







Asthma Devices	Medications (pictures from Allergy and Asthma Network)		Type of Device	Use with spacer?	Ages (per manufacturer)	Age considerations	Special considerations
	Quick Reliever	Controller					
Metered Dose Inhaler (MDI)	 	 	HFA (hydrofluoroalkane)	YES	All Ages	Infants and small children under the age of 10 should use a spacer with a mask to properly get the medication into the lungs	Always use a spacer Shake before use Prime when first opened, dropped, or not used for several weeks
	Single Maintenance and Reliever Therapy (SMART)						




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Diskus®			DPI (Dry Powder Inhaler)	NO	12 or older	Small children under the age of 12 (depending on the developmental level of the child) may not have the high inspiratory force or proper technique needed to get the medication into the lungs.	After actuating dose, do not tip over or blow back into the device
Twisthaler®			DPI (Dry Powder Inhaler)	NO	12 or older		Do not blow back into device
Flexhaler®			DPI (Dry Powder Inhaler)	NO	12 or older		Good option for older children who do not want to carry and use a spacer
RespiClick®			DPI (Dry Powder Inhaler)	NO	12 and older		Do not blow back into device of cover ventilation hole during inhalation
Ellipta®			DPI (Dry Powder Inhaler)	NO	12 and older		

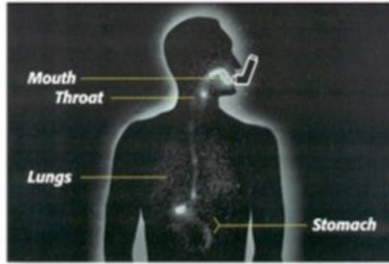
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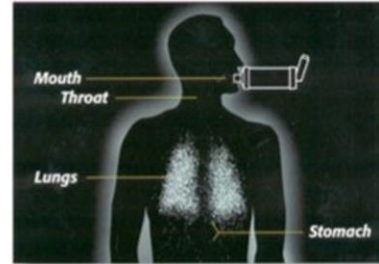
Asthma Devices	Medications <small>(pictures from Allergy and Asthma Network)</small>		Type of Device	Use with spacer?	Ages <small>(per manufacturer)</small>	Age considerations	Special considerations
	Quick Reliever	Controller					
Redihaler®		 <p>QVAR Redihaler® 40, 80 mcg beclomethasone dipropionate USDA</p>	HFA (hydrofluoroalkane)	NO	12 and older	Must be developmentally able to inhale through mouth	Breath actuated Do not prime Do not use with spacer
Respimat®	 <p>Combivent® Respimat® 20/100 mcg ipratropium bromide and albuterol USDA</p>	 <p>Spiriva® Respimat® 1.25, 2.5 mcg tiotropium bromide USDA</p>	SMI (Soft Mist Inhaler)	NO	12 and older	Must be developmentally able to inhale through the mouth	Ensure patient knows steps for preparing and priming for first time use. Use acronym TOP (twist, open, press)

Why use a Spacer with an Inhaler?



Inhaler alone

When an inhaler is used alone, medicine ends up in the mouth, throat, stomach and lungs.



Inhaler used with spacer device

When an inhaler is used with a spacer device, more medicine is delivered to the lungs.

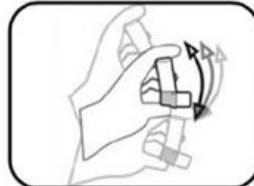
*Comparative respiratory deposition of ^{99m}Tc labeled particles of albuterol using a metered dose inhaler, a metered dose inhaler with Aerochamber® spacer and Optichamber® spacer in healthy human volunteer using gamma-scintigraphy. R. Beihn, PhD, Scintiprox, Inc., Indianapolis, IN and D. Doherty, MD, Dept. of Pulmonology University of Kentucky Medical Center, Lexington, KY, 1997. Images kindly provided by Respironics Healthscan Inc. Allies Against Asthma Center for Pediatric Research, 855 W. Brambleton Ave, Norfolk, VA 23510, 757-668-6435

Spacer with Mask

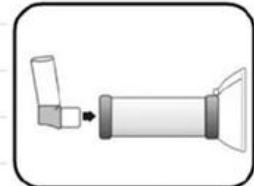
Use a spacer with the inhaler. More medicine will go into the lungs.



1. Sit with your child in your lap.



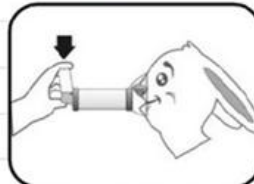
2. Shake the inhaler.



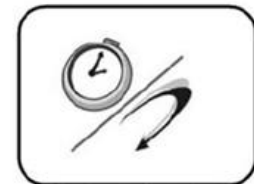
3. Remove cap from the inhaler. Place inhaler into spacer.



4. Seal the mask over the nose and mouth.



5. Push down on the inhaler. Release 1 puff into the spacer.

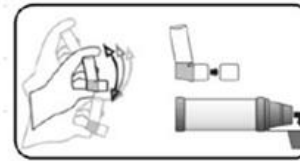


6. Hold mask on face for 5-10 breaths. Remove mask from face. Wait about 30 seconds. Repeat steps 1-6 for each puff.

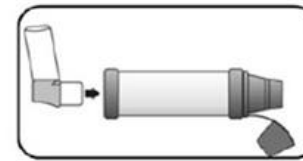
Use mask with ages under 6-10

Spacer with Mouthpiece

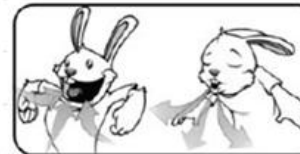
Use a spacer with the inhaler. More medicine will go into the lungs.



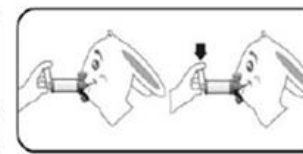
1. Shake the inhaler. Remove the caps from the inhaler and spacer.



2. Place the inhaler into the back of the spacer.



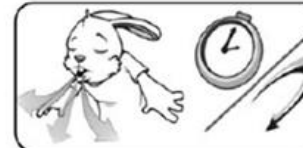
3. Take a deep breath and let it all the way out.



4. Seal lips around the mouthpiece. Push down on the inhaler releasing 1 puff into the spacer.



5. Breathe in slowly through the mouth. Hold breath for 10 seconds. The whistle sound means the breath is too fast. Slow down.



6. Let out your breath. Wait about 30 seconds. Repeat steps 1-6 for more puffs.

Use mouthpiece with ages 6-10 and over



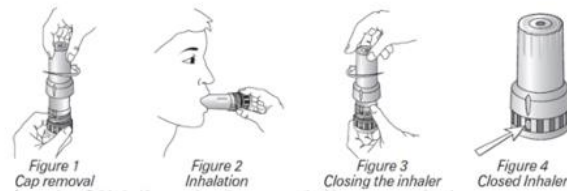
Diskus®



Examples: Advair® (fluticasone/salmeterol),
 Flovent® (fluticasone)

1. Remove cover by placing thumb on thumb grip and pushing to the side
2. Place thumb on the lever and move to the side until you hear a click and the counter decreases by 1
3. Hold diskus in a flat position with mouthpiece towards you.
4. Exhale away from diskus
5. Place mouth on mouthpiece with a tight seal
6. Breathe in through your mouth quickly and deeply
7. Hold breath as long as you can, around 10 seconds
8. Remove from mouth and exhale away from device, close diskus until you hear a click. Repeat steps 1-7 for each dose

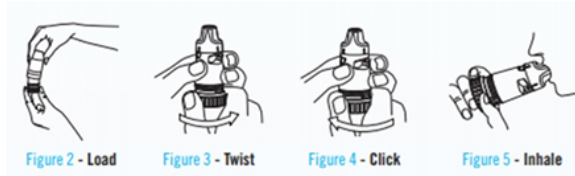
Twisthaler®



Examples: Asmanex® (mometasone)

1. Holding Twisthaler upright, twist cap to remove the cover. Ensure counter has decreased by 1
2. Breathe out away from inhaler
3. Place mouth over mouthpiece with a tight seal, holding device parallel to the ground
4. Inhale quickly and deeply
5. Hold breath as long as you can, around 10 seconds
6. Remove Twisthaler from mouth and exhale slowly away from device.
7. Place cap back on and twist until you hear a click and arrow is lined up with the counter
8. Repeat steps 1-7 for each dose

Flexhaler®



Examples: Pulmicort® (budesonide)

RespiClick®



Examples: ProAir® (albuterol), AirDuo® (fluticasone/salmeterol), ArmonAir® (fluticasone)

Ellipta®



Examples: Breo® (fluticasone/vilanterol), Arnuity® (fluticasone)

1. Holding Flexhaler upright, remove cap
2. Twist the brown grip until you hear a click and counter has decreased by 1, then click back
3. Place mouth over mouthpiece with a tight seal, holding device parallel to the ground
4. Inhale quickly and deeply
5. Hold breath as long as you can, around 10 seconds
6. Remove Flexhaler from mouth and exhale slowly away from device.
7. Place cap back on and twist until you hear a click and arrow is lined up with the counter
8. Repeat steps 1-7 for each dose

1. Holding RespiClick upright, open red cap until you hear a click
2. Exhale away from device
3. Place mouth over mouthpiece with a tight seal (do not block vent with mouth or fingers)
4. Inhale quickly and deeply
5. Hold breath as long as you can, around 10 seconds
6. Remove RespiClick from mouth and exhale slowly away from device.
7. Place cap back on until it clicks closed
8. Steps 1-7 for each dose

1. Holding Ellipta upright, slide the cover down to expose the mouthpiece and to hear a click
2. Exhale away from device
3. Place mouth over mouthpiece with a tight seal (do not block vent with fingers)
4. Take one long steady deep breath in through your mouth.
5. Hold breath as long as you can, about 3-4 seconds
6. Remove Ellipta from mouth and exhale slowly away from device.
7. Close cover back over mouthpiece as far as it will go
8. Repeat steps 1-7 for each dose

Pictures and directions used courtesy of device company's prescription leaflets

Updated

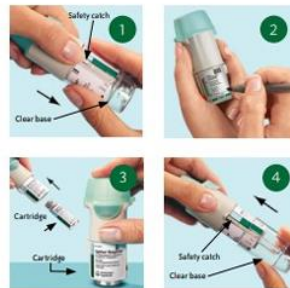
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Respimat®



Preparing for first-time use



1. With the cap closed, press the safety latch while pulling off the clear base, be careful not to touch the piercing element inside the bottom of the clear base
2. Write the discard by date on the label (3 months from the date the cartridge is inserted into the inhaler)
3. Take the cartridge out of the box and push the narrow end of the cartridge into the inhaler. About 1/8th of an inch will remain visible when correctly inserted. The cartridge can be pushed against a firm surface to ensure that it is correctly inserted. Do not remove the cartridge once it has been inserted.
4. Put the clear base back into place and do not remove again.

Priming for first-time use



1. Hold the inhaler upright with the cap closed and turn the clear base in the direction of the black arrows on the label until it clicks (half a turn).
2. Flip the cap until it snaps fully open
3. Point the inhaler toward the ground (away from face). Press the dose-release button. Close the cap.
4. Repeat steps 1-3 until a spray is visible
5. Once the spray is visible, you must repeat steps 1-3 three more times to make sure the inhaler is prepared for use.

Directions for use



Examples: **Spiriva®** (tiotropium bromide), **Combivent®** (ipratropium bromide & albuterol)

1. Use the TOP Acronym
2. T- TURN the clear base in the direction of the arrows on the label until it clicks (keep the cap closed while doing this)
3. O- OPEN the cap until it snaps fully open
4. P- Breathe out slowly away from device, close your lips around the mouthpiece without covering air vents. While taking a slow deep breath through your mouth, PRESS the dose release button and continue to breathe in slowly. Hold breath as long as you are comfortable.
5. Repeat steps for each puff
6. Close the cap until you use your inhaler again