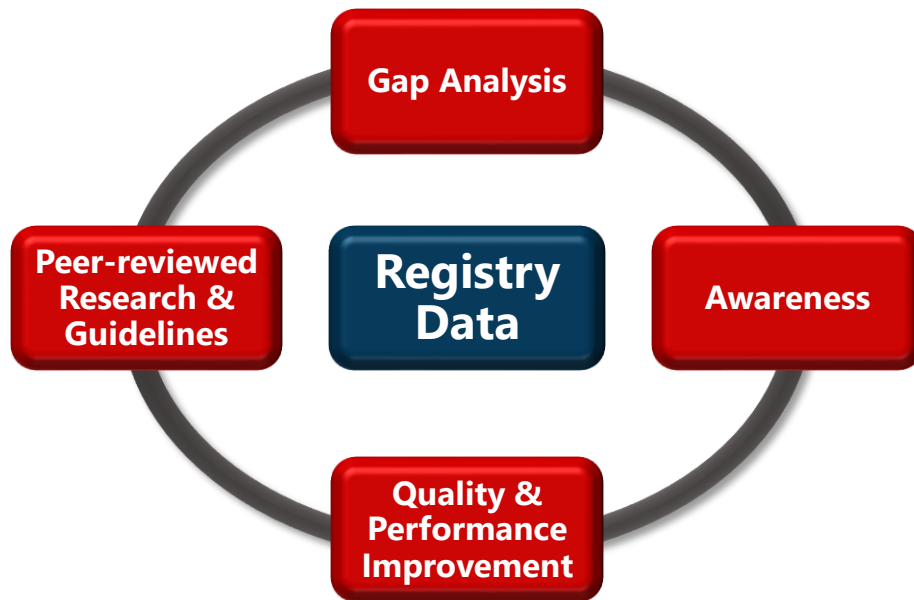


SER Introduction

Gerald R. Williams Jr., MD
SER Steering Committee Chair

www.aaos.org/registries/ser

At the Core of Academy Strategy

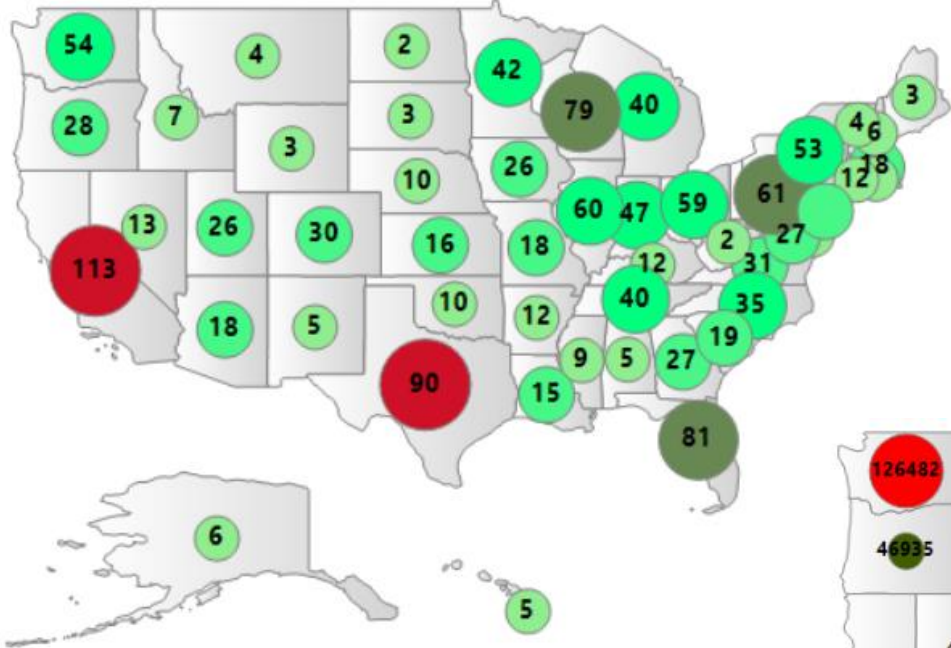


Registry Effort Goals

- ✓ 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***

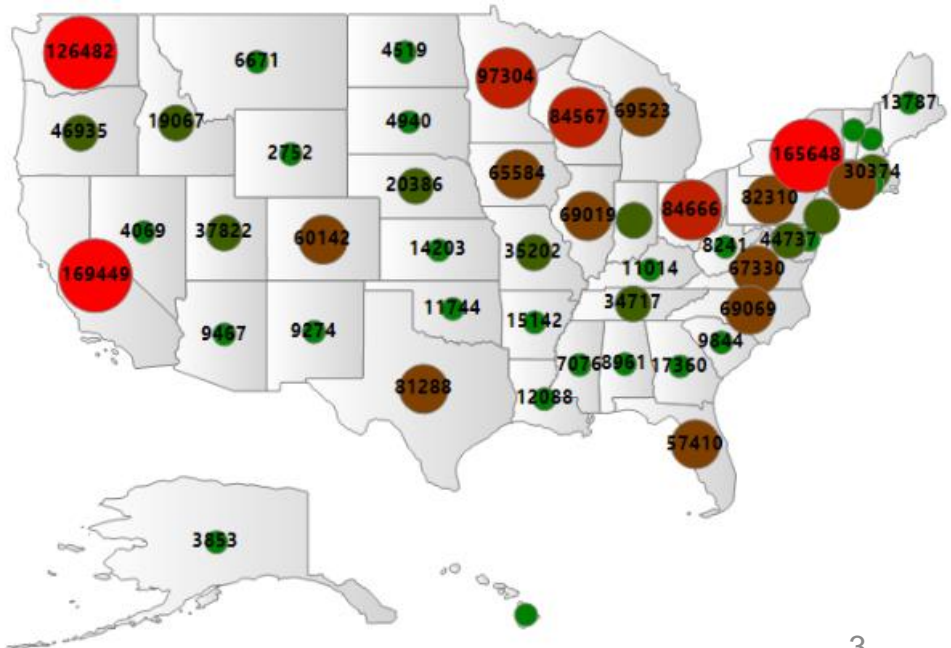
Participation Across the Registries

Sites by State



The portfolio of registries has over 1,600 participating sites contracted and 12,100 registered surgeons across all 50 states.

Procedures by State



Within the family of registries, data representing over 2,000,000 procedures capturing over 40% of all US TJA volume annually.

About SER

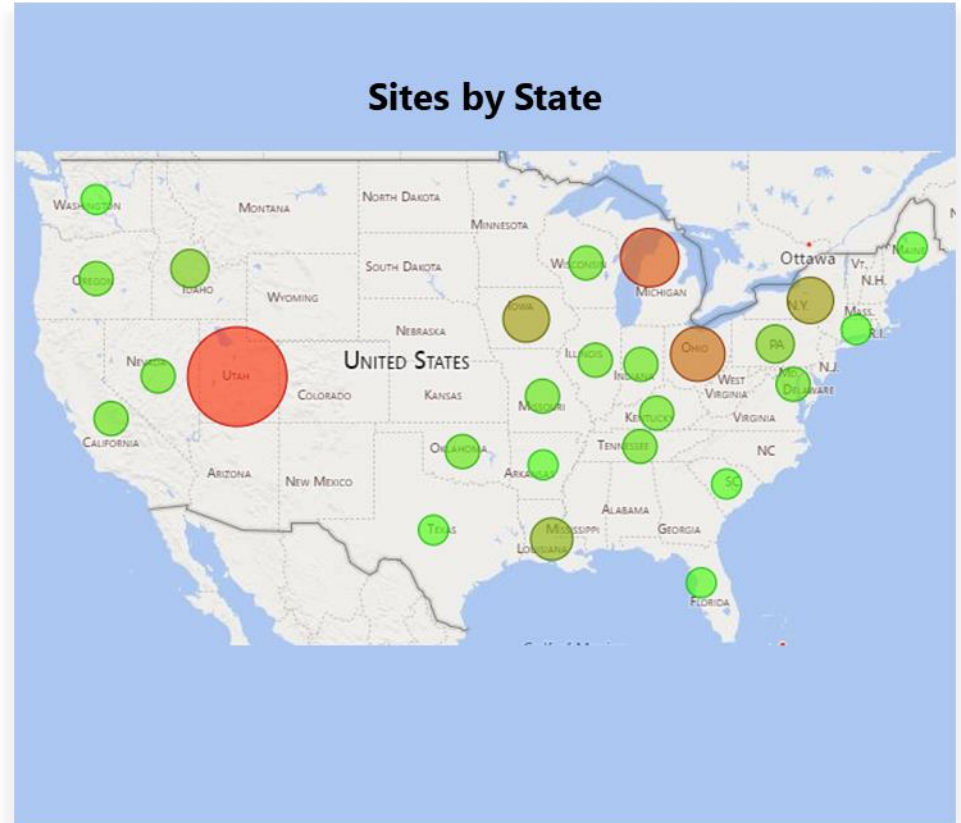
- Working in collaboration with the specialty societies, the Academy created this Registry to collect shoulder and elbow procedural data across the United States.
- National data allows for establishing survivorship curves, tracking revisions, and improving the quality of patient care.
- Individual data can be accessed and used for performance improvement and quality initiatives on RegistryInsights® for site/surgeon users.

SER Steering Committee

- **Gerald R. Williams Jr., MD, Chair**
The Rothman Institute
- **Mark E. Baratz, MD**
American Society for Surgery of the Hand (**ASSH**) Representative
Orthopaedic Specialists-UPMC
- **Stephen F. Brockmeier, MD**
American Orthopaedic Society for Sports Medicine (**AOSSM**)
Representative
University of Virginia
- **Grant E. Garrigues, MD**
American Shoulder and Elbow Surgeons (**ASES**) Representative
Midwest Orthopaedics at Rush
- **John E. Kuhn, MD**
Vanderbilt University Medical Center
- **Ronald A. Navarro, MD**
Kaiser Permanente South Bay
- **Joaquin Sanchez-Sotelo, MD**
Mayo Clinic
- **Richard Seiden, Esq.**
Public Advisory Board (PAB)
Representative
- **Patrick St. Pierre, MD**
Arthroscopy Association of North America (**AANA**) Representative
Desert Orthopedic Center
Eisenhower Health
- **Stephen C. Weber, MD**
The Johns Hopkins School of Medicine

SER Progress

- Over 10,000 procedures submitted across the US
- Approaching 100 contracted sites and 300 participating surgeons



SER Annual Report



- 7,834 patient procedures featured
- 60% of the 4,002 shoulder arthroplasty procedures were rTSA
- Average age of the 3,784 rotator cuff repairs procedures was 52.1 years
- Over 80% of patients were classified as pre-obese or obese for both procedure types

SER Data Element Overview

Procedure

Patient

- Name, Date of Birth, SSN
- Diagnosis (ICD-10, CPT)
- Gender
- Race/Ethnicity
- Height + Weight/Body Mass Index
- Payer Status

Site of Service

- Name and Address (TIN, NPI)

Surgeon

- Name (NPI)
- Trainee

Procedure

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

Module-specific Procedural Elements

- Shoulder Arthroplasty Module: Includes codes for replacements, revisions, and fractures
- Elbow Arthroplasty Module: Ulnar Nerve Management
- Rotator Cuff Repair Module: Expanded ICD-10 and CPT options for shoulder, including muscle, tendon, and arthroscopy codes

Comorbidities & Complications

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

Patient-reported Outcome

- PROMIS-10 Global
- VR-12
- SANE
- ASES

Three Modules Available

- Shoulder Arthroplasty
- Elbow Arthroplasty
- Rotator Cuff Repair

Integration of Medicare Data

- Access to **Medicare claims** inclusive of inpatient (148 data elements), outpatient (122 data elements) & National Death Index
- Linked by full identifiers for longitudinal tracking
- 2012-2019 Medicare data for all patients represented in Registry with quarterly updates
 - Medicare files ~ 1 year delayed
 - National Death Index ~ 2 years delayed
 - National Inpatient Sample (NIS) integrated as reference data for representative analyses
 - NPES dataset incorporated for NPI validation
- Access to custom reports that compare their site to the national Annual Report analyses, show migration trends, etc.

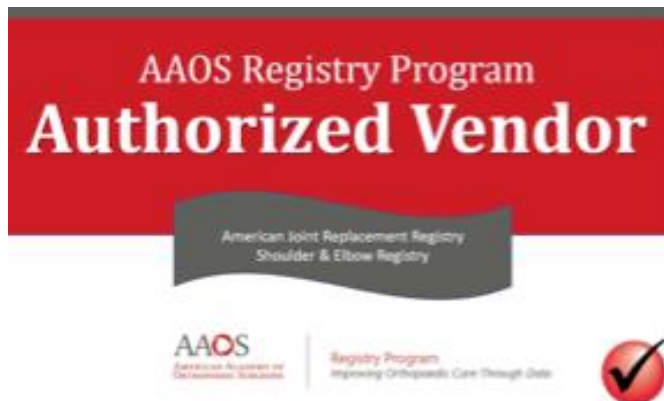
SER Partnerships

- AAOS has executed an MOU with the Ambulatory Surgical Center Association (ASCA) to complete an ASC pilot aimed at decreasing barriers and increasing ASC participation in SER
- AAOS has also executed a MOU with OrthoForum and OrthoConnect to facilitate private practice participation in SER
 - OrthoForum and OrthoConnect name SER as the recommended registry for their members

Decrease Data Collection Burden



- AAOS has partnered with technology vendors to facilitate the data submission process
- Re-use data that already exists in medical record, practice management and PRO systems
- Direct data submission and management can be handled by a technology provider with sites able to fix rejected files



Qualified Clinical Data Registry

- AAOS maintains a QCDR designation
- Specialty society driven participation in the Merit-Incentive Based Payment System (MIPS)
- QCDR provides participants access to Promoting Interoperability (PI) and Quality Payment Program (QPP) credit
- Additional opportunities for alternative reporting for the bundled payment through BPCI-A episodes

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

Three Ways to Access Data



RegistryInsights®
Dashboards



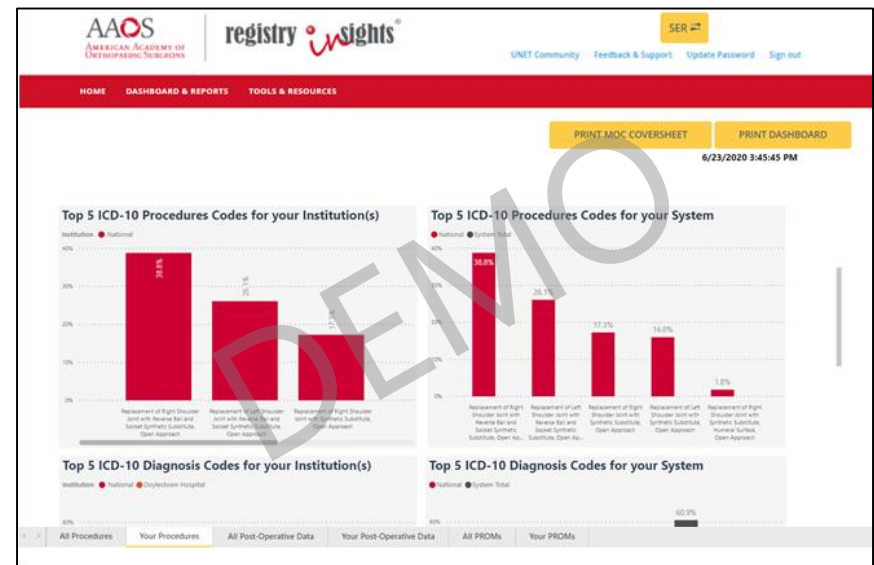
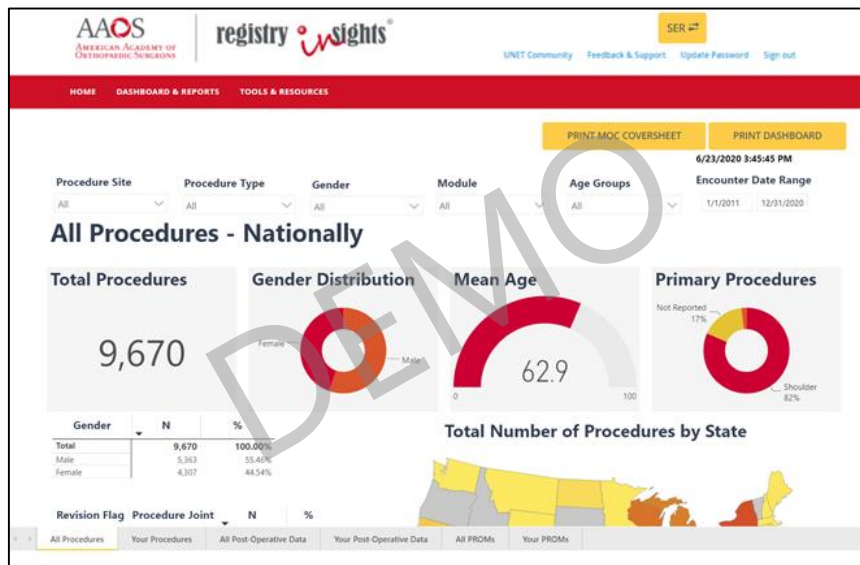
Custom
Reports



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



Site & Surgeon Feedback

The screenshot displays the AAOS registry insights dashboard. At the top, there are navigation links for HOME, DASHBOARD & REPORTS, and TOOLS & RESOURCES. Below this, there are filter options for Procedure Site, Procedure Type, Gender, Age Groups, Institution, and Module. The main content area is divided into several sections:

- Your PROMs:** Includes bar charts for ASES Mean Scores for your System and SANE Mean Scores for your System. The ASES chart shows scores for Interval, Pre-Operative, and 1-Year categories.
- PROMIS-10 Global Mean Scores for your System:** A bar chart showing scores for Interval & Type, 1-Year GMH, 1-Year GPH, Pre-Operative GMH, and Pre-Operative GPH.
- All Procedures - Nationally:** A summary section showing Total Procedures (10.07K), Gender Distribution (Female/Male donut chart), Mean Score (61.2 gauge chart), and Total Number of Procedures by State (US map).
- Revision Flag:** A table showing the distribution of revision flags across procedure joints.
- Procedure Joint Mean Age (years):** A table showing mean ages for different procedure joints.
- Top 10 ICD-10 Procedure Codes and Top 10 ICD-10 Diagnosis Codes:** Lists the most common codes for procedures and diagnoses.

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)

PROM Management

AAOS AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS | registry insights™

UNET Community Feedback & Support Sign out

HOME SEARCH PRE-REGISTRATION DASHBOARD & REPORTS TOOLS & RESOURCES DATA MANAGEMENT ADMINISTRATION

HOME / REPORTS

Procedure Reports Patient Reported Outcomes Reports

Count of Components by Type Assessment Summary

Count of Procedures by ICD-10 Procedure Codes Patient Status Report

AAOS AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS | registry insights™

UNET Community Feedback & Support

HOME SEARCH PRE-REGISTRATION DASHBOARD & REPORTS TOOLS & RESOURCES DATA MANAGEMENT ADMINISTRATION

HOME / REPORTS / PROM PATIENT STATUS REPORT

Entries: 10

ACCOUNT ID	HOSPITAL/ASC NAME	PATIENT ID	PATIENT LAST NAME	PATIENT FIRST NAME	PATIENT DATE OF BIRTH	PATIENT EMAIL ADDRESS	PATIENT PHONE TYPE	PATIENT PHONE NUMBER	PROCEDURE	LATERALITY	PLANNED SURGERY DATE	SURGEON NPI	ICD
1041062	SER Test Hospital 1	PRP30258	atAAOS	johnny	1/1/1980								
1041062	SER Test Hospital 1	PRP30258	atAAOS	johnny	1/1/1980								
1041061	SER Test Hospital 5	PRP30261	Bobby	Ricky	7/16/2019								
1041061	SER Test Hospital 5	PRP30261	Bobby	Ricky	7/16/2019				Rotator Cuff Repair	Right	2/28/2019	1019012200	MC
1041062	SER Test Hospital 1	PRP30246	Brown	Charlie	1/1/1980				Shoulder Arthroplasty	Left	1/20/2019		
1041062	SER Test Hospital 1	PRP30246	Brown	Charlie	1/1/1980				Shoulder Arthroplasty	Left	1/20/2019		
1041062	SER Test Hospital 1	PRP30235	butkus	dick	1/1/1980				Shoulder Arthroplasty	Left	1/20/2019		

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PROM REGISTRATION FORM PROM REGISTRATION UPDATES

This form allows AJRR Users to pre-register patients prior to surgery for pre-operative, patient-reported outcome measures (PROM) data collection. Once the form has been submitted, a patient pre-operative case will be added to the Registry. The pre-registration process permits users to collect PROMs from patients via the AJRR platform through the patient kiosk or through manual entry of a patient's PROMs responses into the platform if collected by paper or clinician/surrogate administration.

PART 2: Pre-Operative Case Information

Please complete all applicable required and optional fields of the pre-operative case section. Case information is required for all cases to be added to the Registry. Please note that all case data requested pertains to future procedures.

Planned Proc Date:

Procedure Site:

Procedure:

Indication:

Surgeon:

Paper Info:

PART 1: Patient demographic details

Please complete all applicable required and optional fields of the patient demographic section. Note: Email is conditionally required, however if you are administering assessments via email you must provide a patient email as the system will not be able to send the email to the patient.

If the Patient Social Security Number (SSN) is not available, please select the 'Not Available' option next to the Social Security field. Please note that the Registry also accepts the last 4 digits of the SSN. Patient SSN assists the Registry with achieving its mission through the ability to track longitudinal device information.

Social Security#:

Not Available

Email:

PROM submission can occur via existing site systems/technology, via manual upload, or through the SER PROM solution

Custom Reports

Custom reports created by the Registry 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

Registry Analytics Institute®

- 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

Why Do Surgeons Participate?

- Compare your practice and your own data to **national performance** benchmarks
- Utilize the Surgeon Platform's benchmarks, statistics, and interactive abilities for analytics and facilitate **internal quality improvement** efforts
- Access to on-demand practice specific **quality reports and dashboards**
- Sites will be recognized in the **Annual Report**
- Facilitate tracking and monitoring of **longitudinal** patient outcomes
- Qualify for **national distinction programs** such as the Joint Commission Certification and AAAHC
- Use for reporting **to quality improvement programs** such as MIPS, BPCI-A, and ABOS MOC
- Early access to **surveillance alerts** for poorly performing implants
- Improve the **value of care** delivered to patients



Questions?

RegistryInfo@aaos.org

www.aaos.org/registries/ser