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Patient education: Medicines for chronic obstructive pulmonary disease (COPD) (The Basics)

[Written by the doctors and editors at UpToDate](#)

What do chronic obstructive pulmonary disease medicines do?

If you have chronic obstructive pulmonary disease (also called COPD), your doctor can prescribe medicines that will:

- Help you feel better and more able to do everyday activities
- Reduce or prevent COPD symptoms, such as coughing or shortness of breath
- Help reduce the risk of future attacks or flares

If you smoke, the best thing you can do for your health is to quit smoking. It's also important to stay away from secondhand smoke (from other people's smoking).

Which medicines might I need?

There are several different medicines available to treat COPD. Most people use inhalers that help open up their airways or decrease swelling in the airways. The airways are the branching tubes that carry air inside the lungs ([figure 1](#)). Depending on how severe your symptoms are, you might need more than 1 inhaler. The doses and choices of medicines you need might be changed as your symptoms change over time.

The list below gives basic information on COPD inhalers and other medicines, and the table lists the names of COPD medicines ([table 1](#)). Your doctor, nurse, or pharmacist will explain how to use your inhalers.

Inhaler medicines to treat COPD

Bronchodilator inhalers – Bronchodilator inhalers are the main medicines used to treat COPD. They help open the airways. They might also help lower the amount of mucus in the lungs.

Bronchodilator inhalers come in "short-acting" forms that relieve symptoms quickly and "long-acting" forms that control symptoms over time.

Short-acting bronchodilator inhalers include:

- **Short-acting beta agonists** – Short-acting beta agonists, or "SABAs," include [albuterol](#) (salbutamol) and [levalbuterol](#) (levosalbutamol). They relieve shortness of breath quickly by relaxing tight muscles around the airways. SABAs usually come in a "metered dose" inhaler or a "dry powder" inhaler. They can also be taken by nebulizer, which is a machine that turns the medicine into a fine mist.
- **Short-acting muscarinic antagonists** – [Ipratropium](#) is a short-acting muscarinic antagonist, or "SAMA." These medicines are also called "anticholinergics." They relax the lung muscle in a different way to open airways and reduce symptoms. If you have mild COPD, you might use a SAMA inhaler only when you have symptoms. If symptoms are more severe or happen often, you might use it every day to help keep symptoms from happening. This medicine comes in a metered dose inhaler and can also be taken by nebulizer.
- **Short-acting combination medicine** – A combination inhaler has 2 medicines in the same inhaler. Taking them together can work better than taking them alone. These medicines come in a soft mist inhaler and can also be taken by nebulizer.

Long-acting bronchodilator inhalers include:

- **Long-acting beta agonists** – Long-acting beta agonists, or "LABAs," include [salmeterol](#) (brand name: Serevent), [indacaterol](#) (brand name: Arcapta), and [olodaterol](#) (brand name: Striverdi). These relax the muscles around the airways like short-acting beta agonists do. But the effects last much longer. LABAs help control symptoms for 12 to 24 hours, depending on the exact one being used.
- **Long-acting muscarinic antagonists** – Long-acting muscarinic antagonists, or "LAMAs," are also called "long-acting anticholinergics." They include [tiotropium](#) (brand name: Spiriva), [glycopyrrolate](#) (brand name: Seebri Neohaler), [umeclidinium](#) (brand name: Incruse Ellipta), and [aclidinium](#) (brand name: Tudorza Pressair). They help the lungs work better and decrease symptoms over time. They also reduce the risk of COPD attacks, called "flares." A flare is when symptoms suddenly get worse. There are several types of LAMA inhalers. These are listed in the [table 1](#).

- **Long-acting combination medicine** – Long-acting combination inhalers come as "dual inhalers" with both a LABA and a LAMA. These are listed in the table ([table 1](#)).

Inhaled steroids – Steroids work by reducing swelling in your airways. These are **not** the same as the steroids some athletes take illegally. If a long-acting bronchodilator inhaler does not control your symptoms, your doctor might prescribe a steroid, too. Steroids are usually prescribed as a combination inhaler that also contains a LABA. There is also a "triple inhaler" with a steroid, LABA, and LAMA. Each time you use an inhaler that contains steroid medicine, you need to rinse your mouth out and gargle with water afterwards.

How do I use the different kinds of COPD inhalers?

Medicines for COPD come in different kinds of inhalers, and each kind has its own directions.

For example, you need to prepare metered dose inhalers (also called "MDIs" or "HFA inhalers") before using them for the first time, or if you haven't used them in more than a week or 2. You get them ready by shaking them for 5 seconds, spraying medicine into the air (away from your face), and then repeating these steps 3 times before using the inhaler. On the other hand, you do not need to shake or prime dry powder inhalers (like Diskus or HandiHaler) before using them.

The medicine for some dry powder inhalers (called single-dose inhalers, like HandiHaler and Neohaler) comes in a pill that you put into the inhaler when it is time to take a dose. The pill does not work if you swallow it. It must be used with the inhaler.

The soft mist (Respimat) inhaler does not need to be shaken before use, but you do need to insert the canister into the holder and follow a couple of steps to get it ready for use. You will need to prime the inhaler before using it the first time or if you haven't used it in more than 3 weeks (4 sprays pointed to the ground). If you haven't used it in more than 3 days, prime once (1 spray pointed to the ground). Unlike other inhalers, the medicine comes out in a mist.

Your doctor, nurse, or pharmacist can explain how to use the inhaler you are prescribed. Most patients find it easy to use an inhaler once someone shows them how.

More information about how to use each type of inhaler can be found in the tables:

- Metered dose inhalers ([table 2](#))
- Dry power inhalers ([table 3](#))
- Soft mist inhalers ([table 4](#))

What if I have a COPD flare?

A COPD flare is when symptoms suddenly get worse. Doctors sometimes call flares "exacerbations." If you have a flare, you might need some new medicines. Or you might need to take medicine in a different way than through an inhaler for a while.

Medicines for COPD flares include:

- **Short-acting beta agonists (SABAs) and short-acting muscarinic antagonists (SAMAs)** – You might need to take these medicines from a nebulizer. A nebulizer might work better than an inhaler when you have a COPD flare.
- **Steroids that come in pills** – Most likely, you will need to take steroid pills for several days. If you have diabetes, steroid pills can increase your blood sugar.
- **Steroids that come in an "IV"** – An "IV" is a thin tube that goes into a vein. It is usually given in the hospital. A person who has a severe COPD flare might need treatment with IV steroids in the hospital.
- **Antibiotic medicines** – You may need to take an antibiotic if you have a lung infection or if your symptoms are more severe. Most often, the antibiotic is given as a pill. If you need to stay in the hospital, you might need an IV antibiotic.

How can I prevent flares of my COPD?

If you have COPD, you need a flu shot every fall and the pneumonia vaccine at least once. This is because infections like the flu and pneumonia can be very hard on your lungs. It is important to try to prevent them.

People who have more than 2 COPD flares a year might need a medicine to help prevent them.

These include:

- [Azithromycin](#) – This is an antibiotic pill that is taken at a low dose. It can help prevent flares in some people, but is not used in everyone with COPD. That's because antibiotics can cause other problems.
- [Roflumilast](#) – This medicine comes in a pill you take by mouth. It can help reduce flares, but only in people with chronic bronchitis and severe COPD.

It is a good idea to keep a list of all the medicines you take and bring it with you every time you visit a doctor or nurse. You can find an example of this kind of list at the following website:

www.fda.gov/drugs/resources-you-drugs/my-medicine-record

For more detailed information about your medicines, ask your doctor or nurse for information from Lexicomp available through UpToDate. It explains how to use each medicine, describes its possible side effects, and lists other medicines or foods that can affect how it works.

More on this topic

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[Patient education: How to use your dry powder inhaler \(adults\) \(The Basics\)](#)

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[Patient education: How to use your soft mist inhaler \(adults\) \(The Basics\)](#)

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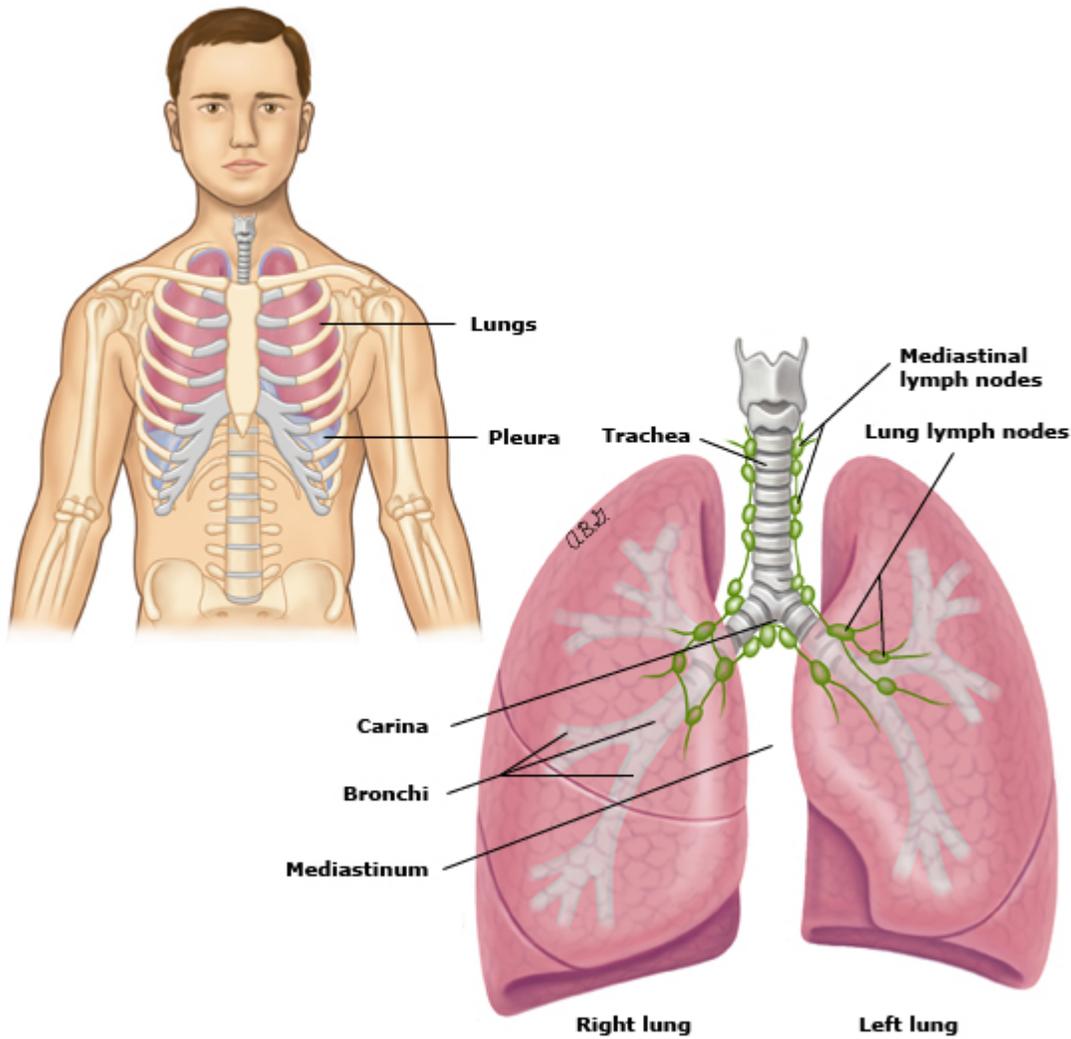
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Topic 85724 Version 17.0

GRAPHICS

Normal lungs



The lungs sit in the chest, inside the ribcage. They are covered with a thin membrane called the "pleura." The windpipe, or trachea, branches into two smaller airways called the left and right "bronchi." The space between the lungs is called the "mediastinum." Lymph nodes are located within and around the lungs and mediastinum.

Graphic 67527 Version 13.0

Commonly prescribed medicines for COPD

	Generic name	Sample US brand names	How it's given
Short-acting beta agonists (SABAs)	Albuterol	ProAir HFA, Proventil HFA, ProAir RespiClick, Ventolin HFA, AccuNeb	Metered dose inhaler, dry powder inhaler, nebulizer
	Levalbuterol	Xopenex HFA	Metered dose inhaler, nebulizer
Short-acting muscarinic antagonist (SAMA)	Ipratropium	Atrovent HFA	Metered dose inhaler, nebulizer
SABA-SAMA combinations	Albuterol and ipratropium	Combivent Respimat, DuoNeb	Soft mist inhaler, nebulizer
Long-acting beta agonists (LABAs)	Indacaterol	Arcapta Neohaler	Dry powder inhaler (medicine comes in a pill that you put into the inhaler when it's time to take a dose). Use only once a day.
	Olodaterol	Striverdi Respimat	Soft mist inhaler
	Salmeterol	Serevent Diskus	Dry powder inhaler
	Arformoterol solution	Brovana	Nebulizer
	Formoterol solution	Perforomist	Nebulizer
Long-acting muscarinic antagonists (LAMAs)	Aclidinium	Tudorza Pressair	Dry powder inhaler (must be used twice a day)
	Glycopyrrolate*	Seebri Neohaler	Dry powder inhaler (medicine comes in a pill that you put into the inhaler when it is time to take a dose)
	Tiotropium	Spiriva HandiHaler	Dry powder inhaler (medicine comes in a pill that you put into the inhaler when it's time to take a dose)
		Spiriva Respimat	Soft mist inhaler
	Umeclidinium	Incruse Ellipta	Dry powder inhaler
	Glycopyrrolate* solution	Lonhala Magnair	Nebulizer [¶]
	Revefenacin solution	Yupelri	Nebulizer
Steroid and LABA combinations	Budesonide and formoterol	Symbicort	Metered dose inhaler
	Fluticasone and salmeterol	Advair Diskus, Wixela Inhub	Dry powder inhaler
		Advair HFA	Metered dose inhaler
Fluticasone and vilanterol	Breo Ellipta	Dry powder inhaler	
LAMA and LABA combinations	Glycopyrrolate* and formoterol	Bevespi Aerosphere	Metered dose inhaler
	Glycopyrrolate* and indacaterol	Utibron Neohaler	Dry powder inhaler (medicine comes in a pill that you put into the inhaler when it is time to take a dose)

	Tiotropium and olodaterol	Stiolto Respimat	Soft mist inhaler
	Umeclidinium and vilanterol	Anoro Ellipta	Dry powder inhaler
Steroid-LAMA-LABA combination	Fluticasone furoate, umeclidinium, and vilanterol	Trelegy Ellipta	Dry powder inhaler

This table lists some commonly used medicines (and combinations of medicines) for COPD. Metered dose inhalers and soft mist inhalers need to be "primed" before first use; refer to the information that came with your inhaler for exact instructions. Dry powder inhalers do not need to be shaken or primed.

* Glycopyrrolate is known as glycopyrronium outside of the United States.

¶ This medicine is given with a special type of nebulizer.

Graphic 84043 Version 12.0

Technique for use of a metered dose inhaler (MDI) without a spacer or chamber

Remove the cover of the mouthpiece
Prime your inhaler if this is the first time you are using it, if you have not used it for several days, or if you have dropped it. Priming a metered dose inhaler usually involves shaking it and spraying it into the air (away from your face) up to 4 times. See the information that came with your inhaler for exact instructions.
Shake MDI canister vigorously for 5 seconds.
Hold the MDI upright with your index finger on the top of the canister and your thumb supporting the bottom of the inhaler.
Breathe out normally.
Put the mouthpiece between your teeth and close your lips around mouthpiece or position mouthpiece about 4 cm (about the width of 2 fingers) from your mouth.
Keep your tongue away from the opening of the mouthpiece.
Press down the top of the canister with the index finger to release the medicine.
At the same time as the canister is pressed, breathe in deeply and slowly through your mouth until your lungs are completely full. This should take 4 to 6 seconds.
Hold the medicine in your lungs for as long as comfortable (about 5 to 10 seconds) before breathing out.
If you need a second puff, wait about 15 to 30 seconds between puffs. Shake the canister again before the next puff.
When finished, put the mouthpiece cover back on.
If your inhaler contains a steroid medicine (sometimes called a "glucocorticoid" or "corticosteroid"), rinse your mouth and gargle with water after you use it. Then spit out the water. Do not swallow it.

These instructions do **not** apply to dry powder or soft mist inhalers. Cleaning instructions are provided separately.

More detailed information about individual medicines can be found at

<http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm>.

MDI: metered dose inhaler.

Graphic 72362 Version 11.0

Technique for use of various dry powder inhalers

Diskhaler

- Remove the mouthpiece cover and pull tray out from device.
- Place disk on wheel with numbers facing up.
- Rotate the disk by sliding tray out and in.
- Lift the back of the lid until fully upright, so the needle pierces both sides of the blister.
- Keep the device level while inhaling the dose with a rapid and steady flow.
- Breathe in rapidly and steadily, as deeply as possible, then hold your breath.
- Remove the device from your mouth and exhale outside the device.
- Brush off any powder remaining within the device once every week. Store the device in a cool, dry place.

Diskus

- Open the device and slide the lever until it clicks.
- Keep the device level while inhaling the dose.
- Breathe in rapidly and steadily, as deeply as possible, then hold your breath.
- Remove the device from your mouth and exhale outside device. Store the device in a cool, dry place.

Ellipta

- Remove the inhaler from the foil tray. Do not open the cover of the inhaler until you are ready to use it.
- Write the "Tray opened" and "Discard" dates on the inhaler label. The "Discard" date should be 6 weeks from the date you open the tray.
- Check the dose counter on the inhaler. Before you use the inhaler for the first time, the counter should show the number 30. This is the number of doses in the inhaler.
- Open the cover of the inhaler. Each time you fully open the cover it should produce a clicking sound, and the number on the counter should go down by one. This means a dose is ready to be inhaled. (If you open and close the cover without inhaling the medicine, you will lose the dose. The lost dose will be held in the inhaler, but it will no longer be available to be inhaled. It is not possible to accidentally take a double dose or an extra dose in 1 inhalation.)
- If the counter does not count down as you hear the click, the inhaler will not deliver the medicine. Call your healthcare provider or pharmacist if this happens.
- While holding the inhaler away from your mouth, breathe out (exhale) fully. Do not exhale into the mouthpiece.
- Hold the inhaler in a horizontal position. You do not need to shake it. Do not block the air vent in the inhaler with your fingers.
- Put the mouthpiece between your lips, and close your lips tightly around it. Your lips should fit over the curved shape of the mouthpiece.
- Take one long, steady, deep breath in through your mouth. Do not breathe in through your nose. You might not taste or feel the medicine, even when you are using the inhaler correctly.
- Remove the mouthpiece from your mouth and hold your breath for about 3 to 4 seconds (or as long as you comfortably can).
- Breathe out slowly and gently.
- Slide the cover up and over the mouthpiece as far as it will go to close the inhaler.
- Clean the mouthpiece if needed, using a dry tissue, before you close the cover. Regular cleaning is not required.

- When you have less than 10 doses remaining in your inhaler, the left half of the counter shows red as a reminder to get a refill. After you have inhaled the last dose, the counter will show "0" and the inhaler should be thrown away.

HandiHaler

- Capsules should be stored in sealed blisters and only removed immediately before use.
- Peel back the foil using the tab until one capsule is fully visible.
- Open the dust cap by pulling it upwards, then open the mouthpiece.
- Place the capsule in the center chamber. (It does not matter which end of the capsule is placed in the chamber.)
- Close the mouthpiece firmly until you hear a click, leaving the dust cap open.
- Hold the HandiHaler with the mouthpiece upwards, then press the piercing button completely in 1 time and release.
- Breathe out completely. Do not breathe into the mouthpiece at any time.
- Close your lips tightly around the mouthpiece.
- Breathe in rapidly and steadily, as deeply as possible, then hold your breath.
- To ensure you get the full dose, repeat the inhalation from the HandiHaler as described.
- After the dose, open the mouthpiece, tip out the used capsule, and throw it away. Do not handle used capsules.
- Close the mouthpiece and dust cap for storage. Store the device in a cool, dry place.

Neohaler/Breezhaler

- Capsules should be stored in sealed blisters and removed immediately before use.
- Remove cap and tilt mouthpiece to open inhaler.
- Separate one blister from card, and peel away backing to expose the foil. Remove one capsule by pushing it through the foil.
- Place the capsule in the chamber.
- Close the mouthpiece firmly until you hear a click.
- Hold the inhaler with the mouthpiece upwards. Press the piercing buttons on both sides at the same time, then release. You should hear a click. Do not press the buttons more than once.
- Breathe out completely away from the mouthpiece.
- Hold the inhaler so the buttons are facing left and right, not up and down, and your fingers are not on the buttons. Close your lips tightly around the mouthpiece.
- Breathe in rapidly and steadily, and as deeply as possible. As you breathe, you should hear a whirring noise as the capsule spins. (If you do not hear this, open the inhaler and tap it on the bottom to loosen the capsule. Then repeat the steps of breathing out then inhaling the medicine.)
- Remove the inhaler from your mouth, and hold your breath for 5 to 10 seconds (or as long as you comfortably can). Then breathe out.
- Open the inhaler to make sure the capsule is empty. If there is still powder in the capsule, close the inhaler and repeat the steps above to breathe out and then inhale the medicine.
- Tip out the empty capsule, and throw it away.
- Replace the cap. Store the device in a cool, dry place.

Pressair/Genuair

- Remove the cap by gently squeezing the arrows on each side of cap.

- Hold the inhaler with the green button pointing up.
- Before you put the inhaler in your mouth, press the green button all the way down 1 time and release it.
- Look at the small window above the mouthpiece to see if the color changed from red to green. If it is still red, press and release green button again.
- Breathe out completely.
- Close your lips tightly around the mouthpiece.
- Breathe in rapidly and as deeply as possible.
- You will hear a click. This means you are inhaling correctly. Do not stop breathing until your lungs are full.
- Remove the inhaler from your mouth, and hold your breath for as long as is comfortable.
- The window above the mouthpiece should now be red. (If window is still green, you might not have inhaled correctly or might have forgotten to release the green button. Close your lips tightly around the mouthpiece and take another rapid, deep breath. Now the window should be red.)
- Once the window has turned red, replace the cap.

RespiClick

- Make sure the cap is closed before use.
- Hold the inhaler upright and open the cap all the way, until you hear it click.
- Breathe out as much air as you can from your lungs.
- Close your lips tightly around the mouthpiece. Do not let your fingers or lips block the vents above the mouthpiece.
- Breathe in as deeply as possible, then hold your breath for about 10 seconds (or as long as you comfortably can).
- Remove the inhaler from your mouth.
- Close the cap. Repeat steps above if you need another dose.
- Keep inhaler clean and dry. If the mouthpiece needs cleaning, use a clean, dry cloth or tissue.

Turbuhaler

- Twist and remove the cover.
- Hold the inhaler upright with mouthpiece facing up.
- Turn the grip right then left until it clicks.
- Inhaler may be held upright or horizontal.
- Breathe in rapidly and steadily, as deeply as possible, then hold your breath.
- Remove the device from your mouth and exhale outside the device.
- Replace the cover and twist to close. Store the device in a cool, dry place.

Twisthaler

- Hold the inhaler straight up with the pink part (the base) on the bottom.
- Remove the cap while it is in the upright position to make sure you get the right amount of medicine with each dose.
- Hold the pink base and twist the cap in a counter-clockwise direction to remove it.
- As you lift off the cap, the dose counter on the base will count down by 1. This action loads the medicine that you are now ready to inhale.
- Make sure the indented arrow located on the white part (directly above the pink base) is pointing to the dose

counter.

- Breathe out normally. Do not exhale into the device.
- Place the mouthpiece into your mouth, with the mouthpiece facing towards you, and close your lips tightly around it.
- Inhale dose with a rapid and steady flow while holding the Twisthaler horizontal.
- Remove the mouthpiece from your mouth and hold your breath for 5 to 10 seconds (or as long as you comfortably can).
- When you exhale, be sure that you are not exhaling into the device.
- Replace the cap right away, and turn it in a clockwise direction as you gently press down, until you hear a click.
- Firmly close the Twisthaler to assure that your next dose is properly loaded.
- Be sure that the arrow is in line with the dose-counter window.
- Store the device in a cool, dry place.
- The dose counter displays the number of doses remaining. When the unit reads 01, this indicates the last remaining dose. When the counter reads 00, the unit must then be discarded.

Graphic 51020 Version 7.0

Technique for use of soft mist inhalers (SMIs)

<p>The first time you use a soft mist inhaler,* you will need to insert the cartridge.</p>
<p>Press the safety catch on the side and pull off the clear plastic base.</p>
<p>Push the narrow end of the cartridge into the inhaler until it clicks.</p>
<p>Push the cartridge against a firm surface or table top to be sure it has gone all the way in.</p>
<p>Do not remove the cartridge after it has been inserted.</p>
<p>Put the clear base back on. Press until you hear a click.</p>
<p>Do not remove the clear base again.</p>
<p>Prime the inhaler before the first dose.</p>
<p>Hold the inhaler upright. Turn the clear base clockwise (to the right) until it clicks.</p>
<p>Open the cap and point the inhaler towards the floor.</p>
<p>Press the button on the side until you see a mist or cloud.</p>
<p>Repeat 3 more times.</p>
<p>If you do not use the inhaler for more than 3 days, repeat 1 time.</p>
<p>If you do not use the inhaler for more than 3 weeks, repeat 4 times.</p>
<p>To take a dose of medicine, hold inhaler upright with the cap closed. There is no need to shake it.</p>
<p>Hold the top of the inhaler with 1 hand. With the other hand, turn the clear base clockwise (to the right) until it clicks. This prepares the dose of medicine.</p>
<p>Open the cap.</p>
<p>Breathe out slowly and fully.</p>
<p>Put the mouthpiece in your mouth, and hold the inhaler horizontally, pointing toward the back of your throat.</p>
<p>Seal your lips around the inhaler, but do not cover the air vents on the side.</p>
<p>As you take a slow deep breath in, press and hold the button on the side of the inhaler. This releases the medicine in a soft mist.</p>
<p>Breathe in to a full deep breath to get all the medicine into your lungs.</p>
<p>Hold your breath for a count of 10.</p>
<p>Remove inhaler from your mouth and breathe out slowly.</p>
<p>The inhaler has a dose indicator on the side. When the arrow is in the red zone, the inhaler is almost empty. When the inhaler is completely empty, the arrow will point to "0," and you will not be able to turn the base of the inhaler.</p>

* Soft mist inhalers are also known as Respimat inhalers.

Graphic 93600 Version 4.0