Respiratory Impairment and Disability Assessment

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PLEASE STAND BY
Webinar will begin at 12:00 PM PST
FOR AUDIO: CALL 866-740-1260 / ACCESS CODE: 764-4915

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Impairment/Disability

• Impairment: Loss of some physical or mental function due to a medical condition
• Disability: The effect of impairment on an individual’s ability to work -- affected by age, gender, education, economic factors, job requirements
• Handicap: The total effect of impairment on an individual’s life

Impairment/Disability

• Disability can differ for the same level of impairment
• Two individuals with moderate persistent asthma (same age, gender, education level)
  • (A) baker allergic to flour
  • (B) auto mechanic with childhood asthma with work-related symptoms

2015 WOEMA Webinar Series / April 29, 2015
Respiratory Impairment and Disability Assessment / John R. Balmes, MD

Impairment/Disability Evaluation

- Permanent impairment persists after appropriate therapy with no reasonable prospect for improvement
- Temporary impairment is reversible
- Degree of impairment: mild to moderate will preclude some work, severe precludes gainful employment

Disability is a general term -- an inability to work because of physical impairment; it is an administrative determination

- Total disability results from impairment so severe to preclude gainful employment
- Partial disability results if the degree of impairment can allow some work

Agencies Requesting Evaluations

- Social Security Administration
- Insurance companies
- Workers’ compensation systems
- Veterans Administration
- U.S. Dept. of Labor (Black Lung benefits, EEOICP)

Physician’s Role

- Make the diagnosis
- Determine the level of impairment
- Decide whether the impairment is caused or exacerbated by work (workers’ comp.)
- Decide whether the claimant is capable of performing a certain job(s)

<table>
<thead>
<tr>
<th>Height (in)</th>
<th>FVC (L)</th>
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<tbody>
<tr>
<td>57 or &lt;</td>
<td>1.2</td>
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<tr>
<td>58</td>
<td>1.3</td>
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<tr>
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<td>1.3</td>
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<tr>
<td>72</td>
<td>2.0</td>
</tr>
<tr>
<td>73 or &gt;</td>
<td>2.0</td>
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</tbody>
</table>

Pulmonary Disability Criteria of the Social Security Admin. for Interstitial Lung Disease
Compensation Agency’s Role

- Determine disability and benefits based on:
  - Impairment (as determined by the physician)
  - Education/training
  - Age
  - Availability of appropriate jobs
  - Energy requirements of jobs

Impairment/Disability Evaluation

Quantifying impairment

- Subjective factors
- Objective factors

- Symptoms
- Physical findings
- Laboratory Data
- Functional testing

Impact of FEV1 on functional limitation (lower extremity functioning, exercise performance, and balance)


Impact of FEV1 on self-reported functional limitation


American Thoracic Society Approach

- PFTs: FVC, FEV1, DLco
  - Crapo predicted values, 95% confidence interval for lower limit of normal
  - Exercise for VO2 max if symptoms are not consistent with PFTs

AMA Guides for Respiratory Disorders (other than asthma) – 5th edition

Class (impairment)

1 (0-9%) -- nl FEV1, FVC, DLco; VO2 max ≥ 25 ml/kg-min
2 (10-25%) -- <nl but >60% FEV1, FVC, DLco; VO2 max ≥ 20 but <25 ml/kg-min
AMA Guides for Respiratory Disorders (other than asthma) – 5th edition

Class (impairment)
3 (26-50%) -- FEV1 (≥41% but <59%); FVC (≥51% but <59%); DLco (≥41% but <59%);
   VO2 max ≥15 but <20 ml/kg-min
4 (51-100%) -- FEV1 (<40%); FVC (<50%); DLco (<40%);
   VO2 max <15 ml/kg-min

AMA Guides (6th edition)

- In general, use results in lower impairment ratings
- Uses NHANES predicted values rather than Crapo et al. values for spirometry
- 5 categories of impairment severity based on primary findings and 5 possible subcategory adjustments based on non-primary findings
- 5th edition still used in California

AMA Guides (6th edition)

- Class 1: 0% impairment
- Class 2 (minimal): 2-10%
- Class 3 (mild): 11-23%
- Class 4 (moderate): 24-40%
- Class 5 (severe): 45-65%

Case

- 65 y/o man with a history of progressive dyspnea and asbestos exposure was referred for a respiratory impairment evaluation by the US Department of Labor.

History

- Employment
  - 1944-1975: Machinist, Hunter’s Point Naval Shipyard
  - 1975: Cab driver
- Symptoms: Progressive DOE over several yrs, now with 1 flight of stairs
- Smoking: Smoked 14 pack-yrs, quit 20 yrs ago
- Physical exam: bibasilar crackles
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Pulmonary Function Testing
- Spirometry
  - FEV1 2.5 L (86% predicted)
  - FVC 3.0 L (71% predicted)
  - FEV1/FVC 0.81
- Total lung capacity 5.3 L (77% predicted)
- Diffusing capacity 20.6 ml/min/mmHg (90% predicted)

Cardiopulmonary Exercise Testing
- VO2max = 16 ml/kg-min
- Maximum workload = 80 watts (low)
- Ventilation higher than expected for workload
  - VT did not increase appropriately
  - Respiratory rate too high
  - Consistent with interstitial lung disease

Case Impairment Rating using AMA Guides 5th ed.
- Baseline PFTs: Class 2 (10-25%)
- Exercise testing: Class 3 (26-50%)
- Rating based on most severely affected parameter so the patient has a Class 3 impairment
  - The % impairment can be adjusted within the range above based on rater’s judgment.

Case Impairment Rating using AMA Guides 6th ed.
- Key Factor (PFTs or exercise testing)
  - Severity: Class 3 based on VO2max = 16 ml/kg-min
  - Severity grade, %  A  B  C  D  E
    24  28  32  36  40
  - The default rating is the central grade = 32%
- Non-Key Factors
  - History of clinical presentation (degree of dyspnea)
    - Constant moderate dyspnea = class 3
  - Physical examination findings (intermittent or constant)
    - Constant mild physical findings = class 2
- Final rating: Class 3B, 32%-1 grade = 28%
Energy Requirements

<table>
<thead>
<tr>
<th>Job</th>
<th>$\text{VO}_2 \text{ max (ml/kg-min)}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>receptionist</td>
<td>6</td>
</tr>
<tr>
<td>secretary</td>
<td>11</td>
</tr>
<tr>
<td>truck driver</td>
<td>13</td>
</tr>
<tr>
<td>construction laborer</td>
<td>16</td>
</tr>
<tr>
<td>steel worker</td>
<td>28</td>
</tr>
</tbody>
</table>

Impairment/Disability Evaluation

Job-specific disability
- Typical (“average”) work needs
- Peak work needs
- Emergency needs
- Hypersensitivity to workplace agents
- Ability to use protective equipment
- Job accommodations

ATS/AMA Guides (5th ed.) for Asthma

Diagnosis of asthma
- Appropriate clinical syndrome
- If FEV1/FVC <70%, improvement in FEV1 of 12% (and ≥200 mL) after inhaled bronchodilator
- If normal FEV1/FVC, either a positive methacholine challenge (PC20 <8 mg/mL) or a positive exercise challenge (decrease in FEV1 of ≥15%) test

ATS/AMA Guides (5th ed.) for Asthma

Three parameters to be used
- Post-bronchodilator FEV1
- Airway reactivity (methacholine PC20 if FEV1 nl; FEV1 response to BD if FEV1 <70%; PC20 or FEV1 response to BD if FEV1<nl but >70%)
- Minimum medication need

ATS/AMA Guides (5th ed.) for Asthma

Post-bronchodilator FEV1

<table>
<thead>
<tr>
<th>Score</th>
<th>% Predicted</th>
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<tbody>
<tr>
<td>0</td>
<td>Normal</td>
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<tr>
<td>1</td>
<td>70-79%</td>
</tr>
<tr>
<td>2</td>
<td>60-69%</td>
</tr>
<tr>
<td>3</td>
<td>50-59%</td>
</tr>
<tr>
<td>4</td>
<td>&lt;50%</td>
</tr>
</tbody>
</table>

ATS/AMA Guides (5th ed.) for Asthma

Airway reactivity: (A) degree of post-bronchodilator improvement in FEV1

<table>
<thead>
<tr>
<th>Score</th>
<th>% Change in FEV1</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>1</td>
<td>10-19%</td>
</tr>
<tr>
<td>2</td>
<td>20-29%</td>
</tr>
<tr>
<td>3</td>
<td>30+%</td>
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### ATS/AMA Guides (5th ed.) for Asthma

**Airway reactivity:** (B) degree of hyperresponsiveness to methacholine

<table>
<thead>
<tr>
<th>Score</th>
<th>PC20 (mg/mL)</th>
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<tbody>
<tr>
<td>0</td>
<td>&gt;8</td>
</tr>
<tr>
<td>1</td>
<td>0.5-8</td>
</tr>
<tr>
<td>2</td>
<td>0.5-&gt;0.125</td>
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<tr>
<td>3</td>
<td>0.125 or less</td>
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</table>

### ATS/AMA Guides (5th ed.) for Asthma

**Minimum medication need**

<table>
<thead>
<tr>
<th>Score</th>
<th>Medication</th>
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<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Occasional β-agonist inhaler</td>
</tr>
<tr>
<td>2</td>
<td>Daily inhaled steroid (&lt;800 µg)</td>
</tr>
<tr>
<td>3</td>
<td>Daily inhaled steroid (&gt;800 µg)  or occasional systemic steroid</td>
</tr>
<tr>
<td>4</td>
<td>Daily or QOD systemic steroid</td>
</tr>
</tbody>
</table>

### AMA Guides (5th ed.) for Asthma

**Summary impairment class (total score)**

<table>
<thead>
<tr>
<th>Score</th>
<th>Class (% impairment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 (0-9%)</td>
</tr>
<tr>
<td>1-5</td>
<td>2 (10-25%)</td>
</tr>
<tr>
<td>6-9</td>
<td>3 (26-50%)</td>
</tr>
<tr>
<td>10-11*</td>
<td>4 (51-100%)</td>
</tr>
</tbody>
</table>

* or FEV1 <50% predicted despite >20 mg/day of prednisone

### AMA Guides (6th ed.) for Asthma

- PC20 is the primary key factor used to determine the class of impairment; post-BD FEV1 can be used
- Minimum medication requirements and frequency of attacks are used to determine the % impairment within each class
- Impairment rating should be performed after optimal therapeutic goals have been achieved
- With occupational asthma, wait until 2 years after removal from exposure to rate impairment

### Case

- 25 y/o auto body worker x 5 yrs: no past h/o asthma; wheezing with use of HDI-containing paints x 2 yrs; currently off work x 3 mos; on Flovent 220 mcg (2 puffs BID) plus albuterol MDI PRN; + exercise and nocturnal sx
- PE, spirometry, DLco WNL; methacholine PC20 5 mg/mL
- Respiratory impairment class?

### Impairment Rating

- AMA Guides (5th ed.)
  - PC20: 1
  - Minimum medication need: 2
  - Total score: 3 = Class 2 (10-25% impairment)
- AMA Guides (6th ed.)
  - Should not rate at this time because therapy not optimized and removal from exposure has only been for 3 months
References


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