

# DRUG UPDATE

Volume 24, Number 3

April 2007

## FORMULARY UPDATE

The P&T Committee met on February 19, 2007. The following is a summary of the business conducted:

### ADDED:

- ◆ None

### DELETED:

- ◆ Sodium ferric gluconate (Ferrlecit<sup>®</sup>)
- ◆ Kanamycin (Kantrex<sup>®</sup>)
- ◆ Ritodrine (Yutopar<sup>®</sup>)
- ◆ Hydroxyprogesterone caproate (Hylutin<sup>®</sup>)
- ◆ Pentagastrin (Peptavlon<sup>®</sup>)
- ◆ Histoplasmin skin test (Histoyl-CYL<sup>®</sup>)
- ◆ Coccidioidin skin test

### CRITERIA FOR USE:

- ◆ Ranibizumab (Lucentis<sup>™</sup>)

**Sodium ferric gluconate (Ferrlecit<sup>®</sup>)** was deleted from the *Formulary*. In January 2005, iron sucrose (Venofer<sup>®</sup>) was added to the *Formulary*. Sodium ferric gluconate was recommended for deletion at that time; however, this agent remained on *Formulary* due to reimbursement issues related to oncology indications. Since then, billing issues have been resolved, and iron sucrose is now the primary iron formulation used by the Divisions of Hematology/Oncology and Nephrol-

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## Formulary

### Non-formulary/ Do Not Order Designation approved by P&T

The goals of a formulary management program are to select pharmacotherapeutic agents based on optimal efficacy, safety, and cost. Effective formulary management can reduce expenditures and increase medication use safety. Several tools have been used for formulary management including therapeutic substitution lists and restrictions of drugs to specific prescribing services. Another tool used by some institutions is a Do not stock/order list. This list includes drugs which, after review by the Pharmacy & Therapeutics (P&T) Committee, are deemed not to provide benefit over *Formulary* agents with regard to outcomes or costs.

At the February P&T Committee meeting, the members unanimously approved the concept of a Non-Formulary/Do Not Order designation.

Drugs currently assigned to the Non-Formulary/Do Not Order list include IV pantoprazole (Protonix<sup>®</sup>), benzonatate (Tessalon

Pearles<sup>®</sup>), and levalbuterol (Xopenex<sup>®</sup>).

The IV proton pump inhibitors (PPIs) were reviewed as a class in 2005. At that time, all of the products in this class were deemed equivalent. The *Formulary* IV PPI at Shands Jacksonville is esomeprazole (Nexium<sup>®</sup>). There is also an automatic therapeutic substitution for IV esomeprazole when IV pantoprazole is ordered for hospitalized patients.

Benzonatate was also added to the Non-formulary/ Do not Order list. Benzonatate is an oral, nonnarcotic antitussive used to suppress cough associated with respiratory conditions.

Clinical trial data evaluating its efficacy is limited to case reports. Consensus panel guidelines of the American College of Chest Physicians report benzonatate

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as an agent with limited utility and a lack of controlled trial data to support its efficacy compared to placebo.<sup>1</sup>

In addition to limited efficacy data, benzonatate is associated with serious respiratory and cardiac adverse events.<sup>2</sup> It is contraindicated in patients with *ester local anesthetic hypersensitivity*, and the formulation also contains methyl- and propylparaben; possibly problematic in patients with paraben hypersensitivity. Benzonatate effects are additive when taken with certain medications (e.g., opiate agonists, monoamine oxidase inhibitors (MAOIs), local anesthetics) that cause increased vagal effects and respiratory depression. Combination therapy with these agents may result in serious complications and concomitant use is not recommended. Bronchospasm or laryngospasm may occur from sucking or chewing benzonatate capsules, which have local anesthesia effects.<sup>1</sup> Benzonatate should also be used cautiously in critically ill patients due to possible inhibition of the gag reflex leading to aspiration pneumonia.

Levalbuterol was also added to the Non-Formulary/Do Not Order

**Table 1. Medications listed in Non-formulary/Do No Order list and Formulary Alternatives**

Non-Formulary/Do Not Order	Formulary Alternative
Benzonatate (Tessalon Pearles <sup>®</sup> )	Guaifenesin DM (Robitussin DM <sup>®</sup> ) <u>or</u> Codeine
IV Pantoprazole (Protonix <sup>®</sup> )	IV Esomeprazole (Nexium <sup>®</sup> )
Levalbuterol (Xopenex <sup>®</sup> )	Albuterol (Proventil <sup>®</sup> , Ventolin <sup>®</sup> , Proair <sup>®</sup> )

list. Levalbuterol is the (R)-enantiomer of racemic albuterol. It is a beta-2-agonist indicated for prevention and treatment of acute bronchospasm and asthma. Racemic albuterol (Proventil<sup>®</sup>, Ventolin<sup>®</sup>) is a 1:1 mixture of the R- and S- isomers. Racemic albuterol (Proventil<sup>®</sup>, Ventolin<sup>®</sup>) is listed in Shands Jacksonville *Formulary*. Preclinical evidence has suggested that the S-isomer may have pro-inflammatory and pro-bronchoconstrictive properties. It has also been suggested that albuterol has higher rates of tachycardia than levalbuterol; however, clinical evidence has varied with regard to these findings.<sup>3,4</sup> Therapeutically, levalbuterol and albuterol are similar in their effectiveness. The cost of nebulized levalbuterol is almost 9 times greater than albuterol and the cost of the levalbuterol metered dose inhaler (MDI) is approximately 2 times greater than the albuterol HFA MDI.

The Non-Formulary/ Do Not Order list, along with suggestions for therapeutic *Formulary* options, can be found in table 1 and will be available in the Pharmacy Department page of the Infonet (<http://intrahands1.umc.ufl.edu/pharmacy/default.asp>). Medications will be added to this list as they are reviewed by the P&T Committee.

**By Lindsay Kittany, Pharm.D.  
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**References:**

1. Irwin RS, Boulet LP, Cloutier MM, et al. Managing cough as a defense mechanism and as a symptom. A consensus panel report of the American College of Chest Physicians. *Chest* 1998; 114 (2 Suppl Managing): 133S-81S.
2. Anon. Clinical Pharmacology online [benzonatate (Tessalon Perles<sup>®</sup>)]. Available: <http://cpip.gsm.com/> Accessed: February 10, 2007.
3. Lam S, Chen J. Changes in heart rate associated with nebulized racemic albuterol and levalbuterol in intensive care patients. *Am J Health-Syst Pharm* 2003; 60(19): 1971-5.
4. Datta D, Vitale A, Lahiri B, ZuWallack R. An Evaluation of Nebulized Levalbuterol in Stable COPD. *Chest* 2003; 124: 844-9.

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**Kanamycin (Kantrex<sup>®</sup>) was deleted from the *Formulary*.**

Kanamycin is an aminoglycoside that is a derivative of amikacin. Due to low utilization of both the oral and the IV formulations, kanamycin was recommended for deletion. The oral formulation has been discontinued by all manufacturers, and the injection is only available from a single source.

The following medications, **Ritodrine (Yutopar<sup>®</sup>), Hy-**

**droxyprogesterone caproate (Hylutin<sup>®</sup>), Pentagastrin (Peptavlon<sup>®</sup>), Histoplasmin skin test (Histoyl-CYL<sup>®</sup>), and Coccidioidin skin test,** have been discontinued by their respective manufacturers and deleted from *Formulary*.

**The Criteria for Use for Ranibizumab (Lucentis<sup>™</sup>) were approved.** Ranibizumab is indicated for the treatment of neovascular (wet) age-related macular degeneration. This drug is contraindicated in the presence of current ocular or periocular infection. A 2007 *Med-*

*watch* alert stated that preliminary safety data from the SAILOR trial showed a higher incidence of stroke occurrence in patients receiving the FDA-approved dose of 0.5 mg vs. 0.3 mg (1.2% vs. 0.03%, respectively, p = 0.02). The Criteria for Use reflect this data and should be used cautiously in patients with a history of stroke.

## Medication Reconciliation Process Revised

To accurately and completely reconcile medications across the continuum of care is one of the Joint Commission's 2007 National Patient Safety Goals. To make the home medication reconciliation (HMR) process more accurate, consistent, and less burdensome to all healthcare professionals involved, the Pharmacy and Therapeutics Committee endorsed a revision to the current HMR process. This new policy was developed by an interdisciplinary team on campus.

The new HMR form will serve as a physician order form, thus the medication history obtained from any source should be accurate, legible, and complete. The new process for any new admission and transfer/postoperative situation is described in detail below.

### Emergency Department (ED) admissions:

1. Patient entry
2. ED Nurse initiates medication reconciliation/physician order form
  - a. Obtain home medication information from patient, family members, or referring facility (including prescription, over-the-counter products, and herbal medications).
  - b. Obtain allergy profile
  - c. Incomplete medication entries are considered incomplete medication orders (Complete medication order should contain: the medication name, dose, dosage form, route of administration, and frequency.)
  - d. Nurse must sign in the middle of the form as the person taking the medication history.
3. Patient becomes admitted
  - a. Admitting prescriber will reconcile the home medications to determine if the patient should continue or discontinue the home medication upon admission by circling the appropriate

designation on the form.

- b. Physician will sign the middle of the form as the reconciling practitioner.
- c. This process of continuing or discontinuing the home medication can be done as a telephone order/read back (TO/RB) if the admitting physician is not on campus.
- d. The new form is in triplicate; the white form is the original that stays in the chart, the yellow copy becomes the form that will be either taken by the pharmacist or faxed to the pharmacy (when applicable). The patient will receive the

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- e. Pharmacy will not enter the medications unless the medication orders are complete and the form is signed by a licensed practitioner or signed as TO/RB.
4. Patient discharged from the ED
  - a. ED physician reconciles the home medications to either continue or discontinue the medications at discharge (last column on the top of the new HMR form).
  - b. If additional discharge medications or changes to the patient's home medication list need to be written, they should be written on the bottom portion of the HMR form. **PRESCRIPTIONS STILL NEED TO BE WRITTEN AND**

### **GIVENTO THE PATIENT.**

- c. The discharging physician must sign the form on the specified line on the bottom of the form.
- d. The ED nurse will sign and review the medications with the patient before discharge.
- e. The pink copy will be given to the patient at discharge.
  - i. This will serve as a list of the patient's current medications.
  - ii. The patient should be counseled to share this information with his or her primary care physician.

### **Other Points of Admissions (pre-admission testing, specialty populations, direct admits, etc.):**

1. Nurse initiates medication reconciliation/physician order form
  - a. Obtain home medication information from patient, family members, or referring facility (including prescription, over-the-counter products, and herbal medications).
  - b. Obtain allergy profile
  - c. Medication entries should be complete and contain medication name, dose, dosage form, route of administration, and frequency.
  - d. Nurse must sign in the middle of the form as the person taking the medication history.
2. Admitting physician will reconcile the home medications to determine if the patient should continue or discontinue the home medication during hospital stay.
  - a. Physician will sign the middle of the form as the reconciling practitioner.
  - b. This process of continuing or discontinuing the home medication can be done as a TO/RB order if the admitting physician is not on campus.
3. The yellow copy is considered an admission order.
  - a. This form becomes the form that will be used by the pharmacy.
  - b. Additional admission orders must be written on the regular

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- order form and taken by a pharmacist or faxed to the pharmacy as normal.
- c. If medication orders are inaccurate on the form when faxed to pharmacy, a pharmacist will clarify with the physician and changes to medication orders will be documented on a physician order form as usual.
- 4. Patient cleared for discharge
  - a. Discharge physician reconciles the discharge medications to either continue or discontinue the medications at discharge (last column on the top of the new HMR form).
  - b. If additional discharge medications or changes to the patient's home medication list need to be written, changes/additions should be written on the bottom portion of the HMR form. **PRESCRIPTIONS STILL NEED TO BE WRITTEN AND GIVEN TO THE PATIENT.**
  - c. The discharging physician must sign the form on the specified line at the bottom of the form
  - d. The nurse will sign and review the medications with the patient before discharge.
  - e. The pink copy will be given to the patient at discharge.
    - i. This will serve as a list of the

patient's current medications.

- ii. The patient should be counseled to share this information with his or her primary care physician.

**Transfer/Postoperative Situations:**

1. If the patient is transferred or is post-op, the prescriber will refer to the **Medication Reconciliation/ Orders Form** and the **Medication Reconciliation Form-Active Orders** when initiating transfer/post-operative orders.
  - a. The **Medication Reconciliation Form-Active Orders** is a pre-printed form that is generated from the Patient Care System (a.k.a. STAR or HBO).
  - b. Prescribers have access to this program, as well as a login to this system.
  - c. There is a laser printer on each unit that is able to print this particular form.
  - d. This form gives a complete print-out of all the active medications in a patient's profile.
  - e. The form allows a prescriber to review the active medications and gives the prescriber the option to re-order medications upon transfer or postoperatively. The prescriber should also review the **Medication Reconciliation/ Orders Form** that was completed at the patient's initial admission to determine the continuation of

patient's home medications, if not already continued.

- g. If any changes to the active orders need to be made, these should be written as a new order in the space provided at the end of the **Medication Reconciliation Form-Active Orders** or on a separate physician order form.
  - h. The bottom of each form should be signed by the physician to become a valid physician order.
  - i. One copy of **Medication Reconciliation Form-Active Orders** form should be in the chart and one copy should be faxed to the pharmacy.
2. The above transfer/postoperative process can be done **OR** the prescriber can choose to manually write out all the transfer/postoperative orders on a separate physician order form as usual. **HOWEVER**, the prescriber still needs to refer back to the **Medication Reconciliation/ Orders Form** from the patient's initial admission to determine the continuation of the patient's home medications, if not already continued.

This process is designed to allow medication reconciliation be as accurate and as uncomplicated as possible. If you have any questions regarding this process, please contact your liaison pharmacist.

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