American Spine Registry

A partnership between
American Association of Neurological Surgeons
American Academy of Orthopaedic Surgeons

American Spine Registry

Data Opportunities with the American Spine Registry

info@americanspineregistry.org
www.americanspineregistry.org
Our Speakers Today

• Darrel S. Brodke, MD, FAAOS
  ASR Executive Committee Member
  University of Utah

• David W. Polly, Jr., MD, FAAOS
  ASR Executive Committee Member
  University of Minnesota
Disclosures:
Darrel S. Brodke, MD, FAAOS

- CTL Amedica: IP royalties; Paid consultant
- Orthofix, Inc.: Paid consultant
Disclosures: David W. Polly, Jr., MD, FAAOS

• Consultant
  o SI Bone
  o Globus

• Royalties
  o Springer Verlag
  o SI Bone

• Research Support
  o Mizuho OSI
  o Medtronic
  o AO Spine

• Professional Associations
  o Executive Committee, ASR
  o Board of Directors, SIMEG
Great Variability in Conditions and Treatment

• ‘Spine’ is lumped together as a single entity

• Great heterogeneity in
  o Pathology
  o Patient health status
  o Treatment options
  o Surgical technique

• How to measure quality?
  o Initial efforts antibiotic prophylaxis, surgical site confirmation, infection rates.....
A Partnership Based on the Need for Spine Data

- Degenerative spine disease is one of the most prevalent and costly disease states worldwide
  - LBP is the most common cause of work-related disability in the U.S.
  - In the U.S. alone, the total direct costs for spine care exceed $100 billion annually

- Utilization of common spine procedures has increased 150-600% over the last decade
  - Lumbar spinal fusion surgeries, which range from $60,000 to $110,000 per procedure, have significantly increased in frequency

- Various estimates suggest that between 10 and 25% of spine care (diagnostic and therapeutic) is unnecessary and/or ineffective
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**
The Core 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
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.
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
ASR Governance & Development

AANS Board of Directors

AAOS Board of Directors

American Spine Registry (ASR) Executive Committee

ASR Data Operations Committee

ASR Data Use Committee

Spine Tumor Module (in development)

Cervical Degenerative Spine Module

Lumbar Degenerative Spine Module

Future ASR Module

Launched January 2020
Accepts data from ICD10 implementation - present

Launched January 2020
Accepts data from ICD10 implementation - present

*Over 200 sites already participating since Jan 2020 launch*
ASR Clinical Data Elements

Two Modules Available: Cervical & Lumbar

Demographics
Patient
- Name (Last, First)
- Date of Birth
- Social Security Number
- Diagnosis (ICD-10)*
- Gender
- Race/Ethnicity
- Comorbidities (ICD-10)
- COVID-19 as prior diagnosis
- Height + Weight/Body Mass Index

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

Surgeon
- Name (NPI)

Procedure
- Type (ICD-10, CPT)*
- Date of Surgery
- Spinal Approach
- Implants and Grafts (manufacturer/lot#, UDI)
- Length of Stay
- American Society of Anesthesiologists Score
- Anticoagulation

Post-Operative/Complications
- Operative and Post-operative Complications
- Secondary Surgical Procedures

*Vanguard sites utilize an operative form for additional procedural & diagnosis detail
ASR PRO Data Elements

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

Additional Options Accepted
- PROMIS CAT, PROMIS-29
- PROMIS Emotional Distress – Depression
- PROMIS Emotional Distress – Anxiety
- PROMIS Pain Interference
- EQ-5D

*Vanguard sites pursue longer PROMs post-operative follow-up (min 1 year) compared to standard sites (min 90 days)

*Sites can utilize their existing PROMs collection mechanism or utilize ASR’s no cost PROM tool
# ASR Operative Forms

- 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 as a smartform that contributes data to multiple areas
- Data will inform coding, valuation and advocacy in spine care by providing more detail than currently captured via CPT / ICD coding

## ASR Operative Forms Details

<table>
<thead>
<tr>
<th>Symptom/Pathology</th>
<th>Option(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Symptoms</td>
<td>Back Pain □</td>
</tr>
<tr>
<td>Neural Compression</td>
<td>None □</td>
</tr>
<tr>
<td>Structural Pathology</td>
<td>None □</td>
</tr>
</tbody>
</table>

| Approach | Anterior/Oblique □ | Transpsoas □ | Posterior □ |

| Minimally Invasive | Tubular □ | Endoscopic □ | Mini-Open □ | Percutaneous screw □ |

| Supplemental Technique | Microscope □ | Navigated □ | Robotic □ |

This is part of a multi-stage procedure □

### Level 1 - L1 (L1-L2)
- **Decompression**: Corpectomy □
- **Implants**: Cage □ Plate □ Other □, sp □
- **Fusion**: PLF □ TLIF □
- **Revision Status**: Revision Decompression □ Revision Instrumentation □ Revision Fusion □

### Level 2 - L2 (L2-L3)
- **Decompression**: Corpectomy □
- **Implants**: Screw □
- **Fusion**: ALIF □ LLIF □ Facet/Lamina □
- **Revision Status**: Revision Decompression □ Revision Instrumentation □ Revision Fusion □

### Level 3 - L3 (L3-L4)
- **Decompression**: Corpectomy □
- **Implants**: Screw □
- **Fusion**: ALIF □ LLIF □ Facet/Lamina □
- **Revision Status**: Revision Decompression □ Revision Instrumentation □ Revision Fusion □

### Level 4 - L4 (L4-L5)
- **Decompression**: Corpectomy □
- **Implants**: Screw □
- **Fusion**: ALIF □ LLIF □ Facet/Lamina □
- **Revision Status**: Revision Decompression □ Revision Instrumentation □ Revision Fusion □

### Level 5 - L5 (L5-S1)
- **Decompression**: Corpectomy □
- **Implants**: Screw □
- **Fusion**: ALIF □ LLIF □ Facet/Lamina □
- **Revision Status**: Revision Decompression □ Revision Instrumentation □ Revision Fusion □

### Pelvis
- **Decompression**: S2AI □
- **Implants**: Iliac Bolts □
- **Fusion**: Revision Instrumentation □ Revision Fusion □

### Graft Material
- Iliac Crest □ Local autograft □ Structural Allograft □ Bone Marrow Aspirate □ DBM □

### Neuromonitoring
- None □ EMG □ MEP □ SSEP □

### Complications
- None □ Durotomy □ Implant-related □ Neurologic □ Other □, specify
2021 Data Specifications: Expanded Data Collection Capabilities

• The 2021 ASR Data Specifications and Data Dictionaries are now available for download in the Tools & Resources tab in RegistryInsights®.

• ASR will continue to support the older versions of the data specifications, allowing sites time to implement changes before “sunsetting” the oldest version in six months.

• All additions and updates are documented in the “Change Control” tab for reference.
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
  - NPPES dataset incorporated for NPI validation
- Access to custom reports that compare their site to the national Annual Report analyses, show migration trends, etc.
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
Clinical Management

Surgeon Users
- View their procedural, post-operative and PROM data
- National benchmarks for comparison measures
- Request custom reports
- Submit data for quality initiatives (e.g., ABOS MOC, QPP, BPCI-A)

PROM Management
- Pre-register patients for PROM protocols
- Select PROM assessments to be delivered via email
- Utilize platform in kiosk mode in clinic
- Monitor completion, linked PROMs, and patients reaching MCID
The Value of Data

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**
Delivering Value for AANS & AAOS Spine Surgeons

- On-demand practice and surgeon specific dashboards
- Comparison to national performance benchmarks
- Monitor longitudinal patient outcomes (Medicare data)
- Maintenance of Certification credit (ABOS and ABNS)

- Qualify for national distinction programs (Aetna, AAAHC, Blue Distinction, DNV, TJC)
- CMS quality improvement programs (MIPS & BPCI-A)
- Improve the value of care delivered to patients
## ACSS Performance Measures

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Description</th>
<th>Denominator</th>
<th>Numerator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surgical Site Infection Rates</strong></td>
<td>Patients with a post-operative surgical site infection identified within 90 days after the primary procedure.</td>
<td>All primary cervical and lumbar degenerative spine cases submitted to ASR.</td>
<td>Spine cases with documented surgical site infection within 90 days of the primary procedure.</td>
</tr>
<tr>
<td><strong>New Neurological Deficits</strong></td>
<td>Patients with new neurological deficits present within 90 days after the primary procedure.</td>
<td>All primary cervical and lumbar degenerative spine cases submitted to ASR.</td>
<td>Spine cases with new unexpected neurologic deficit with focus motor strength that is a 3/5 or worse.</td>
</tr>
<tr>
<td><strong>Unplanned Return Visit to the OR</strong></td>
<td>Patients who had an unplanned return to the OR within 90 days of the primary procedure.</td>
<td>All primary cervical and lumbar degenerative spine cases submitted to ASR that are not multi-stage procedures.</td>
<td>Spine cases that are not multi-stage procedures, with unplanned return visits to the operating room.</td>
</tr>
</tbody>
</table>
### Pre-operative and Post-operative Patient Reported Outcomes (PROs)

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| Proportion of patients submitted to ASR who completed the general health and spine specific functional status assessments: 90 days prior to surgery and 90 days post-operatively. | ASR accepts the following assessments:  
* General Health Assessments: PROMIS-10, VR-12, PROMIS Physical Function, PROMIS-CAT, PROMIS-29, PROMIS Pain Interference, PROMIS Emotional Distress - Depression, PROMIS Emotional Distress - Anxiety, EQ-5D  
* Spine Specific Functional Assessments: ODI, NDI, Numeric Rating Scale |
ASR Progress

ASR is a work in progress:
Areas of Strong Early Achievement

- Engagement with Regulators and Payers
- Buy-in from major Health Systems
- Capability to collect granular data at scale
ASR Progress

ASR is a work in progress:
Challenges of Spine Registry Development

- Complexity of Spine Data at all levels
- Need for focused IT involvement to build data feed
- We don’t know what we don’t know
Thank You

Info@AmericanSpineRegistry.org
www.americanspineregistry.org

Improving spine care through data.