American Spine Registry

A partnership between

American Association of Neurological Surgeons

American Academy of Orthopaedic Surgeons

Introduction to the American Spine Registry

A collaboration between AANS and AAOS to improve quality and outcomes in spine care

Our Speakers Today

- **Steven D. Glassman, MD, FAAOS**

  ASR Executive Committee Co-Chair

- **Erica F. Bisson, MD, MPH, FAANS**

  ASR Data Operations Committee Member

ASR

Disclosures: Steven D. Glassman, MD, FAAOS

- American Spine Registry: Board or committee member
- Cerapedics: Research support
- Empirical Spine: Research support
- Integra: Research support
- Intellirod: Research support
- International Spine Study Group: Research support
- Medtronic: IP royalties; Paid consultant; Research support
- Nuvasive: Research support
- Pfizer: Research support
- Scoliosis Research Society: Board or committee member
- Springer: Editorial or governing board
- No financial conflicts of interest relevant to this presentation

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Disclosures: Erica F. Bisson, MD, MPH, FAANS

- AANS Ethics, AANS/CNS Spine SPC: Board or committee member
- Journal of Neurosurgery: Spine: Editorial or governing board
- MiRus: Paid consultant
- nView: Stock or stock Options
- Stryker: Paid consultant; Stock or stock Options
- No financial conflicts of interest relevant to this presentation

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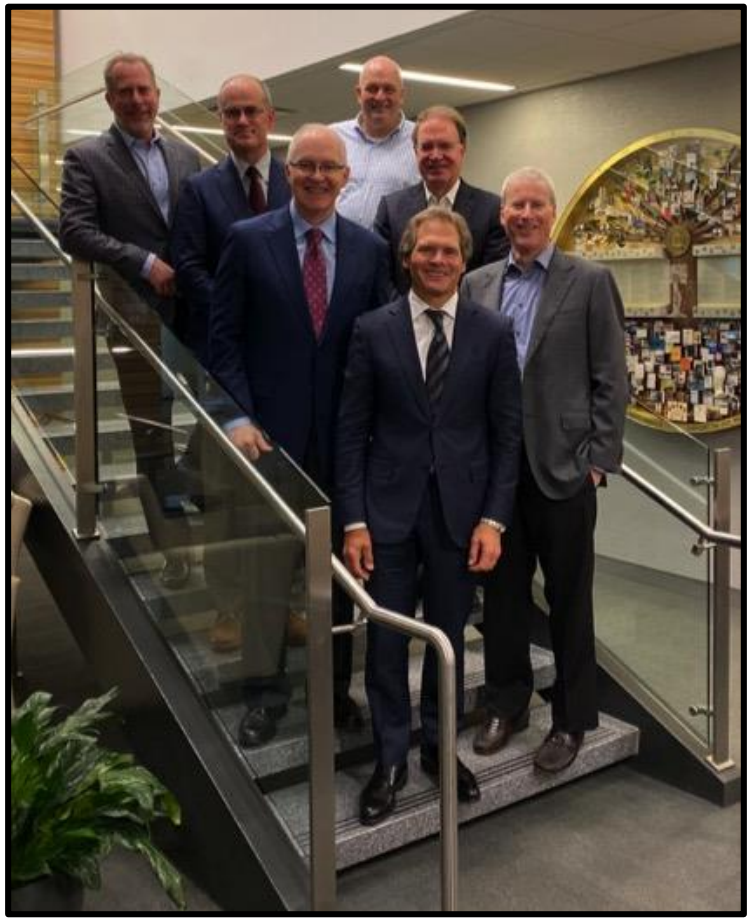

American Association of Neurological Surgeons

AAOS
American Academy of Orthopaedic Surgeons

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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

ONT, Ill. (September 9, 2019)—The American Association of Neurological Surgeons and the American Academy of Orthopaedic Surgeons (AAOS) today announced a new ip, the American Spine Registry (ASR), which will be jointly owned and developed by izations. The ASR will transform the Quality Outcomes Database (QOD) Spine rrently the nation's largest spine registry, into a more far-reaching program that e participation of all North American spine surgeons in a shared, quality data- tform.

es the unique data science capabilities of the AANS with the operational AAOS Registry Program. The ASR allows both organizations to enhance the ability, ease-of-use and relevance of national spine data collection efforts and t data use by engaging multiple healthcare stakeholders in this joint ipating organizations expect this collaboration will lead to an enhanced umulated information to improve patient care, advance the science of ress the challenges of an evolving, value-based care delivery system.

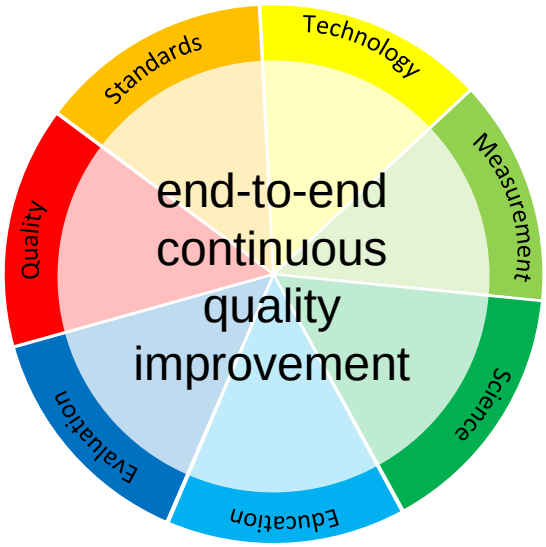
timely and potentially paradigm-shifting partnership," said Anthony neurosurgeon at Carolina Neurosurgery & Spine Associates and co- NS and AAOS are highly-regarded surgical specialty societies, both of ic and economic interests in spine-related therapies. It is significant s ultimately chose to embrace the greater potential of what we his combined registry represents an enhanced opportunity to spine care."

by both neurosurgeons and orthopedic surgeons, the latform fuels the creation of a consistent, reliable quality akeholders, including physicians, patients, payors, regulatory

ASR™

AANS/AAOS Collaboration

American Spine Registry



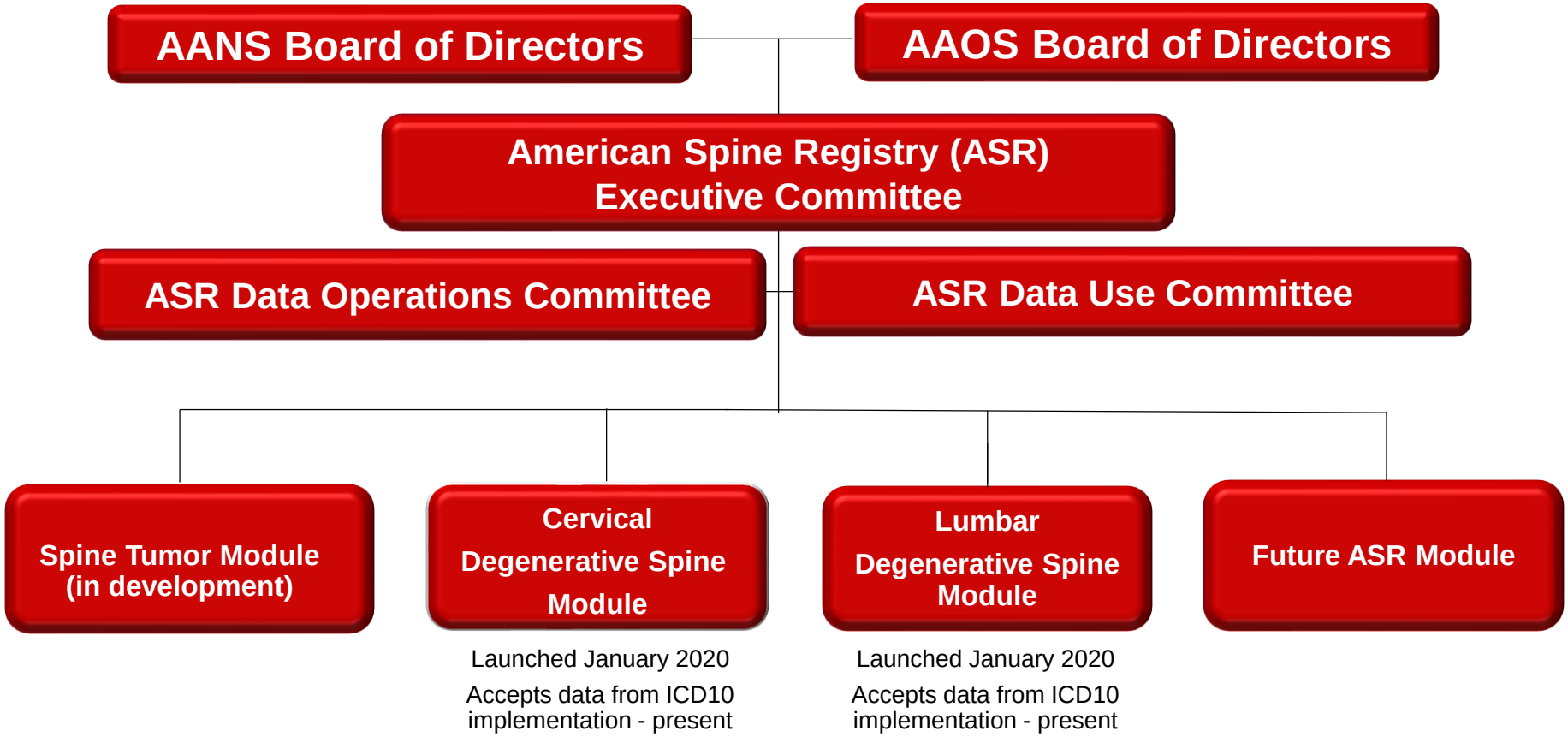
AANS/AAOS Shared Quality Vision

- 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 research and education

ASR

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

ASR Governance & Development



Over 200 sites already participating since Jan 2020 launch

ASR

ASR Surgeon Leadership

Data Operations Committee (DOC)*

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

Neuro

- **Mo Bydon, MD, AANS Co-Chair**
  Mayo Clinic
- **Erica Bisson, MD, MPH**
  University of Utah
- **Paul Park, MD**
  University of Michigan
- **John Ratliff, MD**
  Stanford University
- **Michael Steinmetz, MD**
  Cleveland Clinic
- **Luis Tumialan, MD**
  Barrow Brain & Spine

Ortho

- **Clint Devin, MD, AAOS Co-Chair**
  UCHealth – Yampa Valley Medical Center
- **Leah Carreon, MD**
  Norton Leatherman Spine Center
- **Elizabeth Norheim, MD**
  Kaiser Permanente
- **Zeeshan Sardar, MD**
  Columbia University
- **Wellington Hsu, MD**
  Northwestern University
- **Andrew Pugely, MD**
  University of Iowa

Data Use Committee (DUC)*

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

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
- **Kai-Ming Fu, MD**
  Weill Cornell Medicine

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
- **Alpesh Patel, MD**
  Northwestern Medicine
- **S. Tim Yoon, MD**
  Emory University

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 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
- **Eeric Truumees, MD**
  UT Austin
- **Kris Radcliff, MD**
  Rothman Institute
- **Frank Phillips, MD**
  Rush University

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

ASR™

Young Physician Committee

- Young Physician Committee (YPC) is directed at surgeons in early practice
- Educational materials and opportunities in *registry science*
- Equal representation of ortho and neuro
- Erica Bisson, MD and Wellington Hsu, MD as Co-Chairs

ASR

IRB Information

- ASR is a quality improvement registry which is exempt from IRB review under federal rule
- All data elements are retrospectively collected from data documented in the course of the provision of care
- If data required in ASR is novel or new to your site clinical workflow, such as PRO collection, we also maintain a centralized IRB to confirm that even if newly created, the data we capture does not require patient consent
- ASR maintains a centralized IRB protocol with WCG IRB services (previously Western IRB) to confirm a waiver of patient consent
- Most sites do not need to take any steps given the federal exemption for QI registries but a small percentage of sites wish to submit to their local IRB for confirmation and reliance on the centralized IRB is commonplace

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*

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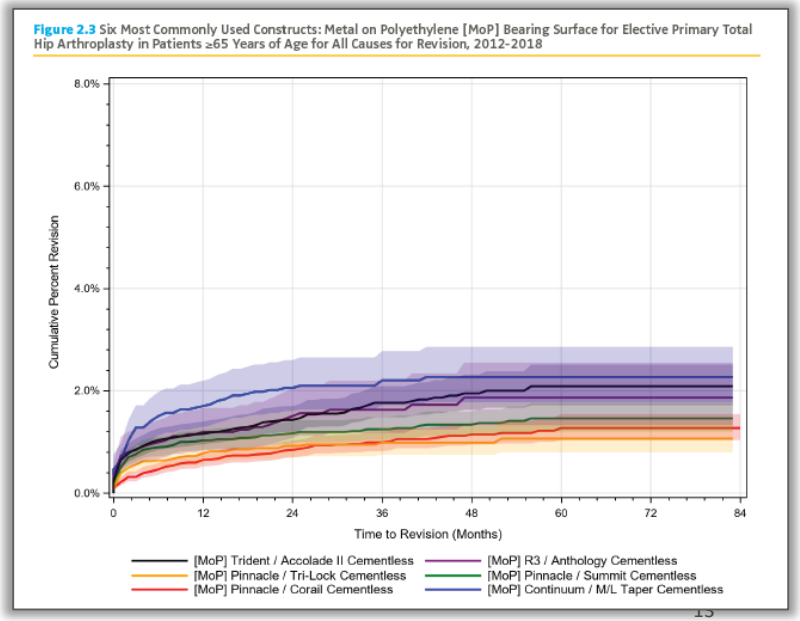
ASR Implants & Implant Survivorship

- ASR collects implant and graft material based on manufacturer/lot# or UDI/bar code
- ASR Component Database
  - The barcodes are paired with a component database which details all attributes associated with each implant, allowing for detailed analysis by material, brand, etc.
- ASR makes longitudinal tracking of implant survivorship in spine patients possible
- Recent example from the 2019 AJRR Annual Report Supplement



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9400 West Higgins Road
Rosemont, IL 60018-4975

847-292-0530 | ASR@aaos.org
www.AmericanSpineRegistry.org

Primary Symptoms (Check ALL that apply)	
Back Pain ☐	Cauda equina ☐
Leg Pain ☐ Right ☐ Left ☐ Both	Motor weakness ☐ Right ☐ Left ☐ Both
Neurogenic Claudication ☐	

Neural Compression (Check ALL that apply)		
None ☐	Foraminal ☐ Right ☐ Left ☐ Both	
Central ☐	Lateral recess ☐ Right ☐ Left ☐ Both	
Recurrent compression ☐	Far Lateral ☐ Right ☐ Left ☐ Both	

Structural Pathology (Check ALL that apply)		
None ☐	Pseudarthrosis ☐	Kyphosis / Flatback ☐
Disc Herniation ☐	Scoliosis ☐	Fracture ☐
Stenosis ☐	Adjacent Segment ☐	Tumor ☐
Disc space collapse ☐	Spondylolisthesis/Instability ☐	Infection ☐

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	Decompression	Implants	Fusion	Revision Status
L1	Corpectomy ☐	Screw ☐		
L1-L2	Foraminotomy ☐ Laminectomy ☐ Discectomy ☐	Cage ☐ Plate ☐ Other ☐, sp	PLF ☐ TLIF ☐ ALIF ☐ LLIF ☐ Facet/Lamina ☐	Revision Decompression ☐ Revision Instrumentation ☐ Revision Fusion ☐
L2	Corpectomy ☐	Screw ☐		
L2-L3	Foraminotomy ☐ Laminectomy ☐ Discectomy ☐	Cage ☐ Plate ☐ Other ☐, sp	PLF ☐ TLIF ☐ ALIF ☐ LLIF ☐ Facet/Lamina ☐	Revision Decompression ☐ Revision Instrumentation ☐ Revision Fusion ☐
L3	Corpectomy ☐	Screw ☐		
L3-L4	Foraminotomy ☐ Laminectomy ☐ Discectomy ☐	Cage ☐ Plate ☐ Other ☐, sp	PLF ☐ TLIF ☐ ALIF ☐ LLIF ☐ Facet/Lamina ☐	Revision Decompression ☐ Revision Instrumentation ☐ Revision Fusion ☐
L4	Corpectomy ☐	Screw ☐		
L4-L5	Foraminotomy ☐ Laminectomy ☐ Discectomy ☐	Cage ☐ Plate ☐ Other ☐, sp	PLF ☐ TLIF ☐ ALIF ☐ LLIF ☐ Facet/Lamina ☐	Revision Decompression ☐ Revision Instrumentation ☐ Revision Fusion ☐
L5	Corpectomy ☐	Screw ☐		
L5-S1	Foraminotomy ☐ Laminectomy ☐ Discectomy ☐	Cage ☐ Plate ☐ Other ☐, sp	PLF ☐ TLIF ☐ ALIF ☐ LLIF ☐ Facet/Lamina ☐	Revision Decompression ☐ Revision Instrumentation ☐ Revision Fusion ☐
S1	Corpectomy ☐	Screw ☐		
Pelvis	S2AI ☐	Iliac Bolts ☐		Revision Instrumentation ☐ Revision Fusion ☐

Graft Material	Iliac Crest ☐ Cancellous Allograft ☐ BMP ☐	Local autograft ☐ Structural Allograft ☐ Stem cells ☐	Bone Marrow Aspirate ☐ DBM ☐ Other ☐, specify
Neuromonitoring	None ☐ EMG ☐ MEP ☐ SSEP ☐		
Complications	None ☐ Neurologic ☐	Durotomy ☐ Other ☐, specify	Implant-related ☐

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 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*

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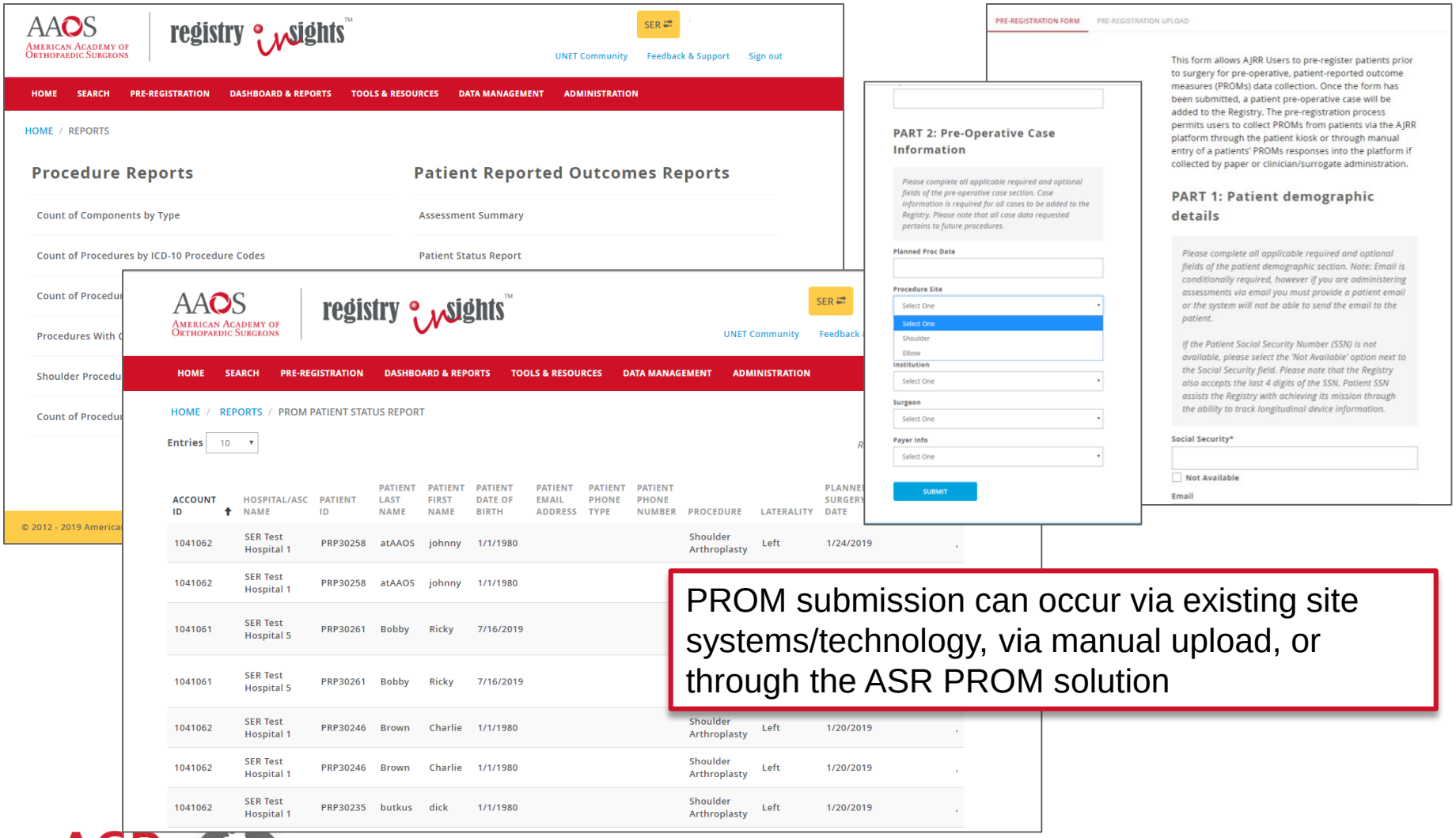
PROM Management



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

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AAOS Registry Program
Authorized Vendor

American Joint Replacement Registry
Shoulder & Elbow Registry

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Simplify Data Collection

- 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
  - 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.

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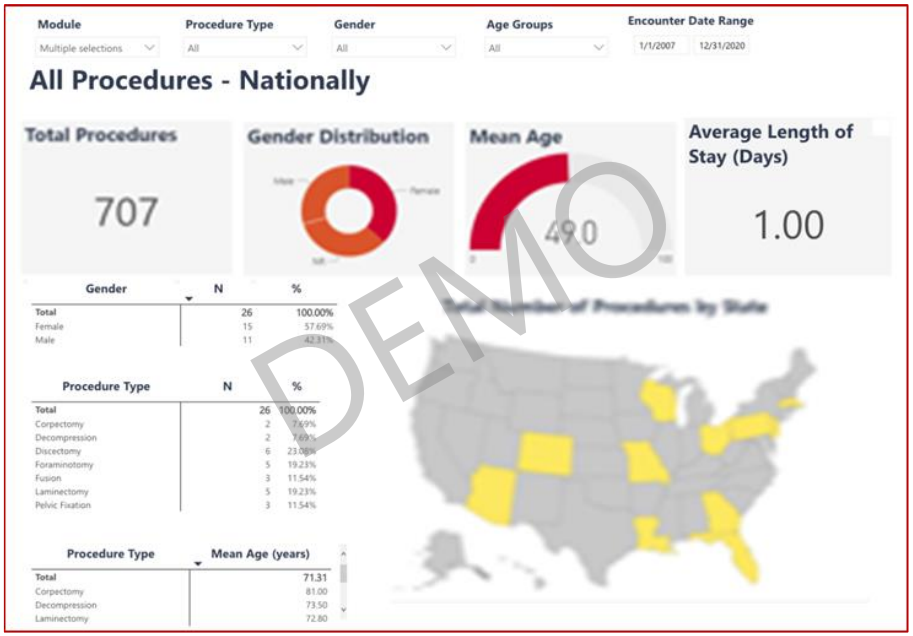
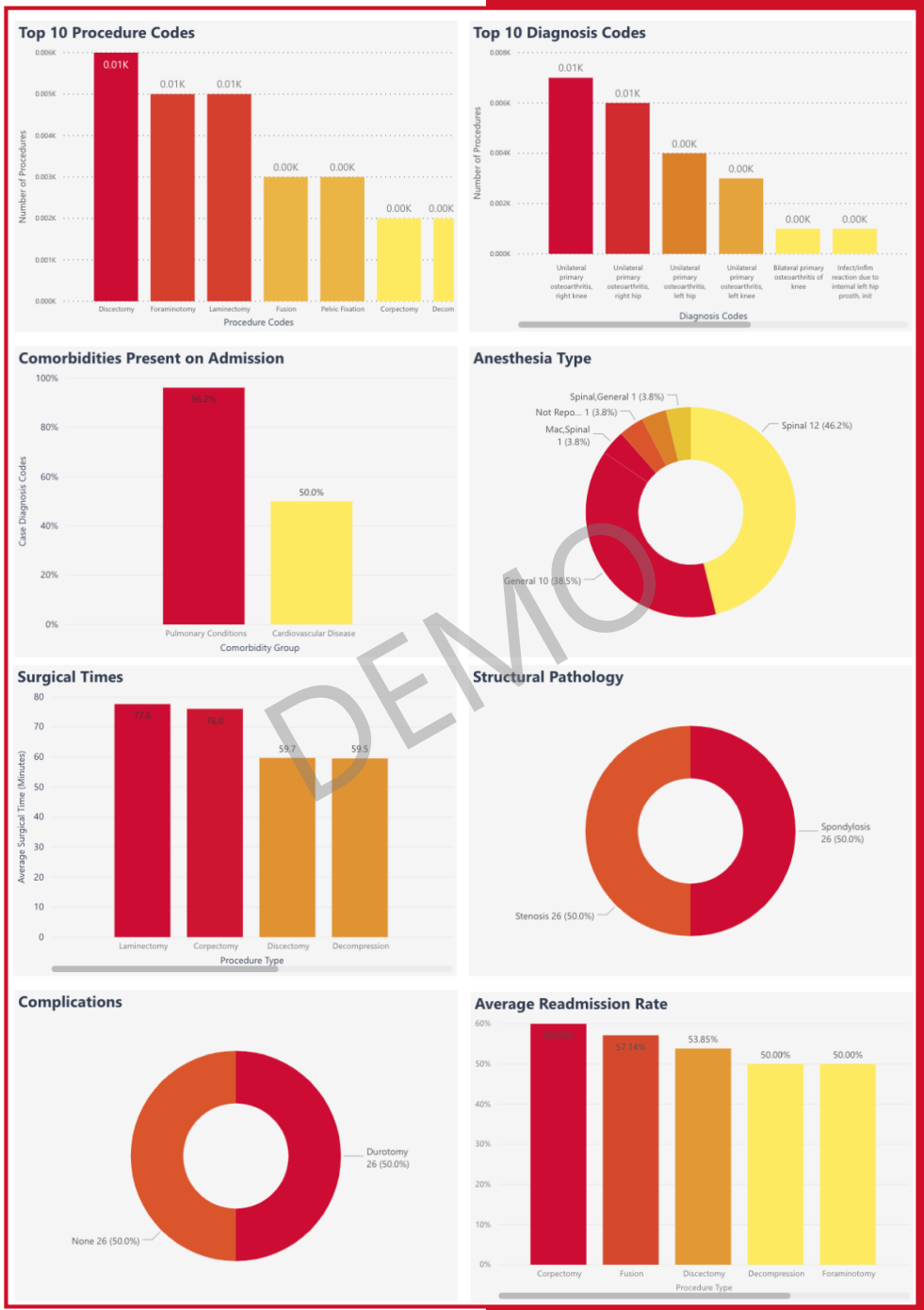
Dashboards

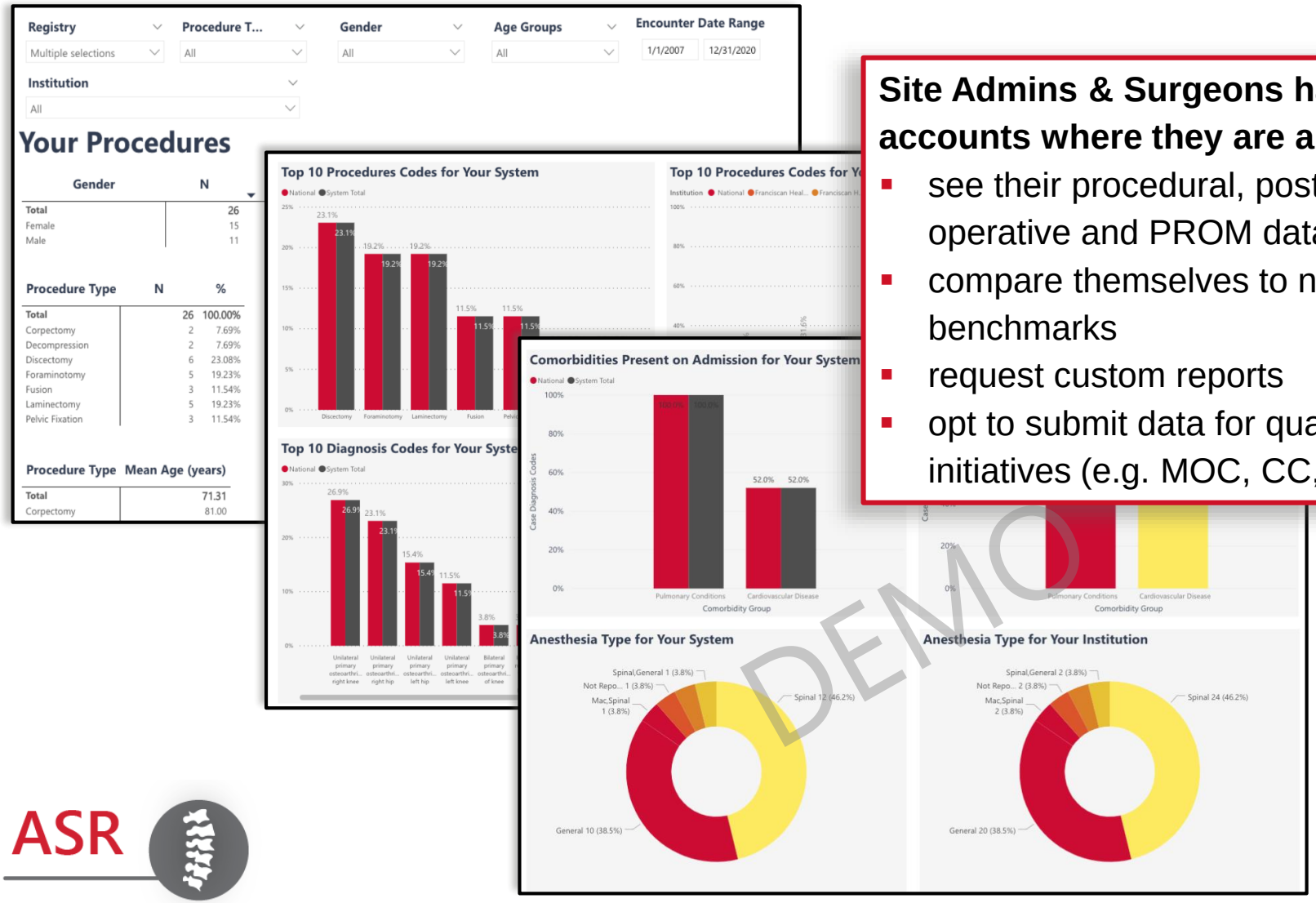
ASR Dashboards display procedural and post-operative data, including patient demographics, top procedure & diagnosis codes, anesthesia type, comorbidities and readmission rate.





DEMO

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, CC, QPP)

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All PROMs

ASR Dashboards will include PROMs data:

- *All PROMs* will display national benchmarks
- *Your PROMs* will display site level PROMs data

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**

ASR

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

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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

Future Opportunities

ASR is a work in progress:

Optimization requires surgeon engagement

- **Encourage broad participation** (former fellows/residents)
- **Provide clinical feedback** (Assess top line data validity)
- **Provide operational feedback** (meshing PROM collection)
- **Consider data re-use opportunities** (State/Local challenges)

ASR

Contact the American Spine Registry

General: Info@AmericanSpineRegistry.org

Technical Support: Support@AmericanSpineRegistry.org

Contracts, Invoicing, & Onboarding: Engagement@AmericanSpineRegistry.org

Custom Analytics: Analytics@AmericanSpineRegistry.org

Phone: (847) 292-0530

Business Hours: Monday through Friday, 8 a.m. to 4 p.m. Central Time

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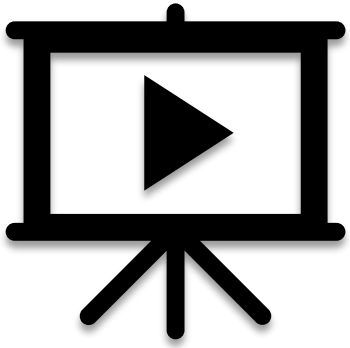
Webinar Recordings



- Recordings and slide decks from past webinars can be found on this page of the AAOS website.
- If you would like to view a recording of a webinar held before October 2020, please visit learn.aaos.org.

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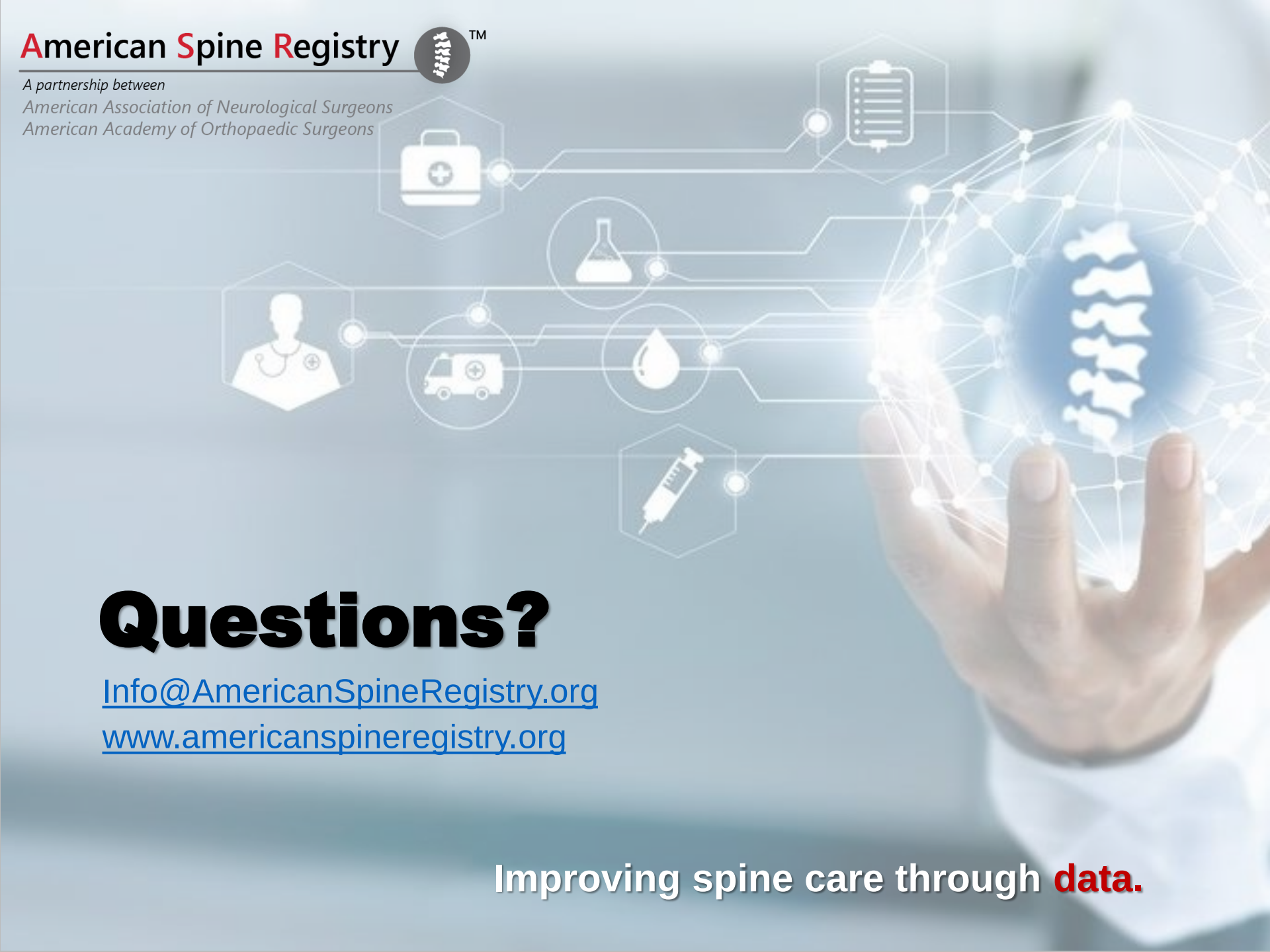

Questions?

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Thank You

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