

# Diffusion MRI Methods to Minimize Postoperative Deficits in Pediatric Epilepsy Surgery

NCT04986683

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Status	RECRUITING
Phase	Not Applicable
Sponsor	Wayne State University
Enrollment	60 participants

## Key Eligibility Criteria

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### Inclusion (3)

- Subjects with drug-resistant focal epilepsy
- \. Age 3-19 years. 2. Planned two-stage epilepsy surgery with subdural electrodes.
- Healthy control subjects 1. Age 5-19 years. 2. No cognitive, motor, and/or language impairment or clinical elevations on a measure of behavioral problems. 3. Brain MRI interpreted as normal.

### Exclusion (2)

- For all subjects:
- \. History of prematurity or perinatal hypoxic-ischemic event. 2. Hemiplegia on preoperative neurological examination by pediatric neurologists. 3. Dysmorphic features suggestive of a clinical syndrome. 4. Diagnosis of any pervasive developmental or psychiatric condition which clearly predates the onset of seizures, including autism spectrum disorder, tic disorders, obsessive-compulsive disorder. 5. MRI abnormalities showing massive brain malformation and other extensive lesions that likely destroyed the contralateral tracts and severely affected i) spatial normalization accuracy in advanced normalization tools (ANTs), mutual information (MI) between native T1- MRI of Geodesic SyN transform and template T1-MRI  $\leq$  mean-3\*standard deviation of MI in the healthy control group and ii) parcellation accuracy in surface-matching-based deformable registration, target registration error (TRE) of fine tetrahedra mesh between native T1- MRI brain surface and template T1-MRI brain surface  $\geq$  mean-3\*standard deviation of TRE in the healthy control group. 6. History of claustrophobia. 7. Unsuccessful MRI showing head motion  $\geq$  2 mm in DWMRI (i.e., voxel size of DWMRI) which is evaluated by NIH TORTOISE DWMRI motion artifact correction package. 8. Subject who cannot speak English.

## Locations (1 total)

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Wayne State University/Children's Hospital of Michigan, Detroit, Michigan, United States

<https://clinicaltrials.gov/study/NCT04986683>

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