



Metered Dose Inhalers (MDIs)

- ⊕ Many asthma medicines available as MDIs
- ⊕ “Old” inhalers contained CFC propellants
- ⊕ All new inhalers contain HFA propellant – e.g., Proventil HFA (states “HFA” on label) – do NOT immerse in water
- ⊕ HFA inhalers will not mist when empty

Spacers

- ⊕ Improve medication delivery to lungs
- ⊕ Prevents medication from being deposited on tongue and throat, swallowed and delivered to systemic circulation via stomach
- ⊕ Available types:
 - 1) Rigid tube/ rigid chamber
 - 2) Tube with facemask (three sizes)
 - 3) Collapsible bag spacers

MDI Technique: Tube spacer

- 4) Stand up
- 5) Shake inhaler – prime 1-2x if new or unused long period
- 6) Remove cap from inhaler
- 7) Attach inhaler to spacer
- 8) Tilt head slightly back & breathe out fully
- 9) Place spacer mouthpiece in mouth
- 10) Press button on inhaler as you...
- 11) Inhale slowly (3-5 seconds)
- 12) Hold breath for 10 seconds
- 13) Wait 1 full minute and take 2nd puff

Detecting MDI Usage Errors

- ✓ Omits any of previous steps
- ✓ Exhales through nose while “holding” breath
- ✓ Breathes in too quickly (the Aero-chamber will whistle)
- ✓ Fails to use spacer – most common error

MDI Technique: spacer with face mask

- 1) Remove cap from inhaler
- 2) Shake inhaler – prime 1-2x if new or unused long period
- 3) Attach inhaler to spacer
- 4) Place mask on face, covering mouth and nose
- 5) Press down on inhaler to discharge medicine into spacer
- 6) Continue to hold mask on face for 6-8 breaths
- 7) Wait one minute before giving next puff

Dry Powdered Inhalers (DPIs)

- ⊕ No spacer needed
- ⊕ Children < 4 yrs or patients with severe obstruction cannot use
- ⊕ Requires skill and ability to generate inspiratory pressure (60 L/min)
- ⊕ More compact than MDI

Inhaler technique: Dry powder inhaler

- 1) Activate (“load”) device
- 2) Hold device so that powder can come straight out
- 3) Breath out fully (Do not exhale into device)
- 4) Seal lips around the mouthpiece
- 5) Breath in fast and hard
- 6) (Hold breath for 5-10 sec)

Peak Flow Meters

- ⊕ For persons >5 yrs with persistent asthma
- ⊕ Measures large airway function
- ⊕ Portable; inexpensive
- ⊕ Effort dependent!
- ⊕ Can be used to:
 - ⊕ Evaluate effectiveness of therapy
 - ⊕ Decide when to seek emergency care
 - ⊕ Identify asthma triggers

Peak Flow: recommendations

- ⊕ indications for use:
 - mod-severe persistent asthma (≥ 5 yr)
 - patients with severe exacerbations
- ⊕ use “personal best” (or predicted value) for action plan
- ⊕ measure in a.m., before medication
- ⊕ use same PF meter each time
- ⊕ develop a written action plan based on PF

Personal Best & Zones

- ⊕ Highest number achieved when asthma is well-controlled
- ⊕ May take several weeks to establish
- ⊕ Green zone = 80% of PB and above
- ⊕ Yellow = 50-80% PB; mild-moderate symptoms
- ⊕ Red = 50% and below; severe symptoms

Recommended actions based on peak flow zone

▶ Green Zone

- Take prevention medicine
- Take albuterol prior to exercise/ P.E.

▶ Yellow Zone

- Albuterol 2 puffs by inhaler or 0.05 mg/Kg nebulized (max 2.5 mg) every 4-6 hrs
- Contact doctor if in yellow zone for > 12-24 hrs

▶ Red Zone

- Use higher dose albuterol: nebulized 0.1 mg/kg/dose (max=2.5 mg) or equivalent by inhaler (2-6 puffs)
- May repeat dose at 20 min intervals (total 2-3 doses)
- Take dose of oral steroids
- Call EMS or go to nearest emergency department

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