



Dravet Syndrome Hospital Utilization and Costs: An Electronic Record Single-Center Cohort Study

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Introduction

- Background:** Dravet Syndrome (DS) is a rare, devastating epileptic encephalopathy for which there are no currently approved treatments in the United States. DS is marked by frequent and multiple seizures.
- Objective:** To estimate the DS health care resource utilization and corresponding costs as compared to a mild form of epilepsy using a single center cohort study.

Methods

- A population of clinically confirmed DS patients from Children's Hospital Colorado (CHC) with at least one year of active retrospective follow-up in the electronic medical record formed the DS cohort.
- A comparator arm, matched 1:1 by age and gender, included a mild form of epilepsy: childhood absence epilepsy (ICD-9: 345.00 to 345.01, ICD-10: G40.A01, G40.A09, G40.A11, and G40.A19) without DS.
- The most recent year of data since electronic medical record enactment (2010) was captured.
- Patient-level counts were recorded and summarized for the DS and comparator arm including: emergency department (ED) visits, hospital admissions to CHC, and outpatient visits, including labs, diagnostics, and pharmacy prescriptions. CHC's cost-to-charge ratio alongside recorded charges were used to approximate costs.
- Wilcoxon Rank Sum tests were used for average statistical cohort comparisons due to the skewness in measures.

Conclusions

- The evidence suggests DS patients have significantly higher emergency department visits, hospitalizations, inpatient time spent, outpatient visits, procedures, prescriptions and direct costs compared to a mild epilepsy matched comparator group.
- These emerging single-center findings represent only a portion of the overall healthcare resource utilization and costs DS patients, families, and payers face.
- Utilization rates and costs outside of CHC along with the costs of CHC prescriptions were not captured in this study.
- Future DS studies should evaluate:
 - direct cost components using insurance databases to capture all direct medical and pharmacy costs
 - measures of indirect caregiver burden.

Results

Table 1. Study characteristics *Chi-squared P-value < 0.05

	Dravet Cohort (n=79)	Childhood Absence Epilepsy Cohort (n=79)
Sex		
Female	51%	52%
Male	49%	48%
Age (years)		
Mean	8.77	8.85
S.D.	5.37	5.25
Insurance*		
Private	42%	59%
Public	56%	33%
Other (including CHP+)	2%	8%
Location*		
Denver Metro, CO	42%	58%
Colorado Springs, CO	20%	10%
Colorado, Other	22%	25%
Outside Colorado	16%	7%

Figure 1a. Annual Inpatient Utilization Rates (per person year)

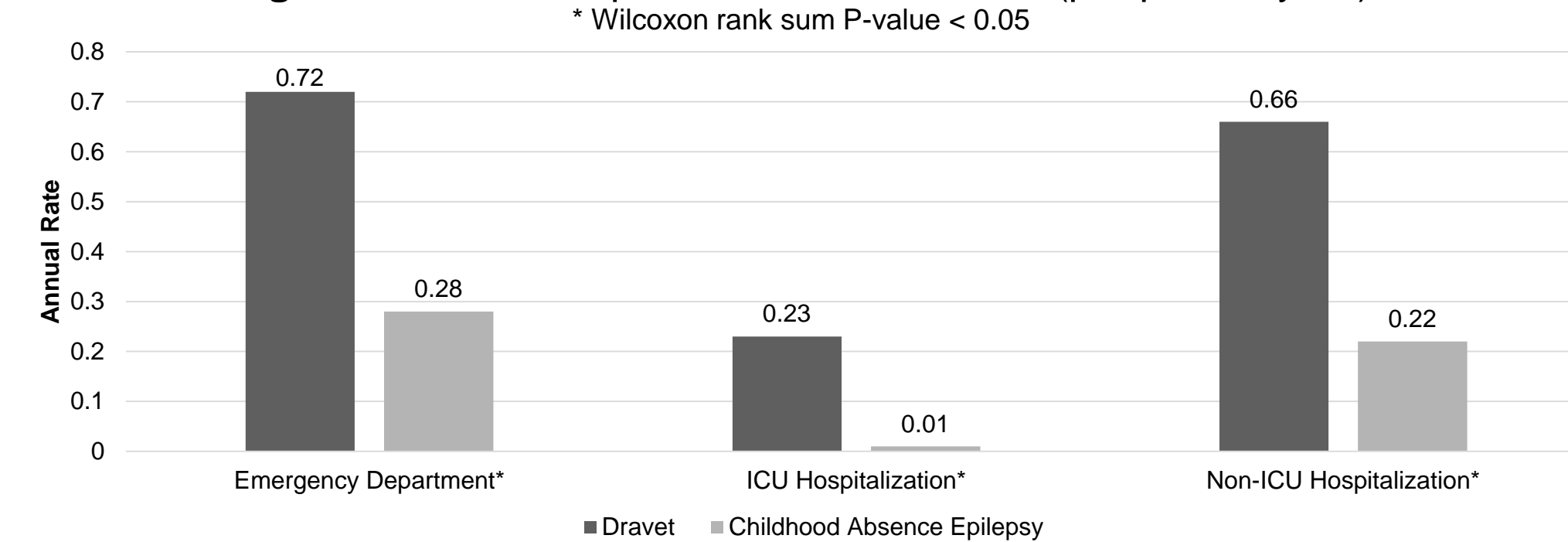


Figure 1b. Annual Inpatient Time Spent (per person year)

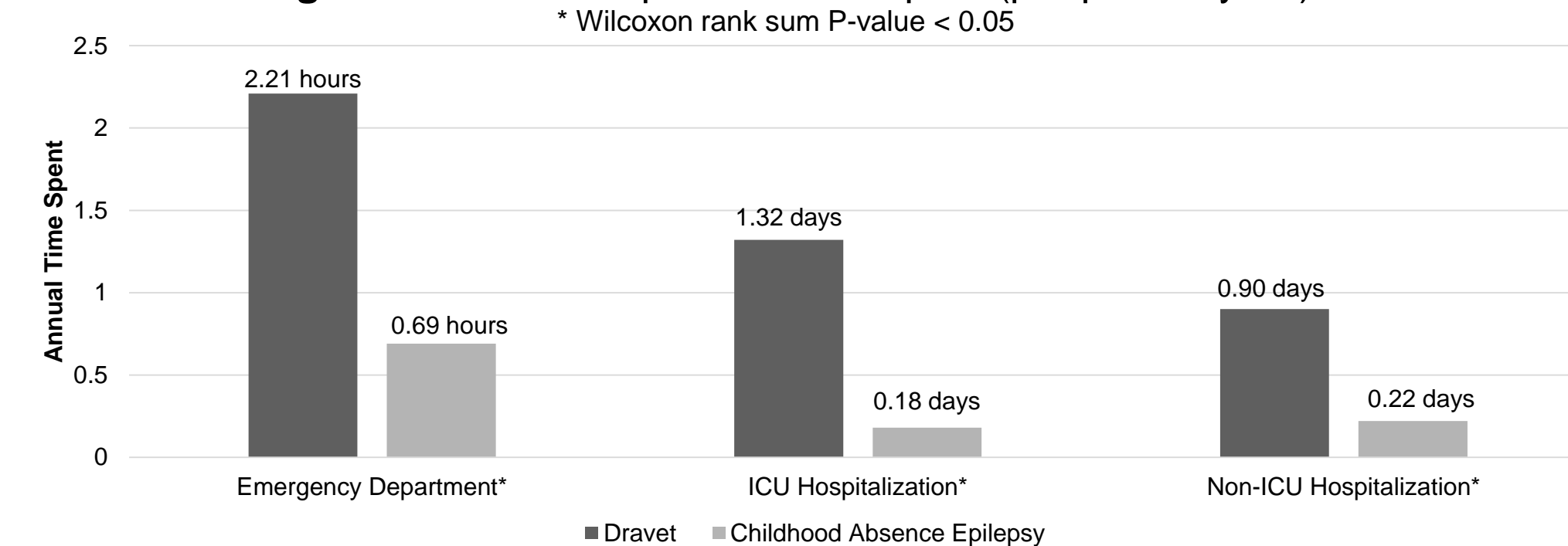


Figure 1c. Annual Outpatient Utilization Rates (per person year)

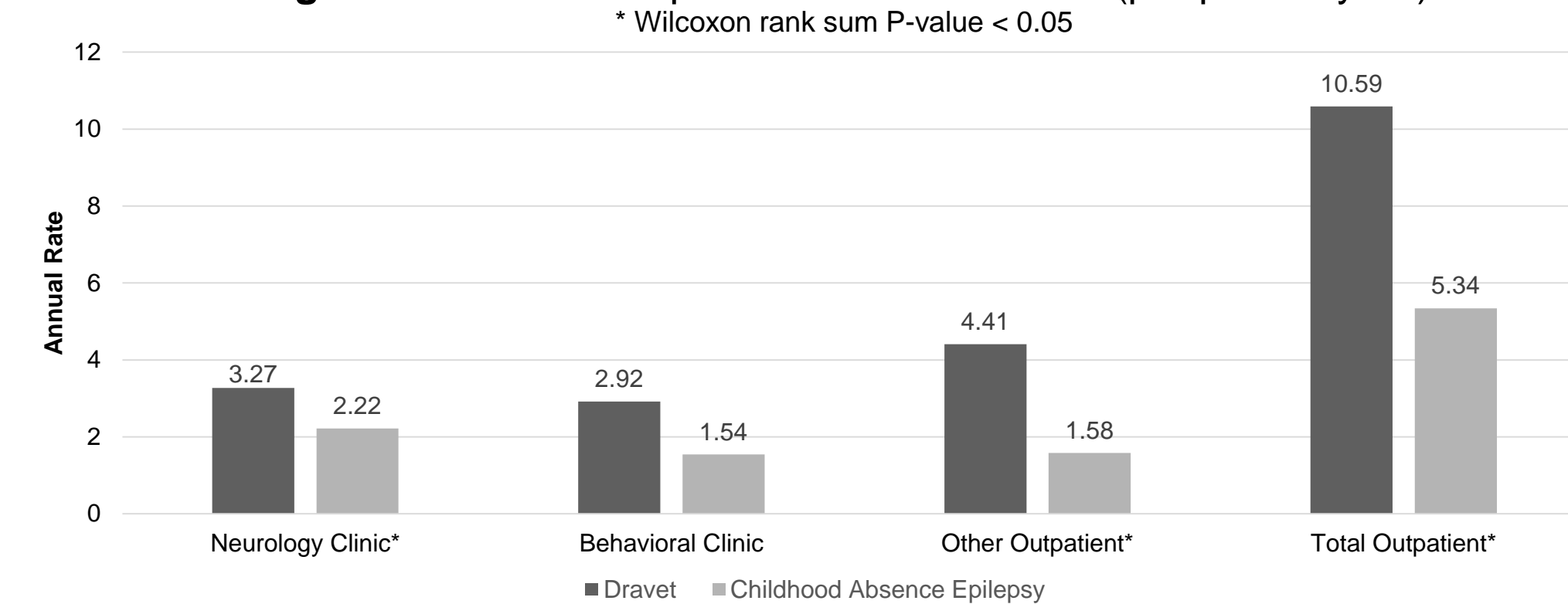
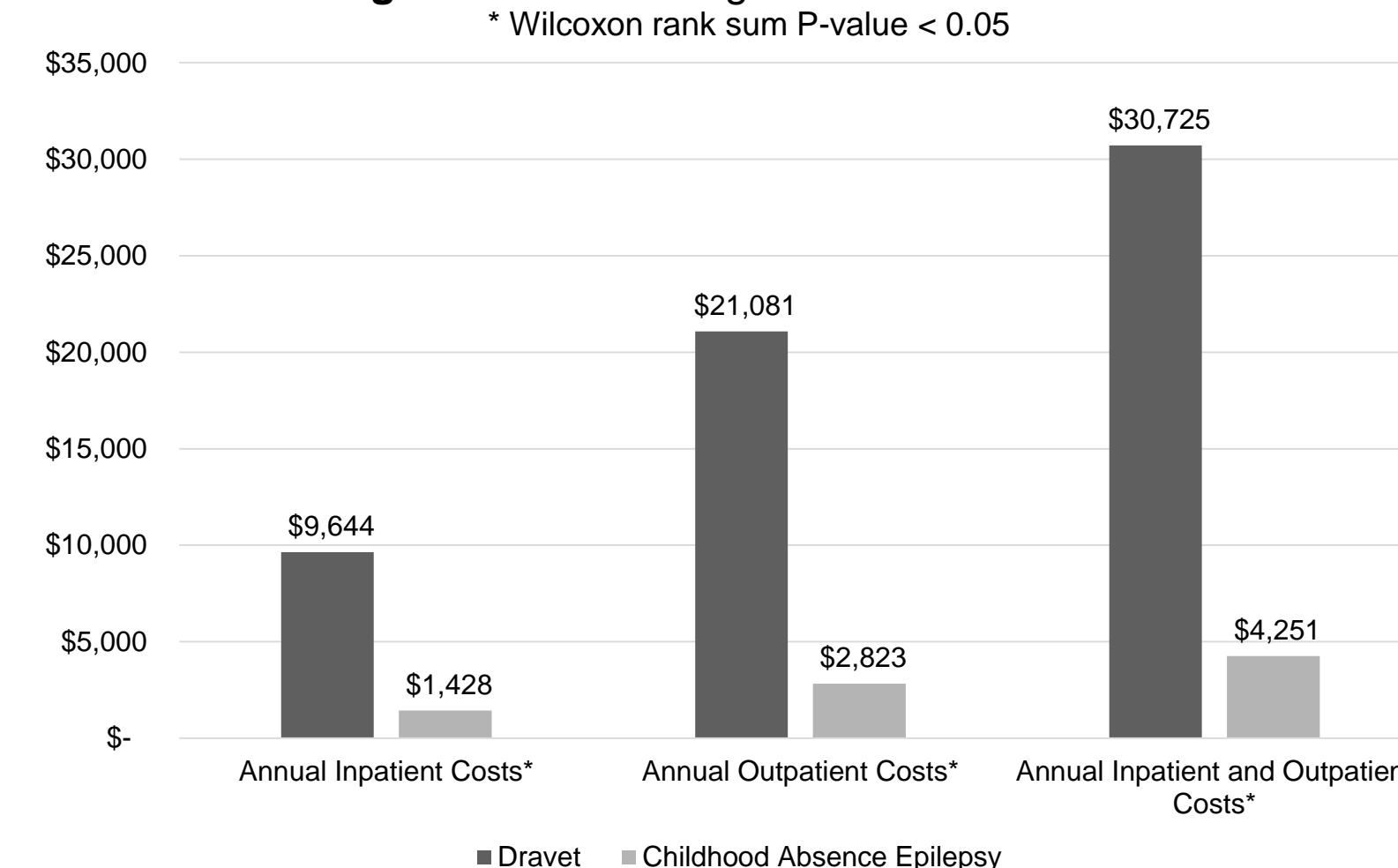


Figure 2. Annual Single-Center Direct Costs



Key Findings

Dravet cohort on average had:

- Approximately 7-fold higher Costs
- Nearly monthly outpatient visits
- Longer ICU (>1 day), non-ICU, and ED time spent
- Over 4 times the number of prescriptions

Figure 1d. Annual Procedure Utilization Rates

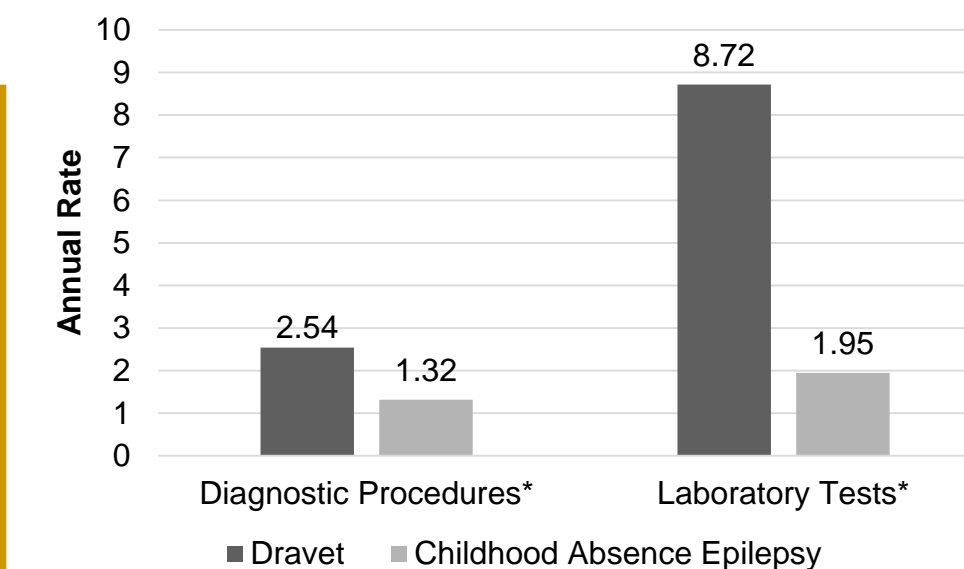


Figure 1e. Dravet Cohort Annual Prescriptions (32 on average, per patient year)

