Unveiling the Impact: Economic and Resource Utilization Analysis of Drug-Resistant Epilepsy Patients in the US

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Background

- Drug-resistant epilepsy (DRE), also referred to as intractable epilepsy, is a neurological condition in which patients continue to experience uncontrolled seizures despite trials of at least two anti-seizure medications (ASMs), as defined by the International League Against Epilepsy (ILAE).[1]
- Approximately 33% of epilepsy patients are affected by this condition, which is associated with significant risks, including neurocognitive impairment and increased mortality . Consequently, it contributes to high healthcare resource utilization (HCRU) and elevated costs.

Objective

This study aimed to assess the economic burden and healthcare resource utilization associated with DRE in the US.

Methodology

Figure 1. Study Design

- Optum® de-identified Market Clarity database was utilized to identify patients with DRE. During the treatment initiation phase, patients who had received at least two distinct ASMs, consistent with the ILAE definition of DRE, along with corresponding NDC and HCPCS codes.

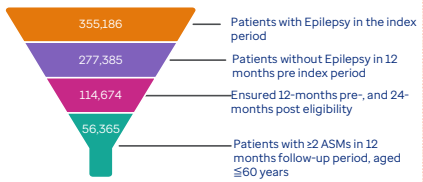

Figure 2. Patient Selection

- The study period was from January 1, 2016, to June 30, 2024.
- The index date was the date of the first diagnosis of epilepsy between January 1, 2017, and June 30, 2022 (**Figure 1**).
- Patients were included if they had continuous enrollment for at least 12 months prior to the index date and a minimum of 24 months after the index date.
- This post-index period comprised a 12-month treatment initiation phase followed by a 12-month outcomes evaluation period.
- Patients diagnosed with epilepsy in the baseline period who did not receive at least two distinct ASMs during the treatment initiation phase were excluded from the analysis.

Results

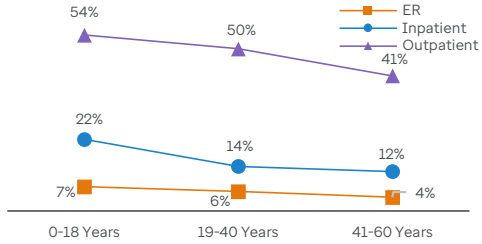

Figure 3. HCRU by Age Groups and Visit Type

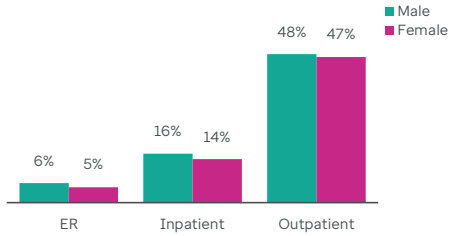

Figure 4. HCRU by Gender and Visit Type

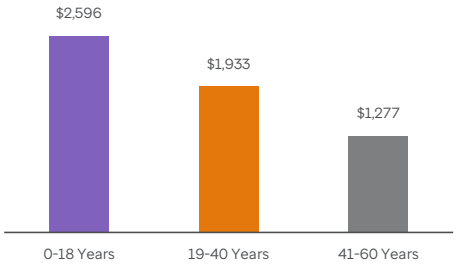

Figure 5. Average PPPM Costs by Age Groups

PPPM: Per-patient-per-month

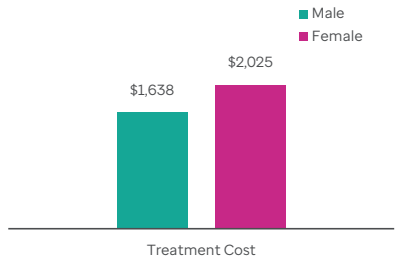

Figure 6. Average PPPM Costs by Gender

PPPM: Per-patient-per-month

- Overall, 56,365 patients were included in the study (**Figure 2**); 54% were female.
- Healthcare visits were highest among younger patients (0-18 years), with outpatient visits being the most common type across all age groups (**Figure 3**).
- When analyzed by gender, outpatient visits were most frequent (>47%), followed by inpatient (>14%) and ER visits (>5%). Both genders showed similar patterns for ER (males 6%, females 5%), inpatient (males 16%, females 14%), and outpatient visits (males 47%, females 48%) (**Figure 4**).
- The average DRE-specific per-patient-per-month (PPPM) cost exhibited a declining trend from $2,596 in the 0-18 years age group to $1,277 in the 41-60 years age group ($p < 0.0001$; **Figure 5**). High costs in the 0-18 years age group could be attributed to intensive diagnosis and frequent follow-ups.
- Females incurred relatively higher treatment-related PPPM costs, averaging $2,025 compared to $1,638 for males (**Figure 6**).

Conclusions

The study demonstrated the trends in HCRU and treatment costs among patients with DRE. The outpatient department was the most visited healthcare facility across all age groups. Treatment costs were found to be inversely proportional to patient age, with elderly patients incurring the least treatment costs across all age groups.

References: 1. Scheffer, I, et al. "ILAE classification of the epilepsies: Position paper of the ILAE Commission for Classification and Terminology." Epilepsia 58.4 (2017): 512-521; 2. Zhang, et al. Epilepsy and brain health: a large prospective cohort study. J Transl Med 22, 1172 (2024).

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