

Healthcare Resource Use and Expenditures Among Adults with Paroxysmal Supraventricular Tachycardia (PSVT) in the United States

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Background

- Paroxysmal supraventricular tachycardia (PSVT) is a cardiac arrhythmia characterized by sudden, episodic tachycardia with symptoms including palpitations, weakness or fatigue, dizziness, syncope, and chest pain that can require acute care¹.
- PSVT is the second most common sustained arrhythmia with an estimated United States (U.S.) prevalence of 2.1 million¹.
- Current treatment regimens include catheter ablation, an invasive procedure that may not be suitable for all patients due to comorbidities, patient preference, and procedural risk^{2,3}.
- Prior studies report significantly higher healthcare resource use (HRU) and costs in newly diagnosed PSVT patients, including higher emergency department (ED) visit and inpatient (IP) admission rates and expenditures^{2,3}.
- The HRU and cost burden of PSVT among prevalent patients in the U.S. has not been assessed.

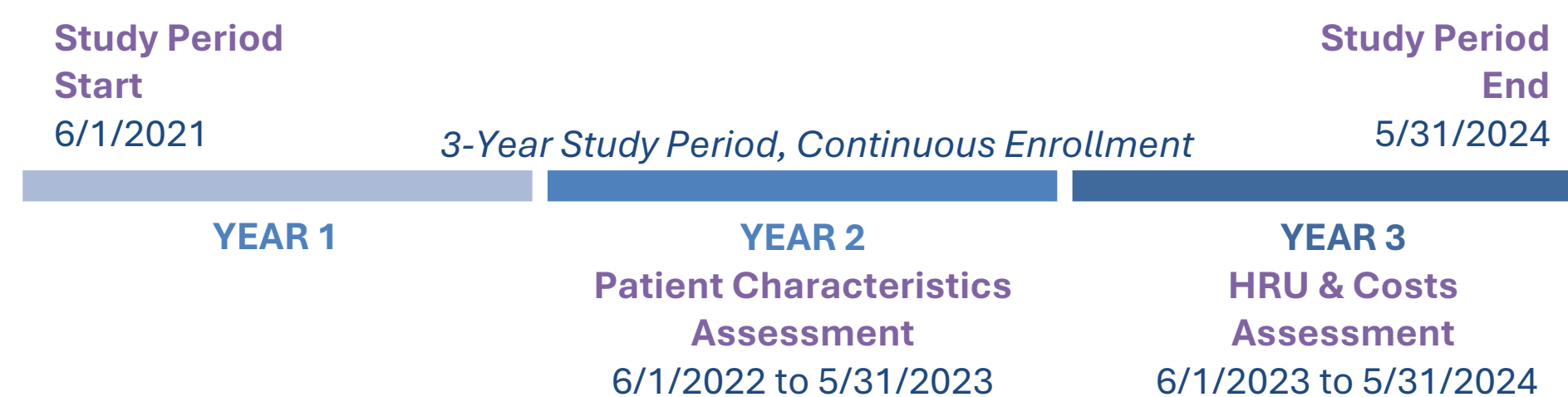
Objective

- To describe patient characteristics, HRU, and expenditures among adults aged 18-64 with PSVT in the U.S.

Methods

- This is a retrospective, observational, cohort study utilizing the IQVIA PharMetrics Plus database (2006-2024) that contains enrollment, demographic, and claims data for >300 million individuals in the US.
- Study patients aged 18-64 years were continuously enrolled with commercial insurance and medical and prescription drug coverage for the three-year study period 6/1/2021-5/31/2024 (Figure 1).
- PSVT patients had ≥1 IP or ≥1 ED claim or ≥2 OP claims with a PSVT diagnosis (International Classification of Diseases Tenth Revision, Clinical Modification [ICD-10-CM]: I47.1) over the study period.
- Control patients had no claims with a PSVT diagnosis over the study period.
- PSVT and non-PSVT control patients were matched on demographic (age, sex, geography) and clinical characteristics using exact and propensity score matching, with standard mean difference (SMD) <0.10 on all demographic and clinical characteristics.
- HRU and expenditures (costs paid by payers) were reported as proportions of patients with each type of HRU over the study year, and as mean [SD] per-patient-per-year (PPPY).
- PSVT ablation was identified using CPT codes 33250, 33251, 93653, and 93655

Figure 1. Study Overview



Results

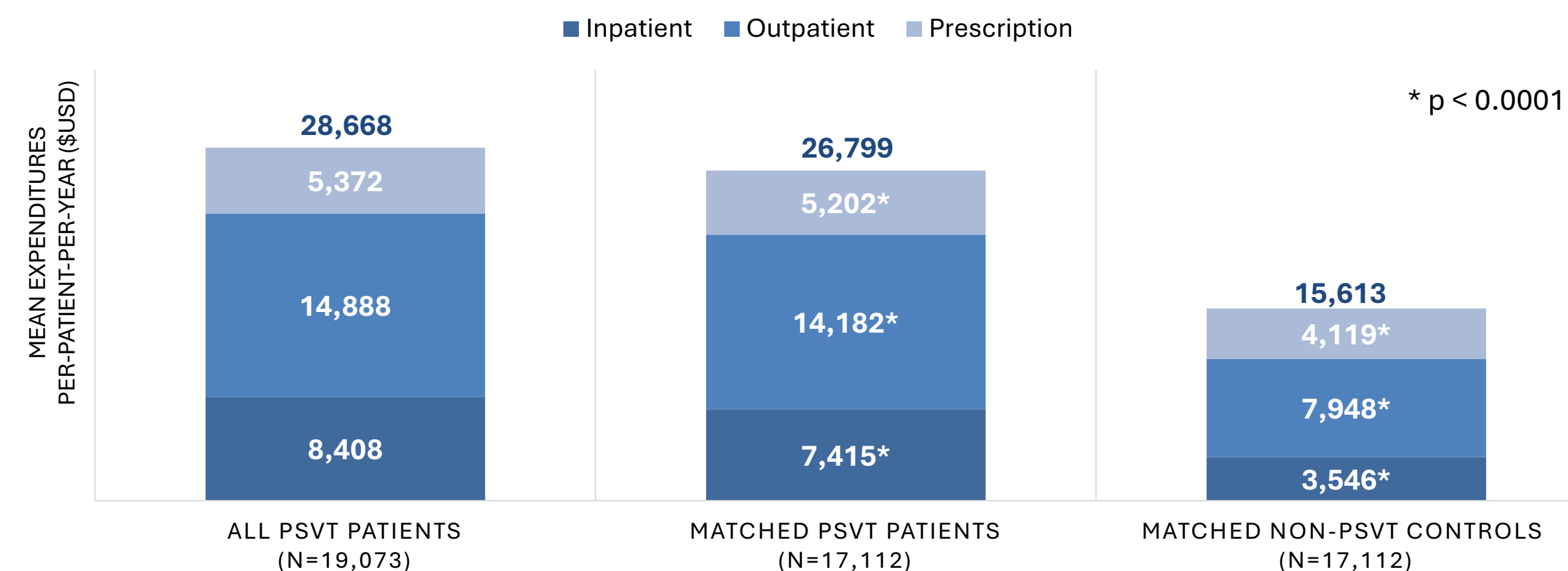
Table 1. Matched PSVT Patients and Matched Non-PSVT Controls Demographic and Clinical Characteristics, IQVIA 2021-2024

	All PSVT Patients (N=19,073)	Matched PSVT Patients (N=17,112)	Matched Non-PSVT Controls (N=17,112)
Female, N (%)	12,274 (64.4)	10,986 (64.2)	10,986 (64.2)
Mean age (SD), year	51.8 (11.1)	51.9 (11.1)	51.9 (11.1)
Age group, N (%)			
18-49	6,323 (33.2)	5,583 (32.6)	5,583 (32.6)
50-54	2,932 (15.4)	2,617 (15.3)	2,617 (15.3)
55-59	3,844 (20.2)	3,475 (20.3)	3,475 (20.3)
60-64	5,974 (31.3)	5,437 (31.8)	5,437 (31.8)
Mean CCI (SD)	0.82 (1.52)	0.7 (1.4)	0.7 (1.4)
Comorbidities, N (%)			
Atrial Fibrillation	2,754 (18.4)	3,147 (18.4)	3,147 (18.4)
Region of hospital, N (%)			
Northeast	4,195 (22.0)	3,781 (22.1)	3,781 (22.1)
Midwest	6,680 (35.0)	6,045 (35.3)	6,045 (35.3)
South	4,641 (24.3)	4,139 (24.2)	4,139 (24.2)
West	3,557 (18.6)	3,147 (18.4)	3,147 (18.4)

CCI, Charlson Comorbidity Index; SD, Standard Deviation.

- Observable characteristics of the matched PSVT and non-PSVT control cohorts were well-balanced (Table 1).
- Mean Charlson Comorbidity Index (CCI) was the same in both cohorts (Table 1).
- Conditions measured in the CCI affected similar numbers of patients (e.g., acute myocardial infarction [3.1% vs 3.0%], congestive heart failure [6.1% vs 5.7%], peripheral vascular disease [6.3% vs 6.2%], cerebrovascular disease [4.1% vs 3.7%], renal disease [3.7% vs 3.4%], and cancer [6.1% vs 6.2%]).
- Standardized mean differences were between -0.1 and 0.1 for all clinical and demographic characteristics.

Figure 2. Mean Expenditures Per-Patient-Per-Year: PSVT vs Matched Non-PSVT Controls, IQVIA 2021-2024



- Annual per patient expenditures were significantly higher for matched PSVT vs. matched non-PSVT controls, reflecting higher inpatient, outpatient, and prescription drug expenditures (all p<0.0001) (Figure 2).
- PSVT IP expenditures reflected IP and ICU rates that were ~2x that of PSVT controls (IP [SD] overall, with 0.16 [0.61] vs. 0.08 [0.41] admissions PPPY overall; p<0.0001) and significantly higher rates of admissions with ICU stays (0.06 [3.0] vs 0.02 [0.19]; p<0.0001).

- ED visit rates were significantly higher for matched PSVT patients compared with matched non-PSVT controls (0.61 [1.54] vs. 0.31 [0.99]; p<0.0001), as were office visits (10.82 [11.64] vs. 7.93 [9.73]; p<0.0001), and OP hospital visit (3.74 [8.89] vs. 2.49 [9.11]; p<0.0001).
- A greater number of PSVT patients had at least one ED visit (31% vs non-PSVT: 18%; p<0.0001).
- Prescription drug fill rates were also significantly higher for PSVT compared to non-PSVT matched controls (26.5 [28.7] vs. 21.1 [25.9], including beta-blockers, calcium channel blockers, and other antiarrhythmics (all < 0.0001).

Table 2. Rates of Ablation and Expenditures on Ablation per PSVT Patient per Year

Ablation Setting	Mean Ablations (SD) PPPY	Expenditures PPPY, \$USD	Expenditures per-ablation, \$USD
Outpatient	0.046 (0.21)	1,917	47,925
Hospital	0.002 (0.05)	163	68,489
All	0.048	1,917	49,046

PPPY, per-patient-per-year; SD, Standard Deviation; USD, United States Dollar.

- PSVT ablations accounted for 7.8% of all expenditures for prevalent PSVT patients (\$2,080 / \$26,799) (Table 2).
- PSVT ablations also accounted for 17% of the difference in expenditures for PSVT vs. matched non-PSVT patients (~\$2,080 / \$11,186) (Table 2).

Discussion

- Prevalent PSVT patients had significantly higher outpatient visit, emergency department visit, and inpatient admission expenditures compared with matched controls.
- This study builds on earlier studies that found significantly higher HRU and expenditures in patients newly diagnosed with PSVT in the US.
- Improved outpatient management, earlier diagnosis, and patient education may mitigate the healthcare burden of PSVT.
- Etripamil (CARDAMYST™), recently approved by the FDA for the treatment of acute, symptomatic episodes of PSVT in adults, was associated with significant reductions in ED visits in patients with PSVT^{4,5,6}.

Limitations

- The study data do not contain clinical confirmation of PSVT; however, methods are consistent with those used to identify PSVT in administrative databases^{1,2,3}.
- Matching was performed for multiple characteristics of PSVT and non-PSVT patients, although unmeasured confounding could impact the HRU and expenditures differences between PSVT and non-PSVT patients.

Conclusions

- The burden of PSVT is considerable for prevalent patients, with significantly higher HRU and expenditures across settings.
- ED visit rates are significantly higher for PSVT patients compared with matched controls.
- Treatments that enable patients to manage PSVT episodes at home (etripamil) may help reduce the financial burden of this arrhythmia.

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