Registry Program
Improving Orthopaedic Care Through Data

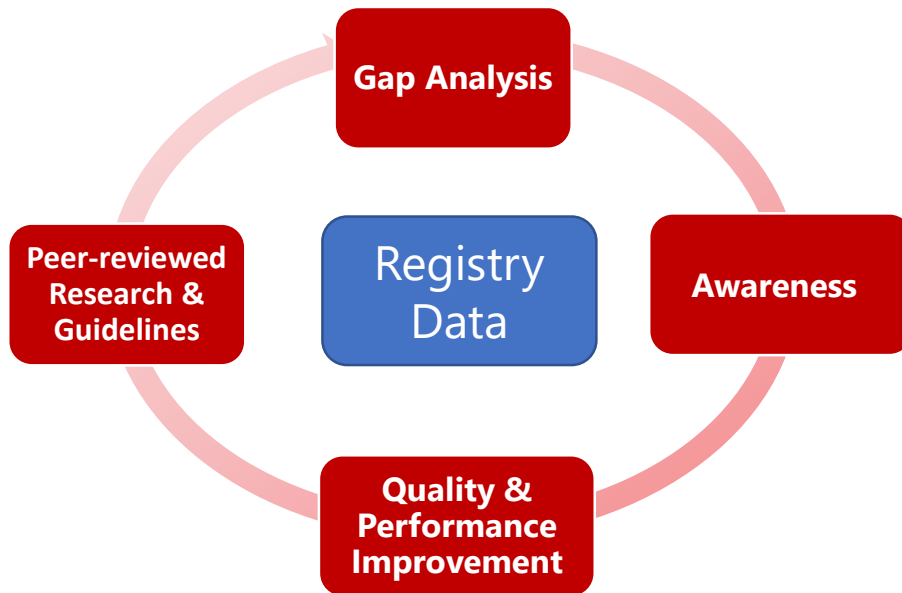# Shoulder and Elbow Registry (SER) Webinar

June 28th 2019

Presenters

Kristina Finney, MPH

Director of Registries & Data Science

Kristine Sizemore, MPH

Registry Engagement Associate

AAOS
AMERICAN ACADEMY OF
ORTHOPAEDIC SURGEONS

At the Core of Academy Strategy

Gap Analysis

Registry Data

Awareness

Peer-reviewed Research & Guidelines
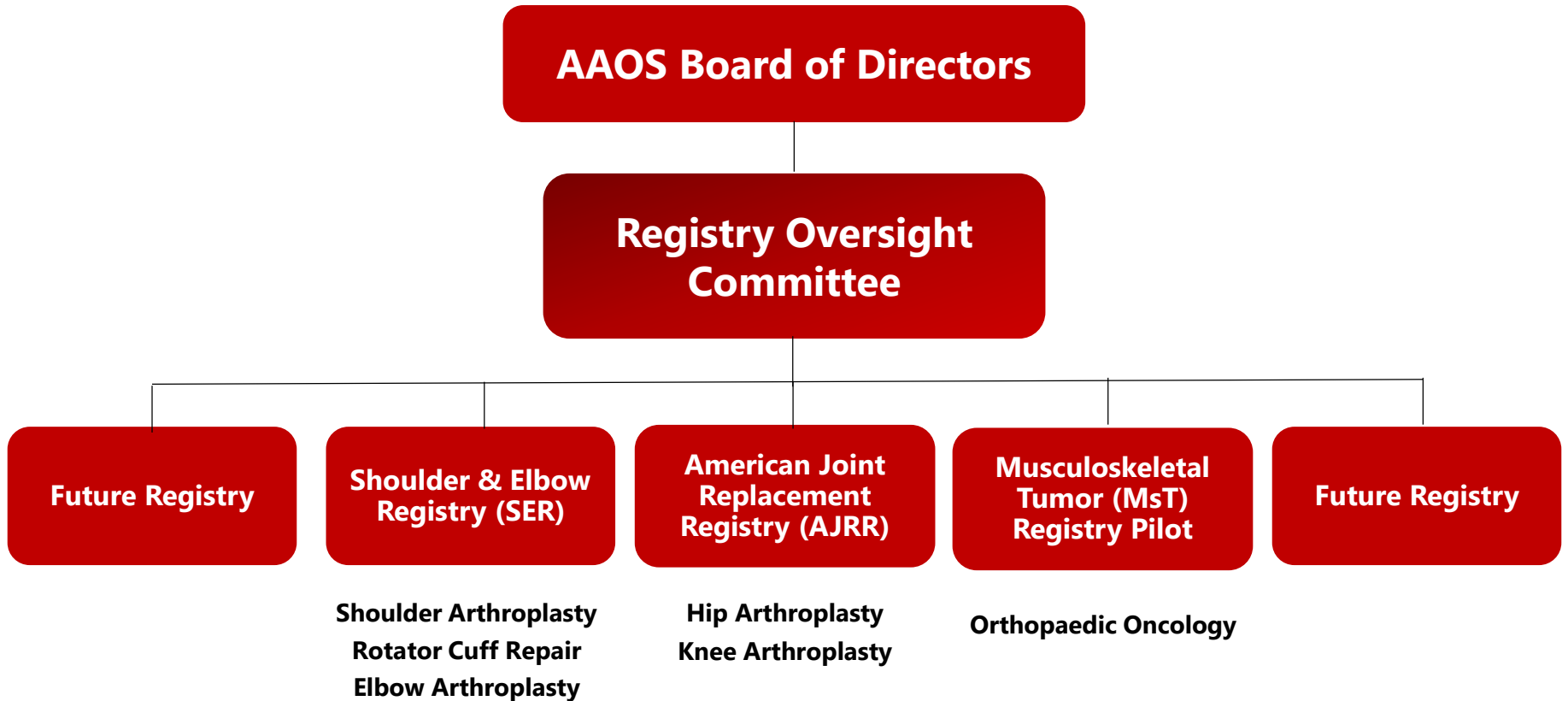
Quality & Performance Improvement

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
AMERICAN ACADEMY OF
ORTHOPAEDIC SURGEONS

Registry Program Highlights

June 2017	October 2017	October 2018	December 2018
Investment Approved	AJRR Re-integration	Shoulder & Elbow Registry Launched	Musculoskeletal Tumor Registry Launched

- AJRR was re-integrated into AAOS, the Shoulder & Elbow Registry (SER) & Musculoskeletal Tumor Registry (MsT) Pilot were developed and launched

- Obtained **access to Medicare claims** data for linkage

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

- Launched **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™

- Developed partnerships with **ABOS, Joint Commission, CMMI** for use of data in **MOC, COE, MIPS, and more**

AAOS Family of Registries

AAOS Board of Directors

Registry Oversight Committee

| Future Registry | Shoulder & Elbow Registry (SER) | American Joint Replacement Registry (AJRR) | Musculoskeletal Tumor (MsT) Registry Pilot | Future Registry |

Shoulder Arthroplasty
Rotator Cuff Repair
Elbow Arthroplasty

Hip Arthroplasty
Knee Arthroplasty

Orthopaedic Oncology

Shoulder & Elbow Steering Registry Committee

- 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

- Mark Baratz – ASSH Representative

Shoulder & Elbow Registry Data Elements

Procedural

Patient
- Name (Last, First)
- Date of Birth
- Social Security Number
- Diagnosis (ICD-10)
- Gender
- Race/Ethnicity
- Payer Status

Hospital/Practice
- Name and Address

Surgeon
- Name (National Provider Identifier)

Procedure
- Type (ICD-10)
- Date of Surgery
- Laterality
- Implants

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

Patient-reported Outcomes
- PROMIS-10 Global
- VR-12
- SANE
- ASES

Three active modules:
Shoulder Arthroplasty Module
Elbow Arthroplasty Module
Rotator Cuff Repair

Integration of Medicare Data

Fixation of Hip Construct Femoral Component
With Number of Subjects at Risk and 95% Hall-Wellner Bands
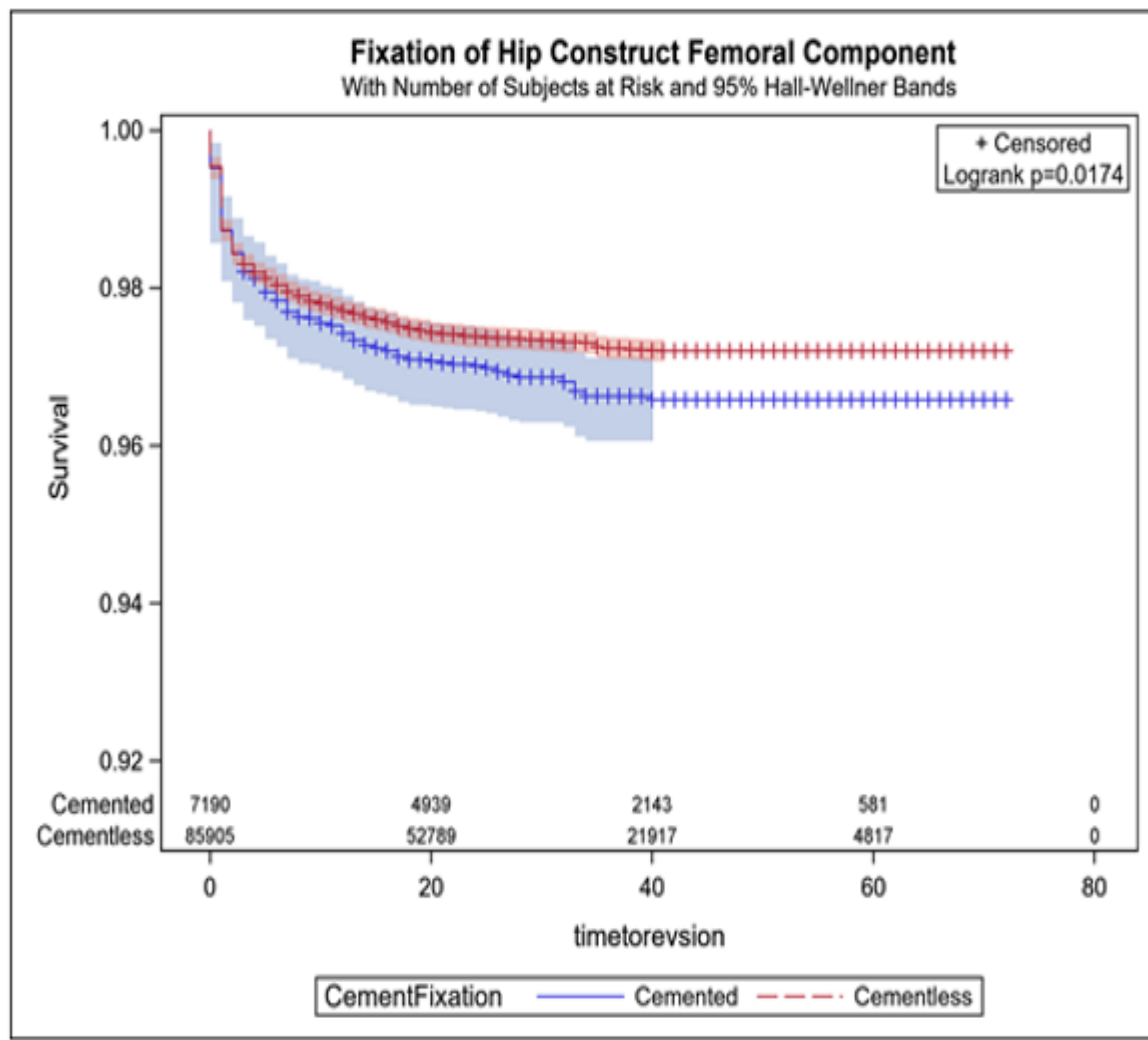
Obtained access to Medicare claims data (2012-2018 for all patients represented in Registry with Medicare records, ~700k patient)

*****

Participants have access to custom reports that compare their site to the national Annual Report analyses, inclusive of survivorship curves

AAOS
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

2018 AJRR Annual Report

- Now available online with two digital supplements

- Includes data on over 1.1 million procedures from 2012-2017

- Integration of Medicare data

- Includes 54 implant survivorship curves

AAOS | AJRR American Joint Replacement Registry

ANNUAL REPORT 2018

Fifth AJRR Annual Report on Hip and Knee Arthroplasty Data

AAOS
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Registry Program
Improving Orthopaedic Care Through Data

Why Do Sites 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-specific, **payer-incentivized performance improvement** programs such as Blue Distinction and COE

- Qualify for **national distinction programs** such as the Joint Commission Advanced Certification in Hip or Knee Replacement or AAAHC

- Use for reporting **to quality improvement programs** such as MIPS & MOC

- Early access to **surveillance alerts** for poorly performing implants

- Improve the **value of care** delivered to patients

Registry Program
Improving Orthopaedic Care Through Data

Three ways to access data

RegistryInsights™ Dashboards

Registry Analytics Institute (RAI)

Custom Reports

Site & Surgeon Feedback
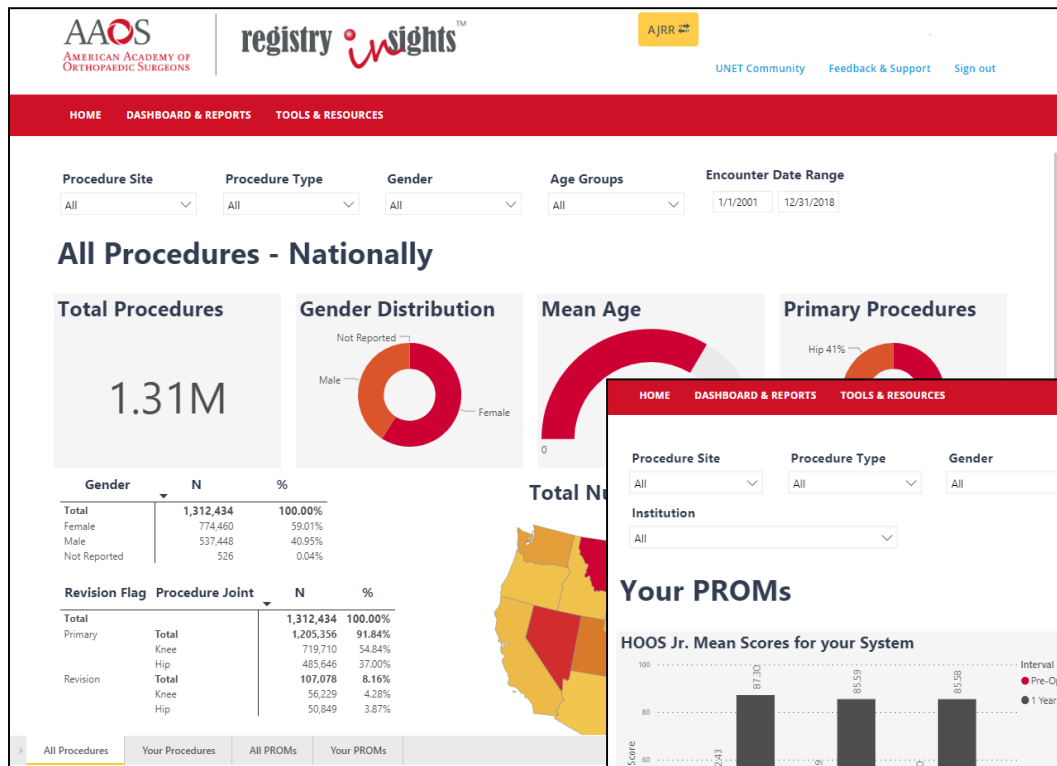
Site admins & Surgeons have accounts where they are able to:

- see their procedural, post-operative and PROM data
- compare themselves to national benchmarks
- request custom reports
- opt to submit data for quality initiatives (e.g. MOC, QPP)
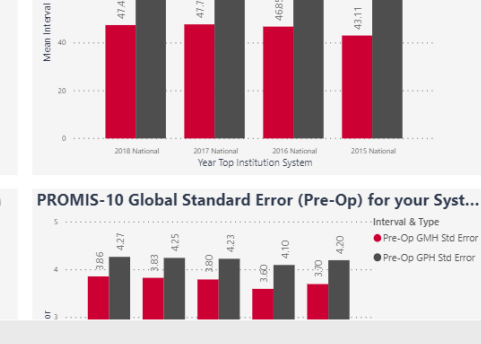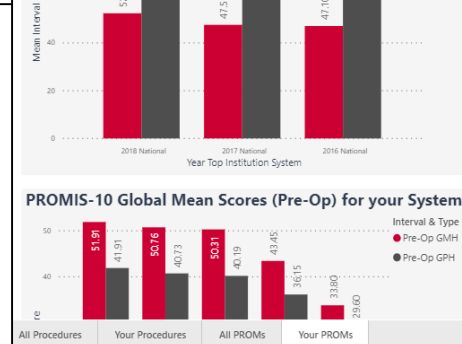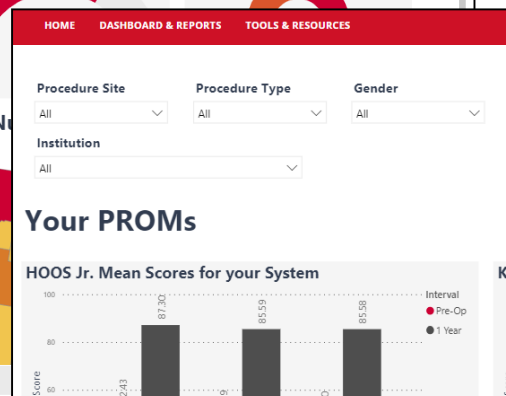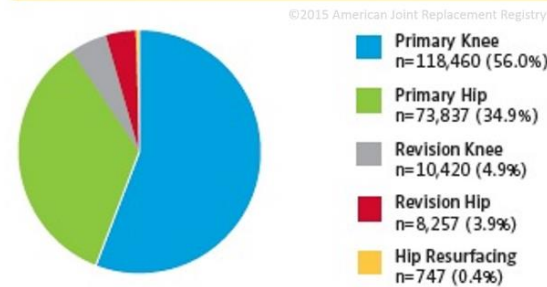
Data Insights for Orthopaedics

Detail Surgeon Activities and Case Numbers

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

	Total Surgeons	Total Procedures	Per Surgeon Average	Range	Number of Surgeons Who Submitted Only One Procedure
HIP					
Primary	1,822	42,249	23.2	1-317	295
Revision	757	4,624	6.1	1-76	229
KNEE					
Primary	1,617	64,552	39.9	1-522	182
Revision	1,045	6,143	5.9	1-103	308

Provide Distribution of Procedures

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

©2015 American Joint Replacement Registry

- **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%)

Track Patient Reported Outcomes

MAIN | PROM HOME

Quick Links
- SEARCH AUTHOR
- CASE AUTHOR
- SURGEON AUTHOR

Participating PRO Institutions

INSTITUTION NAME 1	RESPONSE RATE PRE-OP	RESPONSE RATE POST-OP	RESPONSE RATE ALL
AJRR Test Hospital 1	0.4%	0.1%	0.1%
AJRR Test Hospital 2	21.7%	0%	19.2%
AJRR Test Hospital 3	0%	0%	0%
AJRR Test Hospital 4	19.1%	7.7%	16.1%

Stats

Registry Total Procedures: **242.69 K**

Your Total Assessments: **58**

Your Pre vs Post Completions
- KNEE (70%)
- HIP (30%)

Actual Cases
- Earliest Procedure: 10/20/2005
- Latest Procedure: 2/28/2018

Characterize US Implant Usage Patterns

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

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

Excludes hemiarthroplasty
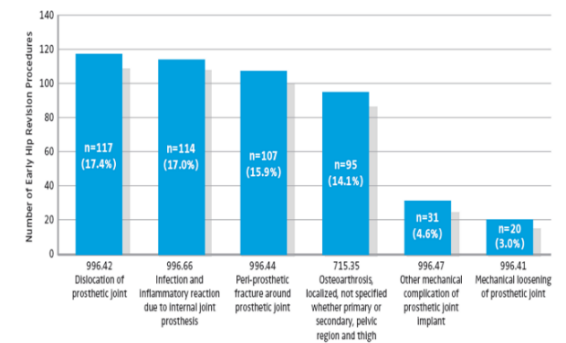
Show Top Reasons for TJA Procedures

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

- **715: Osteoarthritis** n=58,477 (78.4%)
- **820: Fracture of neck of femur** n=7,947 (10.7%)
- **Other** n=4,009 (5.4%)
- **733.42: Avascular necrosis** n=2,504 (3.4%)
- **996: Complications** n=1,467 (2.0%)
- **714: Rheumatoid arthritis** n=180 (0.2%)
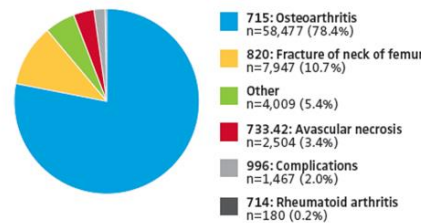
Other codes include those in categories 716, 719, 733, 736, 755. See Appendix D for complete list of diagnosis codes included in each category.

Characterize Causes of Early Revision

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

- 996.42 Dislocation of prosthetic joint: n=117 (17.4%)
- 996.66 Infection and inflammatory reaction due to internal joint prosthesis: n=114 (17.0%)
- 996.44 Peri-prosthetic fracture around prosthetic joint: n=107 (15.9%)
- 715.35 Osteoarthrosis, localized, not specified whether primary or secondary, pelvic region and thigh: n=95 (14.1%)
- 996.47 Other mechanical complication of prosthetic joint implant: n=31 (4.6%)
- 996.41 Mechanical loosening of prosthetic joint: n=20 (3.0%)

Y-axis: Number of Early Hip Revision Procedures

PROM Management

Registry Program
*Improving Orthopaedic Care Through Data*

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

https://www.aaos.org/Quality/Registry_Programs/AAOS_Registry_Analytics_Institute/

Registry 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
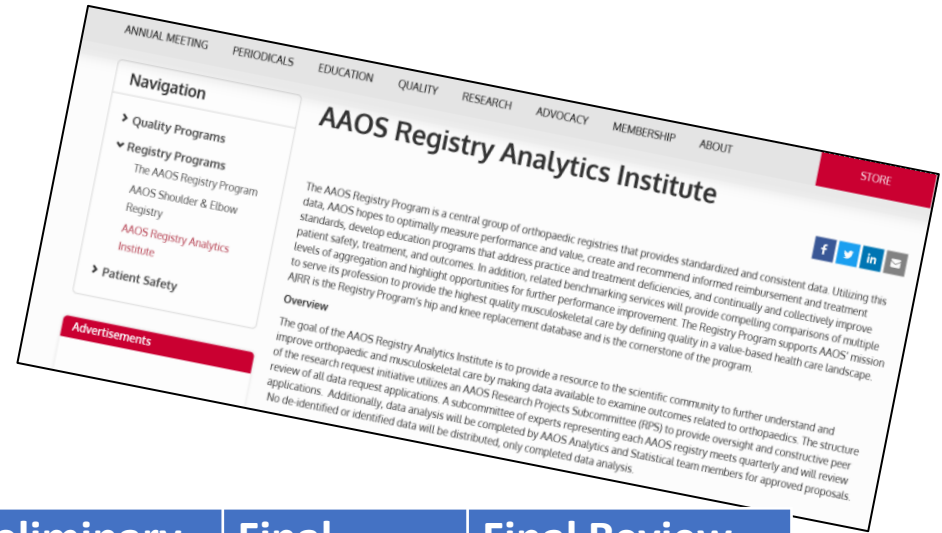
	Opens	Preliminary Application Due Date	Preliminary Review By RPS	Final Application Due Date	Final Review by Full Data Committee
Cycle 2	June 21, 2019	August 5, 2019	September 20, 2019	November 4, 2019	December 20, 2019
Cycle 3	October 18, 2019	December 2, 2019	January 10, 2020	February 28, 2020	April 17, 2020

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

Getting Started

1. Contract with AAOS

2. Accounts are set-up
   - Site administrator
   - Data submission
   - Surgeon users
   - PROM administrators

3. Data Submission
   - Technical set-up
   - Test data submission
   - Live data submission

4. Use of data
   - Dashboards
   - Canned reports
   - Custom reporting

AAOS
AMERICAN ACADEMY OF
ORTHOPAEDIC SURGEONS

Submission Best Practices

- Most participants submit monthly, active submission is atleast every 90 days

- Ask your site's IT about setting up automated reports

- You can monitor data submission uploads and address errors by logging into [RegistryInsights](#)™

- To learn more about correcting cases with issues, follow the instructions in the [How-To Guide: Fix Rejected Data in Uploaded Files to AJRR](#)

Registry Authorized Vendor Program
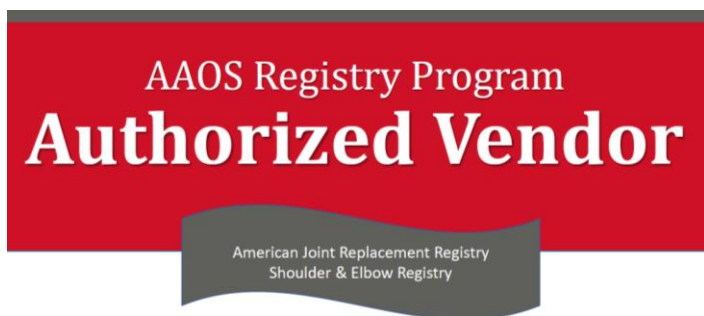
- We've partnered with technology vendors to help with a seamless data submission process

- Re-use data that already exists in your medical record, practice management and PRO systems

- Direct data submission and management can be handled by your technology provider

Re-use of Registry Data

- Calculate national performance benchmarks

- Access to on-demand practice specific quality reports and dashboards to compare locally, regionally, and nationally

- Track and monitor outcomes with longitudinal patient information

- Reduce complications and revision rates across sites

- Support quality initiatives and participation in payer incentivized QI

- Improve data to support orthopaedic care and best practices

- Allow for re-use of data towards the Joint Commission Advanced Certification, AAAHC, MIPS, MOC, and more

Certifying Bodies	Quality Reporting	Device Surveillance	Reimbursement	Quality Measurement
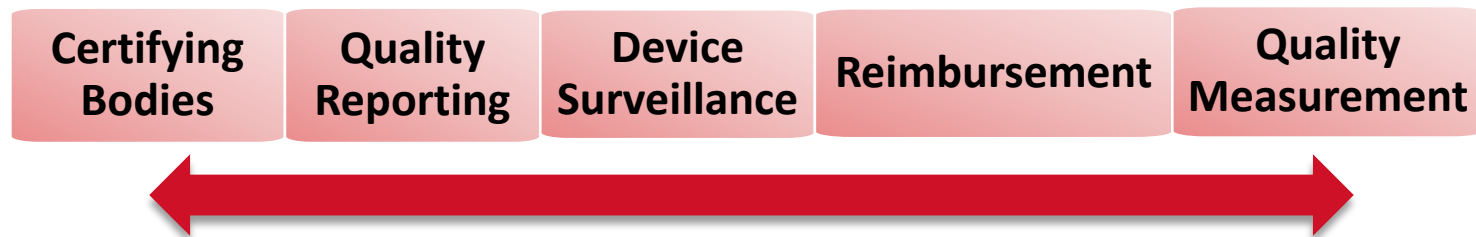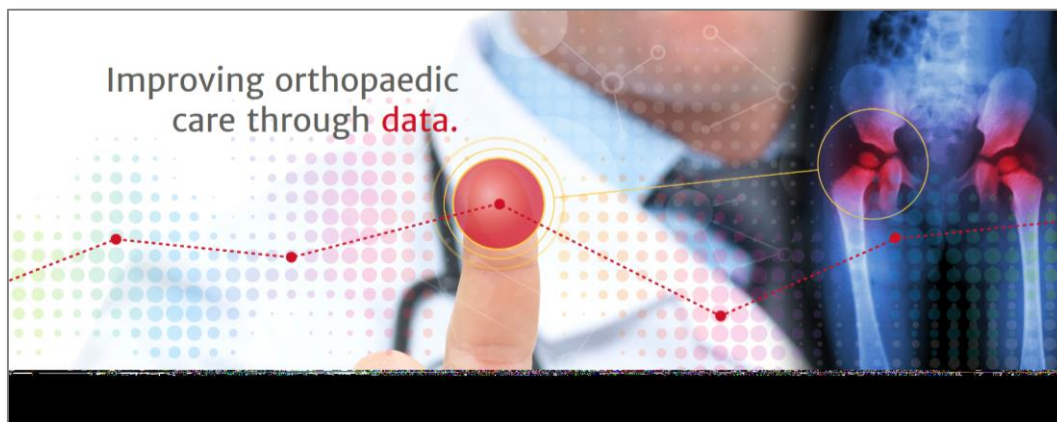
Questions?

Registryinfo@aaos.org

www.aaos.org/registries