Leen Alkalbani, MD

Physician-Researcher | Pediatric Epilepsy Genetics and Clinical-Translational Research

Epilepsy Genetics Program, Children's National Hospital, Washington, DC

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Research Interests

Genetic epilepsies and rare neurodevelopmental disorders: time to genetic diagnosis and its effect on treatment and outcomes; genotype–phenotype relationships and natural history; equity in access to epilepsy care; tumor-related epilepsy; population-scale electronic health record (EHR) research.

Education

Doctor of Medicine (MD) 2020

Jordan University of Science and Technology, Irbid, Jordan

Six-year program taught in English. U.S. equivalency: Doctor of Medicine (Educational Credential Evaluators, 2026). Relevant coursework: biostatistics, programming, public health.

Research Experience

Research Scholar, Epilepsy Genetics Program May 2026–present

Children's National Hospital and The George Washington University, Washington, DC

Principal Investigator: John M. Schreiber, MD, FAES, Director, Epilepsy Genetics Program

Genetic disease mechanisms, phenotypes, and treatment in pediatric epilepsy *Multicenter (PERC)*

- Abstracted and organized clinical records for a retrospective Pediatric Epilepsy Research Consortium (PERC) cohort of 560+ children with genetic epilepsy, comparing electroclinical phenotypes, drug resistance, seizure freedom, and medication use across seven genetic disease mechanisms; performed the descriptive analyses and drafted the manuscripts and posters.
- Co-first author of the primary cohort analysis and first author of an SCN1A sub-study (n = 97) examining exposure to sodium channel blockers, which guidelines advise avoiding, and its association with developmental outcomes. Two AES 2026 posters (accepted); two manuscripts in preparation.

ReNU syndrome clinic and natural history research *RNU4-2–related neurodevelopmental disorder*

- Help establish the multidisciplinary ReNU Syndrome Clinic (launching December 11, 2026) and contribute to the protocol for the multicenter ReNU Syndrome Natural History Study.
- Responsible for study data collection: caregiver-reported developmental and communication outcome measures (Developmental Profile 4 [DP-4]; Observer-Reported Communication Ability [ORCA] measure), disability and functional status, and clinical, neuroimaging, and EEG data from medical records. Manuscripts are planned from the cohort.

Registries, databases, and protocols

- Helped develop the IRB-approved Inpatient Genetic Testing Database (REDCap); abstract clinical and genetic data for a planned manuscript series on inpatient neurogenetic testing.
- Study team member: Neurogenetics Registry and Biorepository; ESES and Development in Mowat-Wilson Syndrome. Contributor, Facial Phenotypes for Rare Genetic Disorders protocol (PI: W.-L. Chen).

Research Scholar, Child Neurology and Clinical Neurophysiology 2023–2026

UPMC Children's Hospital of Pittsburgh, Pittsburgh, PA

Principal Investigator: Ira Bergman, MD, PhD, Chief, Division of Child Neurology | Mentor: Ruba Al-Ramadhani, MD, Associate Director, Pediatric Epilepsy Surgery Program, and Program Director, Child Neurology Residency

EEG practices and antiseizure medication discontinuation *Cross-sectional surveys*

- Led two first-author surveys of how clinicians use EEG when discontinuing antiseizure medication: in the United States (129 respondents; *J Child Neurol* 2026) and the Eastern Mediterranean region (73 neurologists and epileptologists; *Epilepsy Res* 2026). Coauthored a multinational analysis of treatment and ketogenic diet access disparities (*Epileptic Disord* 2026).

Pediatric supratentorial low-grade glioma–associated epilepsy *Multicenter; PI: R. Al-Ramadhani*

- Helped develop the standardized 88-variable, seven-domain data dictionary (aligned with NINDS Common Data Elements and the ILAE definition of drug-resistant epilepsy) for a retrospective cohort comparing children with low-grade glioma with versus without epilepsy, and with medically versus surgically managed epilepsy.
- The study integrates neuroradiological features, MRI surveillance, care-escalation intervals (first seizure to epileptologist, EEG, and epilepsy monitoring unit), acute-care use per patient-year, and equity variables (insurance, RUCA rurality) to inform future multicenter care guidelines. First author, REACH Framework position paper (under review) and primary manuscript (in preparation); coauthor, two related AES 2026 posters.

Population-scale EHR epidemiology of pediatric epilepsy (Epic Cosmos) *Ongoing; with D. Lal, PhD*

- Real-world evidence study with Dennis Lal, PhD, and Ruba Al-Ramadhani, MD, using Epic Cosmos, a de-identified EHR dataset covering more than 300 million patients, to characterize epidemiology, care trajectories, and treatment patterns in pediatric epilepsy, with a focus on tumor-related epilepsy.

Pediatric epilepsy surgery outcomes *PI: R. Al-Ramadhani*

- Second author, seizure outcomes of sEEG-guided surgery (*Epilepsy Behav* 2026; CRediT: conceptualization, methodology, investigation, data curation, project administration, supervision); first author, manuscript on seizure localization and MRI findings (in preparation).
- Contributor to a systematic review and meta-analysis of long-term outcomes after surgery for Rasmussen encephalitis and to a conceptual analysis applying surgical decision-making to genetic therapies ("Operating Under Uncertainty," under review); coauthor of six AES 2025 abstracts.

Quantitative EEG for early detection of neurological deterioration *Pediatric critical care; PI: I. Bergman*

- Identified eligible patients; retrieved and reviewed EEG and neuroimaging data; abstracted clinical records; wrote case summaries and reviewed each case with the PI.
- Team study applying statistical and machine-learning models to continuous qEEG trends; preliminary analyses detected trend changes more than five hours before specialist recognition of catastrophic neurological events. Coauthor, two team manuscripts in preparation.

Intraoperative neuromonitoring and postoperative delirium

- Co-first author, study using intraoperative neuromonitoring to predict postoperative delirium after aneurysm clipping (*Eur Neurol* 2025); coauthor of related abstracts on silent brain infarction and stroke imaging (ACNS 2024; SVIN 2023).

PUBLICATIONS

*Name in bold. *Co-first author. Reverse chronological order.*

Peer-Reviewed Journal Articles (6; 2 first author, 1 co-first author)

1. Patel H, **Alkalbani L**, Harford E, Sutcliffe M, Laughlin SF, Vasudevan G, Benjamin N, Speakes M, Schaefer K, Abel T, Fernandez L, Cobb-Pitstick K, Ortolani E, Welch W, Al-Ramadhani R. Seizure outcomes of sEEG-guided surgery for temporal vs. extratemporal epilepsy in children. *Epilepsy & Behavior*. 2026;182:111129. doi:10.1016/j.yebeh.2026.111129
2. **Alkalbani L**, Elkins K, Cobb-Pitstick K, Bhalla S, Welch WP, Al-Ramadhani R. EEG practices and discontinuation of antiseizure medications in pediatric patients in the United States. *Journal of Child Neurology*. 2026;41(6):793–800. doi:10.1177/08830738251389176
3. Shaaban S, Al-Ramadhani R, **Alkalbani L**, Kurdi D, Almasaad B, Tilako A, et al. Challenges in epilepsy management in the Eastern Mediterranean (Part I): Disparities in pharmacological treatment and ketogenic diet access. *Epileptic Disorders*. 2026;28(3):832–845. doi:10.1002/epd2.70225
4. **Alkalbani L**, Benini R, Zamel K, Abulibdeh A, Alkhaldi M, Kishk N, Shaaban S, Muthaffar O, Welch W, Al-Ramadhani R. EEG practices and discontinuation of anti-seizure medications in people with epilepsy: A cross-sectional survey in the Eastern Mediterranean region. *Epilepsy Research*. 2026;222:107765. doi:10.1016/j.eplepsyres.2026.107765
5. Al-Qudah AM*, **Alkalbani L***, Tallapaneni PS, Vinuthna DV, Suresh V, Anetakis KM, Crammond D, Balzer J, Shandal V, Visweswaran S, Subramaniam K, Sadhasivam S, Thirumala P. Predicting postoperative delirium using intraoperative neuromonitoring in patients undergoing craniotomy for aneurysm clipping surgery. *European Neurology*. 2025;88(1):1–10. doi:10.1159/000541593

6. Abu Libdeh A, **Alkalbani L**, Freedman D, Quezada J, Nyp SS. Considerations in the management of functional neurological disorders in patients with hearing loss. *Journal of Developmental & Behavioral Pediatrics*. 2023;44(4):e333–e335. doi:10.1097/DBP.0000000000001170

Manuscripts Under Review

1. **Alkalbani L**, et al. Beyond survival: Hidden disparities in tumor-related epilepsy and the REACH Framework for pediatric low-grade glioma. Position paper. Under review.
2. Operating under uncertainty: Lessons from epilepsy surgery to genetic treatments in epilepsy. Under review (**Alkalbani L**, sixth author).

Manuscripts in Preparation

1. Hooker C*, **Alkalbani L***, et al. Phenotypic and treatment disparities across genetic disease mechanisms in pediatric epilepsy: a cohort study of 560 patients.
2. **Alkalbani L**, et al. Treatment patterns and outcomes in SCN1A-related epilepsy: real-world experience from a pediatric genetic epilepsy cohort.
3. **Alkalbani L**, et al. Variability in longitudinal multidisciplinary care pathways in pediatric supratentorial low-grade glioma–associated epilepsy: a multicenter study.
4. **Alkalbani L**, et al. Surgical outcomes in pediatric drug-resistant epilepsy after stereo-electroencephalography: the role of seizure localization and MRI findings.
5. **Alkalbani L**, et al. Reorganizing child neurology didactics with a four-stage curriculum and protected half-day: resident experience.

Clinical Review Article

1. **Alkalbani L**, Ganesh KD, Rajan DS. Screening of newborns for neurogenetic abnormalities. In: Lewis SL, ed. *MedLink Neurology*. MedLink, LLC; updated May 23, 2025.

Abstracts and Presentations

1. Treatment patterns and outcomes in SCN1A-related epilepsy: real-world experience from a pediatric genetic epilepsy cohort. American Epilepsy Society (AES) Annual Meeting, Denver, CO, December 2026. Poster (accepted); first author.
2. Phenotypic and treatment disparities across genetic disease mechanisms in pediatric epilepsy: a cohort study of 560 patients. AES Annual Meeting, Denver, CO, December 2026. Poster (accepted); co-first author.
3. Seizure outcomes in low-grade glioma–associated epilepsy: surgical resection versus medical management alone. AES Annual Meeting, Denver, CO, December 2026. Poster 2.149 (accepted); coauthor.
4. Epilepsy vs. non-epilepsy in pediatric low-grade glioma: a retrospective comparison of clinical and pathological features. AES Annual Meeting, Denver, CO, December 2026. Poster (accepted); coauthor.
5. EEG practices and discontinuation of anti-seizure medications in epilepsy patients in the Eastern Mediterranean region. AES Annual Meeting, Atlanta, GA, December 2025. Presenting author.
6. Seizure and neuropsychological outcomes of pediatric sEEG-guided epilepsy surgery (six abstracts). AES Annual Meeting, Atlanta, GA, December 2025. Coauthor.
7. Shprintzen-Goldberg syndrome in siblings of consanguineous parents. Child Neurology Society Annual Meeting, Charlotte, NC, October 2025. Poster 195; first author. Published: *Ann Neurol*. 2025;98(Suppl 35). doi:10.1002/ana.78038. Also presented at UPMC Rare Disease Day 2025.
8. EEG practices and discontinuation of anti-seizure medications in pediatric patients in the United States. AES Annual Meeting, Los Angeles, CA, December 2024.
9. Predictive insights into silent brain infarction and postoperative delirium among patients undergoing cardiac surgery with continuous intraoperative neurophysiologic monitoring: a case series. American Clinical Neurophysiology Society Annual Meeting, Orlando, FL, February–March 2024. Coauthor.
10. Imaging findings of stroke following treatment of ruptured cerebral aneurysm increases risk of postoperative delirium. Society of Vascular and Interventional Neurology Annual Meeting, Miami Beach, FL, November 2023. Coauthor. Published: *Stroke Vasc Interv Neurol*. 2023;3(Suppl 2). doi:10.1161/SVIN.03.suppl_2.254
11. Acute motor axonal neuropathy in association with IgM antibodies against NS6S. American Neurological Association Annual Meeting, Philadelphia, PA, September 2023.

Honors and Awards

Award for Contributions to Improving Medical Education, Minister of Higher Education (Syria) and Atlantic Humanitarian Relief 2026

Outstanding Service Award, Atlantic Humanitarian Relief 2022

Volunteer of the Year, Children's Health Charity Council "Atfaluna," Jordan 2021

Research Skills

Study design and data standards: multicenter retrospective cohorts; cross-sectional surveys; standardized data dictionaries aligned with NINDS Common Data Elements; care-escalation, health-care utilization, and equity variables (insurance, rurality); systematic review and meta-analysis (contributor).

Phenotyping and outcome measures: deep clinical phenotyping and genotype–phenotype data curation; Human Phenotype Ontology coding; caregiver-reported outcome measures (DP-4, ORCA); rare-disease natural history studies, registries, and biorepositories.

Neurophysiology and imaging data: clinical research with EEG, quantitative EEG, stereo-EEG, intraoperative neuromonitoring, and neuroimaging data.

Data systems and research operations: REDCap database design and management; Epic and Cerner EHR abstraction; IRB protocols and modifications; multicenter coordination; scientific writing; peer review.

Teaching and Invited Talks

Invited Speaker, "Step Into Research," SRCP Club, Jordan University of Science and Technology May 2026

Research-Methodology Workshop Coordinator, International Federation of Medical Students' Associations (IFMSA), Jordan 2015–2017

Professional Service

Conference Co-Chair and Organizer, AHR International Conference on Innovation in Healthcare and Scientific Research, Damascus, Syria September 2026

33 hands-on workshops; 700 workshop attendees.

Ad Hoc Peer Reviewer (7+ manuscripts): *Frontiers in Neurology*; *Seizure: European Journal of Epilepsy*; *JAPA Academy Journal* Ongoing

Clinical Experience

Epilepsy Genetics Clinic (twice weekly), Children's National Hospital, Washington, DC 2026–present
Clinical Observer, UPMC Children's Hospital of Pittsburgh, Pittsburgh, PA 2024–2025
General Physician, Abdulhadi Hospital, Jordan 2022–2023
Observership, Child Neurology, University of Virginia, Charlottesville, VA Nov–Dec 2021
Rotating Intern, Istishari Hospital, Jordan 2020–2021
Visiting Student, Eastern Virginia Medical School / Children's Hospital of The King's Daughters, Norfolk, VA Feb–Mar 2020

Leadership and Global Health

Atlantic Humanitarian Relief (AHR), Jordan 2015–present

- **Education, Research, and Psychology Team Leader** (2024–present): founded a division integrating mental-health services and evidence-based education into medical missions.
- **Medical Team Leader** (2022–2024): directed mission teams and triage; earlier, volunteer and translator.

Clinical Volunteer, Children's Health Charity Council "Atfaluna," Jordan 2019–present

Research Exchange Officer, International Federation of Medical Students' Associations (IFMSA) 2015–2017

Memberships and Languages

Memberships: American Epilepsy Society; International League Against Epilepsy; American Academy of Neurology; Child Neurology Society.

Languages: Arabic (native); English (fluent; medical education in English); French (intermediate, CEFR B1).

References

John M. Schreiber, MD, FAES
Director, Epilepsy Genetics Program, Children's National Hospital
Professor of Neurology and Pediatrics, The George Washington University

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Chief, Division of Child Neurology, UPMC Children's Hospital of Pittsburgh
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