ASR Introduction

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www.americanspineregistry.org

Steven D Glassman, MD – ASR Co-Chair
A Need for Spine Data

• Degenerative spine disease is prevalent and costly.
• In the U.S., the total direct cost of treating low-back pain is estimated at $100 billion.
• Nationally, more than 1.2 million spinal surgeries are performed each year.
• The fastest-growing types the past decade have been lumbar spinal fusion surgeries ($60,000 to $110,000 per procedure).
A Need for Spine Data

CMS: We need data that reflects spine care in standard clinical practice.

October 2007
A Need for Spine Data

- Increased use of PROs
- Improved study quality (SPORT)
- Quality Outcomes Database (QOD)
A Need for Spine Data

QOD Contribution

Registry Effort Goals

✓ Registry platform available across Neurosurgery (Ortho)
✓ Standardized collection of PROs
✓ Improved diagnostic delineation
✓ Facilitate national registry-driven quality improvement programs
✓ Support novel scientific research
A Need for Spine Data

AJRR Development

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
A Need for Spine Data

- Potential for AANS/AAOS collaboration
- Spine Surgery: 50% Ortho/50% Neuro
- Complimentary resources
A Need for Spine Data

Collaboration
That's fine, as long as you get the credit.
The American Association of Neurological Surgeons and the American Academy of Orthopaedic Surgeons Join Forces to Create the American Spine Registry

Partnership unites practitioners with commitment to improving quality and delivery of patient care

MONROE, Ill. (September 9, 2019)—The American Association of Neurological Surgeons and the American Academy of Orthopaedic Surgeons (AAOS) today announced a new venture—the creation of the American Spine Registry (ASR)—which will be jointly owned and developed by the two organizations. The ASR will transform the Quality Outcomes Database (QOD) Spine Registry into a more far-reaching program that captures the participation of all North American spine surgeons in a shared, quality data platform.

Innovates the unique data science capabilities of the AANS with the operational AAOS Registry Program. The ASR allows both organizations to enhance the usability, ease-of-use and relevance of national spine data collection efforts and promotes greater data use by engaging multiple healthcare stakeholders in this joint effort. Participating organizations expect this collaboration will lead to an enhanced, cumulative registry system to improve patient care, advance the science of spine care, and address the challenges of an evolving, value-based care delivery system.

"This is a timely and potentially paradigm-shifting partnership," said Anthony Atkinson, M.D., a neurosurgeon at Carolina Neurosurgery & Spine Associates and co-chair of the AANS and AAOS Spine Societies. "Both organizations are highly-regarded surgical specialty societies, both of which have unique and economic interests in spine-related therapies. It is significant that we have chosen to embrace the greater potential of what we believe this combined registry represents as an enhanced opportunity to improve spine care."

By both neurosurgeons and orthopedic surgeons, the ASR platform fuels the creation of a consistent, reliable quality of care, including physicians, patients, payors, regulatory...
A Shared Quality Vision

Registries

- Component of a larger quality vision for spine care
- Provide data to inform AANS & AAOS guidelines and test performance measures
- Provide feedback to providers to continuously improve their practice and healthcare outcomes
- Allow AANS & 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
Collaborative Approach to Quality Spine Care

- **ASR is a win-win for surgeons and stakeholders** across spine
  - QOD sites benefit from lower cost and increased functionality
  - AJRR sites join a spine registry informed by QOD historical expertise
  - Ease of access for sites not participating in any registry
- All Sites benefit from multiple **data re-use opportunities**
- Participation allowed at several **contribution levels** (Standard & Vanguard)
- ASR provides a pathway to more **consistent high-quality spine care**
ASR Surgeon Leadership

ASR Executive Committee (EC)

Neuro
• Anthony Asher, MD, AANS Co-Chair
  Carolina Neurosurgery & Spine Associates, TJC Expert Panel
• Kevin Foley, MD
  Semmes Murphey Clinic
• Jack Knightly, MD
  Atlantic Neurosurgical Specialists
• Chris Shaffrey, MD
  Duke University

Ortho
• Steven Glassman, MD, AAOS Co-Chair
  Norton Leatherman Spine Center
• Todd Albert, MD
  Hospital for Special Surgery
• Darrel Brodke, MD
  University of Utah
• David Polly Jr., MD
  University of Minnesota, TJC Expert Panel

*EC provides leadership across the development and implementation of ASR, oversees committees formed, and ensures surgeon representation from AANS and AAOS
ASR Surgeon Leadership

Data Operations Committee (DOC)*

Neuro
- **Mo Bydon, MD, AANS Co-Chair**
  Mayo Clinic
- **Erica Bisson, MD**
  University of Utah
- **Paul Park, MD**
  University of Michigan
- **John Ratliff, MD**
  Stanford University

Ortho
- **Clint Devin, MD, AAOS Co-Chair**
  UCHealth – Yampa Valley Medical Center
- **Leah Carreon, MD**
  Norton Leatherman Spine Center
- **Elizabeth Norheim, MD**
  Kaiser Permanente
- **Kris Radcliff, MD**
  Rothman Orthopaedics

*DOC oversees the development of the data specification and data dictionary, monitors data quality and provides strategic oversight on data element updates

Data Use Committee (DUC)*

Neuro
- **Praveen Mummaneni, MD, AANS Co-Chair**
  University of California San Francisco
- **Dom Coric, MD**
  Carolina Neurosurgery & Spine Associates
- **Eric Potts, MD**
  Goodman Campbell Brain and Spine
- **Mike Wang, MD**
  University of Miami, TJC Expert Panel

Ortho
- **Doug Burton, MD, AAOS Co-Chair**
  University of Kansas Medical Center
- **Sheeraz Qureshi, MD**
  Hospital for Special Surgery
- **Raj Sethi, MD**
  Virginia Mason Medical Center
- **Frank Phillips, MD**
  Rush University Medical Center

*DUC oversees the data access policies, reviews submitted hypotheses, informs the platform dashboards and reports, and provides strategic oversight on data dissemination
ASR Surgeon Leadership

Key Opinion Leader Taskforce* & ASR Surgeon Champion(s)

Neuro
- John Wilson, MD
  Wake Forest, TJC Expert Panel
- Adam Kanter, MD
  University of Pittsburgh
- Michael Steinmetz, MD
  Cleveland Clinic, TJC Expert Panel
- Michael Groff, MD
  Brigham & Women’s Hospital
- Joseph Cheng, MD
  University of Cincinnati
- Justin Smith, MD
  University of Virginia
- Oren Gottfried, MD
  Duke University

Ortho
- Jacob Buchowski, MD
  Wash U in St. Louis, TJC Expert Panel
- Rick Sasso, MD
  University of Indiana, TJC Expert Panel
- Paul Rubery, MD
  University of Rochester
- Scott Boden, MD
  Emory University
- Thomas Mroz, MD
  Cleveland Clinic
- Jason Savage, MD
  Cleveland Clinic
- Jeffrey Wang, MD
  USC
- Zeeshan Sardar, MD
  Columbia University
- Andrew Pugely, MD
  University of Iowa
- Eric Truumees, MD
  UT Austin

*KOL represents spine surgeon leaders from across the country to inform and provide guidance on ASR development and implementation
Building a National Presence

AAOS Registries have over 1,600 participating sites contracted and 11,700 registered surgeons across all 50 states.

QoD sites are largely unique from AAOS sites and combined allow for broader adoption across the US spine surgery market.
ASR Participant Overview

*As of June 2020

Participants

- Sites: 122
- Contracts: 77
- Leads: 118

*As of June 2020*
*Vanguard sites: operative form for procedural / diagnostic detail
1 yr. rather than 3 mo. PROM follow-up
ASR Data Element Overview

Two Modules: Cervical / Lumbar

Procedure
Patient
• Name (Last, First)
• Date of Birth
• Social Security Number
• Diagnosis (ICD-9/10)*
• Gender
• Race/Ethnicity

Site of Service
• Name and Address (TIN/NPI)

Surgeon
• Name (NPI)

Procedure
• Type (ICD-9/10, CPT)*
• Date of Surgery
• Spinal Approach
• Implants and Grafts

Post-Operative / Comorbidities
• Comorbidities (ICD-9/10, CPT)
• Height + Weight/Body Mass Index
• Length of Stay
• American Society of Anesthesiologists Score
• Operative and Post-operative Complications
• Secondary Surgical Procedures
• Anticoagulation

Patient-reported Outcomes*
Recommended
• Numeric Rating Scale (NRS)
• PROMIS Physical Function or Oswestry Disability Index (ODI) / Neck Disability Index (NDI)
• PROMIS-10 Global or VR-12

Additional Options Accepted
• PROMIS Emotional Distress – Depression
• PROMIS Emotional Distress – Anxiety
• PROMIS Pain Interference
• PROMIS-29 / PROMIS-CAT
• EQ-5D
Optional operative forms used to capture information found in the brief op notes in discrete form

- Completed by the circulating nurse or surgeon during closure to populate op note and registry needs
- Being updated to populate in EPIC as a smartform that pulls data from multiple areas
- Data will inform coding, valuation and advocacy in spine care by providing more detail than currently captured via CPT / ICD coding
Patient-reported Outcome Measures

• PROMs Collection Method
  o Paper or electronic

• Submission Intervals:
  o Baseline (pre-operative)
  o Follow up at 90 days (three months post-operative)
  o One-year post-operative follow up
    ▪ Requirement for Vanguard sites, but recommended for all participating sites
  o Sites may submit PROMs at any of the intervals below in addition to their mandatory intervals.

<table>
<thead>
<tr>
<th>Collection Interval</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Baseline/Pre-operative</td>
<td>Within 90 days prior to the procedure</td>
</tr>
<tr>
<td>90 Days/3 Months</td>
<td>+/- 4 Weeks</td>
</tr>
<tr>
<td>6 Months</td>
<td>+/- 4 Weeks</td>
</tr>
<tr>
<td>12 Months</td>
<td>+/- 2 Months</td>
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</table>
PROM submission can occur via existing site systems/technology, via manual upload, or through the ASR PROM solution.
Decrease Data Collection Burden

- ASR has partnered with over 45 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
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
  o Medicare files ~ 1 year delayed
  o National Death Index ~ 2 years delayed
  o National Inpatient Sample (NIS) integrated as reference data for representative analyses
  o NPPES dataset incorporated for NPI validation
• Access to custom reports that compare their site to the national Annual Report analyses, show migration trends, etc.
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)
Research Opportunities

**ASR is primarily a Quality Improvement effort**

- Sites access and **export their own data** via the portal
- ASR serves as a **backbone** for advanced research efforts
- Sites (other partners) request **ASR analysis** of their data
- Access is tiered based on **site contribution**
- ASR may undertake internal **Registry driven projects**
Why Do Sites Participate?

- Comparison to national performance benchmarks
- On-demand practice and surgeon specific quality reports and dashboards
- Monitor longitudinal patient outcomes
- Maintenance of Certification credit (ABOS and ABNS)
- Participation in payer-incentivized performance improvement programs
- Qualify for national distinction programs
- CMS quality improvement programs (MIPS & BPCI-A)
- Surveillance alerts for poorly performing implants
- **Improve the value of care delivered to patients**
Confirmed ROI for participants include:

• ABOS and ABNS Maintenance of Certification (MOC) Programs
• Aetna Institutes of Quality (IOQ) Orthopaedic Surgery
• BlueCross BlueShield Blue Distinction Specialty Care
• Centers for Medicare & Medicaid Services (CMS) Merit-based Incentive Payment System (MIPS) Quality Payment Program (QPP)
• CMS Bundled Payments for Care Improvement Advanced (BPCI-A)
• CMS MIPS Promoting Interoperability (PI)
• DNV GL Orthopaedic Center of Excellence
• TJC basic certification in spine, developing Advanced Certification in Spine Surgery (ACSS)

For more information visit: www.americanspineregistry.org/data-reuse-opportunities/
Unique Capabilities

- ASR provides the first ever national database to longitudinally track implant survivorship in spine patients, focused on:
  - Using data to inform spine practice through actionable feedback to care teams
  - Learning from patient reported outcomes alongside clinical outcomes and implant survivorship
  - Improving coding and documentation for spine procedures
  - Providing a resource for device surveillance and monitoring for early implant failures
  - Historical data goes back to ICD-10 implementation (late 2015, early 2016)
Limitations

• Do not yet have a deformity module, only basic deformity coverage in existing modules

• No tumor module yet

• Have not started radiographic imaging collection

• US based only currently
Questions?

Info@AmericanSpineRegistry.org

Improving spine care through data.