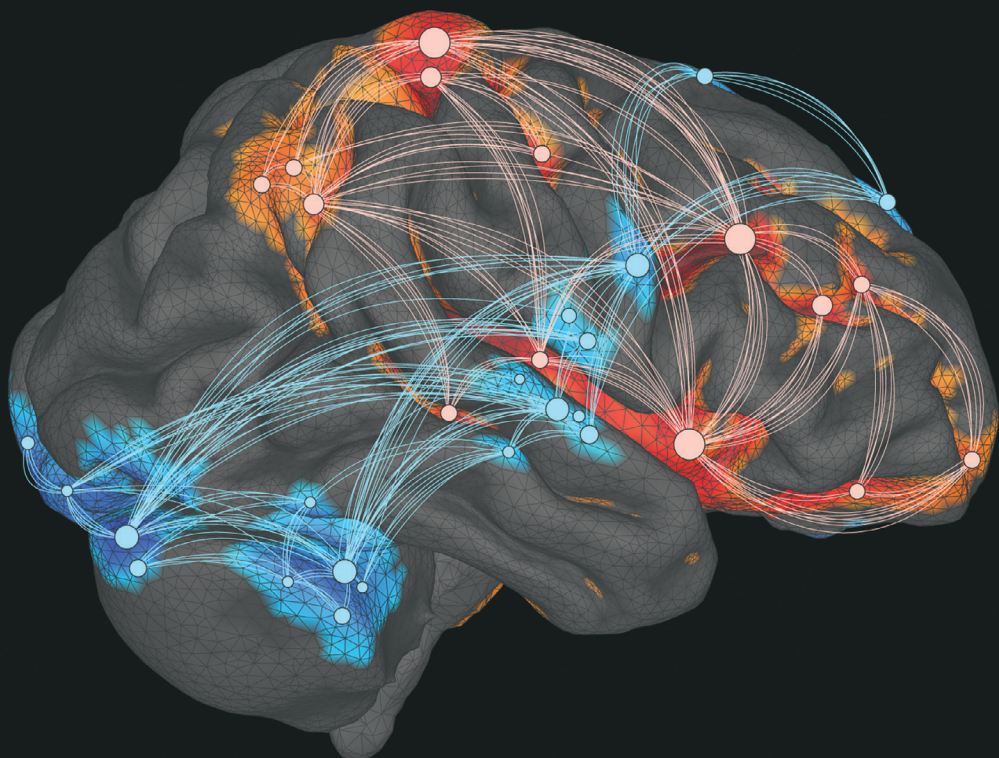


Cleveland Clinic International Epilepsy Summit

# Current and Future Role of SEEG in Epilepsy Surgery

**September 11–15, 2024**

Hilton Cleveland Downtown Hotel, Cleveland, Ohio



# Current and Future Role of SEEG in Epilepsy Surgery

## Overview

Epilepsy is a relatively common neurological disorder that predisposes patients to recurrent seizures. Epilepsy affects approximately 1.2% of the United States population, with about 3.4 million people (both adults and children) having active cases and 5.1 million having a history of epilepsy. Of these patients, up to 30% have medically refractory epilepsy.

Research continues to provide insights into epilepsy pathology, focusing on genetic and molecular mechanisms as well as its cellular and anatomical characteristics. Recent therapeutic developments and the development of cutting-edge imaging modalities have improved the outcomes of management strategies for patients with epilepsy, especially in the area of epilepsy surgery and stereoelectroencephalography (SEEG).

Further, recent research on patients with medically intractable epilepsy due to focal cortical dysplasia (FCD) has led expert consensus groups to update recommendations for the classification of epilepsies, identifying their type and distinctive histopathologic features, which helps individualize management strategies. The most recent publication is the 2022 international consensus document on FCD classification.

The complexity and clinical implications of these innovations challenge both specialists and generalists to stay abreast of the data and interpret their impact on clinical care, which creates gaps in knowledge, competence, and practice among epilepsy practitioners. This, in turn, creates a pressing need for an educational activity focused on providing updates and critical analyses of the most important research into the assessment and treatment of patients with epilepsy.

This Cleveland Clinic International Epilepsy Summit, the focus will be on presenting a comprehensive overview of the latest advancements in epilepsy surgery and SEEG on a global scale and interpreting their potential use in clinical practice. Discussions of the evidence will provide the clinical knowledge to participants, all health care professionals, to help them assess patients with epilepsy, classify their pathologic type, and identify the most optimal management strategies. The overall goal is to improve outcomes of patients with epilepsy on both a medical and surgical level.

## Target Audience

Adult and Pediatric Neurologists, Neurosurgeons, Epilepsy Fellows, Residents in Adult and Pediatric Neurology, Psychologists, Nurse Practitioners, Physician Assistants, Neuroscientists, Molecular Biologists, Pathologists, Pharmacists and Geneticists

## Learning Objectives

After completing this educational activity, participants will be able to do the following:

- Discuss the current state of epilepsy surgery for various epileptic pathologies including focal cortical dysplasia, congenital tumors, and other epileptic brain lesions.
- Critically examine the current state of stereoelectroencephalography (SEEG) in the evaluation and management of drug-resistant focal epilepsies.

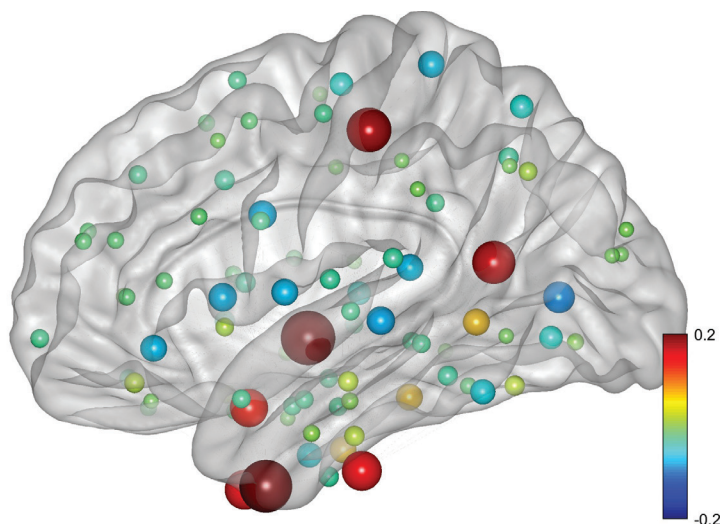
# Current and Future Role of SEEG in Epilepsy Surgery

## Learning Objectives (con't)

- Discuss the future indications of SEEG in the management of drug-resistant epilepsies.
- Analyze the evidence base and describe the practical implications of the 2022 ILAE classification of focal cortical dysplasia on the presurgical evaluation and surgical management of patients with drug-resistant epilepsies.
- Summarize the current evidence on congenital tumor evaluation and surgical treatment in patients with drug-resistant epilepsies.
- Identify the existing challenges for the surgical management of various uncommon focal epilepsies and those with no FCD pathology.
- Provide an overview of recent trends in gene-based therapies, neuroengineering, and use of artificial intelligence and discuss their potential implications for clinical practice.
- Provide an overview of recent trends in anti-seizure medications and discuss their role in the future management of patients with epilepsy

## Call for Abstracts

Residents and fellows are invited to submit abstracts describing epilepsy-related research in the following categories: clinical epileptology; epilepsy surgery; epilepsy imaging; neuropsychiatric aspects of epilepsy; and neuropharmacology. In-person registration fees will be waived for the presenting authors. Abstracts may be submitted to: [clevelandclinic.org/epilepsysummitabstract](https://clevelandclinic.org/epilepsysummitabstract)



## Faculty

### Course Director

**Imad Najm, MD**  
Cleveland Clinic

### Invited Guest Faculty

**Ingmar Blumcke, MD**  
University Hospital  
Erlangen, Germany

**Kees Braun, MD, PhD**  
UMC Utrecht, Netherlands

**György Buzsáki, MD, PhD**  
NYU Langone Health  
New York, New York

**Stephen Chabardes, MD, PhD**  
University of Grenoble  
Grenoble, France

**Dominique Durand, PhD**  
Case Western Reserve University  
Cleveland, Ohio

**Sam El-Osta, MD**  
Monash University  
Melbourne, Australia

**Siby Gopinath, MD, DNB, MNAMS**  
Amrita Hospital, Kochi, India

**Robert Gross, MD, PhD**  
Rutgers Health  
New Brunswick, New Jersey

**Hans Holthausen, MD**  
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Munich, Germany

**George Ibrahim, MD, PhD, FRCSC**  
The Hospital for Sick Children  
Toronto, Canada

**Karim Jerbi, PhD**  
University of Montreal  
Montreal, Canada

**Ammar Kheder, MD, MRCP**  
Helen DeVos Children's Hospital  
Grand Rapids, Michigan

**Katja Kobow, PhD**  
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**Eliseu Paglioli, MD, PhD**  
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University of Texas, Arlington, Texas

**Veronica Pelliccia, MD**  
Niguarda Hospital, Milan, Italy

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Brigham and Womens Hospital  
Boston, Massachusetts

**James Rutka, MD, PhD, FRCSC, FACS, FAANS**  
Hospital for Sick Children  
Toronto, Canada

**Paul Shkurovich, MD**  
ABC Medical Center  
Mexico City, Mexico

**Nitin Tandon, MD**  
UT Health McGovern Medical School, Houston, Texas

**Chong Wong, MD, PhD**  
Westmead Clinical School University of Sydney, Sydney, Australia

**Anastasia Yendiki, PhD**  
Harvard University  
Boston, Massachusetts

**Guoguang Zhao, MD, PhD**  
Xuanwu Hospital, Beijing, China

**Dong Zhou, PhD**  
West China Hospital of Sichuan University, Chengdu City, China

### Cleveland Clinic Planning Committee

**Daria Diakonova-Curtis, PhD**  
**Susan Stanton, PA-C**  
**Ann Warbel, NP**

### Cleveland Clinic Faculty

**Andreas Alexopoulos, MD, MPH**

**Jocelyn Bautista, MD**

**William Bingaman, MD**

**Juan Bulacio, MD**

**Robyn Busch, PhD**

**Patrick Chauvel, MD**

**Katherine Chiprean, DO**

**Jason Chisholm, MD**

**Andrew McEvoy, MBBS, BSc (Hons), MD, FRCS, FRCS (SN)**

**Marina Feldman, PharmD**

**Jessica Fesler, MD**

**Krishna Galla, MD**

**Ajay Gupta, MD**

**Stephen Hantus, MD**

**Stephen Jones, MD, PhD**

**Jean Khoury, MD**

**Prakash Kotagal, MD**

**Balu Krishnan, PhD**

**Deepak Lachhwani, MD**

**Ahsan Moosa Naduvil Valappil, MD**

**Hiroatsu Murakami, MD, PhD**

**Silvia Neme-Mercante, MD**

**Dileep Nair, MD**

**Marksim Parfyonov, MD**

**Elia Pestana-Knight, MD**

**Vineet Punia, MD**

**Richard Rammo, MD**

**Demitre Serletis, MD, PhD**

**Carolyn Tsai, MD**

**Claudia Vallin, DO**

**Irene Wang, PhD**

**Elaine Wyllie, MD**

**Zhong Ying, MD**

## Agenda

### Wednesday, September 11, 2024

- 4:30 p.m. Registration / Exhibits
- 5:30 p.m. Welcome and Introductions – *Imad Najm, MD*
- 5:45 p.m. **Opening Keynote: Pediatric Epilepsy Surgery** – *Elaine Wyllie, MD*
- 6:30 p.m. Adjourn
- 6:30 p.m. Reception (Hilton Hotel, 3rd Floor)

### Thursday, September 12, 2024

- 7:30 a.m. Continental Breakfast / Exhibits

#### Session I: Epilepsy Surgery – Then and Now

*Moderators: Imad Najm & Jason Chisholm*

- 8:00 a.m. Lessons Learned From More Than 100 Years of Epilepsy Surgery  
– *William Bingaman, MD*
- 8:40 a.m. SEEG in the Presurgical Evaluation of Epilepsy: 15 Years of Experience at Cleveland Clinic – *Juan Bulacio, MD*
- 9:20 a.m. Epilepsy Surgery Candidates and Role of Invasive Evaluation  
– *Dang Nguyen, MD, PhD*
- 10:00 a.m. **Break / Exhibits**

#### Session II: SEEG Indications and Results from Around the World

*Moderators: Juan Bulacio & Dong Zhou*

- 10:20 a.m. France – *Louis Maillard, MD, PhD*
- 10:40 a.m. Italy – *Veronica Pelliccia, MD*
- 11:00 a.m. India – *Siby Gopinath, MD*
- 11:20 a.m. Australia – *Chong Wong, MD, PhD*
- 11:40 a.m. China – *Guoguang Zhao, MD*
- 12:00 p.m. Mexico – *Paul Shkurovich, MD*
- 12:20 p.m. **Lunch / Exhibits**

#### Session III: SEEG – The Method

*Moderators: Jessica Fesler & Dileep Nair*

- 1:20 p.m. Principles – *Patrick Chauvel, MD*
- 2:00 p.m. Role of Semiology – *Aileen McGonigal, MBCHB, PhD*
- 2:40 p.m. Role of Multimodal Studies – *Andreas Alexopoulos, MD, MPH*
- 3:20 p.m. **Break / Exhibits**

#### Session IV: SEEG – From Preimplantation Planning to Surgical Resection

*Moderators: Krishna Galla & Deepak Lacchewani*

- 3:40 p.m. Principles of Implantation – *Juan Bulacio, MD*
- 4:20 p.m. Principles of SEEG Analysis – *Ammar Kheder, MD, MRCP*
- 5:00 p.m. How to Use the SEEG Information for Surgical Planning  
– *Demitre Serletis, MD, PhD*
- 5:40 p.m. **Break / Exhibits**
- 6:00 p.m. **Keynote Presentation: Future Role of SEEG in Epilepsy Surgery**  
– *Patrick Chauvel, MD* Introduced by *Andreas Alexopoulos*
- 7:00 p.m. Adjourn

## Agenda

### Friday, September 13, 2024

7:30 a.m. Continental Breakfast / Exhibits

#### Session V: Pediatric Epilepsy Surgery

*Moderators: Ajay Gupta & Prakash Kotagal*

8:00 a.m. SEEG in the Pediatric Population – *Ahsan Moosa Naduvil Valappil, MD*

8:40 a.m. Pediatric Epilepsy Surgery in Eloquent Regions in the Brain  
– *James Rutka, MD, PhD*

9:20 a.m. Is Surgery an Option in Some Epileptic Encephalopathies?  
– *Elia Pestana-Knight, MD*

10:00 a.m. **Break / Exhibits**

#### Session VI: Imaging

*Moderators: Maksim Parfyonov & Irene Wang*

10:20 a.m. Current State of Imaging of the Epilepsies – *Stephen Jones, MD, PhD*

11:00 a.m. MR Fingerprinting and Post-Processing for Epilepsy Surgery Planning  
– *Irene Wang, PhD*

11:40 a.m. Non Invasive Imaging of Brain Fibers and Networks – *Anastasia Yendiki, PhD*

12:20 p.m. **Lunch / Exhibits**

#### Session VII: Presurgical Evaluation and Management of Epileptic Pathologies – Part I

*Moderators: Imad Najm & Carolyn Tsai*

1:20 p.m. The ILAE classification for Focal Cortical Dysplasia – *Ingmar Blumcke, MD*

2:00 p.m. Focal Cortical Dysplasia Type 1 – *Hans Holthausen, MD*

2:40 p.m. Focal Cortical Dysplasia Type 3 – *Andre Palmini, MD, PhD*

3:20 p.m. **Break / Exhibits**

#### Session VIII: Presurgical Evaluation and Management of Suspected FCD Epileptic Pathologies – Part II

*Moderators: Ingmar Blumcke & Zhong Ying*

3:40 p.m. FCD Type 2 – *Imad Najm, MD*

4:20 p.m. mMCD and MOGHE – *Jean Khoury, MD*

5:00 p.m. No FCD on Histopathology – *Kees Braun, MD, PhD*

5:40 p.m. **Break / Exhibits**

6:00 p.m. **Keynote Presentation: Principles of Brain Rhythms and Synchronization: Lessons for Epilepsy** – *Gyorgy Buzsáki, MD, PhD, Introduced by Demitre Serletis*

7:00 p.m. Adjourn

### Saturday, September 14, 2024

7:30 a.m. Continental Breakfast / Exhibits

#### Session IX: SEEG – Presurgical Evaluation and Management of Epileptic Pathologies – Congenital Tumors

*Moderators: Jocelyn Bautista & Stephen Hantus*

8:00 a.m. Epilepsy Considerations in the Management of LEATs  
– *Andreas Alexopoulos, MD, MPH*

8:40 a.m. Pathological Classification – *Angelika Muhlebner, PhD*

9:20 a.m. Proposal for a Layered Approach to the Management of Congenital Tumors in Epilepsy – *Ingmar Blumcke, MD*

10:00 a.m. **Break / Exhibits**



## Agenda

### Session X: Presurgical Evaluation and Management of Other Epileptic Pathologies

*Moderators: Katherine Chiprean & Silvia Neme-Mercante*

10:20 a.m. Insula – Sami Obaid, MD, PhD

10:50 a.m. PMG – Louis Maillard, MD, PhD

11:20 a.m. PVN – Veronica Pelliccia, MD

11:50 a.m. Temporal Encephalocele – Claudia Vallin, DO

12:20 p.m. **Lunch / Exhibits**

### Session XI: Special Surgical Considerations in the Management of FCDs and Tumors

*Moderators: Andrew McEvoy & Hiroatsu Murakami*

1:20 p.m. FCD1 – Nitin Tandon MD

1:40 p.m. FCD2 – Eliseu Paglioli, MD, PhD

2:00 p.m. FCD3 – Stephan Chabardes, MD, PhD

2:20 p.m. MOGHE – Brad Lega, MD

2:40 p.m. Congenital Tumors – Andrew McEvoy, MBBS, BSc (Hons), MD, FRCS, FRCS (SN)

3:00 p.m. Ablative Surgeries: LITT and RFA – Robert Gross, MD, PhD

3:20 p.m. **Break / Exhibits**

### Session XII: Non-Resective Approaches to Epilepsy Surgery

*Moderators: Krishna Galla & Richard Rammo*

3:40 p.m. Stimulation of the Cortex vs Pathways: The Lab Perspective  
– Dominique Durand, PhD

4:10 p.m. RNS – Dileep Nair, MD

4:40 p.m. DBS – John Rolston, MD, PhD

5:10 p.m. VNS – George Ibrahim, MD, PhD

5:40 p.m. Adjourn

## Sunday, September 15, 2024

7:30 a.m. Continental Breakfast / Exhibits

### Session XIII: Emerging Role of Novel Anti-seizure Medications and Genetics in Epilepsy Management

*Moderators: Robyn Busch & Vineet Punia*

8:00 a.m. Current State of Knowledge in Epilepsy – Dennis Lal, PhD

8:30 a.m. Epigenetics in Epilepsy – Katja Kobow, PhD

9:00 a.m. Single Gene Methylation – Sam El-Osta, PhD

9:30 a.m. Towards a More Personalized Treatment with Anti-seizure Medications  
– Marina Feldman, PharmD

10:00 a.m. **Break / Exhibits**

### Session XIV: Signal Processing, Engineering and AI: Trends in Epilepsy

*Moderators: Balu Krishnan & Demitre Serletis*

10:20 a.m. Non-invasive Mapping of Connectivity in Epileptic Network  
– Christos Papadelis, PhD

10:50 a.m. 4-Dimensional Mapping of Epileptic Networks – Balu Krishnan, PhD

11:20 a.m. Neuronal Oscillations and Brain Criticality: Lessons for Epilepsy  
– Karim Jerbi, PhD

11:50 a.m. Epileptiform Dynamics in sEEG: Neuroengineering, AI and the Renaissance in Epilepsy Surgery – Demitre Serletis, MD, PhD

12:20 p.m. **Lunch / Adjourn**

# Current and Future Role of SEEG in Epilepsy Surgery

## General Information

### Location

Hilton Cleveland Downtown  
100 Lakeside Ave E  
Cleveland, OH 44114

### Hotel Accommodations

A block of room has been reserved at the Hilton Cleveland Downtown until August 14, 2024. To make a reservation, contact the Hotel Reservations Department at 216.413.5000, x1 or <https://book.passkey.com/event/50726780/owner/14238363/home>. Please identify yourself as being with the Cleveland Clinic Epilepsy Summit for the special rate of \$259 plus 17.5% tax. The group code is CCECS.

### Registration and Cancellation

Register at [www.ccfcmef.org/epilepsysummit24](http://www.ccfcmef.org/epilepsysummit24). Deadline for registration for the symposium is 5 p.m. (EST), Monday, September 9, 2024. A request for a refund must be received in writing by September 3, 2024. **No refunds will be given after September 3**, but registration is transferable through September 10. A \$50 cancellation fee will be deducted from the refund for all cancellations.

### FEES

CATEGORY	FEE
Physicians	\$750
Residents, Fellows, PhD, Nurses, PAs, APN	\$350
International – Virtual	complimentary

**Fee includes:** registration materials, AM & PM break refreshments, breakfasts and lunches.

### Accreditation

In support of improving patient care, Cleveland Clinic Center for Continuing Education is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

### Credit Designation

**American Medical Association (AMA):** Cleveland Clinic Center for Continuing Education designates this live activity for a maximum of 31.0 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Participants claiming CME credit from this activity may submit the credit hours to the American Osteopathic Association for Category 2 credit.

**American Nurses Credentialing Center (ANCC):** Cleveland Clinic Center for Continuing Education designates this live activity for a maximum of 31.0 ANCC contact hours.

**American Academy of PAs (AAPA):** Cleveland Clinic Center for Continuing Education has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for 31.0 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

For further information about this activity, contact Liz Eaton at Local: 216.445.5431 / Toll Free: 800.223.2273 x55431 / Email: [eatonl3@ccf.org](mailto:eatonl3@ccf.org).



# Current and Future Role of SEEG in Epilepsy Surgery

## General Information (con't)

AAPA CME Criteria. This activity is designated for 30.5 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

### **American Board of Surgery (ABS):**

American Board of Surgery (ABS) MOC

Successful completion of this CME activity enables the learner to earn credit toward the CME requirements of the American Board of Surgery's Continuous Certification program. It is the CME activity provider's responsibility to submit learner completion information to ACCME for the purpose of granting ABS credit.

Credit will be reported within 30 days of claiming credit.

**Certificate of Participation:** A certificate of participation will be provided to other health care professionals for requesting credits in accordance with their professional boards and/or associations.

## Faculty Disclosure

The Cleveland Clinic Center for Continuing Education has implemented a policy to comply with the current Accreditation Council for Continuing Medical Education Standards for Integrity and Independence requiring mitigation of all faculty conflicts of interest. Faculty declaring a relevant financial relationship will be identified in the activity syllabus.

## Americans with Disabilities Act

The Cleveland Clinic Center for Continuing Education fully intends to comply with the legal requirements of the Americans with Disabilities Act. If you need assistance, please notify Liz Eaton at 216.445.5431 at least two weeks prior to the activity.

*Cleveland Clinic Center for Continuing Education reserves the right to cancel or postpone activity in our sole discretion. In the unlikely event that this occurs, any registration fee(s) paid will be refunded. Be advised that Cleveland Clinic is not responsible for related costs including airline tickets, hotel costs, or any similar fee penalties incurred as a result of any trip cancellations or changes*