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## Announcing the QOD Tumor Registry Steering Committee

The NeuroPoint Alliance (NPA) is pleased to announce the inaugural Quality Outcomes Database (QOD) Tumor Registry Steering Committee. The committee is comprised of distinguished leaders representing key neurosurgical organizations.

### 2021-22 QOD REGISTRY STEERING COMMITTEE

E. Antonio Chiocca, MD, PhD, FAANS – Chair  
Mark Shaffrey, MD, FAANS – NPA Data Operations Committee Representative  
Timothy Smith, MD, PhD, FAANS – NPA Data Use Committee Representative  
Randy Jensen, MD, PhD, FAANS – AANS/CNS Tumor Section  
Linda M. Liao, MD, PhD, MBA, FAANS – NREF  
Shawn Hervey-Jumper, MD, FAANS – AANS  
Frederick G. Barker II, MD, FAANS – NPA Board of Directors Liaison  
Carl B. Heilman, MD, FAANS – Tumor Registry Key Opinion Leader

The Steering Committee held its first meeting in June and is responsible for the direction of the registry, including working with NPA governance committees to lead scientific and clinical oversight. The committee is designed to provide exceptional expertise to help guide NPA committees in implementing best practices and lead the way towards on the best solutions. The Steering Committee will also promote growth and expansion.

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The QOD Tumor Registry was launched in April 2021, following a successful 18-month pilot conducted under the direction of the QOD Tumor Registry Working Group. The NPA thanks the QOD Tumor Working Group for its leadership working through the initial scope of the registry and seeing it to launch: Anthony Asher, MD, FAANS; Mohamad Bydon, MD, FAANS; Robert Harbaugh, MD, FAANS; Steve Kalkanis, MD, FAANS; Jack Knightly, MD, FAANS; Debraj Mukherjee, MD, MPH; Yaron Moshel, MD, FAANS; Marie Roguski, MD; and Brad Zacharia, MD, FAANS.

The registry follows patients receiving surgery for intracranial metastases, primary meningeal, high-grade/malignant, low-

grade/benign, pituitary and other intracranial tumors. Patient demographics, ICD-10 and CPT codes, comorbidities, hospital stay, 30-day readmission rates, post-operative complications and recurrent surgery are collected in the registry along with patient-reported outcomes (PROs) measuring cognition impairment, physical function, QALY and cognitive function after surgery.

This registry, built and led by neurosurgeons, is dedicated to developing the clinical insights and outcome science that will best serve neurosurgeons treating patients with intracranial tumors. With the hallmark QOD dedication to long term follow up and patient reported outcomes, the registry seeks deep longitudinal insights through outcomes and research to deliver neurosurgeons insights

they need to deliver optimal patient care.

The QOD Tumor Registry is housed on the REDCap® (Research Electronic Data Capture) platform. Mayo Clinic serves as the Coordinating Center for the QOD Tumor Registry.

To learn more about the QOD Tumor Registry, and to participate, please contact the NPA at [info@neuropoint.org](mailto:info@neuropoint.org) or visit the NPA website ([www.neuropoint.org/registries/qod-tumor-registry](http://www.neuropoint.org/registries/qod-tumor-registry)).

Additionally, for more information on the Tumor Registry and other NPA registries, visit the NPA at booth #960 in the exhibit hall at the upcoming 2021 AANS Annual Scientific Meeting in Orlando, Florida.

## Special Thanks to the QOD Tumor Registry Working Group

## A Discussion: Neurosurgery and the Joint Commission offering of the Advanced Certification in Spine Surgery

**BY** Stefan Rykowski

### CONTRIBUTORS

Erica F. Bisson, MD, FAANS  
Co-chair, ASR Young Surgeons Committee

Michael Patrick Steinmetz, MD, FAANS  
Chair, AANS/CNS Section on Disorders of the Spine and Peripheral Nerves



**Q** *How does an Advanced Certification in Spine Safety (ACSS) benefit spine patients?*

**A** **Dr. Bisson (EB):** The value of a national registry effort includes the ability for national benchmarking, the opportunity to monitor longitudinal patient outcomes, and it provides entry into national quality improvement programs with the ultimate goal of improving the value of care delivered to patients.

**Dr. Steinmetz (MS):** I agree with Dr. Bisson. The ultimate goal is to improve the quality and value of care delivered to your patients.

There are four measures being captured in the American Spine Registry required for the Advanced Certification in Spine Surgery: Surgical site infection rates, new neurological deficits, unplanned return visit to the OR and pre-operative and post-operative patient reported outcomes.

**Q** *How do these measures reflect important components of spine surgery for neurosurgeons?*

**A** **EB:** Important considerations for spine surgeons are providing optimal care for patients. Ideally, tailoring the treatment algorithm to individual patient-specific factors will lead to the best possible outcomes.

**Q** *How do these reflect what a neurosurgeon considers in her or his spine practice?*

**A** **EB:** Three of the four core measures are intended to address specific adverse events following spine surgery. These complications are known to impact short term recovery. The fourth measure includes patient-reported outcomes (PROs), which can inform on functional recovery and quality of life.

**MS:** These measures are designed to reflect everyday practice and are known to impact outcome. Moreover, they may be mitigated. Further, they are collected nationally and permit benchmarking for practices and hospitals vs. other surgical groups.

All neurosurgeons work to reduce surgical site infections, which are often the issues that returns patients to the operating room for an additional surgery. Preventing complications, such as new neurologic deficits, and improved patient outcomes are the definition of quality care.

**Q** *How does neurosurgery's representation in ASR and ACSS measure development benefit neurosurgeons when it comes to the Joint Commission's ACSS?*

**A** **EB:** The ASR's Executive Board and both the Data Operations and Data Use Committees have equal representation from both neurosurgery and orthopedics. These individuals who understand

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the needs of the greater neurosurgical community were selected to define what variables are meaningful in understanding outcomes for our patients. These neurosurgeons also work in partnership with payors (insurance companies) as advocates for both patients and surgeons.

**MS:** The American Spine Registry is the only qualifying registry for submitting measured performance for the Joint Commission's ACSS. Every hospital that wants that certification is going to have to participate in the ASR, which will help ensure the ASR becomes the most comprehensive collection of spine care data in the country. With neurosurgeon leaders having an equal part in leading the registry, neurosurgery is ensuring its place, driving scientific outcome insights and best practices of care for spine patients.

**Q** *What are the benefits (efficiencies) of using ICD-10 codes to trigger inclusion in measure calculations?*

**A EB:** Using code-based triggers allows for more strict inclusion criteria. It will also enable us to compare procedures across specific diagnostic categories.

**MS:** Many registry efforts lack granularity. ICD-10 allows a more granular understanding of diagnoses and this permits a more precise comparison of procedures and pathologies.

**Q** *Why are PROs so important to registries and outcome science?*

**A EB:** The goal for surgical spine patients is to improve function, decrease pain and disability and to improve quality of life. These goals can now be measured through validated PRO measures.

**MS:** In the past, outcome was largely determined by

the surgeon and his or her biased opinion of how the patient was performing and/or reporting pain and disability.

PROs reflect patient perspectives on how they are able to function or how they are experiencing pain, often based on everyday activities. The scores are standardized and validated. This allows for true comparisons to be made on treatment effectiveness.

“ The ultimate goal is to improve the quality and value of care delivered to your patients.

**Q** *Why are they important to include in an advanced certification program?*

**A EB:** As previously stated, complications and/or adverse events are only a small piece of the overall clinical picture. A patient with one of these events may still have an overall excellent outcome, with improvement in function and ability to engage in his or her work and home life, which is the definition of a meaningful recovery.

**Q** *For the PROs, can you comment on the value/importance of the 180-day range – (90 days prior, 90 days post-op) and how this is reflective of clinical practice?*

**A EB:** It is important to establish a baseline value to be able to demonstrate either improvement

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or worsening following intervention. With measures spanning 180 days and the intervention at 90 days, there is a wide enough range of time to assess the effectiveness of the intervention.

**Q** *What is the advantage for neurosurgeons, now and in the future?*

**A EB:** For both patients and surgeons, the advantage of collecting both baseline and follow up PROs is to allow us to do comparative effectiveness and quality improvement studies. With large registry efforts, it also enables us to do predictive analytics, which increases our understanding of which patients are best suited for which surgeries.

**Q** *When it comes to submitting required ACSS performance measures, are there advantages at both levels of participation?*

**A MS:** The four measures selected are central to clinical practice in spine surgery, making them accessible to all spine surgeons – regardless of hospital capacity for extensive follow up. This ensures all neurosurgeon participants can submit the measures required to qualify for advanced certification. The accreditation measures are oriented toward shorter-term outcomes reflecting efforts to ensure patient safety in the OR. It is important to build on this and I think the PROs measure, in particular, sets the stage for that

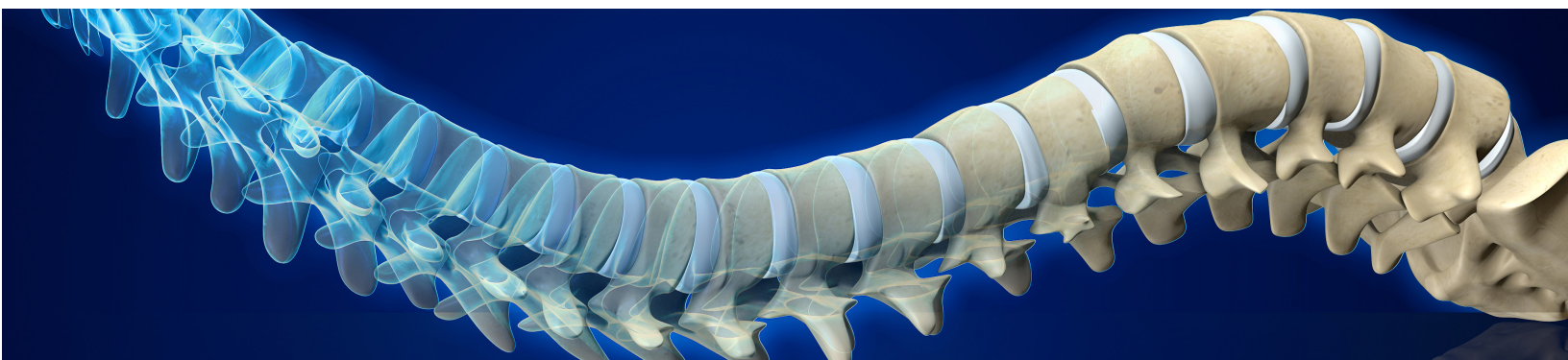
potential. Longer-term follow up and continued patient-reported outcomes are a focus of vanguard participation in the ASR, which provides further benefits to participants.

**Q** *What are some of the lessons neurosurgery learned from QOD Spine that were advantageous for ASR?*

**A EB:** The QOD effort is what enabled neurosurgery to take the next step and refine the strategy in data collection. Specifically, we as a specialty learned our strengths, including the ability to collect PROs longitudinally, and our weakness, which I believe is the ability to define unique diagnostic categories. We have built on these to include longitudinal PROs follow up and a more defined approach to collection of diagnostic and surgical information, which is code based.

**Q** *Any final thoughts you'd like to share?*

**A EB:** The Joint Commission offering of the Advanced Certification in Spine Surgery was built by a collaborative effort between the ASR and the Joint Commission. It is the first joint venture between an accrediting body and a national registry effort and as such sets the stage for the development of future partnerships. These will allow for both neurosurgery and orthopedic spine leaders to have a voice as patient and surgeon advocates.



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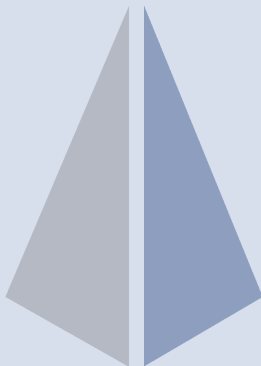
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## Advanced SRS Registry Data Analysis: A Collaboration with the University Medical Center in Hamburg-Eppendorf, Germany

**BY** Michele Anderson, CPHQ

The NeuroPoint Alliance is pleased to announce it has recently entered into an agreement with the department of diagnostic and interventional neuroradiology at the University Medical Center in Hamburg-Eppendorf, Germany, to assess and conduct advanced analysis and research on the AANS Stereotactic Radiosurgery (SRS) registry's extensive image and clinical data repository. The department is directed by Prof. Dr. Jens Fiehler and is the largest of its kind in Germany. Joining Dr. Fiehler on this project is Dr. Helge Kniep; both have written extensively on the subject of radiomics and their development of unique capabilities to conduct machine learning/deep learning analyses of high-end image features to predict patient prognosis and therapeutic response.

Radiomics is an emerging translational research field aiming to extract mineable high-dimensional data from clinical images. Images are unstructured data that can be transcribed into structured data sets and combined with clinical data to use in diagnosis or prognosis. The combination of imaging and clinical data can provide a more powerful prognostic effect than using either of them individually. Machine learning and deep learning help correlate the data and quantify the imaging features intended to enhance insights in clinical practice. The radiomics process can be divided into distinct steps with definable input and output, such as image acquisition and reconstruction, image segmentation, features extraction and qualification, analysis and model building.

The SRS registry's data collection platform, powered by Brainlab, brings image processing and quantification nearer to this level of analysis. Chair of the SRS Registry's Board of Directors Jason P. Sheehan, MD, PhD, FAANS, notes that "the SRS registry, since its inception, has had a neuro-imaging element to it. We are just beginning to fully explore the power of the registry's imaging

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data with advanced analytical tools. Collaborating with the University Medical Center in Hamburg-Eppendorf, Germany allows us to work with a world-class team that has tremendous experience in radiomics.”

The implications of radiomics for patient care are significant. Next-generation registry technologies are shifting to address value-based care and develop patient centric models that enhance physician insights. A recent analysis of aggregate SRS registry data revealed that the largest cohort is patients with brain metastases, and the registry has proven to be a valuable source of data related to patient characteristics and outcomes. Radiomics-based machine learning of MRI studies can be useful to predict the tumor type of brain metastases, and radiomics-based secondary tumor type prediction for patients with brain metastases could be used to reduce diagnostic efforts and may accelerate identification of the primary lesion site. By improving the diagnostic success rate, further progress in radiomics-based prediction of metastatic tumor type may ultimately reduce the number of patients who require invasive brain biopsy. And, although relationships between radiomics and outcomes are usually defined within populations, eventually they can be applied to individual patients.

This unique opportunity leverages the extensive amount of routine imaging data present in the SRS registry. The University Medical Center’s team, working together with the NPA, will assess the ability of using these images to better characterize patients and their diseases, discover helpful correlations and draw inferences from a large data set. The partnership will explore the development of reliable models that can be transferred into clinical practice for the purpose of prognosis, non-invasive disease tracking and evaluation of disease response to treatment.

Additional analyses of SRS registry data include patient quality of life, factors contributing to local failure, lesion-based analyses and conditions related to meningioma and vestibular schwannoma. For more information on becoming a participant in the SRS registry, please contact SRS Project Manager Michele Anderson, CPHQ, at [manderson@neuropoint.org](mailto:manderson@neuropoint.org) or visit us at booth #960 in the exhibit hall at the upcoming 2021 AANS Annual Scientific Meeting in Orlando, Florida.

## PROJECT LEADS



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**Dr. Helge C. Kniep**