AAOS
American Academy of Orthopaedic Surgeons

Registry Program
Improving Orthopaedic Care Through Data

Registry Program Overview

March 2019

Academy 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

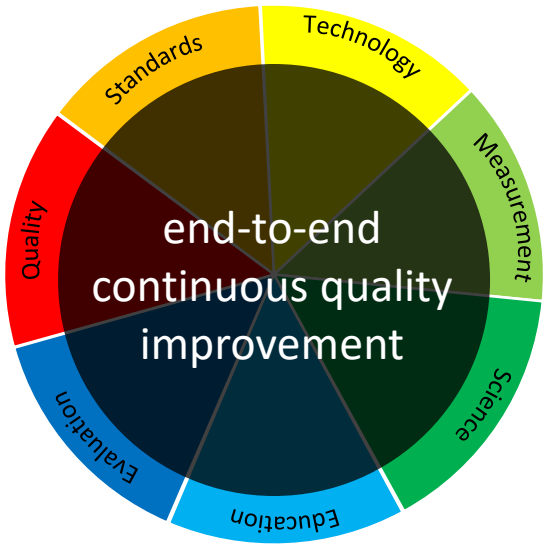
End to end **systems approach** to continuous quality improvement that translates science into practice

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**

Quality Vision

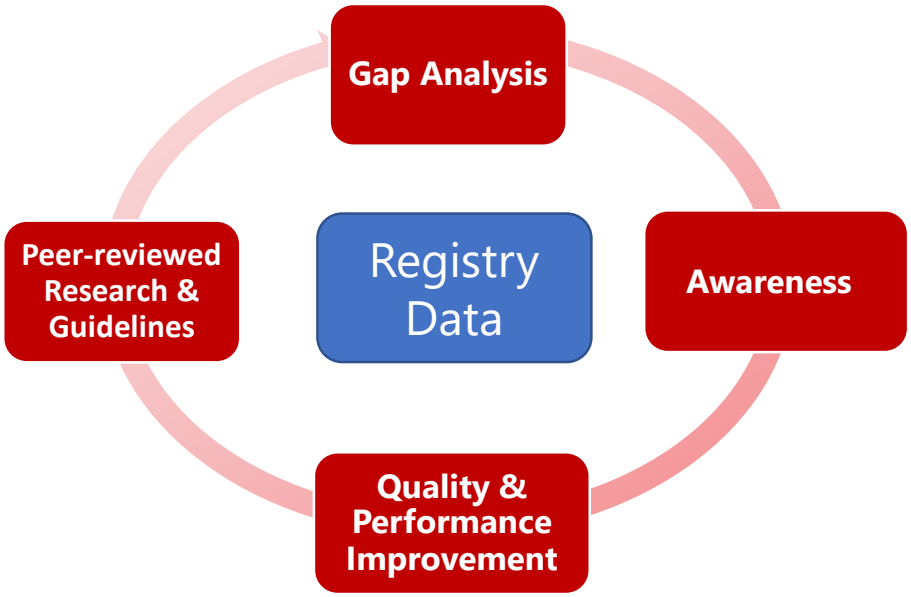


Registries

- **component of a larger quality vision**
- **provide data to inform AAOS guidelines and test performance measures**
- **provide feedback to providers to continuously improve their practice and healthcare outcomes**
- **allow AAOS to define what quality means in a value-based system**
- **reduce the reporting burdens on physicians**
- **help inform gaps in knowledge or areas for further education**

"If you can't measure it, you can't improve it" ~ Drucker

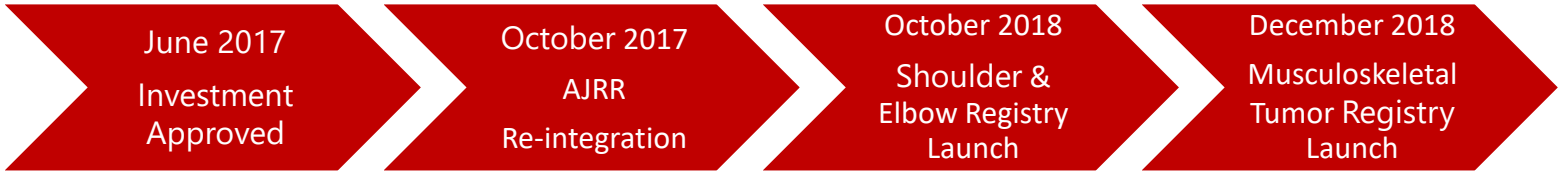
At the Core of Academy Strategy



Registry Effort Goals

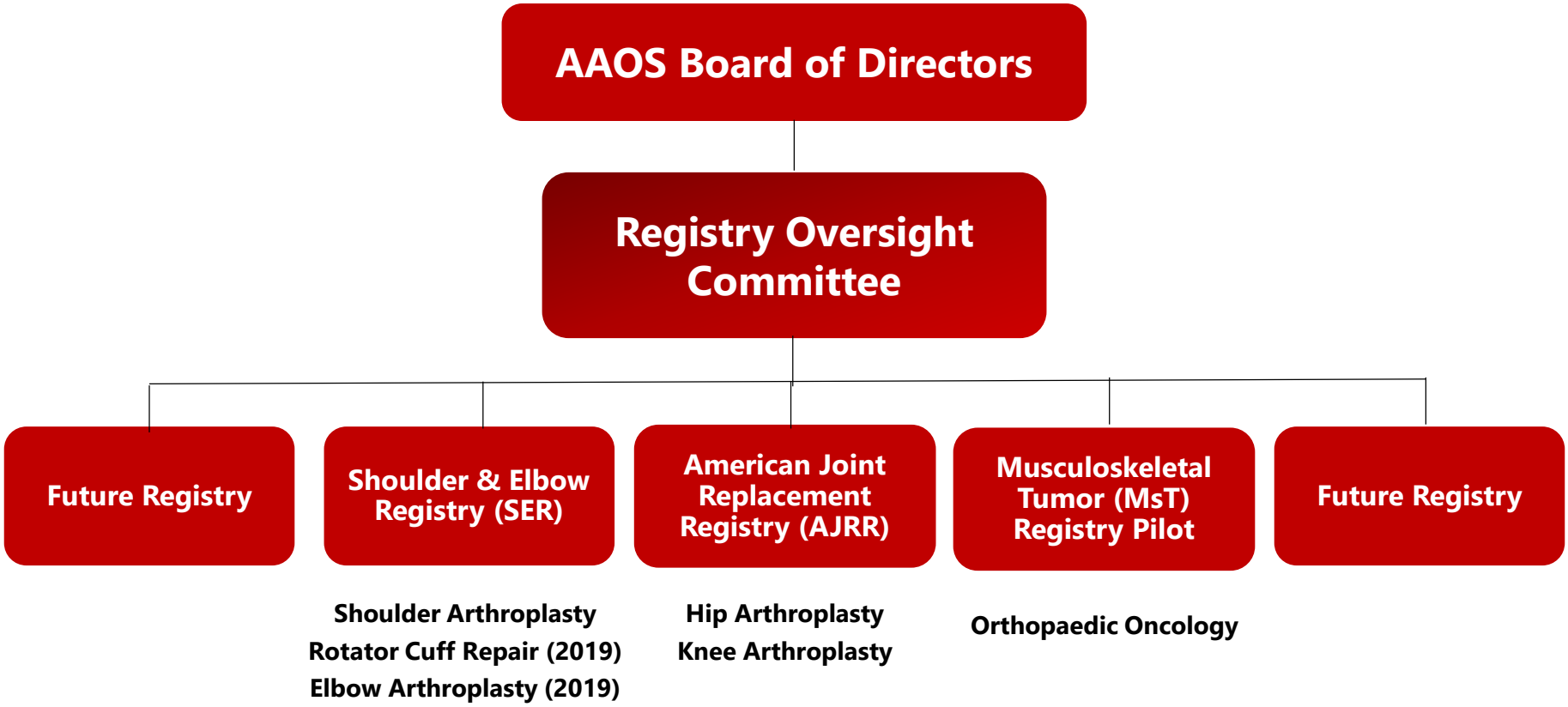
- ✓ Collect unique clinical information demonstrating ***real-world practice***
- ✓ Enable ***performance measurement*** by physicians for physicians
- ✓ Facilitate national registry-driven ***quality improvement*** programs
- ✓ Support novel scientific ***research***

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 developed and launched
- 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



AJRR Data Elements

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

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)

Shoulder Arthroplasty Module 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

First module around Shoulder Arthroplasty launched October 24, 2018

Future modules around Rotator Cuff Repair and Elbow Arthroplasty in 2019

Musculoskeletal Tumor Registry Pilot

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Dartmouth

Dr. Eric Henderson

Todd E. Vogt

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Dr. Adam Levin

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Martha Crist

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Beth Lipinski

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Dr. Nathan Mesko

Dr. Luke Nystrom

Matt Rerko

Amanda Maggiotto

Dale Shepard

Stanford

Robert J. Steffner

Christelle Lorenzana

Angela Bye

Musculoskeletal Tumor Data Elements - Baseline

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)

Surgical Intervention
- Procedure Type (ICD-10)
- Date of Surgery
- Implants
- Details surrounding surgery type
- Comorbidities (ICD-10)

Non-Surgical Intervention
- Chemotherapy
- Radiation
- Clinical Trial

Tumor Baseline
- Size
- Metastasis at diagnosis
- Margins
- Tissue Type
- Biopsy Type

Musculoskeletal Tumor Data Elements Encounters & PROs

Encounters
- Comorbidities (ICD-10)
- Hospital Admission
- Procedure (ICD-10)
- Diagnosis (ICD-10)
- Recurrence
- Chemotherapy
- Radiation

Patient-reported Outcomes
- PROMIS-10 Global
- VR-12
- MSTS
- TESS

Each Tab Includes Basic Demographic Information

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)

2018 AJRR Annual Report

- 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

Data Insights for Orthopaedics

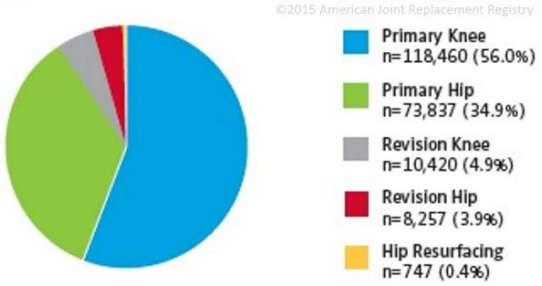
Detail Surgeon Activities and Case Numbers

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

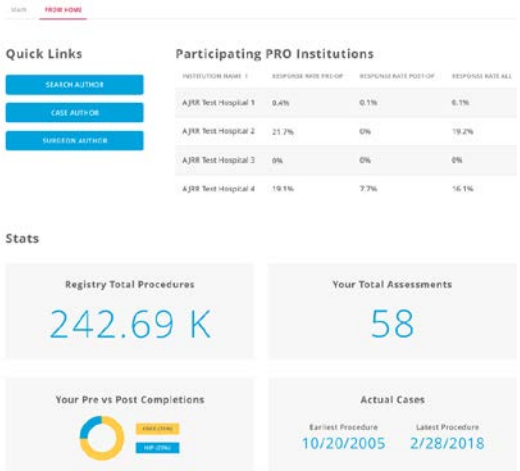
	Total Surgeons	Total Procedures	Per Surgeon Average	Range	Number of Surgeons Who Submitted Only One Procedure
HIP					
Primary	1,822	42,249	23.2	1-317	295
Revision	757	4,624	6.1	1-76	229
KNEE					
Primary	1,617	64,552	39.9	1-522	182
Revision	1,045	6,143	5.9	1-103	308

Provide Distribution of Procedures

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



Track Patient Reported Outcomes



Characterize US Implant Usage Patterns

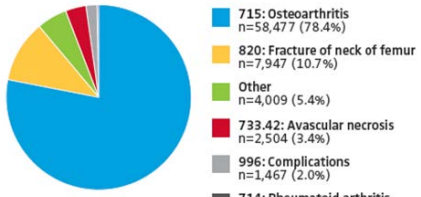
Table 2: Frequency and Percentage of Femoral Head Sizes Implanted by Year (N=74,833)

	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

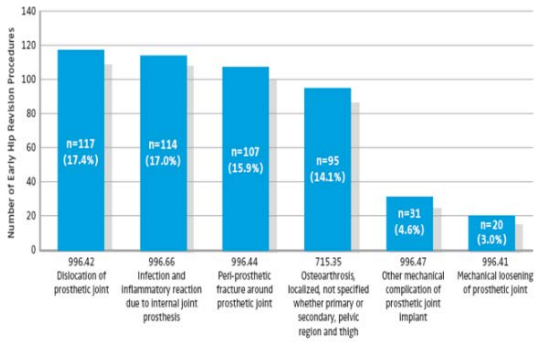
Figure 14: ICD-9 Diagnosis Codes for All Hip Arthroplasty Procedures (N=74,584)



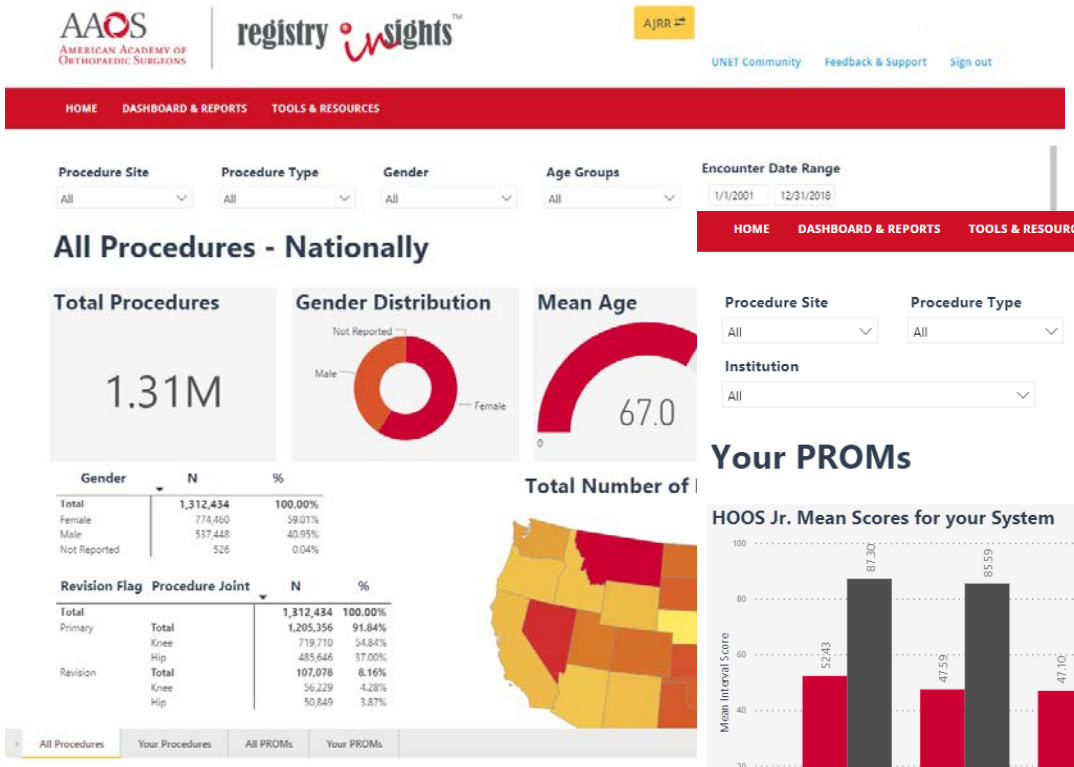
Other codes include those in categories 716, 719, 733, 736, 755. See Appendix D for complete list of diagnosis codes included in each category.

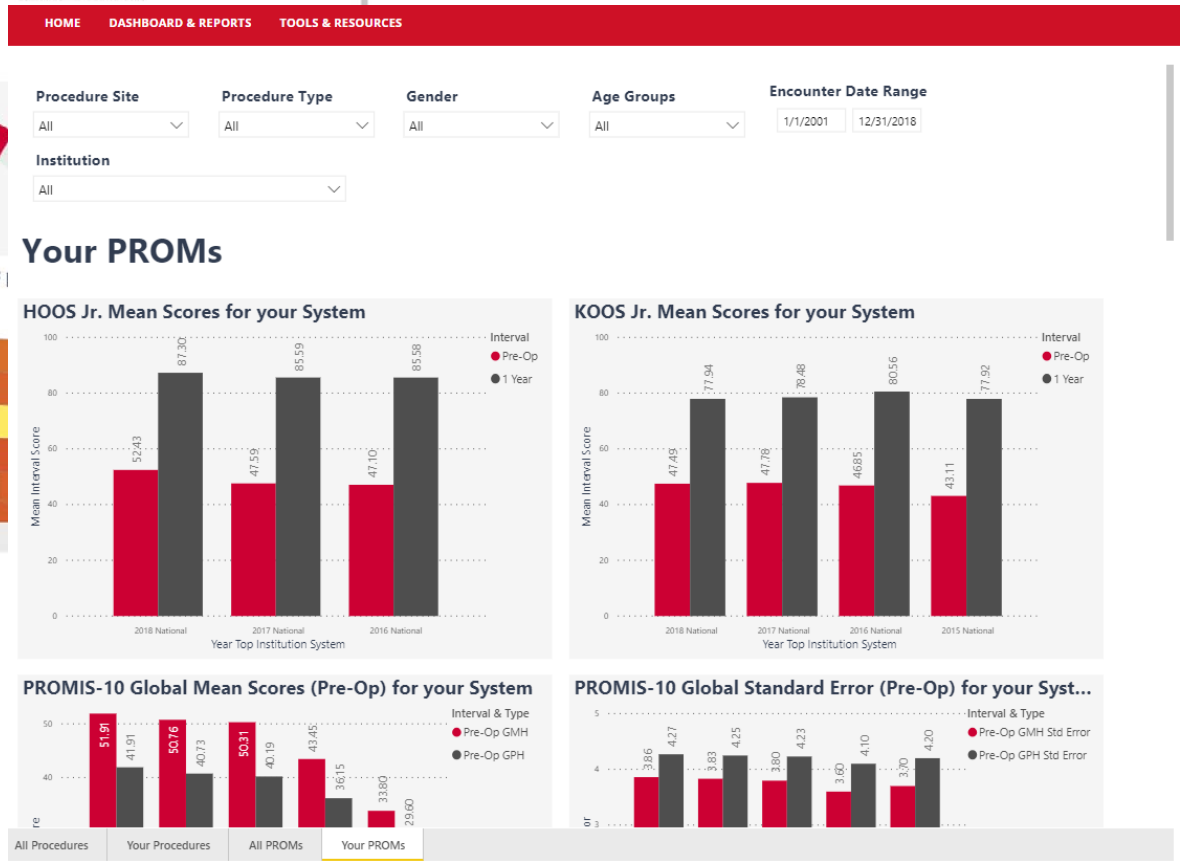
Characterize Causes of Early Revision

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



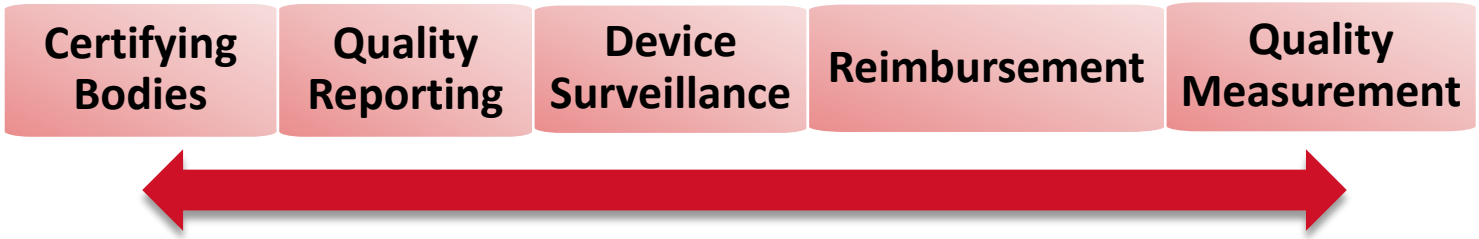
Surgeon Feedback





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, MIPS, MOC, and more



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Questions?

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www.aaos.org/registries