Obtaining & Using Measures of Lung Function in Asthma Care

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Asthma Ready® Communities

Disclosure

- Dr. Francisco has intellectual property rights and a financial interest in IMPACT Asthma Kids© (Curators of the University of Missouri)
- Dr. Francisco will not discuss experimental or off-label use of medications or devices

Assign a grade to the US Health System for Asthma Care Quality and Value

- A - excellent
- B - good
- C - average
- D - poor
- F - failing
Forced Expiratory Maneuver

- “Spirometry light”
- Why do I need to know my FEV1?

Digital Flow Meter – FEV1 & PEF

- Asma-1
- Exacerbations
- Peak flow zone determination
- $40, multi-use
  $0.38/patient

Digital Lung Monitor

- FEV1, FEV6 & ratio
- Assess control
- Age, height, race & gender
- $100, multi-use
  $0.38/patient
Do people with asthma know how to effectively inhale medications?

Resistance of 3 Common Inhalers at different flow rates (placebo versions)

- Dry powder device
- pMDI aerosol "puffer"
Inspiratory Flow Influences Drug Deposition

<table>
<thead>
<tr>
<th>Inspiratory Flow</th>
<th>Drug Deposition</th>
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<tbody>
<tr>
<td>Too Slow</td>
<td>Mouth</td>
</tr>
<tr>
<td>Too Fast</td>
<td>Throat</td>
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<tr>
<td>Correct Speed</td>
<td>Lungs</td>
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Common MDI Inhalation Errors

- Failure to exhale fully prior to dose resulting in inadequate volume of inhaled air with lower net dose
- Inhalation too rapid, leading to impaction of drug against pharynx and bifurcations of the airway

EPR3 Specifies IFR and IFT

- IFR = inspiratory flow rate
- IFT = inspiratory flow time

- MDI – 30 LPM or 3-5 seconds (p. 250)
- DPI – 60 LPM or 2-3 seconds (p. 249)

How do you measure IFR & IFT?
**What is a target time?**

- Using knowledge of FEV1 to guide self-regulation of inspiratory flow
- Gently and completely exhale (~FEV1)
- Lift chin and refill lungs in a calculated amount of time
- Time of refilling is a proxy for inspiratory flow rate

**In-Check Dial™ Device**

- Set resistance for inhaler type
- Use disposable one-way filter
- Train for optimal IFR and IFT
- MDI IFT=2xFEV1

**Asthma Ready® Goals**

- Promote best practices based on national standards, Expert Panel Report 3 (EPR3), Guidelines for Managing Asthma
- Reduce asthma burden – target geographic areas with greatest need, by school & town
- Establish asthma leaders in the clinics, schools, hospitals and community agencies
- Keep workforce current w/asthma advances
www.asthmaready.org

Asthma Ready Communities

Thank you to our partners!