

Healthcare Resource Utilization and Costs With the Introduction of Intranasal Midazolam in Acute Seizure Management: A Wisconsin-Based Claims Analysis

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Background

- Midazolam (MDZ) nasal spray was approved in the United States in 2019 for acute (on-demand) treatment of intermittent, stereotypic episodes of frequent seizure activity (ie, seizure clusters, acute repetitive seizures).
- The MDZ nasal spray approval allows for non-hospital management of acute seizures and potential reduced healthcare resource utilization (HCRU).

Objective

- To assess demographics at baseline and comorbidities, treatment patterns, HCRU, and healthcare costs of patients with epilepsy in Wisconsin prior to and following MDZ nasal spray prescription.

Methods

- This study was a non-interventional, retrospective, claims-based cohort analysis using the Wisconsin Health Information Organization (WHIO) All-Payer Claims Database, which includes inpatient and outpatient care, radiology, pharmacy, and laboratory services.
- The index date was the first date on which all inclusion criteria were met: patients had to be ≥ 12 years of age at first MDZ nasal spray prescription and had to have ≥ 1 prescription claim for MDZ nasal spray in the identification period (Dec 01, 2019–Jun 30, 2020), continuous medical and pharmacy enrollment for 1 year prior to the index date (baseline period), and an epilepsy diagnosis (*International Classification of Diseases, 10th Revision*: G40.X, R56.X, G25.3) and ≥ 1 prescription claim for a chronic antiseizure medication during the baseline or identification period.
- Patient follow-up started on the index date and ended at the end of continuous enrollment, 365 days post-index date, or at data cut-off (Jun 30, 2021), whichever was earliest.
- All variables were summarized using descriptive statistics.

Results

- During the identification period, 132 patients had filled ≥ 1 prescription for MDZ nasal spray; 109 of these fulfilled all inclusion criteria and were included in this analysis.

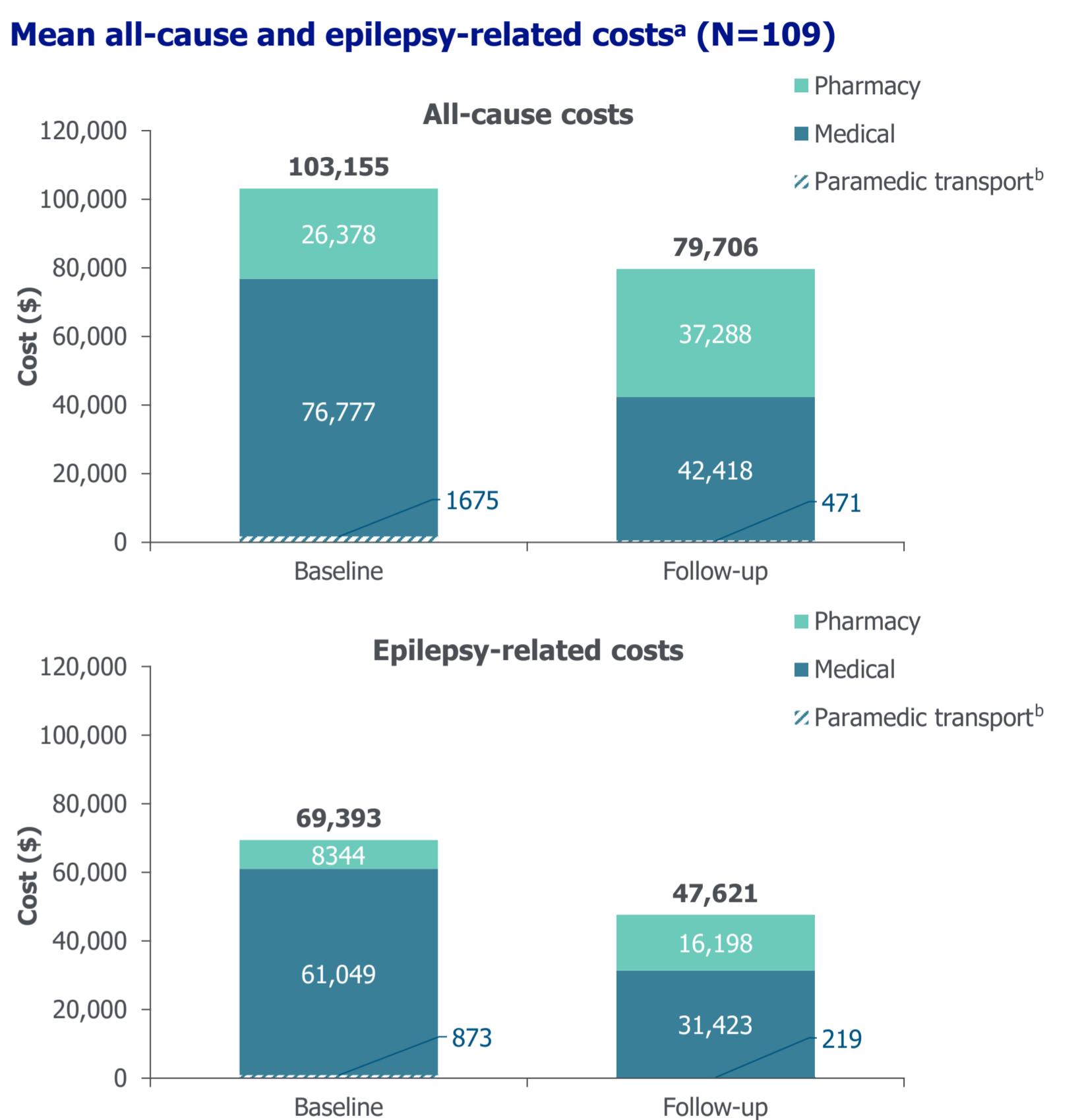
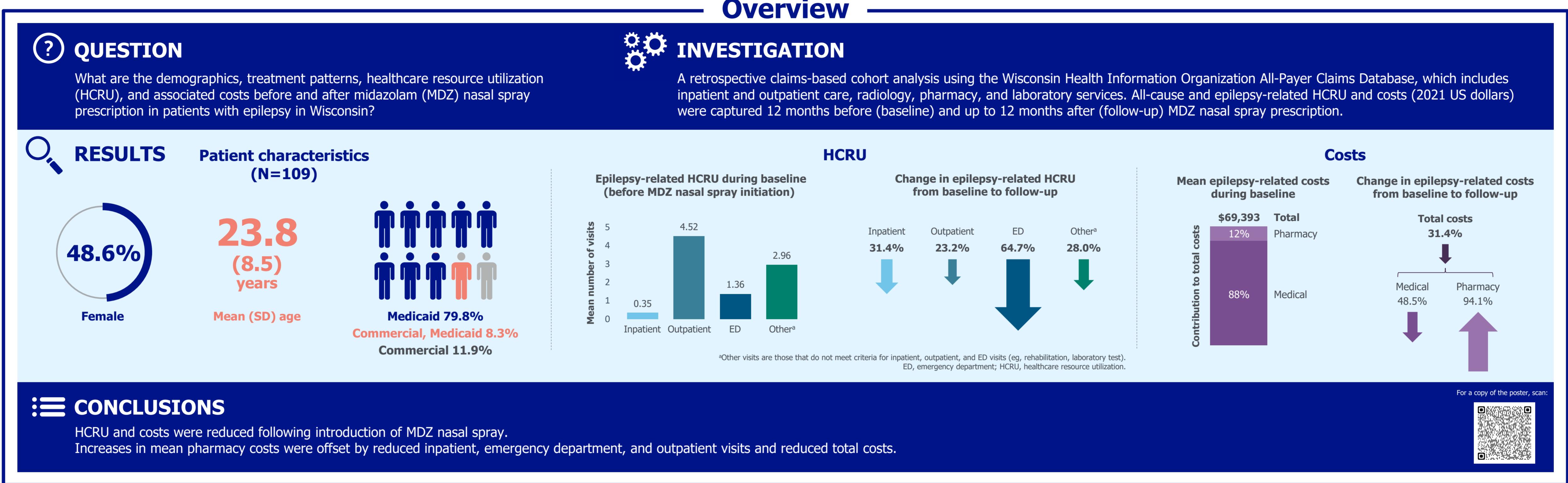
Baseline demographics and insurance plan type

	Patients (N=109)
Female, n (%)	53 (48.6)
Age, mean (SD), years	23.8 (8.5)
Insurance plan type at index, n (%)	
Commercial	13 (11.9)
Commercial, Medicaid	9 (8.3)
Medicaid	87 (79.8)

Comorbidities

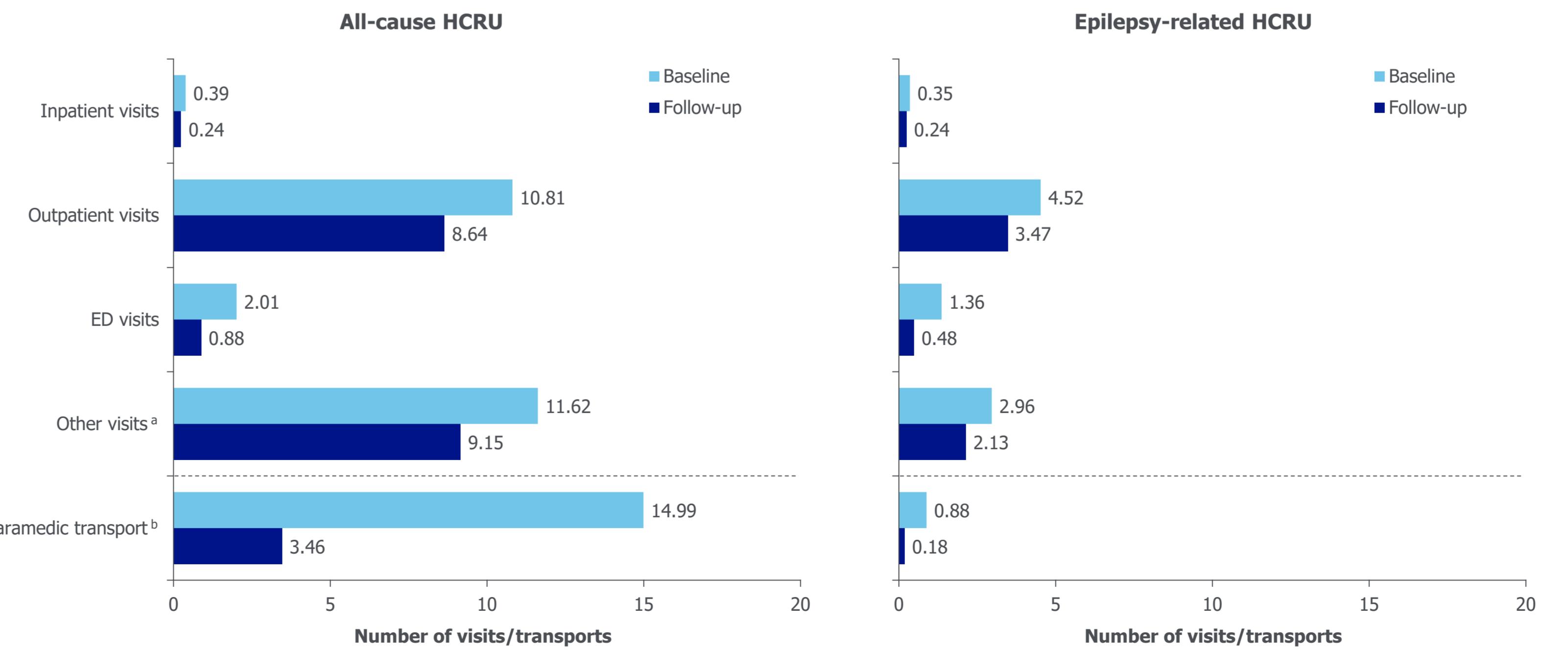
	Baseline (N=109)	Follow-up (N=109)
Comorbidities, n (%)		
Anxiety	31 (28.4)	20 (18.3)
Asthma	12 (11.0)	9 (8.3)
Depression	17 (15.6)	15 (13.8)
Diabetes	1 (0.9)	0
Hypertension	4 (3.7)	1 (0.9)

^aAssessed using ICD-10 codes F41.X (anxiety), J45 (asthma), F32 (depression), E08-E13 (diabetes), and I10 (hypertension). ICD-10, International Classification of Diseases, 10th Revision.



- The reductions in HCRU were expressed in all-cause and epilepsy-related cost reductions from baseline to follow-up for mean medical services and mean total costs; mean pharmacy costs increased.

Mean all-cause and epilepsy-related HCRU (N=109)



- Reductions in all-cause HCRU and epilepsy-related HCRU from baseline to follow-up were seen in mean inpatient stays, mean outpatient visits, mean emergency department (ED) visits, mean other visits, and mean paramedic transport use.

Conclusions

- In patients who were prescribed MDZ nasal spray, HCRU and costs were reduced following the prescription.
- Increases in mean pharmacy costs were offset by reduced inpatient visits, ED visits, outpatient visits, and reduced total costs in these patients.
- Although not assessed in this analysis, quality of life improvements may be experienced with these reduced inpatient and ED visits.^{1,2}

References

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- Naseer M, et al. *Health Qual Life Outcomes* 2018;16(1):144.

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