AAOS Registry Program
User Group Network

Wednesday, March 13, 2019
11:30 – 1:30 p.m. PT
Venetian/Sands Expo, Room 907 | Las Vegas, NV

Access Number: 1-719-457-6209
Guest Passcode: 200779
Today’s Agenda

• Lunch, Welcome, and Introductions
• Registry Program Current Features and Road Map
  • Surgeon Dashboard Access; Data Quality Reporting Dashboards, *Ryan Olsen, Registry Optimization Analyst*
  • Annual Data Specification Sunset Cycle; Inclusion of CMS data; AAOS Registry Analytics Institute Launch; and 2019 Annual Report Interim Reports, *Dena Weitzman, OD, Analytics Lead, Registries*
• Conversation with Kevin Bozic, MD, MBA, AJRR Chair
• Latest News on AAOS Registries Program, *Nate Glusenkamp, Chief Quality & Registries Officer*
• The Joint Commission and AAOS’ collaboration on Total Hip & Total Knee Advanced Certification, *Dave Eickemeyer, Associate Director of Business Development, The Joint Commission*
• User Perspectives and Input – WellStar Health System and other attendees
• Question & Answer Session
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Lunch, Welcome, and Introductions

Thank you to the Advisers who help plan these meetings!

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<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Location</th>
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<tbody>
<tr>
<td>Patrice Hallak</td>
<td>Providence Health &amp; Services</td>
<td>Renton, WA</td>
</tr>
<tr>
<td>Amy Ketchum MS, RN, OCNS-C</td>
<td>Midwest Orthopedic Specialty Hospital</td>
<td>Franklin, WI</td>
</tr>
<tr>
<td>Chris Kane</td>
<td>Catholic Health</td>
<td>Buffalo, NY</td>
</tr>
<tr>
<td>Dr. Mark Snyder</td>
<td>TriHealth</td>
<td>Cincinnati, OH</td>
</tr>
<tr>
<td>Cheryl Talamo</td>
<td>Doylestown Hospital</td>
<td>Doylestown, PA</td>
</tr>
</tbody>
</table>
Today’s User Status

• In-person Registrations
  • 27% never submitted
  • 53% has submitted data
    • 16% submitted in 2019
    • 16% hasn’t submitted since 2016

• Webinar Registrations
  • 17% never submitted
  • 71% has submitted data
    • 18% submitted in 2019
    • 18% hasn’t submitted since 2017

• Staff, surgeon leadership, and other guests
Today’s Goal

• To provide you with useful information to help increase the number of data submitters
• To provide you with tools & resources to use all aspects of the Registry
• To answer your questions and listen to your feedback
• Learn and share with each other
Pink & Blue Index Cards

• For the “User Perspectives and Input” session
• **PINK – Pain Points** – things you’d like to see improved about the Registry
• **BLUE – Positive feedback** about the Registry
• For every pain point, please write 2 positive things
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• 4.1.2 Registry Insights Release Update
  • Multi Registry Support
  • Branding Update
  • SER Support and Dashboards

• Surgeon Dashboard Access
  • Contact your registry Program engagement representative to get started with addendum process.
  • Surgeon Dashboard Addendum will be signed by the participating site and added to your existing registry contract
  • Unique email address will be required for each surgeon to login
RegistryInsights – Branding Update
Multi Registry Access

Stats

Registry Total Procedures
1.6 M

Your Total Procedures
406

My Registries

AJRR American Joint Replacement Registry

Other Registries

S&ER Shoulder & Elbow Registry

MsT Musculoskeletal Tumor Registry

Latest File Upload

<table>
<thead>
<tr>
<th>Uploaded On</th>
<th>Submitted By</th>
<th>File Name</th>
<th>Total Cases</th>
<th>Total Rejected</th>
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Institution Dashboards

All Procedures - Nationally

Total Procedures
1.56M

Gender Distribution
- Male
- Female

Mean Age
66.9

Primary Procedures
- Hip: 42%
- Knee: 58%

Total Number of Procedures by State

All Procedures
- Total
  - Total: 1,564,046
  - Hip: 65,657
  - Knee: 50,069
  - Revision: Total: 125,626

Your Procedures
- All Procedures

All Post-Operative Data
- All Post-Operative Data

Your Post-Operative Data
- All PROMs
- Your PROMs
Surgeon Dashboards

<table>
<thead>
<tr>
<th>Procedure Site</th>
<th>Procedure Type</th>
<th>Gender</th>
<th>Age Groups</th>
<th>Encounter Date Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>1/1/2001 - 12/31/2019</td>
</tr>
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<tr>
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<th>N</th>
<th>%</th>
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<tr>
<td>Total</td>
<td>31</td>
<td>100.00%</td>
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<tr>
<td>Male</td>
<td>21</td>
<td>67.74%</td>
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<tr>
<td>Female</td>
<td>10</td>
<td>32.26%</td>
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<table>
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<th>Procedure Joint</th>
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<td>Primary</td>
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<td>Knee</td>
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<td>17</td>
<td>56.86%</td>
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• User Perspectives and Input – WellStar Health System and other attendees

• Question & Answer Session
Registry Program Highlights

- The American Joint Replacement Registry (AJRR) was re-integrated into AAOS
- The Registry Oversight Committee (ROC) was created
- Additional staff hired and physician leadership groups created
- Shoulder & Elbow Registry launched as next priority
- Strategy for building a scalable and sustainable Registry Program developed
- Revamp of data specifications and problem-solving for improved data capture within AJRR including release of revised specification
AAOS Family of Registries

AAOS Board of Directors

Registry Oversight Committee

Future Registry
- Shoulder & Elbow Registry (SER)
  - Shoulder Arthroplasty
  - Rotator Cuff Repair (2019)
  - Elbow Arthroplasty (2019)
- American Joint Replacement Registry (AJRR)
  - Hip Arthroplasty
  - Knee Arthroplasty
- Musculoskeletal Tumor (MsT) Registry Pilot
  - Orthopaedic Oncology
- Future Registry

Registry Program
Improving Orthopaedic Care Through Data
Registry Data Specification Sunset Cycle

The AAOS Registry Data Specification Sunset Cycle simplifies the transition of data specifications by informing you of when our new data specifications will be released and when we plan to sunset the oldest data specifications. This release and sunset cycle will occur annually.

January 1st

AAOS releases updated data specification and data dictionary

June 1st – January 1st
- Latest 2 versions of the data specifications supported
- AAOS updates trigger code lists with newly released ICD & CPT codes
- Aug./Sept. share updates for upcoming January release with external vendors
- Test and revise any data element changes before Jan. update.

January 1st – June 1st
- 3 most recent data specification versions supported
- Data Specification transition informational webinars hosted

June 1st

AAOS sunsets the oldest data specification

Questions to registrysupport@aaos.org
Decreasing Data Entry Burden & Data Enhancements

• Evaluating ability to **augment and decrease** participant data submission with external data sources

• Revamping **authorized vendor program** to include proactive reach to vendors used by AAOS Registry participants

• Increasing **technical solutions** for validation and data quality assurance

• Obtained access to **Medicare claims data** (2012-2018 for all patients represented in registry with Medicare records, ~700k)
Integration of Medicare Data

Obtained access to Medicare claims data (2012-2018 for all patients represented in Registry with Medicare records, ~700k)

Quarterly we send a finder file of all individuals in the Registry to CMS

Quarterly CMS sends us a file with all data that matches the individuals in the Registry
Expanding Annual Report Dissemination

- Now available online with two digital supplements: http://www.ajrr.net/publications-data
- Includes data on over 1.1 million procedures from 2012-2017
- Integration of Medicare data
- First AJRR survivorship curves
Dissemination of Data
2019 Interim Annual Reports

• Goal: Where do you find value in what we can provide?

• Bringing value to all stakeholders with supplemental and interim reports
  • Hospitals, ASCs, Practices
  • Surgeons
  • Patients
  • Industry
  • Payers

GOAL for 2019
2 Interim Reports

Patient/Public Facing
Spring 2019

Surgeon Facing
Summer 2019
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.

Launched February 2019

Researchers can submit proposals for analytical data contained within AAOS Registries.
Analytics Institute

- Process for external data requests
- Review cycle managed by the Research Projects Subcommittee
- Selected awardees receive statistical support, data analyses, and potential monetary support
- Goal to progress towards Registry Science Fellowships

https://www.aaos.org/Quality/Registry_Programs/AAOS_Registry_Analytics_Institute/
Thank you!

Dena Weitzman (weitzman@aaos.org)
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At the Core of AAOS 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
2018 AJRR Highlights

- Obtained *access to Medicare claims* data for linkage to AJRR data
  - Creation of the *first survivorship curves* for inclusion in 2018 Annual Report

- Selected for National Eval System for health Technology Coordinating Center (NESTcc) grant to participate in *feasibility pilot for data linkage from private payers*, Optum Labs and Anthem

- Building a **Registry Analytics Institute** to foster further dissemination of Registry Program data in literature, conferences, and across trainees

- Continued investment in *technical infrastructure* to optimize user and multi-stakeholder experience
  - Development of **PROM dashboards**, data *access directly to AAOS surgeons*, and increased value of Registry Insights™

- Partnership with the AAOS Clinical, Quality & Value team to *develop, test, and calculate performance measures* on the AJRR platform

- Pursuing use of data for reporting purposes such as **MIPS, MOC & CME**
AJRR Yearly Submission Trends

Number of Procedures by Year

Over 1.4 million procedures
AJRR Participating Sites by State

1,511,825 procedures from 801 sites and 8,687 surgeons. Now capturing 25% to 30% of all US TJA volume annually.
Procedure
Patient
• Name (Last, First)
• Date of Birth
• Social Security Number
• Diagnosis (ICD-9/10)
• Gender
• Race/Ethnicity

Hospital
• Name and Address

Surgeon
• Name (National Provider Identifier)

Procedure
• Type (ICD-9/10)
• Date of Surgery
• Laterality
• Implants
• Approach

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

Patient-reported Outcomes
Recommended:
• PROMIS-10 Global
• VR-12
• HOOS/KOOS, JR.

Also Available:
• 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)
2018 AJRR Annual Report

- Now available online and at the AJRR booth
- Includes data on over 1.1 million procedures from 2012-2017
- Integration of Medicare data
- First AJRR survivorship curves
PROM Preoperative and 1-year Postoperative Unadjusted Mean Scores

Unadjusted Pre-operative Mean Score
- HOOS, JR. Score
- PROMIS Global-10 Global Mental Health T-score
- VR-12 Mental Health Component

Unadjusted 1 Year Mean Score
- KOOS, JR. Score
- PROMIS Global-10 Global Physical Health T-score
- VR-12 Physical Health Component

152 sites submitting PROMs
56,539 linked PROM surveys with min 1 yr f/u
Adjusted, Meaningful Improvement in Joint-Specific PROM Preoperative and 1-year Postoperative

Percent of Patients That Reported Meaningful Improvement*, %

<table>
<thead>
<tr>
<th>Score</th>
<th>Global Mental T-score</th>
<th>Global Physical T-score</th>
<th>Mental Component Score</th>
<th>Physical Component Score</th>
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<tr>
<td>HOOS, JR.</td>
<td>94.2</td>
<td>43.1</td>
<td>75.8</td>
<td>77.0</td>
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<tr>
<td>KOOS, JR.</td>
<td>91.4</td>
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<td>39.0</td>
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152 sites submitting PROMs
56,539 linked PROM surveys with min 1 yr f/u
What Can AJRR Data Do Now?

Detail Surgeon Activities and Case Numbers

Table 1: 2014 Average Procedural Volume for Participating Surgeons (N=2,247)

<table>
<thead>
<tr>
<th>Total Surgeons</th>
<th>Total Procedures</th>
<th>Per Surgeon Average</th>
<th>Range</th>
<th>Number of Surgeons Who Submitted Only One Procedure</th>
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<tbody>
<tr>
<td>HIP</td>
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<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1,822</td>
<td>42,249</td>
<td>23.2</td>
<td>1-317</td>
</tr>
<tr>
<td>Revision</td>
<td>757</td>
<td>4,624</td>
<td>6.1</td>
<td>1-76</td>
</tr>
<tr>
<td>KNEE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>1,617</td>
<td>64,552</td>
<td>39.9</td>
<td>1-522</td>
</tr>
<tr>
<td>Revision</td>
<td>1,045</td>
<td>6,143</td>
<td>5.9</td>
<td>1-103</td>
</tr>
</tbody>
</table>

Provide Distribution of Procedures

Figure 12: Distribution of Procedures (N=211,721)

- Primary Knee n=118,460 (56.0%)
- Primary Hip n=73,837 (34.9%)
- Revision Knee n=10,420 (4.9%)
- Revision Hip n=8,257 (3.9%)
- Hip Resurfacing n=747 (0.4%)

Characterize US Implant Usage Patterns

Table 2: Frequency and Percentage of Femoral Head Sizes implanted by Year (N=74,833)

<table>
<thead>
<tr>
<th></th>
<th>2012 n(%)</th>
<th>2013 n(%)</th>
<th>2014 n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;28mm</td>
<td>537 (4.9)</td>
<td>704 (3.2)</td>
<td>1,176 (2.8)</td>
</tr>
<tr>
<td>28mm</td>
<td>1,049 (9.6)</td>
<td>2,902 (13.2)</td>
<td>5,752 (13.7)</td>
</tr>
<tr>
<td>32mm</td>
<td>3,112 (28.5)</td>
<td>6,025 (27.4)</td>
<td>10,790 (25.7)</td>
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<tr>
<td>36mm</td>
<td>4,890 (44.8)</td>
<td>9,828 (44.7)</td>
<td>19,607 (46.7)</td>
</tr>
<tr>
<td>40mm</td>
<td>808 (7.4)</td>
<td>1,165 (5.3)</td>
<td>2,225 (5.3)</td>
</tr>
<tr>
<td>&gt;40mm</td>
<td>515 (4.7)</td>
<td>1,363 (6.2)</td>
<td>2,435 (5.8)</td>
</tr>
<tr>
<td>Total</td>
<td>10,911</td>
<td>21,987</td>
<td>41,985</td>
</tr>
</tbody>
</table>

Excludes hemiarthroplasty

Show Top Reasons for TJA Procedures

Figure 14: ICD-9 Diagnosis Codes for All Hip Arthroplasty Procedures (N=74,584)

- 715: Osteoarthritis n=18,477 (78.4%)
- 820: Fracture of neck of femur n=7,947 (33.7%)
- Other n=4,509 (5.4%)
- 733.42: Avascular necrosis n=2,504 (3.4%)
- 996: Complications n=1,407 (2.0%)
- 714: Rheumatoid arthritis n=840 (1.1%)

Characterize Causes of Early Revision

Figure 27: Most Frequently Reported ICD-9 Diagnosis Codes for Hip Revisions (<3 Months to Revision)

- c717 (21.4%)
- c716 (13.9%)
- 107 (13.3%)
- 995 (14.1%)
- c712 (4.6%)
- n251 (5.1%)
- 996.62 Dislocation of prostatic joint
- 996.06 Infection and inflammatory reaction due to removal joint prosthesis
- 996.44 Pro-arthroplasty failure around prostatic joint
- 715.35 Osteoarthrosis, location not specified whether primary or secondary, pelvic region and thigh
- 996.47 Other mechanical complication of prostatic joint implant

Track Patient Reported Outcomes

- Quick Links
- Participating PRO Institutions
- Registry Total Procedures: 242,69 K
- Your Total Assessments: 58
- Your Pre vs Post Completions:
  - Earliest Procedure: 10/20/2005
  - Latest Procedure: 2/28/2018

Registry Program

Improving Orthopaedic Care Through Data

AAOS
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS
AJRR: Why Participate?

- Compare your practice to national performance benchmarks
- Access to on-demand practice specific quality reports and dashboards
- Facilitate tracking and monitoring of longitudinal patient outcomes
- Facilitate site-, practice-, payer-incentivized performance improvement programs
- Qualify for national distinction programs such as the Joint Commission Advanced Certification in Hip or Knee Replacement
- Use data in MIPS, MOC, CME
- Early access to surveillance alerts for poorly performing implants
- Improve the value of care we deliver to our patients
Thank you!

RegistrySupport@aaos.org
Today’s Agenda

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  • Surgeon Dashboard Access; Data Quality Reporting Dashboards, Ryan Olsen, Registry Optimization Analyst
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• Conversation with Kevin Bozic, MD, MBA, AJRR Chair
• Latest News on AAOS Registries Program, Nate Glusenkamp, Chief Quality & Registries Officer
• The Joint Commission and AAOS’ collaboration on Total Hip & Total Knee Advanced Certification, Dave Eickemeyer, Associate Director of Business Development, The Joint Commission
• User Perspectives and Input – WellStar Health System and other attendees
• Question & Answer Session
Recalling the Strategic Decision

Academy Board

Approves multi-year investment in registries

June 2017

Focus on bridging gap between science & clinical practice to define and improve quality

End to end systems approach to continuous quality improvement that translates science into practice

Leverage registries to collect data, report, and benchmark to define quality MSK care that is patient center, evidence based and cost effective

Invest in becoming a leader and partner to ensure quality in the delivery of MSK care

Relevance to the future of the profession and patients
At the Core of Academy Strategy

Why we invest

✓ Unique clinical information
✓ Enable performance measurement by physicians for physicians
✓ Support for novel scientific research production
✓ Scaled delivery of registry-driven quality improvement programs
Re-use of Registry Data

- National performance benchmarks
- Access to on-demand practice specific quality reports and dashboards
- Track and monitor outcomes
- Reduce complications and revision rates
- Increased transparency
- Surveillance alerts for poorly performing implants
- Support of quality initiatives
- Monitor actions that improve patient care
- Allow for re-use of data towards programs like MIPS, MOC, CME
Maintenance of Certification Approval

- Received approval from the American Board of Orthopaedic Surgery for the Registry to support Maintenance of Certification

- Surgeons can use Registry data for self-assessment examination credits
NESTcc

- AAOS was selected for NESTcc pilot grant
- AAOS is the only registry that was selected and will be representing the interest of our industry partners

**The National Evaluation System for Health Technology Coordinating Center (NESTcc) Announces the First Round of Real-World Evidence Test-Cases**

November 05, 2018 01:38 PM Eastern Standard Time

ARLINGTON, Va. --(BUSINESS WIRE)-- The National Evaluation System for Health Technology Coordinating Center (NESTcc), an initiative of the Medical Device Innovation Consortium (MDIC), announces the first round of NESTcc test-cases that address topics of high-priority from the medical device industry using Real-World Data (RWD) and Real-World Evidence (RWE).

"It’s exciting to reveal this milestone for NEST with the launch of these first test-cases that will explore the feasibility of generating Real-World Evidence with health systems and coordinated registry networks through the NESTcc Network Collaborators," said Rachael Fleurence, PhD, executive director of NESTcc. "These test-cases will show proof-of-concept for the use of Real-World Evidence for medical devices in preparation for regulatory submissions, such as label expansions, and to meet post-market surveillance requirements."

The initial concepts were submitted in January 2018 through a public call open to medical device manufacturers. These test-cases will address two primary objectives. First, they will explore the feasibility for the medical device industry to work with RWD sources and NESTcc’s initial set of Network Collaborators. Second, the test-cases will help identify areas where NESTcc could play a role in reducing transaction costs (e.g., contracting, IRB, data sharing agreements, publication policies).

The first round of test-cases will be executed through collaborations with Abbott, Adhesys Medical, Johnson & Johnson Medical Devices Companies, and W.L. Gore & Associates, Inc. as industry partners. In addition to the industry groups working through independent collaborations, the American Academy of Orthopaedic Surgeons (AAOS) is serving as a neutral convener, bringing together DJO Global, DePuy Synthes, Smith & Nephew, Stryker, and Zimmer Biomet for a test-case that will bring together NESTcc Network Collaborators with the American Joint Replacement Registry (AJRR) which is housed at AAOS.
Surgeon Dashboard

• Surgeons will have access to view their individual cases against national benchmarking data
• Ability to filter by patient and case type
• Additional, in-depth analytics will become available throughout the year
• No additional charge

New Member Benefit: Benchmark Your Procedure Data Against National Registry Data

The American Joint Replacement Registry (AJRR)—the cornerstone of AAOS’ Registry Program—added surgeon dashboards as an enhancement to its RegistryInsights™ platform. The dashboards allow members to compare their individual data against national, deidentified information to help drive improved quality and patient outcomes.

Dashboards will be available to those who participate in and have submitted registry data to the AJRR as an inclusive benefit for AAOS members at participating sites.

AAOS Registry Program participation also has been approved by the American Board of Orthopaedic Surgery for use in its Maintenance of Certification (MOC) program.

More information about claiming MOC credit will be released early this year. Learn more about the AAOS Registry Program at www.aaos.org/registries.
Expanding the Registry Program

American Academy of Orthopaedic Surgeons announces the launch of its Shoulder and Elbow Registry

ROSEMONT, ILL. (October 24, 2018)—The American Academy of Orthopaedic Surgeons (AAOS) announced the launch of its Shoulder and Elbow Registry (SER) to begin collecting data on total shoulder and elbow procedures in the United States. At launch, the SER will collect total shoulder arthroplasty procedures data. In 2019, the registry also will have the capability to capture rotator cuff repair and total elbow arthroplasty procedures data.

"Registries are tools to help the medical profession collect data, report, and benchmark to define patient-centered quality care to identify potential procedural or implant problems before it becomes a widespread public health issue. Other national joint replacement registries such as the Swedish Hip Arthroplasty Register have proven that monitoring survivorship can reduce revision rates. That translates into reducing direct medical costs and, more importantly, improving patient care and quality of life," says AAOS President David A. Halsey, MD, a Fellow of the American Academy of Orthopaedic Surgeons.

The AAOS is the world’s largest medical association of musculoskeletal specialists. The SER will be the second in a series of anatomical registries in development as part of the AAOS’ Registry Program to establish survivorship curves, track revisions, and improve quality of care for all patients. The American Joint Replacement Registry (AJRR)—the Academy’s hip and knee replacement registry—is the cornerstone of the AAOS’s Registry Program, and the world’s largest national registry of hip and knee joint replacement data by annual procedural count, with more than 1.4 million procedures contained within its database.

• AAOS launches Shoulder and Elbow in October 2018.

• In 2019, the SER will collect data on rotator cuff repair and elbow arthroplasty
Shoulder & Elbow Registry (SER)

- Members:
  - Gerald R. Williams Jr., MD – Chair
  - Joaquin Sanchez-Sotelo, MD
  - Ronald A. Navarro, MD
  - John E. Kuhn, MD
  - Stephen F. Brockmeier, MD – AOSSM Representative
  - Patrick St. Pierre, MD – AANA Representative
  - Grant E. Garrigues, MD – ASES Representative

- Steering Committee developing data dictionary and launch plan

- Starting with shoulder arthroplasty, launched October 2018

- Future modules to include rotator cuff repair, total elbow and more

- Harmonizing with AJRR look & feel, as well as data elements where applicable; AJRR sites will be able to add shoulder and registry work will expand to more Ambulatory Surgical Centers
MsT Pilot Launch

- Musculoskeletal Tumor is a feasibility pilot to assess the scope, scale, and structure needed to support a broader Registry roll-out.

- Pilot sites include the University of Iowa, Dartmouth, Johns Hopkins, Ohio State, Cleveland Clinic and Stanford.

American Academy of Orthopaedic Surgeons announces its Musculoskeletal Tumor (MsT) Registry Pilot

Year-long effort includes six pilot sites at major U.S. academic centers

ROSEMONT, ILL. (February 6, 2019)—The American Academy of Orthopaedic Surgeons (AAOS)—in collaboration with the Musculoskeletal Tumor Society (MSTS)—announced the launch of a Musculoskeletal Tumor (MsT) Registry feasibility pilot to begin capturing data on orthopaedic oncology, bone tumor procedures in a structured and scalable way. Six major U.S. academic centers will participate in this year-long program: Cleveland Clinic; Dartmouth College; Johns Hopkins University; The Ohio State University; Stanford University; and The University of Iowa.

“This registry will fill a gap in current sarcoma care by focusing on quality-of-life and functional outcomes in addition to oncologic end points,” says Benjamin J. Miller, MD, MS, an associate professor with the University of Iowa’s Department of Orthopaedics and Rehabilitation and its physician leader on the MsT registry pilot team.

“The MsT registry will initially focus on tracking function, complications, and outcomes in patients treated for a bone or soft tissue sarcoma, with potential to expand to include other musculoskeletal tumors and metastatic disease of bone in the future,” says Dr. Miller. “This should allow for a comprehensive and accurate assessment of the current state of treatment and the efficacy of various treatment strategies. We are hopeful that this resource may be used to advocate for the best treatments and management strategies on behalf of our sarcoma patients.”

Data elements will include patient demographics, patient baseline and examination, tumor baseline, treatment and post-treatment, and surgery detail along with postoperative data (e.g., oncologic failure, surgery complication, vital status), patient-reported outcomes, and more. “The registry will provide relevant data to help inform surgical decisions that must be made early in orthopaedic oncologic treatment, but with consequences that reverberate for decades,” says Dr. Miller.
Musculoskeletal (MsT) Registry Pilot

- Musculoskeletal Tumor is a feasibility pilot to assess the scope, scale, and structure needed to support a broader Registry roll-out.

- Reports from this pilot will go to the Registry Oversight Committee (ROC) for their review and strategic feedback.

- The pilot will teach us about a diagnosis based registry and the complexity of this patient population will expand our infrastructure.

- Launched January 2019
Musculoskeletal Tumor Pilot

University of Iowa
Dr. Benjamin Miller *
Tammy Smith
Matthew Watson

Dartmouth
Dr. Eric Henderson
Todd E. Vogt
Jenica E. Nelan

Johns Hopkins
Dr. Adam Levin
Vaishali Laljani

Ohio State
Dr. Joel Mayerson
Martha Crist
Angela Brooks
Beth Lipinski

Cleveland Clinic
Dr. Nathan Mesko
Dr. Luke Nystrom
Matt Rerko
Amanda Maggiotto
Dale Shepard

Stanford
Dr. Robert J. Steffner
Deborah Kenney
Limb Loss and Preservation Pilot Launch

- Limb loss and preservation pilot was recently launched!
- This is grant funded via NIH
- AJRR sites are serving as the pilot sites
- This is a feasibility assessment
Recently announced AAOS & TJC Partnership

AJRR serves to meet the requirements of the advanced certification for hip & knee

Effective July 1, 2019, the AJRR will become the sole pathway for meeting The Joint Commission’s THKR certification registry requirement

For more information, contact:
Kayee Ip
847-384-4085
ip@aaos.org

Maureen Lyons
630-792-5171
MLyons@jointcommission.org

American Academy of Orthopaedic Surgeons and The Joint Commission collaborate to help further standardize care and quality improvement in hip and knee replacement surgeries

ROSEMONT, ILL. (September 26, 2018)—The American Academy of Orthopaedic Surgeons (AAOS) has announced collaboration with The Joint Commission to incorporate AAOS clinical expertise into standards development and performance measurement requirements for Total Hip and Knee Replacement (THKR) Certification. The Joint Commission established the voluntary advanced certification in 2016 for accredited hospitals, critical access hospitals and ambulatory surgery centers (ASCs) seeking to elevate the quality, consistency and safety of their services and patient care.

Through the new collaboration, the AAOS and The Joint Commission will jointly oversee scientific issues, performance measurement, quality improvement activities, education, data sharing and research related to the certification—with continued commitment to constantly assessing and evaluating quality for the safety and benefit of orthopaedic patients. This includes, as of January 1, 2019, implementation of a new THKR certification requirement for hospitals and ASCs to participate in a national registry, like the American Joint Replacement Registry (AJRR), to further help standardize care and quality improvement in hip and knee replacements.

Awarded for a two-year period, the THKR certification addresses the growing number of patients undergoing total hip or total knee replacement surgeries, and increases focus on clinical evidence-based patient care as it relates to pain management, quality of life issues, functional limitation in mobility and return to normal daily activities. It provides hospitals and ASCs performing orthopaedic procedures with a framework and pathway for improving patient outcomes by:
Today’s Agenda

• Lunch, Welcome, and Introductions
• Registry Program Current Features and Road Map
  • Surgeon Dashboard Access; Data Quality Reporting Dashboards, Ryan Olsen, Registry Optimization Analyst
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• User Perspectives and Input – WellStar Health System and other attendees
• Question & Answer Session
David Eickemeyer, MBA
Associate Director, Certification

Advanced Total Hip and Knee Replacement Certification

03/13/2019

The Joint Commission
American Academy of Orthopaedic Surgeons
Meets standards for
Advanced Total Hip and Knee Replacement Certification
Key Program Components

- Standards
- Clinical Practice Guidelines
- Performance Measures
Disease-Specific Care Standards

- Certification Participation Requirements
- Program Management
- Delivering or Facilitating Clinical Care
- Supporting Self-Management
- Clinical Information Management
- Performance Measurement
Clinical Practice Guidelines

- Formally adopt published guidelines that cover the key components of your program
  - Guidelines should be current and relevant
  - Should have guidelines for all of the consistent steps that you do for every patient
  - May need to use multiple sources
    - AAOS, NAON and others
Standardized Measures

- For advanced total hip and knee certification
  - THKR-1  Regional Anesthesia
  - THKR-2  Postop Ambulation Day of Surgery
  - THKR-3  Discharged to Home
  - THKR-4  Preop Functional Health Assessment

- Participation in the American Joint Replacement Registry (AJRR) is also required.
Orthopedic Certification Options

- Advanced Certification for Total Hip and Total Knee Replacement (THKR)
- Core Hip Replacement Certification
- Core Knee Replacement Certification
- Core Shoulder Replacement Certification
- Core Ankle Replacement Certification
- Core Spinal Surgery Certification
- Core Orthopedic Rehabilitation Certification
Why Advanced?

- **Standards:** more defined
- **Scope:** orthopedic consultation through to the orthopedic surgeon follow-up visit and all transitions that occur within each of the individual phases
- **Site of Surgeries:** performed in inpatient and hospital based outpatient (same day surgery)
Why Advanced?

- **Comprehensive patient education and shared decision making:**
  - preoperative, intraoperative, and postoperative phases;
  - examples include: providing preoperative education, comorbid assessments, risk factors, discharge planning discussions throughout the continuum of care, addressing of roles, and discussion of goals throughout the continuum of care.
Why Advanced?

- **Consistent communication and collaboration:** within all healthcare providers involved in the total hip and total knee replacement patient throughout the continuum of care
Why Advanced?

- **Two day review**
- Obtaining the programs process for continuum of care within team members from the orthopedic consultation through to the orthopedic surgeon follow-up visit; such as, conference calls or interviews with office staff, anesthesia, surgeons, therapists, primary care providers, etc.
Why Advanced?

- **On-site observation**: total hip or total knee replacement patient arrival process, preoperative to OR process and OR to PACU process
- **Observation opportunities**: joint class (if possible) or observe other preoperative assessment/education/therapy sessions/discharge teaching
- **Standardized performance measures**
Benefits You Should Expect from Certification

- Provides a framework to improve patient outcomes
- Reduces variation in care
- Creates a cohesive clinical team
- Provides an objective assessment of clinical excellence
- Promotes achievement to your community
Advertise Your Achievement!

Meets standards for
Advanced Total Hip and Knee Replacement Certification
Questions?

David Eickemeyer
Associate Director, Certification
630-792-5697
deickeymeyer@jointcommission.org
The Joint Commission Disclaimer

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• Question & Answer Session
WellStar Public Reporting & The American Joint Replacement Registry (AJRR)

AAOS Registry Program User Group Network (UNET) Annual Meeting

Venetian/Sands Expo, Room 907 | Las Vegas, NV

March 13, 2019
Presentation Overview

• **Introductions:** (PR Registries Team: aka: “The Dream Team”)

• **Today’s Topic:** “What’s Our Story?”

**Background Info:**
- “What does PR do anyway?”
- The “PR Registries Team”
- Our unique structure

**Current Status:**
- “Where are we now?”
- Pain Points/Opportunities
- Lessons Learned
- Where do we go from here?
Team Overview: *non-Cardiac, non-general surgical*

- Clinical Surgical Data Registries Oversight
  - ‘AJRR’ American Joint Replacement
  - ‘SSS’ Setting Scoliosis Straight Surgeon Perf Program
  - ‘VQI’ Vascular Quality Initiative
  - ‘NVQI’ Neurovascular Quality Intervention
  - ‘QOD’ The Quality Outcomes Database-Neurosurg/Ortho
  - ‘CARES’ Cardiac Arrest Registry to Enhance Survival

- System-Level Champions: Dr. Griffith and Benedict
- AJRR Interim Champion: Dr. Dysart
WellStar Public Reporting Department Overview

➢ Highest-Level:
➢ Areas of Ownership/Oversight

➢ Many Moving Pieces

➢ Clinical Data Registries
Wellstar Public Reporting Department

To accommodate health system growth:
Public Reporting is now divided into 4 different general areas:

- Mandatory Hospital and Ambulatory performance data driven by CMS and TJC
- Quality Program Registries (Clinical Surgical Data Registries) Data
- Cardiac Clinical Outcomes (CCO) Data
- Private, Managed Care quality surveys and ACO (Accountable Care Organizations) data
## Wellstar Public Reporting Department

<table>
<thead>
<tr>
<th>Dori Ledford, Dir of Public Reporting</th>
<th>Melissa Cornwell, Manager Clinical Data Governance</th>
<th>Kathryn Howell, Manager of Public Reporting</th>
<th>Lillian Dyson, Manager of Cardiac Outcomes</th>
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</thead>
<tbody>
<tr>
<td>(CMS) Promoting Interoperability (IP) Quality Payment Program (Amb/ACO) (VBP) Value-Based Purchasing</td>
<td>(‘NSQIP’) National Surgical Quality Improvement Program</td>
<td>(‘IQR’) IP Hospital Quality Reporting (manual and eCQMs)</td>
<td>(GWTG) Get with the Guidelines – HF, CAD, AMI</td>
</tr>
<tr>
<td>(‘CARES’) Cardiac Arrest Registry to Enhance Survival</td>
<td>(‘GWTG’) Get with the Guidelines – STK (Stroke)</td>
<td>(‘OQR’) OP Hospital Quality Reporting</td>
<td>(‘STS’) Society for Thoracic Surgery - Adult Cardiac and Anesthesia</td>
</tr>
<tr>
<td>(‘SSS’) Setting Scoliosis Straight Surgeon Performance Program</td>
<td>(‘STS’) Society for Thoracic Surgery - General Thoracic</td>
<td>(‘TJC’) The Joint Commission: Oryx Quality Measures</td>
<td>ACTION moving to (AHA GWTG-CAD) Registry</td>
</tr>
<tr>
<td>(‘VQI’) Vascular Quality Initiative (‘NVQI’) Neurovascular Quality Intv</td>
<td>Surveys (Managed Care/P4P) Leapfrog Hospital Safety Grades</td>
<td>IP Psych Facility Quality Reporting</td>
<td>(‘NCDR’) – National Cardiovascular Data Registries: Cath PCI, TVT, LAAO, ICD</td>
</tr>
<tr>
<td>(‘AJRR’) American Joint Replacement</td>
<td>(‘ACO’) WSHN Accountable Care Organization QMs</td>
<td>Quality Net System Administrator</td>
<td>(‘SCPC’)-JC – Society of Cardiovascular Patient Care: Chest Pain</td>
</tr>
<tr>
<td>(‘QOD’) The Quality Outcomes Database – Neurosurgical/Ortho</td>
<td></td>
<td>Truven CDQM and MUQM Administrator</td>
<td></td>
</tr>
</tbody>
</table>
PR Registries Overview: AJRR

What Makes Us “Different?”

- **Surgery volume**: 200-230 surgeries/month (5 hospitals)
- **Disparate EHRs, Disparate Operations...and for AJRR:**
  - IP/Hospitals - Epic
  - Pinnacle - eClinical Works
  - Resurgens - Athena Health
- **Our Size: Centralized Reporting, largest health system in GA**
  - Continuous growth & market expansion
- **Large volume of “non-WS employed” physicians**
Current Status: “Where are we?”

Somewhere between ‘kick-off’ and ‘failure to launch’

✓ “Back to Basics”:

☐ Back to the starting line:
  • Assess, deconstruct and “rebuild”
  • Boots on the Ground Engagement
  • Data Catch-Up Cycle(s)

✓ Collaborative work with IT Dept:
  • What was most important?
    ➢ Procedure Layout Data/Workflow Validation
Current Status: “Where are we?”

Crossroad Between: Internal Epic Build and Operations:

• WS Joint Committee Meetings
  ➢ Engaged Clinicians!
• Using tablets at Pre-Op class for patients to enter data directly into AJRR Kiosk for PROMs
✓ Templates, Templates, Templates:
  ✓ Standardizing charting-workflows as much as possible
Our Pain Points

• **Disparate Data Sources:** disparate EHR software/vendors, disparate patient questionnaire vendors/data

• **“The Hunt”:** Finding the appropriate data each time the patient submits a response to a relevant patient reported outcome questionnaire, *and* verify that it is within the reportable date range with disparate sources?

• **Wish List:** That we were not always the ones “trailblazing” or the “anomaly” and had others to help guide *us*
Opportunities: Templates: Op-Note

Data File Submission Layouts & Information

Starting a Conversation:

Procedural Layout: Surgical Approaches

Op-Time: **Surgical Approach** → Technique Hip / Technique Knee

- **GOAL:** To investigate how the following are currently documented:

<table>
<thead>
<tr>
<th>Surgical Approach</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip Direct Anterior; Hip Anterolateral; Hip Direct Lateral; Hip Posterior; Hip Trochanteric Osteotomy; Knee Medial Parapatellar; Knee Lateral Parapatellar; Knee Mid-Vastus; Knee Sub-Vastus; Knee Lateral Rect Release; Knee Quads Release; Other; not reported or NR</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technique Hip</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended trochanteric osteotomy; not reported or NR</td>
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</table>

<table>
<thead>
<tr>
<th>Technique Knee</th>
<th>Description</th>
</tr>
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<tr>
<td>Lateral Retinacular Release; Tibial tubercle osteotomy; Quadriceps snip; Quadricep Release (Other); Quadriceps Reconstruction (Suture only); Quadriceps Reconstruction (Autogenous Tissue Transfer); Quadriceps Reconstruction (Allograft Tissue); Quadriceps Reconstruction (Prosthetic Mesh Augmentation); not reported or NR</td>
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Lessons Learned: High Level

Essential Ingredients for Success:

• **Full “top-down” engagement:** at hospital level (*leadership and clinical support*)

✓ Strong Surgical Champion(s)

• **Strong Resources:** *within your team, IT and business partners*

• **Standardizing:** *workflow to data elements mapping (templates and discrete data fields)*

• Keeping Momentum and Engagement
Lessons Learned: Strong Resources

Essential Ingredients for Success: Your Key Lead FTEs

• High Abstract Reasoning Skills
  • Highly Organized
• Clinical/Medical Acumen/RN
  • Business Acumen
  • Technical Acumen
• Creative Problem-Solver
• Self-Starter/Independent AND Charismatic! ;-)
Where We Are Going?

• **Necessary to continue:** Obtain specialized data share agreement with Pinnacle and Resurgens & *OBERD & Radix Health*

• **Maximize AJRR’s platform capabilities:** “PROMs Platform”

• **Maximize OBERD & Radix:** Obtaining OBERD’s assistance with data from Pinnacle patients (*kick-off meetings with OBERD for due diligence*)

• **Work with WS IT** to optimize Epic-build regarding data OP Note specs

• **Limit** data backlog to ensure efficient and accurate crossover to AJRR (benchmarking)
Where We Are Going?

“The collaborative partnership between AJRR, WellStar Data Registry Coordinators and the surgeons we support is already promising to have far reaching effects when it comes to the collection and analysis of data on patients’ experiences and outcomes.”

“AJRR’s data can facilitate public reporting, retrospective and prospective exploration, professional development, and service improvement. Most importantly, we will look to this data to reveal variations in practices, processes, and outcomes, and identify targets for improvement.”
WellStar Contacts for AJRR:

- **Dori Ledford**, MHA, MBA, BS-IT, | Director of Public Reporting
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- **Shannon Biddy**, BSN, RN, CEN | Clinical Program Quality Coordinator
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No Pain, No Gain

• Let’s hear from you
• Paint Points and tips to share with others
• Pink & blue index cards
Today’s Agenda

• Lunch, Welcome, and Introductions

• Registry Program Current Features and Road Map
  • Surgeon Dashboard Access; Data Quality Reporting Dashboards, Ryan Olsen, Registry Optimization Analyst
  • Annual Data Specification Sunset Cycle; Inclusion of CMS data; AAOS Registry Analytics Institute Launch; and 2019 Annual Report Interim Reports, Dena Weitzman, OD, Analytics Lead, Registries

• Conversation with Kevin Bozic, MD, MBA, AJRR Chair

• Latest News on AAOS Registries Program, Nate Glusenkamp, Chief Quality & Registries Officer

• The Joint Commission and AAOS’ collaboration on Total Hip & Total Knee Advanced Certification, Dave Eickemeyer, Associate Director of Business Development, The Joint Commission

• User Perspectives and Input – WellStar Health System and other attendees

• Question & Answer Session
Q&A Session

Open Discussion
AAOS Registry Activities at Annual Meeting

- Registry Program Booth located in the Resource Center in Academy Hall, 7am-6pm W-F, Sat until 1:00
- Registry Educational Sessions
  - Adult Reconstruction Knee VI (589-603, 877)
    An Early Look at Patient-Reported Outcome Data from the AJRR
    Thurs 3/14, 1:30-3:30 pm, Room 4401
  - Adult Reconstruction Hip VI (694-708, 878)
    Perioperative periprosthetic femur fractures are strongly correlated with fixation method: An Analysis from the AJRR
    Fri 3/15, 8:00-10:00 am, Palazzo Ballroom J

*Read more on our blog about the Annual Meeting and where to find everything Registry related, [click here](#)*
Stay Connected & Be Active!

• Follow us on social media – AAOS
• Subscribe and read our blog
• Attend our monthly webinars
• Engage in the User Forum online
• Volunteer – help share the Registry story
• Call us!
Schedule of 2019 Unet Meetings

• Thursday, June 13 at 12:00 p.m. CT
• Thursday, September 12 at 12:00 p.m. CT
• Thursday, December 12 at 12:00 p.m. CT

*Invites will be sent out by email two weeks prior to each call*
Thank you!

RegistrySupport@aaos.org
www.aaos.org/registries