

Healthcare Resource Use and Costs Following Catheter Ablation in Paroxysmal Supraventricular Tachycardia (PSVT) Patients Age <65

Naomi C. Sacks^{1,2}; Philip L. Cyr^{1,3}; Sarah Green⁴; David Wood⁵; Sean Pokorney⁶

¹Precision Xtract, Boston, MA, USA; ²Tufts University School of Medicine, Boston, MA, USA; ³College of Health and Human Services, University of North Carolina, Charlotte, NC, USA; ⁴Precision Health Economics, Los Angeles, CA, USA; ⁵Milestone Pharmaceuticals, Montreal, Quebec, Canada; ⁶Duke University Medical Center, Durham, NC, USA

BACKGROUND

What is PSVT?

Paroxysmal Supraventricular Tachycardia (PSVT) is a sporadic, sudden and recurring tachycardia due to altered electrical conductivity over the atrioventricular node of the heart.

Medical treatment options are limited; acute episodes are treated with IV adenosine, other IV beta-blockers, or calcium channel blockers (CCBs) in an Emergency Department (ED) setting. Chronic management consists of surveillance and prophylactic treatment with beta-blockers or CCBs. Patients may also be treated with catheter ablation, which is considered usually curative.^{1,2}

Due to its episodic nature, PSVT can be difficult to diagnose and treat which may increase healthcare resource use (HRU) and costs. Catheter ablation would be expected to reduce the economic burden of patients with PSVT.

What is known about HRU & costs for PSVT patients?

- Published studies have found that PSVT prevalence increases with age and more females than males are diagnosed with PSVT, but clinical characteristics and outcomes of PSVT patients have not been studied.^{1,3}
- Little is known about the impact of catheter ablation on HRU and costs in patients with PSVT.

OBJECTIVE

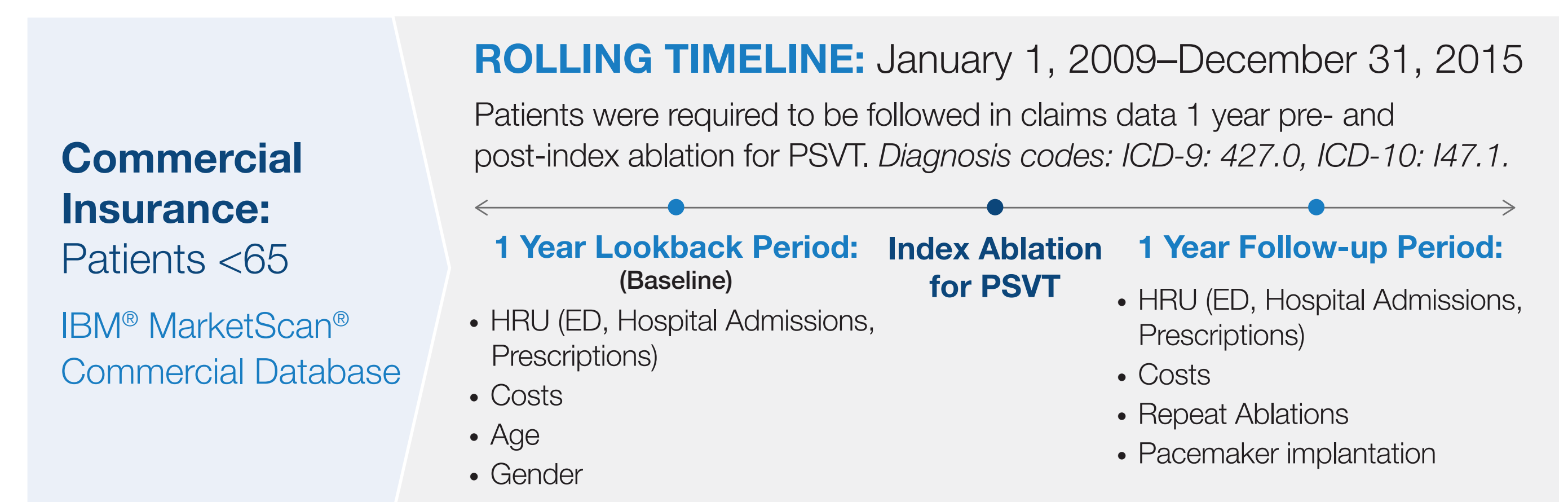
The goals of this study were to:

- Describe the demographic characteristics PSVT patients age <65 treated with catheter ablation
- Characterize HRU and costs of PSVT patients age <65 treated with catheter ablations

METHODS

This retrospective study used demographic, enrollment and claims data from the IBM® MarketScan® Commercial Database to identify patients <65 years with an initial catheter ablation for PSVT (ICD-9: 427.0; ICD-10: I47.1) between January 1, 2009 and December 31, 2015. Patients were observable for one year before and after index ablation. The primary outcomes were healthcare resource utilization (HRU), costs paid by insurers, repeat ablations and pacemaker implantations within one year of index ablation.

Figure 1: Study Design



RESULTS

Table 1: Demographic Characteristics of PSVT Patients Treated with Catheter Ablation

Number of Study Patients	20,649
Mean Age (years)	44.1
% Female	59.10%
Repeat Ablation*	1,520 (7.4%)
Pacemaker Implantation*	748 (3.6%)

*Within 12 months following index ablation

Figure 2: Total Per Patient Costs Pre vs Post Index Ablation

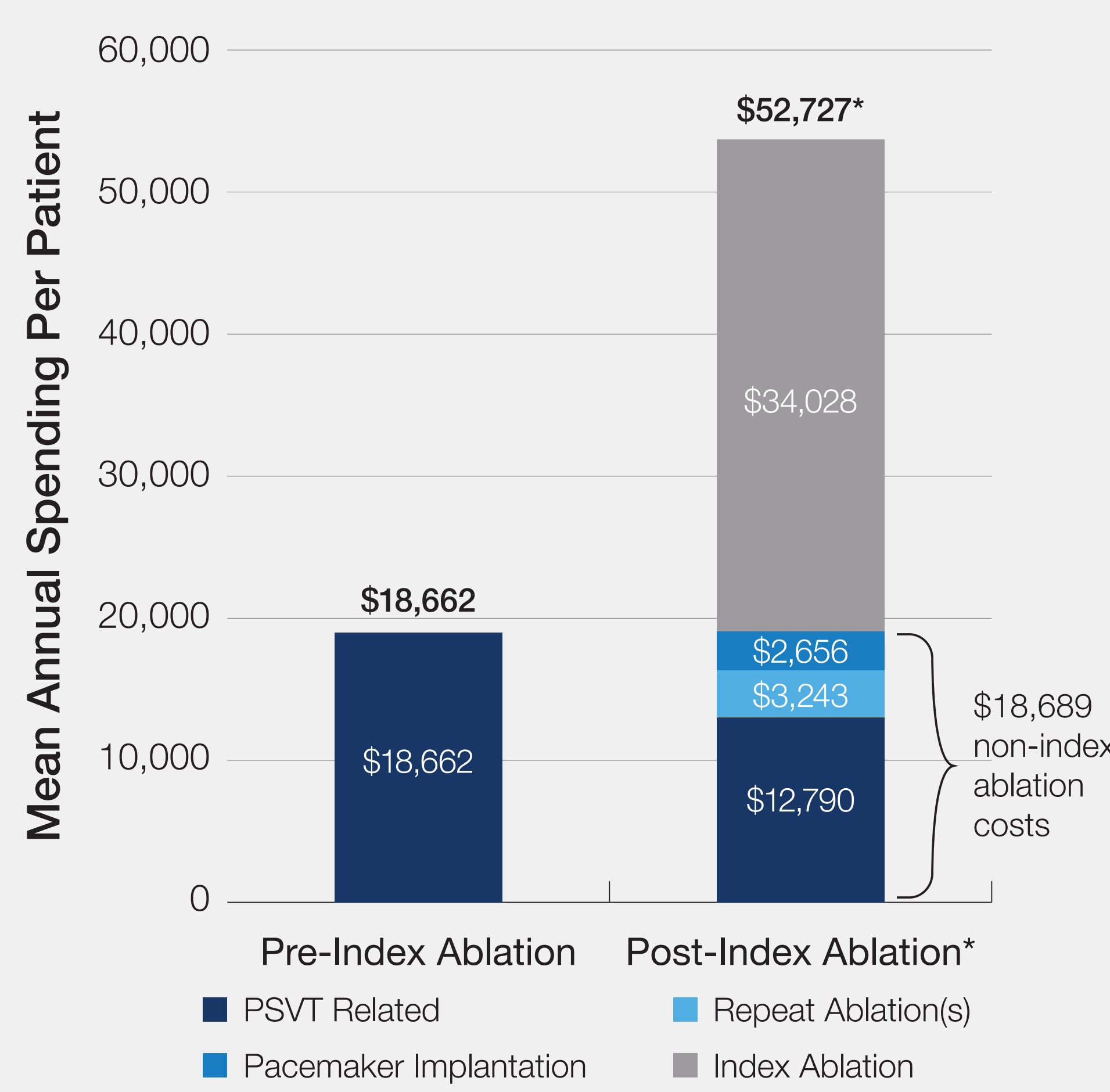


Figure 3: Inpatient Admission Rates Pre vs Post Index Ablation

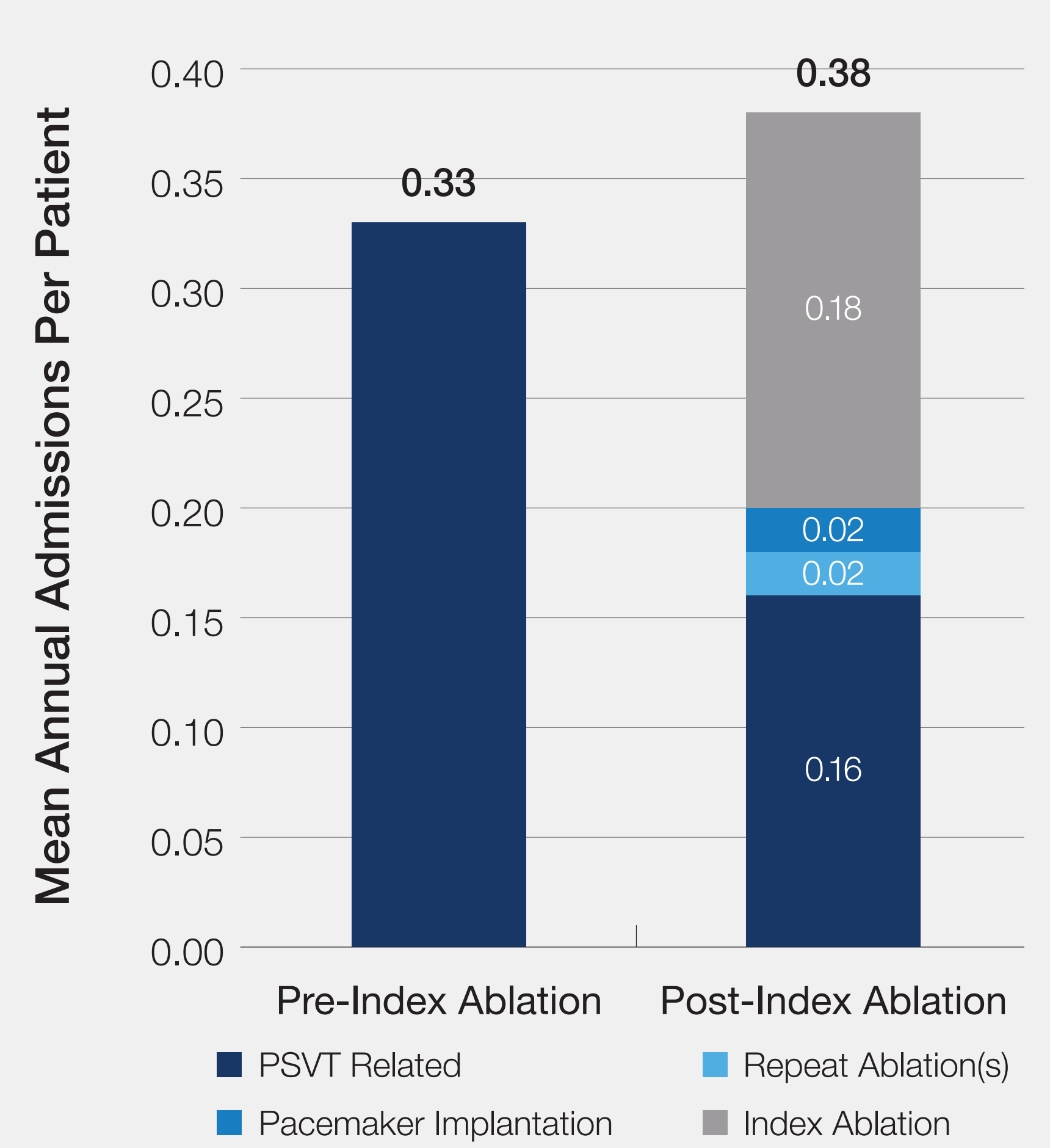


Figure 4: ED Visit Rates Pre vs Post Index Ablation

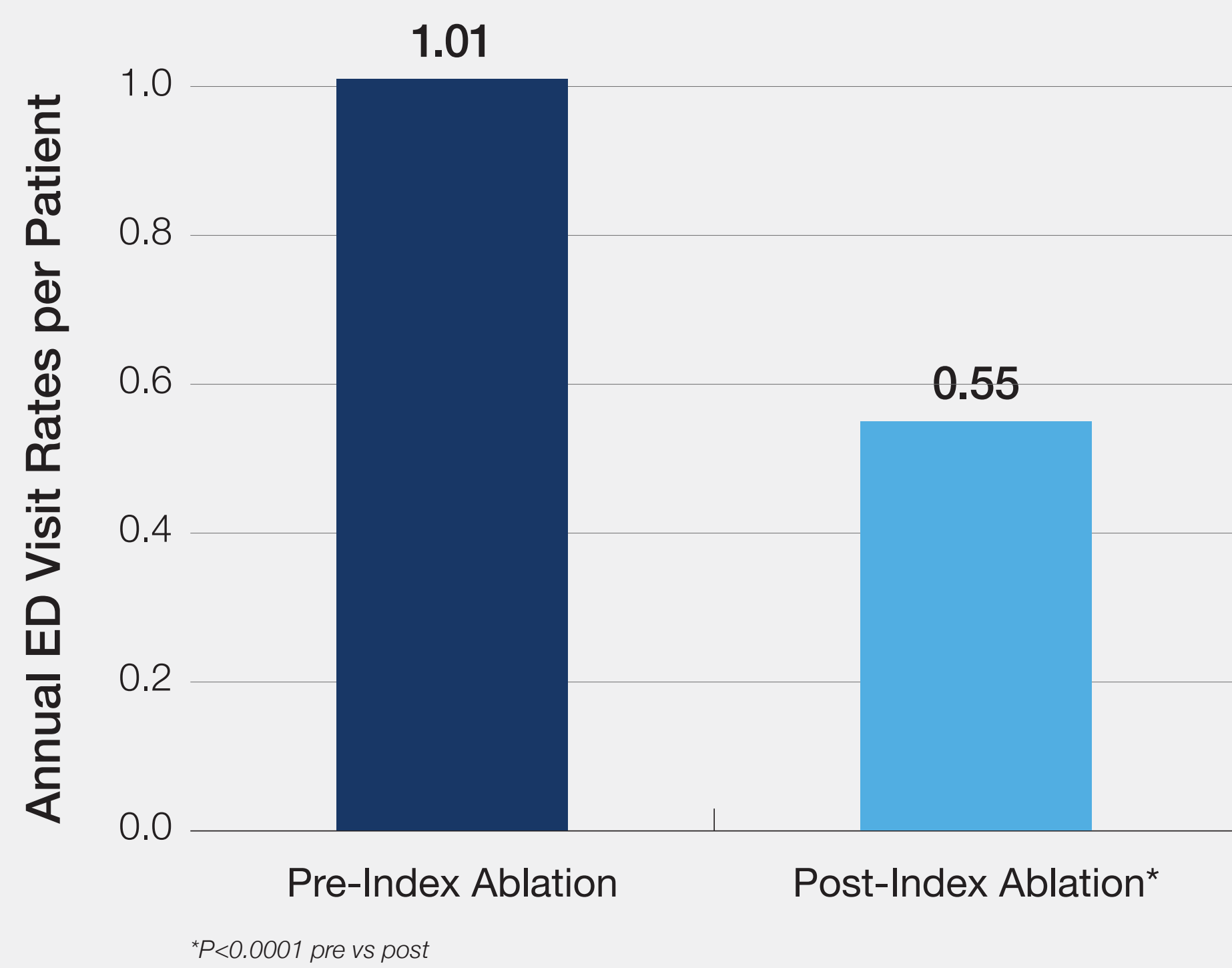
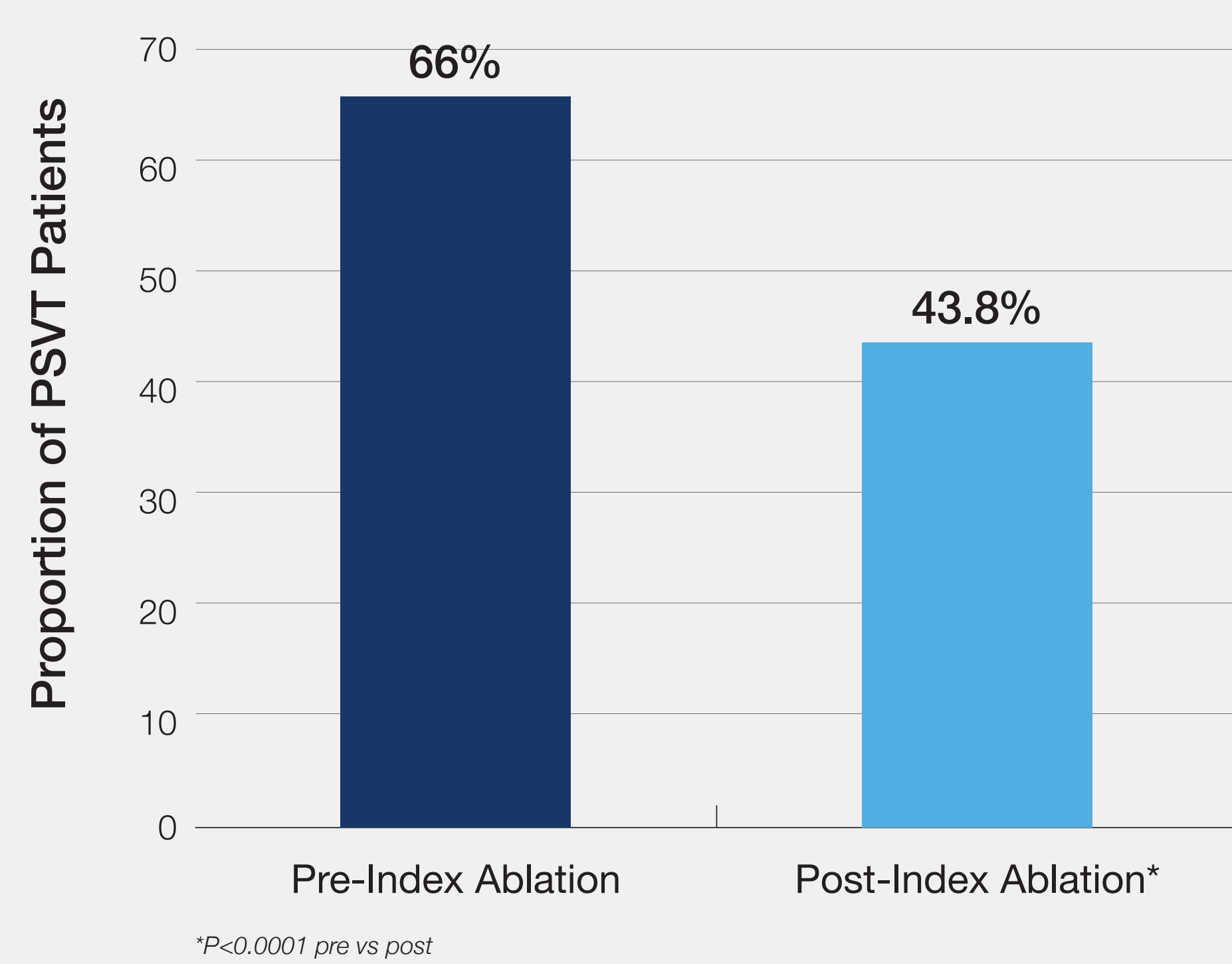


Figure 5: Beta-blocker and CCB Use Pre vs Post Index Ablation



Among 20,649 patients meeting study criteria, mean age was 44.1 years (SD: 15.6); 59.1% were female sex. Of these, 1,520 (7.4%) had a second ablation within 12 months, and 3.6% (N=748) had pacemaker implantation. Mean per patient costs in the follow-up year, \$52,717, were significantly higher compared with pre-index (\$18,662; P<0.0001), but showed no change when index ablation costs (\$34,028) were excluded (\$18,689 vs. \$18,662). Repeat ablations and pacemaker implantations contributed to post-index costs per patient (\$3,243 and \$2,656, respectively). Inpatient admission rates increased (from 0.33 to 0.38 per patient), reflecting index and repeat ablations and pacemaker implantations (0.18, 0.02, 0.02, respectively). Emergency Department (ED) visit rates decreased significantly post-index (from 1.01 to 0.55; P<0.0001). The proportions of patients treated with calcium channel blocker (CCB) and beta-blockers also decreased (from 66.0% to 43.8%; P<0.0001).

CONCLUSION

Catheter ablation for PSVT is associated with significant cost increases. Costs net of ablations show no change relative to pre-ablation year costs. ED visit and CCB/beta blocker use rates decrease. Repeat ablations and pacemaker implantation contribute to post-ablation costs and hospitalizations. It is possible that costs are lower in the years following ablation, compared with the pre ablation year; however, the frequency and costs of repeat ablations more than 12-months post-index ablation is not known.

Contact Information:

Naomi Sacks | Precision Xtract, Boston MA | Naomi.sacks@precisionxtract.com

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Disclosure

Milestone Pharmaceuticals provided funding for this study. David Wood is a full-time employee of Milestone Pharmaceuticals. Milestone Pharmaceuticals provided consulting fees to Precision Xtract/Precision Health Economics for this study. Naomi Sacks, Philip Cyr & Sarah Green are full-time employees of Precision Xtract/Precision Health Economics.