AMA Guides: How It’s Changed and Why

Disclosures

Los Angeles, February 24, 2011
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Frequent criticisms of the AMA Guides

- Inconsistent and ambiguous definitions & terminology of disablement (Spine '83; '88; '93; J Tenn Med Assoc '80; Ann Int Med '86)
- Content & predictive validity questionable (JAMA '82; Arch PM&R '97; JBJS '98; JAMA 2000)
- Reliability questionable (Am J Phys Med Rehabil '92)
- Gender bias (Harvard Law Review '90)

Shortcomings of AMA Guides 5th ed. Spieler et al, JAMA 2000

- Confusing/antiquated terminology
- Inadequate evidence-base
- Ratings fail to reflect perceived or actual loss of function
- Lack of internal consistency
Sixth Edition Responded to Prior Edition Concerns

- Prior editions
  - Did not provide a comprehensive, valid, reliable, and unbiased-based rating system
  - Some approaches were inconsistent
  - Incorporated principles not consistent with clinical care
    - Key example: Cervical spine surgery resulting in a 25% - 28% WPI regardless of outcome
  - Resulted in poor inter-rater reliability

AMA Guides

Five Axioms
Axiom 1:

- The AMA Guides must adopt the terminology and conceptual framework of disablement as put forward by the International Classification of Functioning, Disability and Health (ICF).

(WHO, 2001)

Traditional ICIDH model (WHO, 1980)
New ICF model *(WHO, 2001)*

United States is just 1 of the 191 countries that have endorsed or adopted this model.

ICF Terminology

- **Body functions** – physiological/psychological functions of body systems
- **Body structures** – anatomical parts (organs, limbs, & components)
- **Activity** – execution of a task or action by an individual
- **Participation** – involvement in a life situation
ICF Terminology (2)

- *Impairment* – problem in body function or structure as a significant deviation/loss
- *Activity limitation* – difficulty an individual has in executing an activity
- *Participation restriction* – problem experienced in involvement in a life situation

Disability as a Continuum Within ICF

- Health Condition, Disorder or Disease
- Body Functions and Structures
  - Normal Variation
  - Complete Impairment
- Activity
  - No Activity Limitation
  - Complete Activity Limitation
- Participation
  - No Participation Restriction
  - Complete Participation Restriction
- Contextual Factors
  - Environmental
  - Personal
AMA Definitions (unchanged)

- **Impairment**: a significant deviation, loss or loss of use, of any body structure or body function in an individual with a health condition, disorder or disease.
- **Disability**: activity limitation and/or participation restriction in an individual with a health condition, disorder or disease.
- **Impairment rating**: a consensus-derived percentage estimate of loss of activity, which reflects severity of impairment for a given health condition, and the degree of associated limitations in terms of activities of daily living (ADLs).
- **IMPAIRMENT ≠ DISABILITY**

Impairment vs. Disability

- An impaired individual may or may not have a disability.
- Disability involves many intangibles including:
  - Functional demands
  - Motivation
  - Limitations on participation
Tetraplegia as Impairment Rating vs. Work Disability
AMA Disclaimer

• The AMA Guides is not intended to be used for direct estimates of work disability
• Impairment percentages derived according to the Guides' criteria do not directly measure work disability
• Therefore, it is inappropriate to use the Guides’ criteria or ratings to make direct estimates of work disability

What is the Clinical Relevance of an Impairment Rating?

• “Fix” the diagnosis at Maximum Medical Improvement (MMI)
• Enable case closure when exiting the stage of “temporary disablement”
• Diagnostic and taxonomic classification as segue to recognition of long-term disablement
  - compensation & accommodation
  - apportionment
Axiom 2:

- The AMA *Guides* must continue to become more evidence-based.

AMA Evidence-based Approach:

- Historically, numerical ratings for organ system and whole person impairment are based largely on consensus and expert opinion.
- Evidence base for impairment percentages assignable to ICF functional levels must await further empirical testing.
- Current literature consulted to ensure evidence-based approach for diagnoses used to determine consensus-based impairment ratings.
- Normative judgments that are not data driven tend to follow precedent and must await future validation studies.
Axiom 3:

- Wherever/whenever evidence-based criteria are lacking…
  - Simplicity and ease-of-application, in addition, must be given highest priority.

Historical Trends & Growth of AMA Guides
Axiom 4:

- Rating percentages derived according to the AMA Guides must be functionally-based, whenever possible.
  - Patient functional history can be assessed according to basic ADLs
  - Self-report functional assessment tools also available and applicable

ICF codes and functional levels

<table>
<thead>
<tr>
<th>ICF CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>* xxx.0 NO problem (none, absent, negligible, …)</td>
</tr>
<tr>
<td>* xxx.1 MILD problem (slight, low, …)</td>
</tr>
<tr>
<td>* xxx.2 MODERATE problem (medium, fair, …)</td>
</tr>
<tr>
<td>* xxx.3 SEVERE problem (high, extreme, …)</td>
</tr>
<tr>
<td>* xxx.4 COMPLETE problem (total, …)</td>
</tr>
</tbody>
</table>
### Sample impairment functional classification

<table>
<thead>
<tr>
<th>Functional Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 No symptoms with strenuous activity</td>
</tr>
<tr>
<td>(independent)</td>
</tr>
<tr>
<td>1 Symptoms with strenuous activity; no</td>
</tr>
<tr>
<td>Symptoms with normal activity</td>
</tr>
<tr>
<td>(independent)</td>
</tr>
<tr>
<td>2 Symptoms with normal activity</td>
</tr>
<tr>
<td>(independent)</td>
</tr>
<tr>
<td>3 Symptoms with minimal activity</td>
</tr>
<tr>
<td>(partially dependent)</td>
</tr>
<tr>
<td>4 Symptoms at rest</td>
</tr>
<tr>
<td>(totally dependent)</td>
</tr>
</tbody>
</table>
### Physiological Correlates to Function

**Table 3-2 Relationship of METS and Functional Class According to Five Treadmill Protocols**

| METS | 1.6 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Treadmill tests** |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| **Ellestad** |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Miles per hour | 1.7 | 3.0 | 4.0 | 5.0 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| % grade | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| **Bruce** |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Miles per hour | 1.7 | 2.5 | 3.4 | 4.2 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| % grade | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| **Balke** |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Miles per hour | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 |
| % grade | 2  | 4  | 6  | 8  | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| **Balke** |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Miles per hour | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| % grade | 0  | 2.5 | 5  | 7.5 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| **Naughton** |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Miles per hour | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| % grade | 0  | 0  | 3.5 | 7  | 10.5 | 14 | 17.5 | 20 | 22.5 | 24 | 26 | 28 | 30 | 32 | 34 |

**Clinical status**

- Symptomatic patients
- Diseased, recovered
- Sedentary healthy
- Physically active

**Functional class**

- IV
- III
- II
- I and Normal
Orthopedic Functional Assessment Tools

- QuickDASH
- Pain Disability Questionnaire (PDQ)

Axiom 5:

- AMA Guides must stress conceptual and methodological congruity within and between organ system ratings.
Internal Consistency

- Intent of the AMA Guides 6th edition is to rate a patient after treatment has been completed
- Uniform “impairment grid” methodology adopted to the fullest extent possible
- Attempt is made to normalize impairment ratings across organ systems to improve internal consistency
- Decisions, in such cases, remain consensus-based and await future validation studies

Framework for New Methodology

- What is the problem
- What difficulties does the patient report??
- What are the examination findings??
- What do the clinical studies show??
- DIAGNOSIS
- FUNCTIONAL HISTORY
- PHYSICAL EXAM
- CLINICAL STUDIES
Spine Example:
Steps to Determine Diagnosis-Based Impairment (DBI)

1) Perform Hx & P/E and determine MMI
2) Establish appropriate Spine diagnosis
3) Use regional “DBI grid” (Cervical/Thoracic/Lumbar/Pelvis) to determine IC
4) Use “adjustment grid” grade modifiers to determine IG within-class
5) Assign Spine Impairment Rating (IR) according to diagnosis-specific IC/IG

Net Adjustment Calculation

What do you need?
- CDX = Class of diagnosis
- GMFH = Grade Modifier for Functional Hx
- GMPE = Grade Modifier for Physical Exam
- GMCS = Grade Modifier for Clinical Studies

NET ADJUSTMENT FORMULA
Net Adjustment =
- \((GMFH - CDX) + (GMPE - CDX) + (GMCS - CDX)\)
Example

- 40 yo male was stocking shelves and repeatedly lifting small appliance boxes. After lifting an unexpectedly heavy box, he experienced the immediate onset of right sided neck pain and right arm pain. He was treated conservatively without improvement. MRI revealed an HNP at C5-6. He underwent an anterior cervical discectomy and fusion with resolution of his arm pain.

Example cont.

- After 4 months, he was at MMI. He had no complaints of arm pain. His PDQ score was 45 (he had occasional neck pain). Physical examination findings were negative except for slightly decreased range of motion. His radiculopathy was described as resolved. Clinical studies confirmed his HNP.
<table>
<thead>
<tr>
<th>CLASS</th>
<th>CLASS 0</th>
<th>CLASS 1</th>
<th>CLASS 2</th>
<th>CLASS 3</th>
<th>CLASS 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPAIRMENT RATING (WPI %)</td>
<td>0</td>
<td>1%–8%</td>
<td>9%–14%</td>
<td>15%–24%</td>
<td>25%–30%</td>
</tr>
</tbody>
</table>

**Motion Segment Lesions**

- **Intervertebral disc herniation and/or AOMSI**
  - **Note:** AOMSI includes instability (specifically as defined in the Guides), arthrosis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions.
  - Imaging findings of intervertebral disc herniation without a history of clinically correlating radicular symptoms
  - Intervertebral disk herniation(s) or documented AOMSI at a single level or multiple levels with medically documented findings; with or without surgery
  - and
    - for disk herniation(s) with documented residual radiculopathy or non-verifyable radicular complaints at the clinically appropriate level(s) present at the time of examination (see Table 17-7 to grade radiculopathy)
  - Intervertebral disk herniation and/or AOMSI at multiple levels, with medically documented findings; with or without surgery
    - and
      - with documented residual radiculopathy at the clinically appropriate level present at the time of examination (see Table 17-7 to grade radiculopathy)
  - Intervertebral disk herniation(s) or AOMSI, with medically documented findings; with or without surgery
    - and
      - with or without documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination (see Table 17-7 to grade radiculopathy)
**TABLE 17-2** Cervical Spine Regional Grid: Spine Impairments

### Cervical Spine Regional Grid

<table>
<thead>
<tr>
<th>CLASS</th>
<th>CLASS 0</th>
<th>CLASS 1</th>
<th>CLASS 2</th>
<th>CLASS 3</th>
<th>CLASS 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPAIRMENT RATING (WPI %)</td>
<td>0</td>
<td>1%–8%</td>
<td>9%–14%</td>
<td>15%–24%</td>
<td>25%–30%</td>
</tr>
</tbody>
</table>

### MOTION SEGMENT LESIONS

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms</td>
</tr>
<tr>
<td>1</td>
<td>Intervertebral disk herniation(s) or documented AOMSI at a single level or multiple levels with medially documented findings; with or without surgery <strong>and</strong> for disk herniation(s) with documented resolved radiculopathy or non-verifiable radicular complaints at the clinically appropriate level(s) present at the time of examination (see Table 17-7 to grade radiculopathy)</td>
</tr>
<tr>
<td>2</td>
<td>Intervertebral disk herniation and/or AOMSI at multiple levels, with medially documented findings; with or without surgery <strong>and</strong> with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate level present at the time of examination (see Table 17-7 to grade radiculopathy)</td>
</tr>
<tr>
<td>3</td>
<td>Intervertebral disk herniation(s) or AOMSI, with medially documented findings; with or without surgery <strong>and</strong> with documented signs of residual bilateral or multiple-level radiculopathy at a single clinically appropriate level present at the time of examination (see Table 17-7 to grade radiculopathy)</td>
</tr>
</tbody>
</table>

**CLASS 1 – KEY FACTOR**

**Default Value**
Non-key factors - Adjustments

<table>
<thead>
<tr>
<th>Non-Key Factor</th>
<th>Specific Adjustment Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional History</td>
<td>Table 17-6</td>
</tr>
<tr>
<td></td>
<td>No problem</td>
</tr>
<tr>
<td></td>
<td>Mild problem</td>
</tr>
<tr>
<td></td>
<td>Moderate problem</td>
</tr>
<tr>
<td></td>
<td>Severe problem</td>
</tr>
<tr>
<td></td>
<td>Very severe problem</td>
</tr>
<tr>
<td>Physical Examination</td>
<td>Table 17-7</td>
</tr>
<tr>
<td></td>
<td>No problem</td>
</tr>
<tr>
<td></td>
<td>Mild problem</td>
</tr>
<tr>
<td></td>
<td>Moderate problem</td>
</tr>
<tr>
<td></td>
<td>Severe problem</td>
</tr>
<tr>
<td></td>
<td>Very severe problem</td>
</tr>
<tr>
<td>Clinical Studies</td>
<td>Table 17-9</td>
</tr>
<tr>
<td></td>
<td>No problem</td>
</tr>
<tr>
<td></td>
<td>Mild problem</td>
</tr>
<tr>
<td></td>
<td>Moderate problem</td>
</tr>
<tr>
<td></td>
<td>Severe problem</td>
</tr>
<tr>
<td></td>
<td>Very severe problem</td>
</tr>
</tbody>
</table>
### Functional Hx

<table>
<thead>
<tr>
<th>Functional History Factor</th>
<th>Grade Modifier 0</th>
<th>Grade Modifier 1</th>
<th>Grade Modifier 2</th>
<th>Grade Modifier 3</th>
<th>Grade Modifier 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
<td>Asymptomatic; problem resolved, inconsistent symptoms</td>
<td>Pain; symptoms with strenuous/vigorous activity</td>
<td>Pain; symptoms with normal activity</td>
<td>Pain; symptoms with less-than-normal activity (mininal activity)</td>
<td>Pain; symptoms at rest, limited to sedentary activity</td>
</tr>
<tr>
<td><strong>PDQ or alternative validated functional assessment, scaled appropriately</strong></td>
<td>No disability PDQ 0</td>
<td>Mild disability PDQ 0–70</td>
<td>Moderate disability PDQ 71–100</td>
<td>Severe disability PDQ 101–130</td>
<td>Extreme disability PDQ 131–150</td>
</tr>
</tbody>
</table>

### Clinical Studies

<table>
<thead>
<tr>
<th>Clinical Studies Factor</th>
<th>Grade Modifier 0</th>
<th>Grade Modifier 1</th>
<th>Grade Modifier 2</th>
<th>Grade Modifier 3</th>
<th>Grade Modifier 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaging studies: Radiographs, bone scan, MRI</td>
<td>Imaging findings do not support symptoms or structural diagnosis within normal limits or normal age-related changes or clinically insignificant degenerative changes, or findings on the side opposite clinical presentation</td>
<td>CT/MRI/other imaging findings consistent with clinical presentation, including evidence of AOMSI with segmental instability, fusion, or motion preservation device defined by region (see row below)</td>
<td>Imaging evidence of major surgical complications, including infection or major deformity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrodiagnostic testing</td>
<td>Normal</td>
<td>EMG evidence consistent with single nerve root radiculopathy</td>
<td>EMG evidence consistent with multiple nerve root radiculopathy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** CT indicates computed tomography; MRI, magnetic resonance imaging; AOMSI, alteration of motion segment integrity; and EMG, electromyographic.
What do you need?

CDX = Class of diagnosis
GMFH = Grade Modifier for Functional Hx
GMPE = Grade Modifier for Physical Exam
GMCS = Grade Modifier for Clinical Studies

**NET ADJUSTMENT FORMULA**

\[
\text{Net Adjustment} = (\text{GMFH} - \text{CDX}) + (\text{GMPE} - \text{CDX}) + (\text{GMCS} - \text{CDX}) \\
(1 - 1) + (0 - 1) + (2 - 1) \\
0 + -1 + 1 = 0
\]

Net Adjustment Value = 0

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ -2</td>
<td>-1</td>
<td>0</td>
<td>+1</td>
<td>≥ +2</td>
</tr>
</tbody>
</table>

Impairment Rating

- Class 1 – cervical disc herniation with resolved radiculopathy
- Net Adjustment 0 = Class C    Impairment Rating = 6%
Features of AMA Guides 6th ed:

- ICF Model of Disablement (WHO 2001) replaces outdated ICIDH model (WHO 1980)
- AMA Guides is regularly updated with latest, evidence-based diagnostic information
- AMA Guides is increasingly diagnosis-based, and therefore user-friendly
- AMA Guides is internally-consistent, and can be applied across multiple organ systems

Features of AMA Guides 6th ed: (2)

- AMA Guides includes a specific modifier for functional history to help capture the impact of impairment on ADLs
- AMA Guides ratings now more frequently account for outcomes from treatment rather than the need for treatment including surgery
  - eg. Resolved radiculopathy after discectomy
- AMA Guides is transparent and promotes greater inter-rater reliability and agreement
Who is Currently Using the AMA Guides 6th

- Alaska
- Arizona
- Connecticut*
- District of Columbia
- Indiana**
- Louisiana
- Mississippi
- Montana
- Rhode Island***
- New Mexico
- Oklahoma
- Pennsylvania
- Tennessee
- Wyoming
- Puerto Rico
- Federal Employees’ Compensation Act
- Netherlands
- South Africa
- Canada

* The state of Connecticut allows the use of the Fourth, Fifth and Sixth editions of the AMA Guides. However, the Connecticut State Medical Society recommends the use of the most recent edition.

** The use of the AMA Guides in Indiana is not required, but using the most current edition of the Guides is recommended by the state.


Comparative Analysis of AMA Guides Ratings by the Fourth, Fifth and Sixth Editions
Conclusions

• There is a statistically significant difference between ratings when comparing the Sixth Edition with the Fifth Edition, but not comparing the Sixth Edition to the Fourth Edition.

• Average values had increased from the Fourth Edition to the Fifth Edition without clear scientific rationale.

Conclusions

• Many of the more meaningful changes were for spine-related diagnoses that resulted in surgery.

• Diagnoses not previously ratable (e.g. soft tissue) may result in small impairments.

• Consistent process resulted in improved inter-rater reliability.
Comparative Analysis

- Fourth Edition published in 1993
- Fifth Edition published in 2000
- Sixth Edition published in 2007

As with other areas of medicine, the assessment of impairment evolves and improves

Goals of Study

- Assess the overall impact on impairment ratings by the use of evolving Editions
- Determine the average ratings (in a sample population) by case and diagnosis, including analysis by:
  - Type of impairment
  - Diagnosis
  - Impact of surgery
  - Ratings by grouping from Fourth and Fifth Edition
Study

- 200 cases reviewed (cases referred for the assessment of impairment by clients who provide all ratings for review)
- Cases evaluated by experienced raters for the Fourth, Fifth and Sixth Edition on the basis of the clinical information provided
- Excellent inter-rater reliability demonstrated by independent review of 15% of cases
- Study performed by Impairment Resources, LLC (Christopher R. Brigham, MD – has performed similar studies for agencies and governmental entities)

Results

- 200 cases reflected 279 diagnoses
- Age averaged 45 years (range 22 to 79 years)
- Date of evaluation averaged 23 months post injury
Sixth Edition Ratings

- 73% Diagnosis-Based Impairments, 22% Range of Motion (extremity), and 5% other
- Majority Class 1 (81%) – Mild Problem
  - Class 0 (6%), Class 2 (8%), Class 3 (5%), Class 4 (0%)
  - Averages for Class, Functional History, Physical Examination and Studies all 1
- Some 0% ratings per prior Editions will have ratable impairment per Sixth Edition
  - 21% of Fifth Ed. Diagnostic ratings had 0% impairment, however 70% of these resulted in ratable impairment by Sixth Ed. Averaging 1% whole person permanent impairment

Comparison Average WPI Ratings

<table>
<thead>
<tr>
<th></th>
<th>Fourth</th>
<th>Fifth</th>
<th>Sixth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td>5.50%</td>
<td>6.33%</td>
<td>4.82%</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>4.00%</td>
<td>4.59%</td>
<td>3.53%</td>
</tr>
</tbody>
</table>
**Comparison WPI Ratings for Diagnoses by Chapter**

- **Spine Diagnoses WPI Comparison**

<table>
<thead>
<tr>
<th>Region</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>Diagnoses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td>5.2%</td>
<td>6.7%</td>
<td>4.1%</td>
<td>86</td>
<td>31%</td>
</tr>
<tr>
<td>Upper Extremities</td>
<td>3.1%</td>
<td>3.4%</td>
<td>3.2%</td>
<td>126</td>
<td>45%</td>
</tr>
<tr>
<td>Lower Extremities</td>
<td>4.0%</td>
<td>4.0%</td>
<td>3.2%</td>
<td>57</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical</td>
<td>4.5%</td>
<td>6.7%</td>
<td>5.7%</td>
<td>33</td>
</tr>
<tr>
<td>Thoracic</td>
<td>6.2%</td>
<td>3.7%</td>
<td>7.1%</td>
<td>3</td>
</tr>
<tr>
<td>Lumbar</td>
<td>5.7%</td>
<td>7.1%</td>
<td>4.5%</td>
<td>50</td>
</tr>
</tbody>
</table>

**Spine Diagnoses WPI Comparison**
### Comparison WPI Ratings: Surgical vs. Non-Surgical

<table>
<thead>
<tr>
<th>Category</th>
<th>#</th>
<th>Fourth Ed.</th>
<th>Fifth Ed.</th>
<th>Sixth Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td>86</td>
<td>5.2%</td>
<td>6.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Upper Extremity</td>
<td>126</td>
<td>3.1%</td>
<td>3.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Lower Extremity</td>
<td>57</td>
<td>4.0%</td>
<td>4.0%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>5.3%</td>
<td>5.3%</td>
<td>5.3%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Surgical</th>
<th>#</th>
<th>Fourth Ed.</th>
<th>Fifth Ed.</th>
<th>Sixth Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td>71</td>
<td>3.5%</td>
<td>3.8%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Upper Extremity</td>
<td>66</td>
<td>2.0%</td>
<td>2.2%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Lower Extremity</td>
<td>20</td>
<td>3.0%</td>
<td>3.2%</td>
<td>2.7%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Surgical</th>
<th>#</th>
<th>Fourth Ed.</th>
<th>Fifth Ed.</th>
<th>Sixth Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td>15</td>
<td>13.3%</td>
<td>20.1%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Upper Extremity</td>
<td>60</td>
<td>4.4%</td>
<td>4.7%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Lower Extremity</td>
<td>37</td>
<td>4.6%</td>
<td>4.5%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>

### Comparison WPI Ratings: Surgical vs. Non-Surgical (Bar Chart)

- Spine: 13.3% (Fourth Ed.), 20.1% (Fifth Ed.), 9.5% (Sixth Ed.)
- Upper Extremity: 4.4% (Fourth Ed.), 4.7% (Fifth Ed.), 3.8% (Sixth Ed.)
- Lower Extremity: 4.6% (Fourth Ed.), 4.5% (Fifth Ed.), 3.4% (Sixth Ed.)
Conclusions

- Intent of the AMA Guides 6th edition is to rate a patient after treatment has been completed.
- There is a statistically significant difference between ratings when comparing the Sixth Edition to the Fifth Edition, but not comparing the Sixth Edition to the Fourth Edition.
- Average values had increased from the Fourth Edition to the Fifth Edition without clear scientific rationale.

Conclusions

- Many of the more meaningful changes were for spine-related diagnoses that resulted in surgery.
- Diagnoses not previously ratable (e.g. soft tissue) may result in small impairments.
- Consistent process should result in improved inter-rater reliability.