American Joint Replacement Registry

Accessing Data from the World's Largest Hip and Knee Registry by Annual Procedure Count

www.aaos.org/registries
Introductions

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At the Core of Academy Strategy

Registry Effort Goals

✓ Collect unique clinical information demonstrating real-world practice

✓ Enable performance measurement by physicians for physicians

✓ Facilitate national registry-driven quality improvement programs

✓ Support novel scientific research
AAOS Family of Registries

AAOS Board of Directors

Registry Oversight Committee (ROC)

Collaborative Registries

- Collaborative Registry with AANS & AAOS American Spine Registry (ASR)
  - Cervical Degenerative Spine
  - Lumbar Degenerative Spine
    Accepts data from 2016 - present

- Shoulder & Elbow Registry (SER)
  - Shoulder Arthroplasty
  - Rotator Cuff Repair
  - Elbow Arthroplasty
    Accepts data from 2016 - present

AAOS Registries

- American Joint Replacement Registry (AJRR)
  - Hip Arthroplasty
  - Knee Arthroplasty
    Accepts data from 2012 - present

- Musculoskeletal Tumor Registry (MsTR)
  - Orthopaedic Oncology
    Accepts data from 2016 - present

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Registry Participation

Over 1,600 participating sites contracted and 11,700 registered surgeons across all 50 states.

Data representing over 2,000,000 procedures capturing over 40% of all US TJA volume annually.
American Joint Replacement Registry
**AJRR Data Element Summary**

**Procedure**

**Patient**
- Name, Date of Birth, SSN
- Diagnosis (ICD-9/10)
- Gender
- Race/Ethnicity
- Weight, Height/BMI
- Payer Status

**Site of Service**
- Name and Address (TIN, NPI)

**Surgeon**
- Name (NPI)
- Trainee

**Procedure**
- Type (ICD-9/10, CPT)
- Date of Surgery, Length of Stay
- Surgical Approach
- Surgical Technique
- Laterality
- Implants (Manufacturer, Lot #)
- Anesthesia

**Comorbidities and Complications**
- Comorbidities (ICD-9/10)
- CJR Risk Variables
- Height + Weight/Body Mass Index
- Length of Stay
- American Society of Anesthesiologists Score
- Charlson Index
- Operative and Post-operative Complications

**Patient-reported Outcomes**

**Recommended:**
- PROMIS-10 Global
- VR-12
- HOOS Jr.
- KOOS, Jr.

**Also Accepted:**
- SF-36 v1
- HOOS/KOOS
- Oxford Hip and Knee Scores
- Knee Society Knee Scoring System
- Harris Hip Score
- WOMAC (Modified via HOOS and KOOS)
- SF-12, EQ-5D, WOMAC (only accepting final scores)
The AAOS Registry Program is collecting COVID-19 data through the capture of the ICD-10 code for COVID-19 confirmed diagnosis, U07.1

The ICD-10 code, U07.1, can be submitted as a preoperative comorbidity or prior diagnosis present on admission and as a reason for readmission.

Tracking this information will help your site and the registries analyze:

- Impact of COVID-19 on outcomes
- Trends of surgery based on the pause in elective surgery
- Trends of patient-reported outcomes (PROMs) due to delayed procedures
- Potential impact on Centers for Medicare & Medicaid Services (CMS) value-based payment models and coverage for patients recovering from COVID-19

COVID-19 ICD-10 CODE NOW BEING COLLECTED IN AAOS REGISTRIES
• AAOS Registries are for surgeons by surgeons
  o AAOS is here to support our members to ensure registry participation does not cause burden
  o Capturing U07.1 does not change your site’s workflow; it is added as an accepted value

• If you have any questions about submitting the new code, please reach out to AAOS Registry Support at RegistrySupport@aaos.org.
## Steps to a Successful Start

### Contract & Welcome
- Execute contract
- Schedule a Welcome call to identify your sites key contacts and roles with the Registry

### Data Collection & File Build
- Walkthrough file development and file build
- File submission (SFTP/HTTPS) account creation

### Test File Submission
- Two rounds of test file submissions

### Live File Submission
- Final production setup and first live data submission

### RegistryInsights® Walkthrough
- Once data has been submitted, sites will have a walkthrough with staff to review dashboards, reports, PROMs and other platform functionality
Three Ways to Access Data

- Registry Insights® Dashboards
- Custom Reports
- Registry Analytics Institute®
RegistryInsights® Dashboards

- On-demand practice specific dashboards
- Compare your practice to national performance benchmarks
- Unlimited surgeon accounts with access to system, site, and surgeon level dashboards
PROM Management
Custom Reports

Custom reports created by our analytics team to help understand and package your site data in an actionable format.

Custom reports can include site specific metrics and shape continuous improvements to the canned dashboards provided.

Aggregated reports and national benchmarks for every metric across all data submitted including procedural, post-operative and PROMs data can be provided at your site level.
The goal of the AAOS Registry Analytics Institute is to provide a resource to the scientific community to further understand and improve orthopaedic and musculoskeletal care by making data available to examine outcomes related to orthopaedics.

- The Institute provides clinicians and clinician-scientists the opportunity to submit proposals for analytic insight that are contained within its various registries.

- Selected awardees receive statistical support, data analyses, and potential monetary support.
Data Reuse Opportunities

Participation in the American Academy of Orthopaedic Surgeons (AAOS) Registry Program offers a wide variety of data reuse opportunities including requirements for quality initiatives and state collaboratives.

- AAOS RegistryInsights® Platform Standard Reports and personalized dashboards
- AAOS RegistryInsights National Benchmarks
- Accreditation Association for Ambulatory Health Care (AAAHC) Advanced Orthopaedic Certification
- Aetna Institutes of Quality (IOQ) Orthopaedic Surgery
- American Board of Neurological Surgery (ABNS) Continuous Certification (CC)
- American Board of Orthopaedic Surgeons (ABOS) Maintenance of Certification (MOC) Program
- BlueCross BlueShield Blue Distinction Specialty Care
- Blue Shield of California waiver of prior authorization
- Bree Collaborative
- CMS Merit-based Incentive Payment System (MIPS) Promoting Interoperability (PI) and Quality Payment Program (QPP)
- Centers for Medicare & Medicaid Services (CMS) Bundled Payments for Care Improvement Advanced (BPCI-A)
- CMS Comprehensive Care for Joint Replacement (CJR) Model
- Cigna Surgical Treatment Support Program
- DNV GL Orthopaedic Center of Excellence
- The Alliance QualityPath
- The Joint Commission Advanced Certification for Total Hip & Knee Replacement
AJRR Annual Report

Available Now!
2019 Annual Report and Supplement at: www.aaos.org/registries/publications

7th Annual Report to be released in November of 2020
2019 Annual Report

• Summary Statistics
  o Procedure, institution, and patient distributions
• Data Completeness
• Hip Arthroplasty
• Knee Arthroplasty
• Revision Procedures
• Component/Case Survivorship
• Patient Reported Outcome Measures (PROMs)
2019 Annual Report
Sample Results

Figure 1.1 Cumulative Procedural Volume by Year, 2012-2018 (N=1,525,435)

Figure 2.24 Femoral Stem Fixation for Elective Primary Total Hip Arthroplasty 65 Years of Age with Primary Osteoarthritis Age and Sex Adjusted, 2012-2018*

Table 2.5 Change Between Preoperative and 1-Year Postoperative Patient Reported Outcome Measure (PROM) Scores After Primary Hip Arthroplasty, 2012-2018

Table 2.29 ICD Diagnosis Codes for All Early “Linked” Hip Revisions, 2012-2018 (N=3,923)*

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Percent of All Early Hip Revisions</th>
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<tbody>
<tr>
<td>Infection &amp; Inflammatory (n=903)</td>
<td>23.0%</td>
</tr>
<tr>
<td>Instability (n=774)</td>
<td>19.7%</td>
</tr>
<tr>
<td>Fracture or Fracture Related Sequela (n=651)</td>
<td>16.6%</td>
</tr>
<tr>
<td>Other (n=620)</td>
<td></td>
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<tr>
<td>Periprosthetic Fracture (n=691)</td>
<td>15.8%</td>
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<tr>
<td>Aseptic Loosening (n=207)</td>
<td>15.5%</td>
</tr>
<tr>
<td>Other Mechanical Complications (n=151)</td>
<td>3.5%</td>
</tr>
<tr>
<td>Articular Bearing Surface Wear (n=6)</td>
<td>0.2%</td>
</tr>
<tr>
<td>Periprosthetic Osteolysis (n=2)</td>
<td>0.1%</td>
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</tbody>
</table>

PROM Component | Patients with Preoperative Score | Patients with Linked Postoperative Score | Response Rate Percentage of Patients Who Completed a Preoperative and 1-Year Score | Patients with Meaningful Improvement* |
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</tr>
</thead>
<tbody>
<tr>
<td>HOOS, JR. (Hip disability and Osteoarthritis Outcome Score)</td>
<td>Score 16,508</td>
<td>3,284</td>
<td>19.9%</td>
<td>91.7%</td>
</tr>
<tr>
<td>PROMIS-10 (Patient-Reported Outcomes Measurement Information System 11)</td>
<td>Mental T 9,803</td>
<td>1,878</td>
<td>19.2%</td>
<td>40.4%</td>
</tr>
<tr>
<td>Physical T 9,803</td>
<td>1,878</td>
<td>19.2%</td>
<td>75.6%</td>
<td></td>
</tr>
<tr>
<td>VR-12 (The Veterans RAND 12 Item Health Survey)</td>
<td>Mental Health Component 10,667</td>
<td>2,917</td>
<td>27.4%</td>
<td>40.3%</td>
</tr>
<tr>
<td>Physical Health Component 10,667</td>
<td>2,917</td>
<td>27.4%</td>
<td>78.3%</td>
<td></td>
</tr>
</tbody>
</table>
2019 Report Supplement

• Device Specific Survivorship
  • Comparing survival to revision over time among top components submitted to AJRR

• AJRR Representativeness Study
  • Comparing procedure and demographic trends between AJRR and the national inpatient sample (NIS) database
## 2019 Report Supplement

### Sample Results

**Group Name** | **Total** | **Failure Events** | **Not Failed** | **Competing Events (Death)** | **Percent without Event**
--- | --- | --- | --- | --- | ---
Triathlon PS | 42,331 | 469 | 41,862 | 559 | 98.9%
Persona PS | 33,515 | 297 | 33,218 | 249 | 99.1%
NexGen PS | 18,171 | 239 | 17,932 | 371 | 98.7%
Attune PS | 29,699 | 317 | 29,382 | 241 | 98.9%
PFC Sigma PS | 11,569 | 143 | 11,426 | 271 | 98.7%
**Total** | **135,685** | **1,465** | **134,220** | **1,691** | **98.9%**

**Diagram:**

The diagram illustrates cumulative percent revision over time for different groups, with specific percentages provided for different time intervals. The groups include Triathlon PS, Persona PS, NexGen PS, and Attune PS. The data is presented in a bar graph format with time intervals ranging from 0 to 84 months.
Questions?

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