, policy updates, timeline, and feedback.

The actual conversion may occur in a stepwise fashion with only one device being introduced at a time to the staff or with all devices introduced at the same time. The educational plan should be reviewed and approved by the nurse educators before implementation. At that time, they should be provided with instructional handouts and packets containing saline devices for demonstration purposes.

The quality of front-end education and subsequent follow-up are some of the important keys for a successful conversion program. Many factors influence the rate at which clinicians accept practice changes. As with any clinical practice change, buy in from the end-user practitioner is vital. It is key to educate nurse educators and other frontline nurses as trainers or "superusers." Local ownership occurs through superusers who serve as the main resource for the nursing staff on a daily basis and assist with troubleshooting. Pharmacists should also receive extensive training to confidently assist nursing staff with questions.

Each insulin device may be delivered on a per-patient basis by the pharmacy or stocked on the automated dispensing machine. If stocked on automated dispensing machines, devices should be labeled when first removed for patient use by the nursing staff with patient name and date and stored in the nonrefrigerated, patient-specific medication drawer. Regular insulin vials could be stocked on each unit in limited quantities for use in specified circumstances depending on institution policy (e.g., to mix insulin for i.v. infusion, for treatment of hyperkalemia).

It is important to be aware that there are many formulations of insulin available in device form, and these devices may have similar characteristics.[2] Some devices are identical to each other, with the only difference being labeling and coloring. As with insulin vials, there is a risk that devices will be mistaken for each other. Use of devices will not eliminate the risk of administering the wrong insulin, and additional steps should be considered to avoid errors. Bar-code scanning and the use of cautionary labeling can be helpful.[3] Before converting to devices on an institutionwide scale, it is important to identify the characteristics of the device that improve safety or may lend themselves to error.

The Letters *column is a forum for rapid exchange of ideas among readers of* AJHP. *Liberal criteria are applied in the review of submissions to encourage contributions to this column.*

The Letters *column includes the following types of contributions: (1) comments, addenda, and minor updates on previously published work, (2) alerts on potential problems in practice, (3) observations or comments on trends in drug use, (4) opinions on apparent trends or controversies in drug therapy or clinical research, (5) opinions on public health issues of interest to pharmacists in health systems, (6) comments on ASHP activities, and (7) human interest items about life as a pharmacist. Reports of adverse drug reactions must present a reasonably clear description of causality.*

Short papers on practice innovations and other original work are included in the Notes *section rather than in* Letters. *Letters commenting on an* AJHP *article must be received within three months of the article's publication.*

Letters should be submitted electronically through http://ajhp.msubmit.net. The following conditions must be adhered to: (1) the body of the letter must be no longer than two typewritten pages, (2) the use of references and tables should be minimized, (3) the number of authors should be no more than three, and (4) the entire letter (including references, tables, and authors' names) must be typed double-spaced. After acceptance of a letter, the authors are required to sign an exclusive publication statement and a copyright transferal form. All letters are subject to revision by the editors.

Reducing insulin-related errors will only occur through a multifaceted approach. The purpose of conversion at our institution was to reduce insulin errors through minimization of floor-stock insulin.

1. American Society of Health-System Pharmacists. Professional practice recommendations for safe use of insulin in hospitals. ashp.org/s_ashp/docs/files/Safe_Use_of_Insulin.pdf (accessed 2008 Feb 20).
2. Institute for Safe Medication Practices. Pen injectors: technology is not without impending risks. www.ismp.org/Newsletters/acutecare/articles/20061130.asp (accessed 2008 Feb 20).
3. Poon EG, Cina JL, Churchill W et al. Medication dispensing errors and potential adverse events before and after implementing bar code technology in the pharmacy. *Ann Intern Med.* 2006; 145:426-34.

Bonnie Greenwood, Pharm.D., BCPS,
Burn/Trauma Clinical Specialist
Department of Pharmacy, Tower L2
bgreenwood@partners.org

Paul M. Szumita, Pharm.D., BCPS,
Clinical Pharmacy Practice Manager
Department of Pharmacy

Merri Pendergrass, M.D., Ph.D., Director of Clinical Diabetes
Department of Medicine

Brigham and Women's Hospital
75 Francis Street
Boston, MA 02115-6110

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