

# Pharmacy & Therapeutics Update (TMC, FMC, MPH) Drug Information for Health Care Professionals



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## Therapeutic Interchange for Levalbuterol (Xopenex) to Albuterol

[jlhodges@novanthealth.org](mailto:jlhodges@novanthealth.org)

[lbrennan@novanthealth.org](mailto:lbrennan@novanthealth.org)

Albuterol (ALB) is a rapid acting  $\beta_2$ -agonist bronchodilator used for asthma, COPD, and other bronchoconstrictive disorders. Levalbuterol tartrate (LEV) is the active, (R)-enantiomer of racemic albuterol sulfate. The clinical significance of the isolation of the active enantiomer is not known. There are concerns that the inactive enantiomer of ALB causes side effects (tachycardia, inflammatory effects) and may have a longer half-life than the active enantiomer alone (LEV). However, in clinical trials, these differences were not proven to be clinically significant. A review of the trials was presented to the CT Surgeons, Cardiologists, Salem Chest Physicians, and NICS Physicians. The Pharmacy Department worked with Cardiopulmonary Services to determine the most effective, cost-efficient therapy for our patients. As a result, a therapeutic interchange from levalbuterol to albuterol was approved at the September P&T committee meeting. This interchange will lead to an estimated \$85-90,000 cost savings in the Triad Region. **EFFECTIVE NOVEMBER 2nd, 2009**

Levalbuterol ordered as:	Therapeutic interchange to Albuterol as (same frequency):
0.31mg	0.62mg
0.62mg	1.25mg
1.25mg	2.5mg
2.5mg	5mg
Xopenex MDI	Ventolin HFA MDI (same number of puffs and frequency)

## Prasugrel (Effient®)

*Ryan Kammer, PharmD*

[rtkammer@novanthealth.org](mailto:rtkammer@novanthealth.org)

Prasugrel (Effient®) has been approved to reduce the rate of thrombotic cardiovascular events in ACS patients (unstable angina, non-STEMI, STEMI) **managed with PCI**. At this time, the coronary **anatomy should be defined**, and there should be a definite decision to manage the patient via PCI prior to prasugrel initiation.

Prasugrel is a prodrug that has demonstrated greater inhibition of platelet aggregation (IPA) compared to clopidogrel. This increased potency has resulted in a reduction in the combined efficacy endpoint (death from CV causes, nonfatal MI, nonfatal stroke), but at the cost of an increased risk of major bleeding (including fatal bleeding) in certain patient populations. Prasugrel is initiated with an oral loading dose of 60mg, followed by a maintenance dose of 10mg once daily in patients weighing at least 60kg.

**Contraindications** include active bleeding and any history of TIA or stroke. **Boxed warnings** include: may cause significant or fatal bleeding; use in patients  $\geq 75$  years old is not recommended;

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Kathryn Montanya, PharmD, FISMP  
Director of Pharmacy

Cheryl Marie Ezman, PharmD  
Clinical Pharmacy Manager

discontinue  $\geq 7$  days prior to CABG. In patients weighing less than 60kg, a 5mg daily maintenance dose "may be considered." However, this regimen is not recommended at this time due to the lack of supporting clinical data.

Continued diligence with determining and communicating **clopidogrel dosing prior to Cardiac Cath Lab arrival** (home, ED, outside hospital, etc.) will be very important. Currently, there is no data to direct "switching" between clopidogrel and prasugrel therapies.

Prasugrel has been added to Formulary, with initiation restricted to the Cardiologist. The coronary anatomy must be known, and there should be a definite decision to manage the patient via PCI prior to prasugrel therapy.

## White Blood Cell Growth Factors

*Amy Dooley, PharmD, BCPS*  
*adooley@novanthealth.org*

Colony-stimulating factors (CSFs) are recommended in certain situations to reduce the incidence and duration of neutropenia induced by myelosuppressive chemotherapy. Existing formulations include granulocyte (G-CSF, filgrastim, Neupogen®) and granulocyte-macrophage (GM-CSF, sargramostim, Leukine®) colony stimulating factors, as well as a longer-acting pegylated granulocyte colony stimulating factor (pegfilgrastim, Neulasta®).

At P&T this month, sargramostim was removed from formulary as the short-acting colony-stimulating factor, with filgrastim taking its place. The two short-acting agents are considered to be clinically equivalent, although filgrastim has been associated with a lower incidence of many adverse effects including edema, fatigue, fever, rash, and injection site reactions. Filgrastim is dosed at 5 mcg/kg/day as a subcutaneous injection, rounding to the nearest vial size. Patients weighing less than 78 kg should receive filgrastim 300mcg daily until neutrophil recovery and in general, patients weighing more than 78 kg should receive 480mcg. Pegfilgrastim is also equal in efficacy, but given as a single dose of 6 mg within 72 hours of the last dose of myelosuppressive chemotherapy. Pegfilgrastim has been added to formulary but restricted to outpatient use only

### Citicoline (CerAxon®)

*Cheryl Ezman, PharmD*  
*cmezman@novanthealth.org*

Citicoline is a dietary supplement that is one of the first products that has shown some benefit in improving recovery after acute ischemic stroke. Citicoline is a precursor in the synthesis of lecithin and other phospholipids. It is thought that this action can assist in protection of the integrity of the cell membranes in brain ischemia, attenuation of progression of ischemic cell damage by suppressing release of free fatty acids and improvement of cerebral function by interaction with other transmitters and receptors.

The studies completed evaluating use utilized the drug within 24 hours of onset of symptoms and treated for a duration of 6 weeks post stroke. The studies used a defined common evaluation of recovery. This evaluation was a combination of the NIH stroke scale, modified Rankin score (functionality), and Barthel Index (activities of daily living scores). Patients treated with citicoline were statistically more likely to achieve recovery than patients who did not receive this product.

Citicoline is dosed 2 grams PO daily (once daily or in 2 divided doses). The side effect profile was similar to placebo in the studies. This supplement is currently available on the formulary for use.

## Online Triad Region Formulary of Approved Medications

**Please follow the link from the Triad Clinical Resources intranet page to view the new and improved online formulary.**

*Drug information as well as therapeutic interchange  
information is available at the click of a button!*