AAOS
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Registry Program
Improving Orthopaedic Care Through Data

Registry Analytics Institute

September 24, 2020

Introduction

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  o Informaticist

- Data Management, Organization, and Improvement across all Registries
- Registry Analytics Institute Management across all Registries

Discussion Agenda

- Introduction to RAI
- Application Process - Eligibility
- Application Process - Request Process
- Application Process - Available Data
- Application Process - Data Analysis
- Application Process - Funding Award
- Scientific Publications Policies
- Examples of Past Projects

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Introduction to **RAI**

- RAI provides a resource to the scientific community by providing analyses of our registry data.

- RAI also provides clinicians and scientist-clinicians access to information beyond what is already published.

- Goal is to further understand and improve orthopaedic and musculoskeletal care.

Introduction to **RAI**

- AAOS committees provide peer review process and oversight to which proposals are approved.

- Data analysis is completed by AAOS Registry Analytics team members.

- AAOS does not allow access to our raw data but results from all analyses are shared.

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Application Process – **Eligibility**

- Investigators who have a well-defined hypothesis/question related to Orthopaedics or musculoskeletal care can apply.

- "Investigators" are clinicians or clinician-scientists affiliated with a clinical practice or care setting.

- Representatives from industry, federal agencies, commercial entities, insurance companies, administrative databases, or hospital consortia are not eligible.

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Application Process – **Request Process**

- Application process has two phases:

  1. After the submission deadline, AAOS staff reviews all applications for completeness and feasibility
  2. After passing the feasibility phase, AAOS committees review the application content for statistical relevance and theoretical uniqueness

- If/when the application is approved, the investigators are notified, and the study will be queued for analysis to commence.

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Application Process – **Seasonal Cycle Dates**

- Applications can be submitted until 7:00 p.m. (Central Time Zone) on the day of the deadline. Submissions received after the deadline will be deferred to the next review cycle.

Seasonal Cycle	Opens	Preliminary Application Due Date	Feasibility Assessments Completed	RPS Grading Completed and Applicants Notified of Final Decisions
Cycle 2 - 2020	June 8, 2020	July 13, 2020	September 1, 2020	December 4, 2020
Cycle 3 - 2020	October 5, 2020	November 16, 2020	February 1, 2021	April 5, 2021

Application Review, Summary Flow Chart

- When an application is submitted, the proposed project enters the AAOS Analyses Request and Publications pipeline, and proceeds along the process shown below.
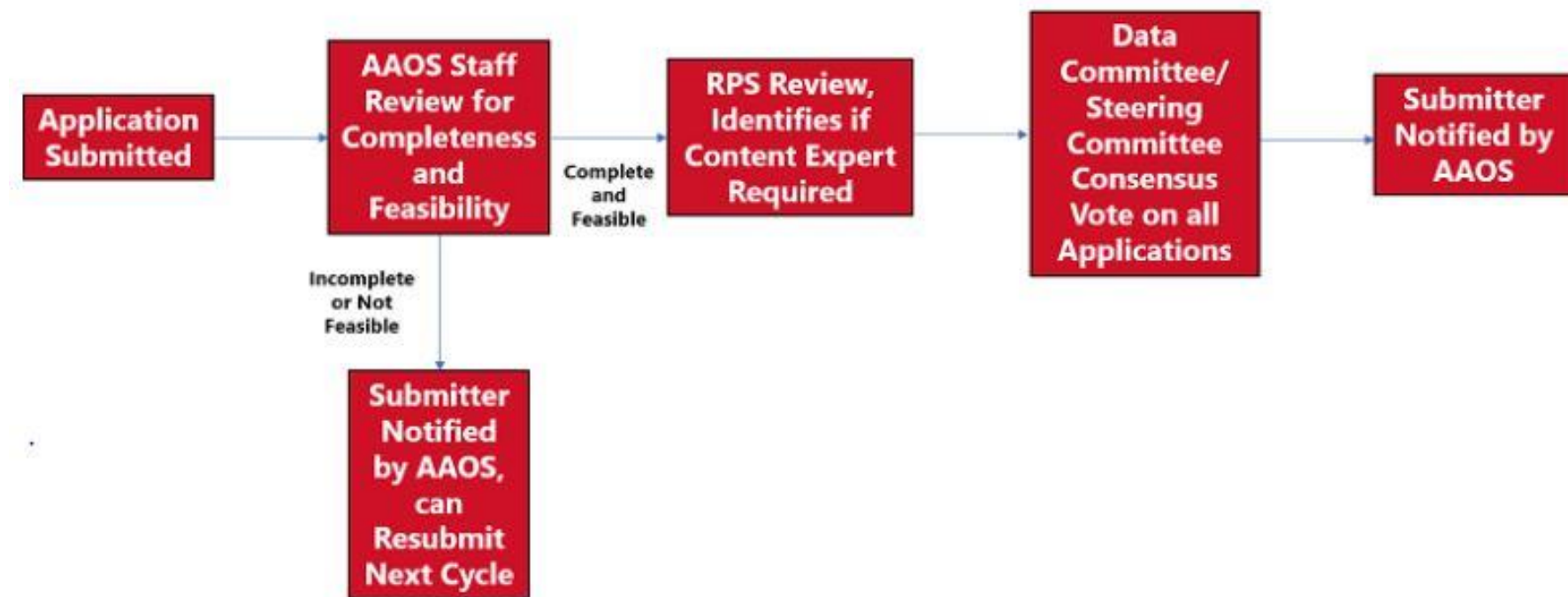
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Application Process – **Available Data**

- The Registry Program collects data related to procedures and post-operative care.

Patient
- Name (Last, First)
- Date of Birth
- Social Security Number
- Diagnosis (ICD-9/10, 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-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, CPT)
- 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/KOOS, JR.

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Application Process – **Data Analysis**

- AAOS Registry Analytics team will work with investigators of approved applications to develop an analysis plan and timeline.

- At the completion of the project, investigators will receive a completed, de-identified analysis.

- Analyses for all applications will be completed and sent back to the submitter within a year of application approval.

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Application Process – **Funding Award**

- The RAI provides eligible applicants with funding to support approved RAI projects.
- Funds are intended for use towards travel related expenses and registration to supported conferences for presentation of their RAI project.
- Conferences must be a meeting with scientific merit, Continuing Medical Education (CME) credit, and a focus on arthroplasty.
- Funding is limited to a maximum of $3,500 per project.
- Individual applicants must be United States residents.

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Publication Scientific Publications

- Recipient shall ensure that all proposed scientific publications are submitted to AAOS for review at least one month prior to submission for publication.

- If AAOS staff or volunteer leaders collaborate with Recipient on a scientific publication, such individual or individuals will be listed as a co-author.

- Recipient agrees to acknowledge the contribution and will provide copies of such publications to be placed on the AAOS website.

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Examples of Past Projects – **DAIR**

- Introduction: Debridement, Antibiotics, and Implant Retention (DAIR is an alternative approach to managing periprosthetic joint infections (PJI) after total hip or knee arthroplasty.

- Aims: To determine (1) incidence of patients are treated with more than 1 DAIR attempt for PJI and (2) percentage of patients who have undergone ≥ 1 DAIR go on to further surgery to treat recurrent infection.

- Results: There were **1,406 total DAIR** procedures to treat PJI reported to both CMS and AJRR, of which **97% had a single DAIR** and **3% had multiple DAIR** attempts. After the first DAIR, **2.6% of subjects died**, **15% progressed to subsequent revisions**, **16.2% endured further TJA** related procedures on the affected joint, and the **remaining (66%) were not found to incur further surgery or infectious outcome**.

Examples of Past Projects – **TKA All Poly**

- Introduction: All early designs of total knee arthroplasty (TKA) prostheses used tibial components made entirely of polyethylene. Additionally, the introduction of modular components with metal-backed tibial baseplates have remained popular due to its advantages.

- Aims: To determine (1) the utilization of all-polyethylene and metal-backed tibial components in patients undergoing primary TKA and (2) postoperative complication rates and patient reported outcome scores associated with all-polyethylene and metal-backed tibial components.

- RESULTS: During the study period 2012-2019 703,007 TKAs were reported, with **97.8% utilizing MMB and 2.2% utilizing AP tibial components**. The demographics of the two cohorts, were similar except for a **higher proportion of female patients in the AP cohort** (72.8% vs 60.6%). The **survival of AP and MMB TKA were similar**: 99.1% vs 99.5% at 1 year, 98.9% vs 99.2% at 2 years, 98.7% vs 98.9% at 4 years, 98.4% vs 98.7% at 6 years, and 98.1% vs 98.6% at 8 years. The **rate of reoperation for all-cause was higher for AP** compared to MMB (1.36% vs 1.00%, OR 1.52, p<0.0001). The **rates of reoperation for infection, aseptic loosening, and other reasons were also higher for AP** compared to MMB.

Upcoming Registry Program Webinars

- AAOS RegistryInsights 101: An Overview of the Academy's Registry Platform
  - Date: 10/8/20
  - Time: 1:00 pm to 2:00 pm ET; 12:00 to 1:00 pm CT

- An Introduction to the AAOS Registry Analytics Institute (**James I. Huddleston, III, MD, FAAOS**, the Vice Chair of the AJRR Steering Committee)
  - Date: 10/12/20
  - Webinar Times: 8:15 pm to 9:15 pm ET; 7:15 to 8:15 pm CT

- AAOS Registry Data Reuse Opportunities for ASCs
  - Date: 10/20/20
  - Webinar Times: 1:00 pm to 2:00 pm ET; 12:00 to 1:00 pm CT

Sign up here: [AAOS Course Calendar](#)

Questions?

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Thank you!

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