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# Pharmacy & Therapeutics Update: Drug Information for Health Care Professionals

Medical University of South Carolina

Paul W. Bush
*Medical University of South Carolina*

Kelli L. Garrison
*Medical University of South Carolina*

Holly M. MacFall
*Medical University of South Carolina*

Krystal L. Moorman
*Medical University of South Carolina*

MUSC
MEDICAL UNIVERSITY
OF SOUTH CAROLINA

Drug Information Center
Medical University of South Carolina
Department of Pharmacy Services
Charleston, South Carolina



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**Pharmacy & Therapeutics**

# Update

**Drug Information for Health Care Professionals**

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## Formulary Changes for Insulin Products

Hospitalized patients who have hyperglycemia either have pre-existing diabetes, have undiagnosed diabetes, or have hyperglycemia due to factors associated with hospitalization (eg, medications, stress, surgery). Epidemiological studies and data from clinical trials suggest that, regardless of the diagnosis of diabetes, hyperglycemia during hospitalization is associated with increased morbidity and mortality. However, control of the patient's blood glucose in the hospital has not been a therapeutic priority until the last few years.[1,2]

In 2004, the Medical Center introduced the Diabetes Management Service (DMS) as part of a hospital initiative to offer specialized care to patients with diabetes or problems with hyperglycemia. Since that time, DMS has developed numerous tools to improved care of these patients, including revised insulin order forms, adult hypoglycemia protocol, and clinical pathways to aid nurses. With the advent of these practice changes, issues with insulin products still arise.

Insulin is frequently reported to be associated with significant risk when used inappropriately, making it a commonly recognized high-alert medication.[4-6] From 2003 to 2005, insulin products ranked second at MUSC among the list of most frequently reported agents with medication occurrences.[4] Currently, the goal is to minimize medication misadventures associated with insulin products and standardized treatment of patients with hyperglycemia.

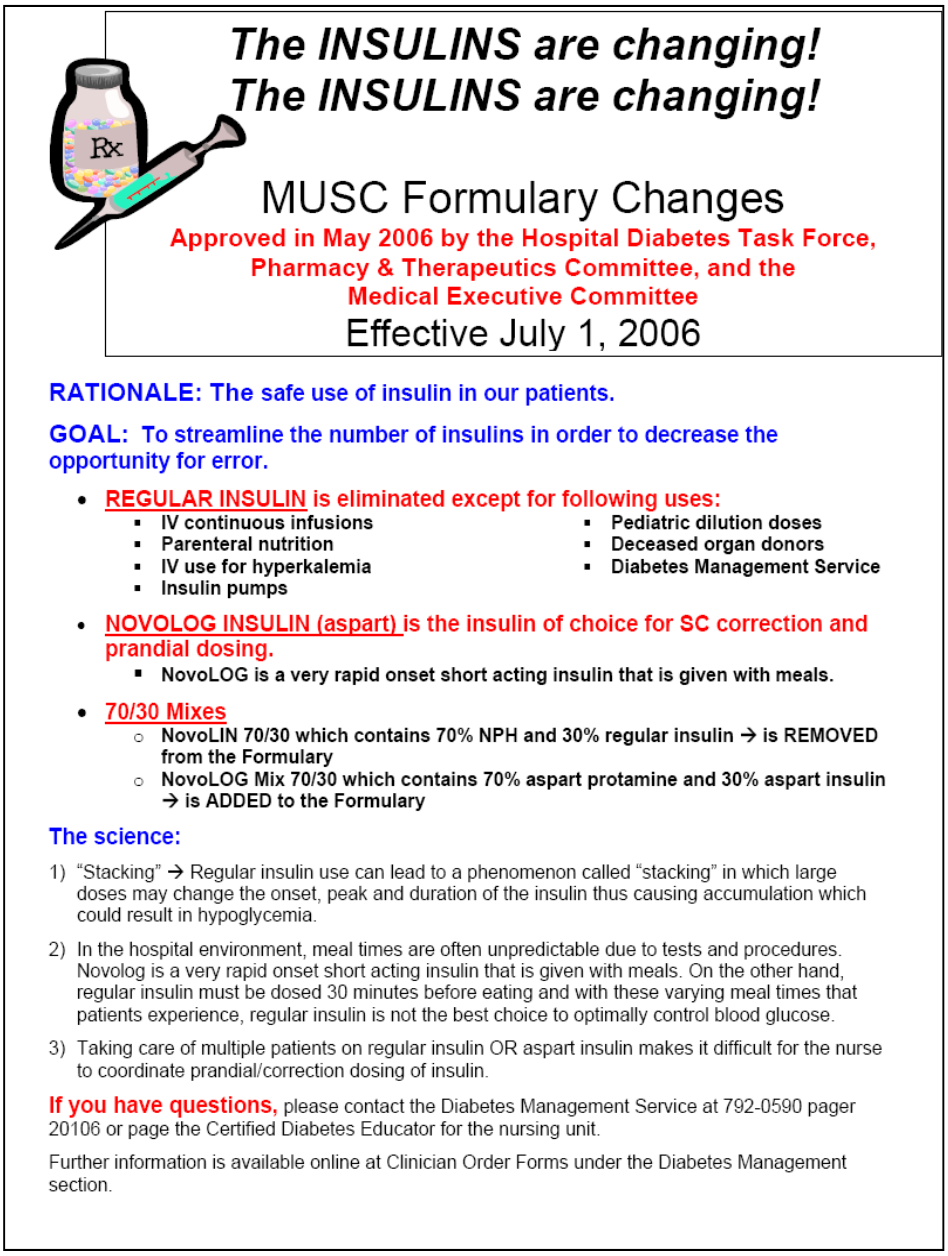
DMS recommends that patients receive a long-acting insulin (ie, Novolin® NPH or insulin glargine [Lantus®]) as a basal insulin with a rapid-acting insulin (ie, insulin aspart [Novolog]) for meal coverage. *Correction* insulin can be added to the rapid-acting insulin if hyperglycemia occurs despite the scheduled insulin regimens. The *correction* protocols replace the sliding scale protocols.

Due to these recommendations, the formulary status of selected insulin products has been changed. The rationale is to ensure safe use of insulin. The goal is to decrease the number of insulin products in order to decrease the opportunity for error. The use of regular insulin for subcutaneous dosing will be restricted to practitioners from DMS. This

product will still be available for the following intravenous uses: continuous infusions, parenteral nutrition, hyperkalemia, insulin pumps, pediatric dilutions, and deceased organ donors. Insulin aspart (NovoLog®) will be the insulin of choice for meal coverage and correction. Other changes include the deletion of NovoLIN® 70/30 and the addition of NovoLOG® Mix 70/30. Both NovoLOG® and NovoLOG® Mix 70/30 are 1:1 conversions with regular insulin and NovoLIN 70/30, respectively.

The formulary effective date of these change is July 1, 2006. DMS has provided education regarding these changes to all of the departments and educational posters have been posted in patient care areas (Figure 1).

**Figure 1. Educational Poster for Formulary Insulin Changes**




## Enhancements to the Online *MUSC-MC Formulary of Accepted Drugs*

The *MUSC-MC Formulary of Accepted Drugs* is a list of medications that are approved for use at the Medical Center. The goal of the of the formulary is to provide the most safe, efficacious, and cost-effective treatment to our patients.

The formulary is available at www.formluaryproductions.com/musc, and the link can be found on the MUHA Intranet Page. The online formulary contains medications and respective formulations that are approved for use at the Medical Center, comments regarding restrictions, links to medication-specific preprinted order forms, and links to the Micromedex monograph, patient education leaflet, and PubMed citations for each medication. The online formulary may also be downloaded to a PDA through AdvantGo. To download the formulary, follow the instructions provided on the Web site.

Recently, the main page of the Web site has been updated to provide access to relevant information regarding medication use (Figure 2). Additions include links to the *Pharmacy and Therapeutics Update: Drug Information for Health Care Professionals* newsletters, Automatic Therapeutic Substitution Protocols, Formulary Restricted Medications, Drug Information Resources, Medication Safety Resources, Drug Shortage Resources, and Useful Healthcare Internet Sites.

The Drug Information Resources section provides links to the adult

and pediatric continuous infusion guidelines, adult and pediatric intravenous push medication administration charts, adult and pediatric electrolyte guidelines, and other guidelines and charts pertinent to medication use. In addition, this section provids a link to the Medicare Part D and Medicaid formularies.

The Medication Safety section provides links to the 2006 National Patient Safety Goals, MUSC looks-alike, sounds-alike medications, medications with black-box warnings, oral formulations that should not but crushed or chewed, and the order writing guidelines with prohibited abbreviations.

The Drug Shortage Resource section provided links to the MUSC drug shortage Web site and information available through the Food and Drug Administration (FDA) and the American Society of HealthSystem Pharmacists.

Useful healthcare internet sites have been compiled to assist healthcare professionals with information for themselves and their patients. The sites for healthcare professionals include the FDA, Centers for Disease Control and Prevention (CDC), eMedicine, MDConsult, Medscape, MerckMedicus, National Guideline Clearinghouse, National Library of Medicine, and UpToDate. For consumers, eMedicine - Consumer Edition, KidsHealth, and MedlinePlus provide information regarding disease states and medications.

For any questions regarding this site, please contact the Drug Information Center at 2-3896 or druginfo@musc.edu.

## Changes for the Mayday Orange Tackle Boxes

After a recent review by the Mayday Committee, the orange tackle boxes (OTBs) will undergo changes to certain products and medications (See Tables 1 and 2). These changes were necessary to place first-line medications needed for any mayday in the OTBs, and to allow the eventual removal of the "Anaphylaxis Kits" from the floors. The effective date is August 31, 2006; however, specific notification will be sent when this occurs.

The updated OTBs will have dated blue labels (July 5, 2006) on the boxes identifying the additions and deletions, as well as revised content lists and patient charge sheets. As the current OTBs are returned to the Distribution Center, they will be exchanged with the refurbished, updated boxes.

Any questions about the changes or use of the safety shield needles should be referred to Donna Barrio, PharmD, Coordinator, Pharmacy Support Services, at 2-1363 or barriodj@musc.edu.

Other information regarding maydays can be found at www.mcintranet.musc.edu/mayday/.

**Figure 2.** ***MUSC-MC Formulary Of Accepted Drugs*** **Web site**


## Did You Know...

The Human Papillomavirus (HPV) Virus Vaccine (Gardasil®), manufactured by Merck, is the first vaccine developed to prevent cervical cancer, precancerous genital lesions and genital warts due to HPV. The vaccine is highly effective against 4 types of the HPV virus, including 2 that cause about 70% of cervical cancer. Those who have not acquired HPV would get the full benefits of the vaccine.

CDC Advisory Committee on Immunization Practices (ACIP) recommends that the HPV vaccine be routinely administered to all girls when they are between 11 and 12 years of age. Additionally, the ACIP recommendation allows for the vaccination of girls beginning at 9 years old as well as vaccination of girls and women between 13 and 26 years of age. The vaccine should be administered before onset of sexual activity (ie, before women are exposed to the viruses), but females who are sexually active should still be vaccinated.

FDA has approved the first generic version of Zoloft tablets (sertraline), as well as a liquid concentrate (sertraline hydrochloride). Sertraline is indicated for the treatment of major depressive disorder (MDD) in adults and anxiety-related disorders.

FDA has completed the safety assessments of telithromycin (Ketek®), which is indicated for the treatment of acute exacerbation of chronic bronchitis, acute bacterial sinusitis, and community acquired pneumonia. Telithromycin has been associated with rare cases of serious liver injury and liver failure with 4 reported deaths and 1 liver transplant. FDA determined that additional warnings are required within the product labeling. Physicians and patients are encouraged to be aware of signs and symptoms of liver problems.

**Table 1. Items Removed from the Orange Tackle Boxes**

| Items Removed | Quantity |
|---|---|
| Epinephrine 1-mL ampule (1 mg/mL) | 2 |
| Lidocaine 2% 100-mg/5-mL syringe | 1 |
| 21 g 1-inch 'plain' needles | 12 |
| TB syringes with 'plain' needles | 5 |
| Epinephrine 1-mg/mL vial label that reads "FOR HIGH DOSE EPI ONLY" | -- |

**Table 2. Items Added to the Orange Tackle Boxes**

| Items Added | Quantity |
|---|---|
| Adenosine 6-mg/5-mL syringe | 3 |
| Amiodarone 150-mg/3-mL vial | 2 |
| Diphenhydramine 50-mg/mL (1-mL) vial | 1 |
| Methylprednisolone sodium succinate 500-mg vial | 1 |
| 21 g 1-inch Safety Shield (eclipse) needles | 8 |
| TB syringe with Safety Glide needles | 5 |
| Epinephrine 30-mL vials (1 mg/mL) label that reads "FOR SC OR ET USE ONLY" | -- |
| Amiodarone dilution instruction sheet with 5% dextrose solution (50 mL) and 30-mL syringe | -- |

# Formulary Update

The Pharmacy and Therapeutics Committee recently approved the following actions:

**Additions:**
*Effective June 19, 2006*
Vytorin®
**10/10-, 10/20-, 10/40-, and 10/80-mg tablets**

*Effective July 1, 2006*
NovoLog® Mix 70/30
**100-units/10-mL vials**

**Addition with Restriction:**
*Effective June 19, 2006*
Cetuximab (Erbitux®)
**100-mg/50-mL single-use vials**

**Restriction Added:**
*Effective July 1, 2006*
As part of the initiative to limit the use of regular insulin (Novolin® R), the subcutaneous administration of this product will be restricted to the Diabetes Management Service.
**100-units/10-mL vials**

**Line Extensions:**
*Effective June 19, 2006*
Sarna® Lotion
**7.5-oz bottles**

Albuterol/ipratropium (DuoNeb®)
**3-mL unit-dose vials**

**Deletions:**
*Effective June 19, 2006*
Rabies vaccine (RabAvert®)
**1-mL injection**

*Effective July 1, 2006*
Novolin® 70/30
**100-units/10-mL vials**