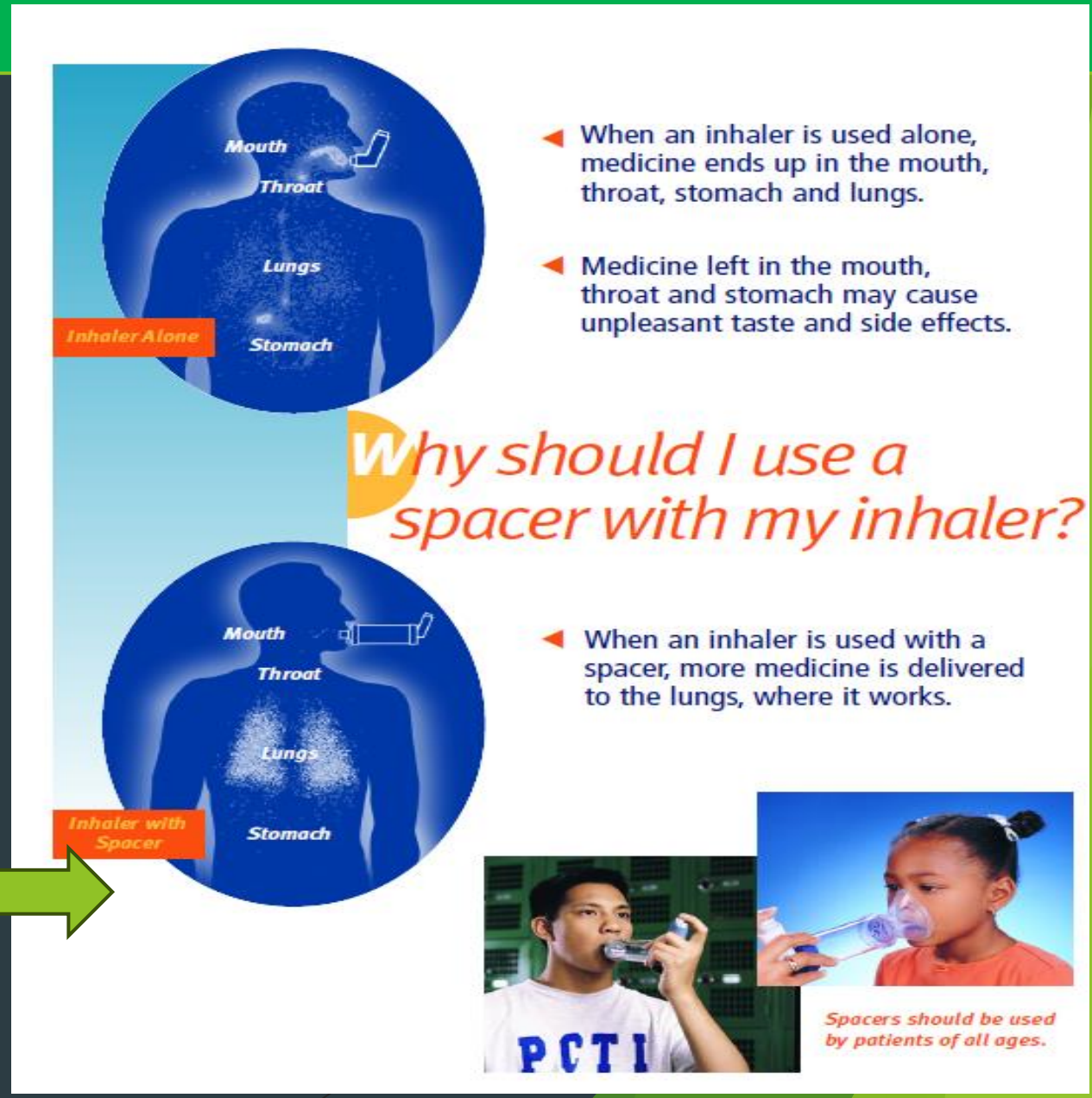
Inhaler Technique Basics for Children

Presented by Rebecca Brown, MPA, RRT, AE-C

Why use a valved holding chamber (VHC) with all metered-dose inhalers (MDI)?

- A valved holding chamber prevents MDI medication plumes from striking the mouth at 40 miles/hour
- MDI medications taken without a valved holding chamber largely end up in the mouth and stomach
- The “valve” allows a breath to be taken in through the chamber, but prevents exhaled air from flowing back into the chamber and washing out the medication
- Most VHCs are equipped with a “whistle” or flow signal to warn users when they inhale at twice the ideal speed, the whistle means “slow down”



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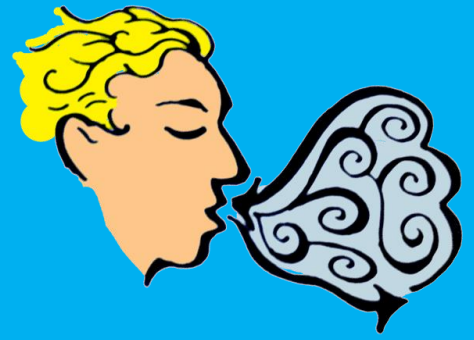
Keep it Simple (3 Steps)-

Old Air Out → Aim Up → Fill Up Slowly



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With ***Flow-Vu***® it is possible to see if the student is really breathing in and assess whether the breath takes several seconds and results in filling the lungs (chest rises slowly with no whistle heard)

Target Inhalation Time

- Target Inhalation Time is a concept based on how many seconds one should breathe in from an inhaler to have the maximum amount of medicine reach the lungs (along with good coordinated technique)
- Target Inhalation Time is important whenever inhaling medicine from an inhaler, as, if it is done too quickly or too slowly means that less medicine than is in a puff of medicine, and that is intended to reach the lungs, will actually reach them.
- Target Inhalation Time may be lower than normal when someone is having an asthma episode, and struggling to breathe because working lung volumes are reduced when obstructed.

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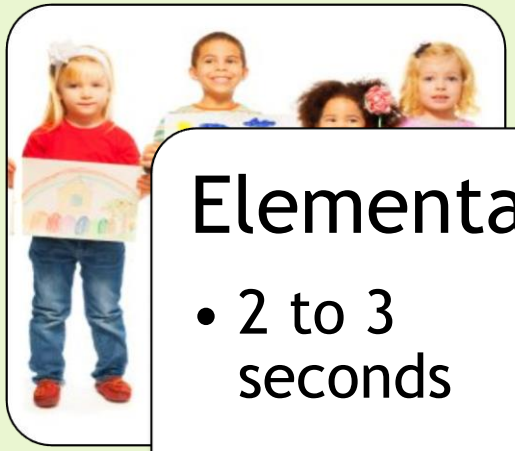
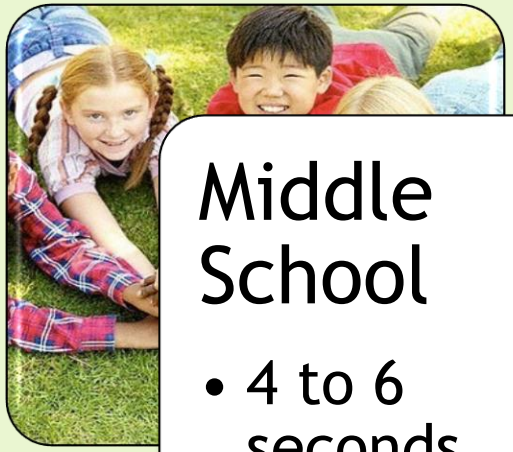
Lungs become bigger as children grow taller. As such, little lungs fill up more quickly than big lungs. Below is an average inhalation time by age-range. MDI medication should flow into everyone's lungs at the same rate (a liter of air inhaled in 2 seconds).



Elementary

- 2 to 3 seconds



Middle School

- 4 to 6 seconds

High School

- 6 to 10 seconds

Inhaler Technique Coaching Program

- New **quick and easy** program available to ***School Nurses*** in Missouri that encourages coaching students with asthma on inhaler technique by providing resources.
- This program, offered by Asthma Ready® Communities, provides asthma equipment to school nurses in Missouri who want to participate, at ***no cost to them or their district***.
- The equipment includes 2 AeroChambers with Flow-Vu ® Indicator (mouthpiece), and one Trainhaler. A survey guides coaching efforts.
- A Participating ***student receives complimentary*** AeroChamber Plus Flow-Vu ® Indicator (mouthpiece), and is coached on good inhaler technique, using the nurse's Trainhaler, which is approved for multi-person use. (Clean between students with antiseptic wipe. At least 70% alcohol.)

Sign Up for the Inhaler Technique Coaching Program:

- Go to this link to order start up kit: Link
  - Alternatively, you can contact Deb Cook Debcook1609@gmail.com to request you Inhaler Technique Starter Kit.
- You will receive in the mail:
  - 1 Trainhaler
  - 2 AeroChambers with FlowVu
- Coach student using quick survey link: https://forms.office.com/r/Z5r315CiJN
  - Guides coaching efforts with brief instructions and short or yes / no responses.
  - Contains inhaler coaching video that can be used to train student
  - Once survey is submitted, at the end of the month, a replacement AeroChamber with FlowVu will be mailed to you.

Using Inhaler Technique Coaching Program:

https://forms.office.com/r/Z5r315CiJN

Complete this survey to receive a replacement Flow-Vu AeroChamber

Using a chamber with a mask: AeroChamber Plus Flow-Vu

Steps from video

1. Remove the cap from the inhaler
2. A) Insert the inhaler in the back of the chamber
   B) Apply he mask to the face and ensure an effective seal.

   (The Flow-Vu Inhalation Indicator only moves if you have a good seal)
3. A) Press the inhaler at the beginning of the inhalation as the Flow-Vu Inhalation Indicator moves toward the user.
   B) Use the Flow-Vu Inhalation Indicator to count **5 to 6 breaths**
4. Administer one puff at a time. Follow instructions supplied with inhaler on how long to wait between puffs. *(Wait one minute between puffs)*

Using the AeroChamber Plus* Flow-Vu* with a ComfortSeal* Mask - Trudell Medical International

Using a chamber with a mask: Valved Holding Chamber with Mask

Steps from video

1. Prime the inhaler before use
2. Stand or sit up straight
3. Take off the cap and shake the inhaler
4. Insert the inhaler into the end of the chamber / spacer
5. Breathe out all the way
6. Place mask firmly on the face, covering the nose and mouth.
7. Press down on the inhaler and breathe in and out slowly 6 times.
8. Shake the inhaler before taking each pump if more than one puff is ordered. Allow 30 seconds to one minute between each puff
9. Wipe face after using any inhaled steroid medicine
10. Clean your spacer once a week. Pull the pieces apart and soak them in warm, soapy water. Let them dry before putting them back together.

Using an Inhaler with a Spacer Mask
Children's Hospital of Atlanta:
Using an Inhaler with a Spacer Mask

Cleaning Note: Never wipe the inside of the spacer. There is a special lining that helps the medicine get into the lungs.

Coaching a child to take bigger breaths for more optimal inhaler technique using the Aerochamber with a mask.

Preschool children will usually respond to the following instructions after the mask is in place.

1. **Make sure the mask is in place** over the child's nose and mouth and has a good seal.
2. Coach the child to "aim up" so the child lifts their chin.
3. Next, **encourage the child to take deep breaths** - "OK. **Blow out ALL your air** (nose exhalation valve leans forward while breathing out), "blow out like you are blowing out candles on a cake [or similar instructions]."
4. Next, press down to actuate the MDI and say, **"Breathe in, breathe in, breathe in… Now hold it, hold it, hold it. Good work!"**

****If the effort is not great, just keep the mask in place and repeat this sequence one or more times to clear the drug from the chamber. By three or four years of age most young children can learn to empty their lungs intentionally, take a slow breath to fill their lungs with medication and then hold their breath a few seconds.****

Asthma Ready Communities. Delivering Asthma Education for Caregivers - Infants and Young Children Edition. https://youtu.be/hJqQrmy76Lw [Inhaler with mask coaching starts 2:01:52 and ends 2:02:59]

Links for Inhaler Technique

Watch Inhaler Technique Coaching Example

- https://youtu.be/Ge3kQerMDDQ

Watch short videos about inhaler technique and why spacers are important

- https://www.youtube.com/watch?v=0tkEIRDGb4c
- https://www.youtube.com/watch?v=BbONuRXJdr0
- https://www.youtube.com/watch?v=Tvj_oKgHd2k&t=2s
- https://www.youtube.com/watch?v=SdD7dPqnwkk&t=37s
- https://www.youtube.com/watch?v=J1Je2NDlU8k

Videos about Inhaler Technique with Mask:

- Using the AeroChamber Plus* Flow-Vu* with a ComfortSeal* Mask - Trudell Medical International
- Using an Inhaler with a Spacer Mask
- **https://youtu.be/hJqQrmy76Lw [Inhaler with mask coaching starts 2:01:52 and ends 2:02:59]**

Flyers encouraging spacer use *(can be shared with students / families)*

- https://drive.google.com/file/d/1tWjfTwHr3fYEche_K5UfpZDea_aOWfGi/view?usp=sharing
- https://drive.google.com/file/d/1tVd1bB7iHZnFTCPuF6VnFZ2H8qYRdHoh/view?usp=sharing