

# RACIAL AND ETHNIC DISPARITIES IN PEDIATRIC EPILEPSY SURGERY

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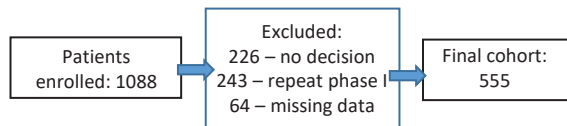
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## RATIONALE

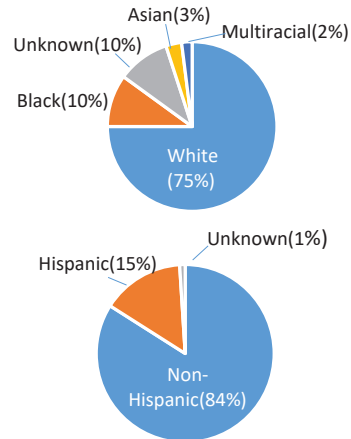
- Racial and ethnic disparities are pervasive in the US and contribute to poorer health outcomes in non-whites.
- These disparities are reported in pediatric epilepsy surgery<sup>1-2</sup> with data derived from inpatient care databases.
- Limited data exists to determine where in the surgical evaluation disparities occur (i.e. referral, testing, offering surgery, or decision making).

## METHODS

- The PERC Epilepsy Surgery project is a prospective cross-sectional study collecting common data on all children referred for surgery at over 20 US pediatric epilepsy centers.
- Inclusion criteria: age 0-18y presenting for initial surgical evaluation with final surgical decision rendered
- Demographics, diagnostic utilization, and surgical outcome compared by race (white vs non-white) and ethnicity (Hispanic vs not) controlling for age of onset, insurance type, MRI result, and neurological exam.
- Results were analyzed for the entire cohort then compared by region (South, Northeast, Midwest, and West).



## Patient characteristics



Insurance	
Private	303 (55%)
Public	243 (44%)
Self-Pay	7 (1%)
Mean age seizure onset	5.2 years (SD 4.81)
Mean age at surgery referral	9.9 years (SD 5.35)
Lesional MRI	420 (76%)
Abnormal neurological exam	401 (50%)
Ancillary Tests	
PET	291 (52%)
SPECT	102 (18%)
MEG	97 (18%)
fMRI	155 (28%)
Offered Surgical Therapy	457 (82%)
Surgery completed	312 (68%)

## National Trends By Race and Ethnicity

- Non-whites had 2.66 [95% C.I = .24, .60] greater odds to receive fMRI.
- Older age of onset predicted more tests used in evaluation.
- Controlling for age of onset, neither race nor ethnicity predicted total tests.
- Race and ethnicity were not associated with the decision to offer epilepsy surgery; however, non-whites were 3.72 [95% C.I = .08, .86] times more likely to personally decline epilepsy surgery.
- Of those that did not have surgery, 77% of black patients (n=9), 31% of white (n=55), and 45% of other (n=11) personally declined.

References: 1. Fernandez IS, et al. J Neuro 2017;264: 1735-45.2. Pestana-Knight E, et al. Epilepsia 2015;56:375-81.

## RESULTS

### Regional Trends By Race

- White patients were 2.9 times more likely to get PET in the Northeast (b=1.07 (SE=.49), Wald  $\chi^2=4.7$ , p=0.03) and 5.5 times in the West (b=-1.71 (SE=.71),  $\chi^2=5.78$ , p=0.02).
- Non-whites were 5.4 times more likely to get fMRI in Midwest (b=1.69 (SE=.4),  $\chi^2=18.2$ , p<0.001).
- Whites in the South underwent more total tests than in the West (b= -.67 (SE=.2), t=3.44, p=.001, R<sup>2</sup>=.02) and Midwest (b=.35 (SE=.14), t=2.56, p=0.01, R<sup>2</sup>=.01).
- There were no regional differences by race for offering surgery, completing surgery, or reason surgery was declined.

## CONCLUSIONS

- Within the entire cohort, we found limited disparities in use of diagnostic testing for children referred for evaluation.
- However, regional and inter-regional differences influenced by race exist in the methods of evaluation.
- While race and ethnicity did not influence decision to offer epilepsy surgery, non-whites were more likely to decline surgery.
- Patients included in this study were referred for surgery, therefore we cannot report on inequalities in access to surgical referral.
- Further research should focus on reasons non-white patients decline surgical therapy.