As we enter the era of public reporting of surgical outcomes, it is critical that surgeons document the medical and surgical complexity of the care they provide. To date, much of the data reported on the internet is not risk adjusted. Since the performance of surgeons and hospitals will be judged and pay may become tied to quality metrics, the American Association of Hip and Knee Surgeons (AAHKS) has been working on ways to improve risk adjustment for outcomes data for the last several years.

HISTORY

Traditional risk adjustment scales have often been subspecialty specific. For example, the anesthesiologists record the American Society of Anesthesiologists (ASA) class of the patient for each surgery we do. Similarly, the cardiologists either use the American Heart Association (AHA) stages of heart failure or the New York Heart Association (NYHA) Functional Classification functional classification to risk stratify patients. Currently, there are no standard risk stratification scales for orthopedic arthroplasty patients.

Several more complex risk stratification schemes exist: the Charlson comorbidity index and the Elixhauser comorbidity measure are among the most commonly used for research. Others include the Cumulative Illness Rating Scale (CIRS); the Cumulative Illness Rating Scale for geriatrics (CIRS-G); the Kaplan-Feinstein Index, the Index of Co-existent Disease (ICED), the Geriatric Index of Comorbidity (GIC), the Functional Comorbidity Index (FCI), and the Total Illness Burden Index (TIBI).

1 http://www.asahq.org/resources/clinical-information/asa-physical-status-classification-system
2 http://www.learntheheart.com/cardiology-review/accaha-heart-failure-classification/
3 http://en.wikipedia.org/wiki/New_York_Heart_Association_Functional_Classification
Currently, the documentation of medical comorbidities and complications dictates hospital reimbursement via the DRG system. Specifically, a total joint arthroplasty that is done with associated comorbidities and major complications (MCC)\(^1\) is reimbursed at a higher rate than a case without.

**WHEN TO CODE MEDICAL COMORBIDITIES**

Until about 2 years ago, the HCFA billing form, CMS 1500\(^14\) only allowed 4 ICD-9 codes as diagnoses. Currently, up to 12 diagnoses can be recorded.

It is mandatory that the impact of these comorbidities on your surgical care be mentioned in your note if you plan to code for them. For example, “the patient’s morbid obesity will increase the risk of deep infection three-fold, slow their rehabilitation, and increase their risk for deep venous thrombosis.”

For diagnoses that occur during the hospital stay, the over- or underuse of complication codes is likely to be problematic. Specifically, “acute blood loss anemia” (ICD9 code 285.1) could be applied to most arthroplasty surgeries. Thus, if hospital A always codes this and hospital B rarely does, it is possible that hospital A may initially receive a higher reimbursement. Conversely, later review of the data may lead insurers to send patients to hospital B and their surgeons. For this reason, definition of these terms will be critical. (In our hospital, we have agreed that a drop in hemoglobin of greater than 4 points would be labeled “acute blood loss anemia.” However, our coders cannot use the code unless we put it in our note.)

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9 http://www.nature.com/ki/journal/v60/n4/fig_tab/4492571t1.html#figure-title


The AAHKS Risk Adjustment Task Force has been working with CMS and the Yale Outcomes Group to improve the risk adjustment models used in TJA performance measures. The goal of performance measures is to give surgeons an accurate assessment of their performance, while controlling for patient factors outside the control of providers. The current TJA performance measures being reported on hospitalcompare.gov are based on administrative claims data. Therefore, unless those risk factors that are known to influence outcomes (e.g. smoking, obesity) are captured in the administrative record, your outcomes will not be properly risk adjusted.

To that end we need to begin to document important clinical risk factors for lower extremity arthroplasty and have them tested to see if they improve the current risk model. We have already tested a few of these, that is smoking and obesity, and they improved the model significantly. We hope to continue to optimize the model by adding further clinical variables. Therefore we are seeking your help in systematically capturing the risk variables known to influence outcomes. We have created an easy to use checklist, similar to what you currently use to medical necessity of arthroplasty to avoid RAC audits. We understand that this adds another layer of burden to your preoperative visit, but it is important so that you will be judged fairly and maintain access for our patients.

<table>
<thead>
<tr>
<th>Clinical Risk Factor</th>
<th>ICD9 Code</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morbid obesity BMI &gt;40</td>
<td>278.01</td>
<td>Morbid Obesity</td>
</tr>
<tr>
<td>Smoking</td>
<td>305.1</td>
<td>Tobacco use disorder</td>
</tr>
<tr>
<td>Chronic anticoagulant use</td>
<td>V58.61</td>
<td>Long-term (current) use of anticoagulants.</td>
</tr>
<tr>
<td>Chronic narcotic use</td>
<td>305.51</td>
<td>Opioid abuse, continuous</td>
</tr>
<tr>
<td>Workmen’s compensation case</td>
<td>V62.1</td>
<td>Adverse effects of work environment</td>
</tr>
<tr>
<td>Previous intra-articular infection</td>
<td>139.8</td>
<td>Late effect of other and unspecified infectious and parasitic diseases</td>
</tr>
<tr>
<td>Congenital hip deformity</td>
<td>755.63</td>
<td>Other congenital deformity of hip</td>
</tr>
<tr>
<td>Angular knee deformity &gt;15 degrees</td>
<td>736.6</td>
<td>Other acquired deformity of knee</td>
</tr>
<tr>
<td>Previous ORIF hip</td>
<td>716.15</td>
<td>Traumatic arthropathy, pelvic region and thigh</td>
</tr>
<tr>
<td>Previous ORIF knee</td>
<td>716.16</td>
<td>Traumatic arthropathy, lower leg</td>
</tr>
<tr>
<td>Depression/psychiatric disease</td>
<td>300.9</td>
<td>Unspecified nonpsychotic mental disorder</td>
</tr>
</tbody>
</table>
The easiest way to incorporate this into your note is as follows. Those who use Cerner should paste this section into your “pre-completed” new patient note. It should likely appear after Radiographs and before the Impression/Plan. The appropriate diagnoses could be checked or the inapplicable ones deleted. Alternatively, the list could be saved as “autotext.” The comorbidities discussed in the note should ultimately appear on your CMS-1500. This will allow abstraction for data collection.

For Epic users, this form can be pasted into your note or a smartform can be designed that links these diagnoses to the codes that are attached to your note.

**How to use this list:**

1. Please put this list in every history and physical for arthroplasty. You may paste the entire list into your note. A word form of this list will be available on the AAHKS website at: [http://www.aahks.org/wp-content/uploads/2015/04/comorbidity-code-chart.docx](http://www.aahks.org/wp-content/uploads/2015/04/comorbidity-code-chart.docx)

2. Checkmark the ones that apply to your current patient. You must indicate the negative impact with a comment such as the one at the end of the list.

3. Make certain that your office coder and your hospital coder enter these codes into the system with your ICD-9 code for the arthroplasty.

4. For surgeons interested in improving their understanding of perioperative comorbidity coding and its necessity, please see the recent JBJS article, “Using Joint Registry Data from FORCE-TJR to Improve the Accuracy of Risk Adjustment Prediction Models for Thirty-Day Readmission After Total Hip Replacement and Total Knee Replacement.” *Journal of Bone and Joint Surgery*, Volume 97A, No. 8, April 15, 2015, 668-671. [http://jbjs.org/content/97/8/668](http://jbjs.org/content/97/8/668)


6. Questions? Email frank.voss@uscmed.sc.edu

**RESOURCES**

1. AAHKS Website – [www.AAHKS.org](http://www.aahks.org) see Practice Management

2. Karen Zupko courses

3. Codex

4. AMA coding books


16 Code is not specific to a 15 degree deformity