Improving Orthopedic Surgeries Healthgrades Rating by Reducing Complications

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**Introduction**

- Healthgrades is an online healthcare rating system for patients to compare different providers based on clinical outcomes.
- Orthopedic surgery has a lower rating than the rest of LVHN with only 1 star out of a possible 5.
- Healthgrades is calculated from instances of mortality and complications from public Medicare claims data over a 3 year period with a delay of 2 years.
- National average complication rate for hip and total knee replacements in 2013 was 3.4%.
- Severe complications only occurred in less than 2% of total joint replacement patients.
- Study at Northwestern University showed high complication rates caused by inconsistent record keeping, not poor hospital quality.
- Improving the Networks orthopedic Healthgrades rating will attract more patients and increase the its competitive edge in the area.

**Methodology**

- Analyzed hip (n=1883) and total knee (n=3011) replacement clinical outcomes from 2010 to 2012 using Microsoft Excel.
- Confirmed trends with the clinical outcomes from 2013 and 2014.
- Individual patients with complications were further analyzed by looking at their medical records, including history and physical, lab test results, and physician notes.
  - This proved no standardized method of coding renal failure or other respiratory complications.

**Results**

Table 1: Complication rates from 2010 to 2014 for hip and total knee replacements

<table>
<thead>
<tr>
<th>Year</th>
<th>Hip</th>
<th>Knee</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>8.8%</td>
<td>10.6%</td>
</tr>
<tr>
<td>2011</td>
<td>5.5%</td>
<td>7.6%</td>
</tr>
<tr>
<td>2012</td>
<td>8.2%</td>
<td>8.5%</td>
</tr>
<tr>
<td>2013</td>
<td>7.1%</td>
<td>8.0%</td>
</tr>
<tr>
<td>2014</td>
<td>3.9%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

- Description of important complications:
  - 997.** - complications affecting a specified body system
  - 584.9 - acute renal failure
  - 997.39 - other respiratory problems

Table 2: Percent of total knee replacement procedures that resulted in acute renal failure, complications affecting a specified body system, and other respiratory complications by year from 2010 to 2014.

<table>
<thead>
<tr>
<th>Complication</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>584.9</td>
<td>4.9%</td>
<td>3.1%</td>
<td>2.3%</td>
<td>1.7%</td>
<td>1.3%</td>
</tr>
<tr>
<td>997.**</td>
<td>2.7%</td>
<td>0.7%</td>
<td>3.8%</td>
<td>4.7%</td>
<td>0.2%</td>
</tr>
<tr>
<td>997.39</td>
<td>0.3%</td>
<td>0.2%</td>
<td>3.0%</td>
<td>4.2%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

**Conclusion**

- Two most frequent complications are acute renal failure and all 997.** codes including other respiratory problems.
- Acute renal failure:
  - Occurrences decrease yearly after 2010
  - DRG changed from a major to a regular complication in 2010
  - Other respiratory problems and all 997.** codes:
    - Occurrences spike in 2012 and 2013
    - Result of outside contractors coding cases
  - Redocumentation program for coding staff
  - Prebilling initiative put in place to catch any undesirable complication codes associated with orthopedics.

**Additional Projects**

- Analyzed various hospital metrics for Hazleton OR to identify areas for improvement.
- Created a standardized way to calculate on time first case starts and turnover time for Tilghman.
- Researched the cost and benefits associated with navigation tools or apps for orthopedics as well as hiring a nurse navigator.

**REFERENCES**


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