

SHORT ACTING BETA 2 AGONISTS (SABA)

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Short-acting Beta 2-agonists medications

Albuterol (Albuterol nebulizer solution, Accuneb®, Proventil® HFA, Ventolin® HFA, ProAir®HFA, NEW: ProAir RespiClick- DPI)

Ventolin was the first SABA on the market in the early 1980's.

Levalbuterol (Xopenex® HFA, Xopenex® nebulizer solution)

****Pirbuterol (Maxair®) not on market now- per FDA Maxair Autohalers are phased out because they contain chlorofluorocarbons or CFCs**

Terbutaline-inhaled Brand forms such as Brethine -*No longer available in the U.S.- still available in tablet/injection

Albuterol and ipratropium bromide combination (DuoNeb® solution)



What is a SABA? Short Acting BETA2 AGONIST

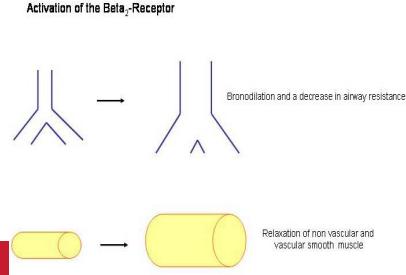
Classification of drug: Beta2 Agonist: Short Acting bronchodilators

Physiological Action: Bronchodilator

Cellular Action: Chemical compounds that act at the cellular level in organs - acts on adrenergic receptors in the body found in many organ tissues, specifically the beta-2 adrenergic receptors.

beta-2 adrenergic receptors are located in lungs, blood vessels of skeletal muscle, uterus, bladder and GI walls

AKA Quick Reliever or Rescue Medication



Albuterol VS Levalbuterol

When the chemical compounds of these drugs are discussed, it is the S & R isomers, or molecular & chemical structure of the compound that differentiate the cellular activity of the drug and different biological effects.

R albuterol- the primary isomer responsible for the bronchodilator effects of racemic albuterol.

S albuterol- which has little or no Broncho-dilating activity

Albuterol= compound of both (50:50) R & S albuterol

Levalbuterol= R albuterol only

Albuterol: the most commonly prescribed

Levalbuterol: Development of levalbuterol was based on the proposed advantages over albuterol

EPR3 REFER TO QUICK RELIEF MEDICATIONS, OR SABA'S. LISTING BOTH ALBUTEROL/ LEVALBUTEROL

[http://www.nhlbi.nih.gov/guidelines/asthma/asthsumm.pdf-](http://www.nhlbi.nih.gov/guidelines/asthma/asthsumm.pdf)

managing exacerbations flow chart #22



Albuterol VS Levalbuterol

Both Albuterol/Levalbuterol are listed in the NAEPP, 2007 for use to treat asthma exacerbation- clinician choice for preparation.

Infants and Children: Limited data in ages <2 years: (NAEPP, 2007): Oral inhalation has guidelines for Infants & young children:

<http://www.nlm.nih.gov/medlineplus/druginfo/meds/a603025.html>



SABA's: OVERVIEW OF PREPARATIONS

Albuterol Preparations

Albuterol MDI – No Generic available now (Generic was with CFC propellant & now BRAND Albuterol preps are with HFA)

: ProAir HFA (counter), Ventolin HFA (Counter), Proventil HFA (no counter), NEW: DPI-PROAIR RESPICLICK (Counter),

Albuterol Sulfate solution:

Albuterol Sulfate Inhalation Solution based on strength & a combination prep w/ ipatropim

Duration: Nebulization/oral inhalation: 3 to 4 hours

Protein binding: 10%

Metabolism: Hepatic to an inactive sulfate

Half-life elimination: Inhalation: 3.8 hours; Oral: 3.7 to 5 hours

Excretion: Urine (30% as unchanged drug); feces (<20%)

**Levalbuterol Preparations**

Levalbuterol MDI –

HFA preparations brand only -Xopenex HFA (no counter)

Levalbuterol HCl solution:

Levalbuterol/ Xopenex nebulized form is available in both generic & brand preparations & varied strengths

Aerosol: 3 to 4 hours (up to 6 hours in some patients)

Nebulization: 5 to 6 hours (up to 8 hours in some patients)

Absorption: A portion of inhaled dose is absorbed to systemic circulation

Half-life elimination: 3.3 to 4 hours

Time to peak, serum:

Aerosol: Children: 0.8 hours, Adults: 0.5 hours

Nebulization: Children: 0.3 to 0.6 hours, Adults: 0.2 hours



Discuss: inhalation technique, dose counters, priming & cleaning

Storage: out of reach of children

Nebulizer solutions: in the protective foil pouch at room temperature, Protect from light

MDI Preparations: Do not puncture the aerosol container and do not discard it in an incinerator or fire
Store canister between 20° and 25°C (68° and 77°F). Protect from freezing & high heat temperatures and direct sunlight.

DPI: Store PROAIR RESPICLICK at room temperature between 59°F and 77°F (15°C and 25°C).

• Avoid exposure to extreme heat, cold, or humidity.



@ www.drugs.com: Storage: Sol protect from light, MDI no extreme temps: warnings explode if it gets too hot, freeze if too cold



Use reputable Sites, Resources For references on approved SABA's

Examples are as:

Publications of drug reference materials:

Package inserts: FDA prescribing information at each manufacturers site

Lexicomp

Harriet Lane

PDR

EPR3: <http://www.nhlbi.nih.gov/health-pro/guidelines/current/asthma-guidelines>

Health Organizations that compile drug reference information

FDA: www.FDA.gov

AAFA: www.aafa.org

ATS: www.ats.org

AAAI : www.aaaai.org

OR the AAAAI Allergy & Asthma Medication Guide

<http://www.aaaai.org/conditions-and-treatments/Treatments/Drug-Guide/Asthma-Medications/saba.aspx>



- Short-acting beta 2-agonists are called "reliever" or "rescue" medicines.
- are recommended for treating early mild , sudden and severe asthma symptoms.
- work within 5-20 minutes and last four to six hours.
- use 15 to 20 minutes before exercise to prevent exercise-induced asthma symptoms.
- Forms of drug: inhalation, most commonly prescribed., Pills, tablets and intravenous forms of the drugs are used but can have more side-effects.
- Monitoring use gives information about asthma symptom control
EX: Medication/symptom logs, ACT & Rules of two



Drug Action : Bronchodilator

Bronchoconstriction or Bronchospasm :

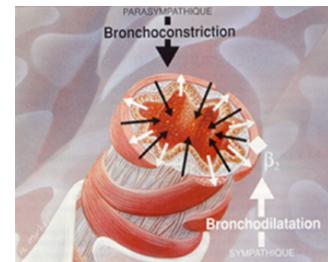
The condition when bronchi are narrowed due to the airway smooth muscles contraction in response to airway changes thus causing airflow to be decreased or stopped.

Hyper-reactivity of the bronchioles small airways:

Is a state characterized by easily triggered bronchospasm
 Bronchodilator : reverses the airway narrowing by relaxing airway smooth muscles

REMEMBER : USE PLAIN LANGUAGE WHEN EDUCATING YOUR PATIENTS ABOUT THESE TERMS

Accessed 6/10/14:
<http://www.bing.com/images>

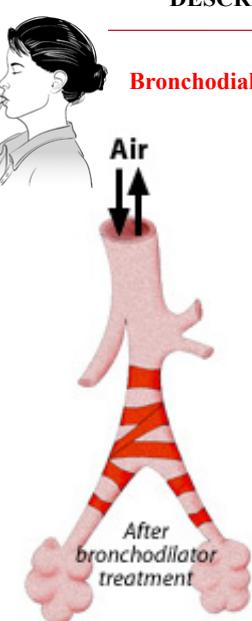


DESCRIPTIVE PICTURES CAN ASSIST THE LEARNER

Bronchoconstriction



Bronchodilation



SABA's are

Quick Relief/Rescue Medicine

This type of medication is a bronchodilator.

The action:

>relaxing the airway smooth muscle.

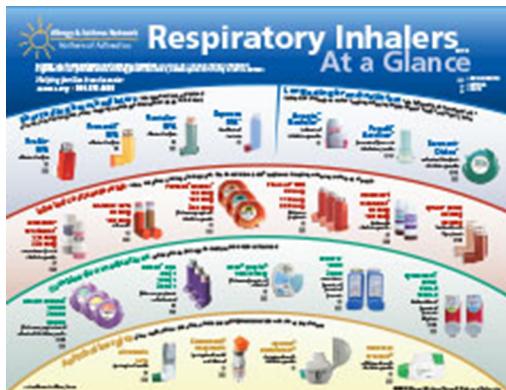
>open airway & airflow to improve
In plain language:

This medicine stops the squeezing of the air tubes this opens the air tubes & lets air flow better, makes breathing easier

 **Stony Brook Children's**

**Use handouts, video, web-link, charts, & pictures to
Ensure your tool is Up To Date:**

EXAMPLE:
At a Glance poster
by Allergy & Asthma Network
Mothers of Asthmatics (AANMA)



Accessed on 6/26/14 on the web: <http://www.aanma.org/aanma-store/posters/>



Bronchodilator MDI-HFA

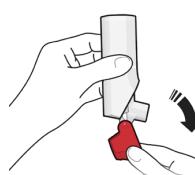
ProAir HFA Proventil HFA Ventolin HFA Xopenex (Levalbuterol) HFA



Pirbuterol (Maxair)
NO LONGER AVAILABLE

Nebulizer Solutions



New DPI
Propair RespiClick

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Name of medications, how do they identify their rescue medicines
 How it works- why it is used for asthma
 When to use it , monitor response
 How it is used
 Side effects
 Keep track of use, and amount of doses, expiration dates
 How to Store Properly

http://my.clevelandclinic.org/disorders/asthma/hic_treating_asthma_with_bronchodilators.aspx



OVER USE OF THIS MEDICATION IS A RED FLAG

Educate to monitor SABA use
 Clinicians to monitor the prescription refills of SABA's.
OBTAIN TEACH BACK



Ask Me 3

- Is a patient education program
- Designed to improve communication between patients and health care providers Encourage patients to become active members of their health care team
- Promote improved health outcomes.
- The program encourages patients to ask their health care providers three questions:
 1. What is my main problem?
 2. What do I need to do?
 3. Why is it important for me to do this?
- Studies show that people who understand health instructions make fewer mistakes when they take their medicine and they may also get well sooner or be able to better manage a chronic health condition.

Source: <http://www.npsf.org/for-healthcare-professionals/programs/ask-me-3/>



Stony Brook Children's

“WHEN YOU CAN'T BREATHE, NOTHING ELSE MATTERS”

Federal trademark registration *By: [American Lung Association](#)*

