

# Smoking Cessation After Lower Extremity Revascularization in the Vascular Quality Initiative

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## Introduction

- Smoking is a leading risk factor for peripheral arterial disease (PAD)<sup>1</sup>
- PAD guidelines include smoking cessation as medical management. However, there is underutilization of smoking cessation resources among PAD patients<sup>2,3</sup>
- Smoking cessation rates after surgery vary broadly among different treatment centers<sup>4</sup>
- SVS launched CAN-DO Campaign in 2023 to promote cessation efforts<sup>5</sup>

## Objectives

- Characterize recent national smoking cessation rates after lower extremity revascularization (LER)
- Identify factors associated with continued smoking

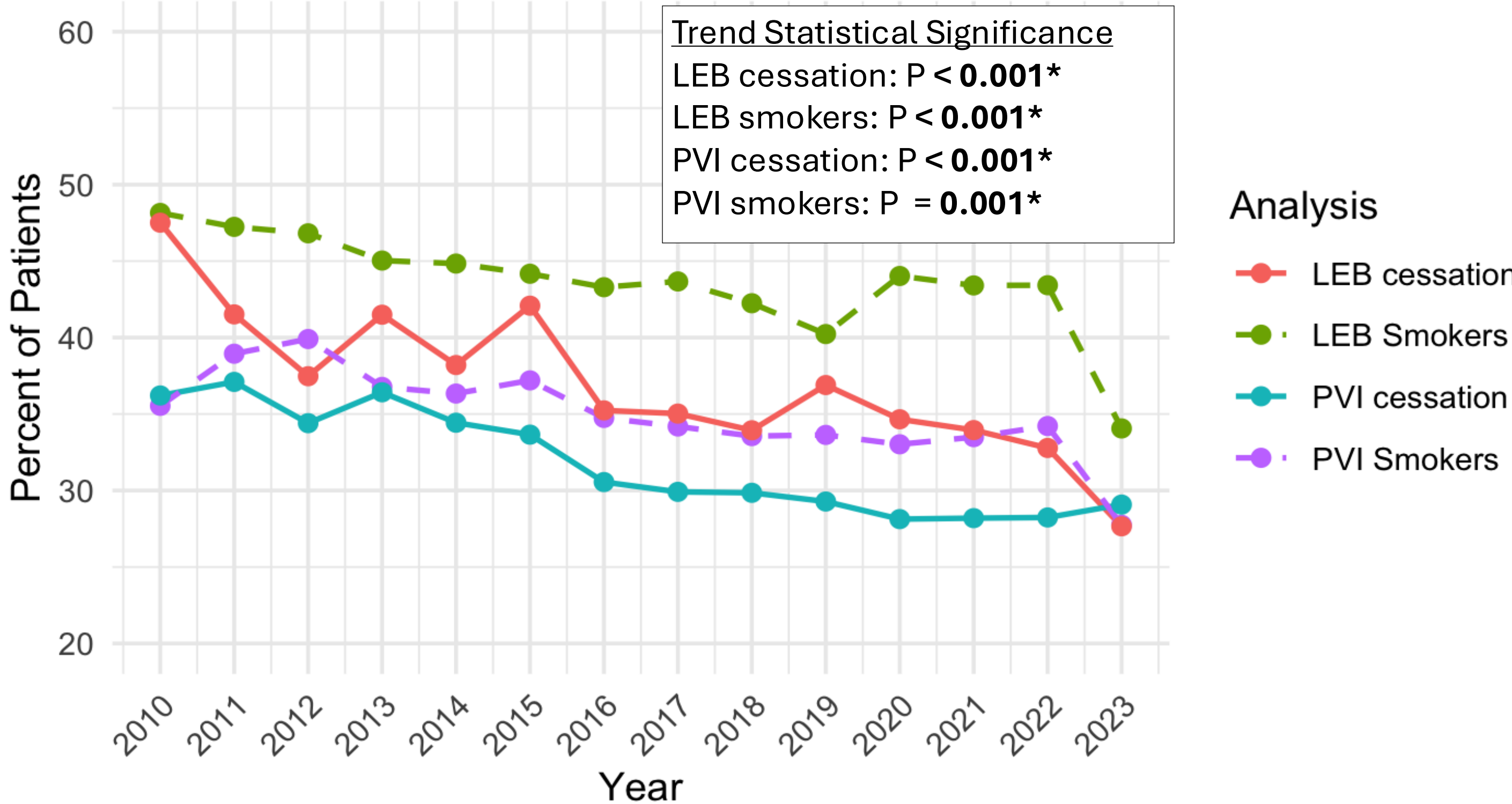
## Methods

- First LER within the peripheral vascular intervention (PVI), Infrainguinal bypass (INFRA) or Suprainguinal bypass (SUPRA) modules for each patient was identified.
- Current smoker = smoking within 1 month of surgery
- Cessation determined based on long term follow up 9-21 months after surgery
- Mann-Kendall Test investigated trends in current smokers and cessation rates after PVI and lower extremity bypass (LEB)
- Comparative analysis of patients who quit vs continued smoking at long term follow up
- Logistic regression of preoperative factors performed

## Results

- PVI – 125,288 patients; INFRA – 29,291; SUPRA – 10,344
- Patients more likely to quit smoking after open bypass than endovascular PVI (39% vs 32%, P<0.001).
- Patients that continued smoking were more likely to be younger and white, with a trend towards being more likely to be male

## Trends in Current Smokers and Smoking Cessation After LER



## Factors associated with Continued Smoking

Characteristic	OR [95% CI] <sup>1</sup>
Age	0.99 [0.98-0.99]
Male vs Female	1.07 [1.03-1.11]
Underweight vs Normal BMI	1.14 [1.04-1.25]
Chronic Obstructive Pulmonary Disease	1.36 [1.31-1.42]
Prior Lower Extremity Revascularization	1.07 [1.03-1.12]
Preoperative Statin	1.07 [1.03-1.12]
Claudication vs CLTI	1.16 [1.12-1.21]
Endovascular vs Bypass	1.36 [1.30-1.41]
Elective vs Urgent/Emergent	1.25 [1.18-1.32]

<sup>1</sup>OR = Odds Ratio, CI = Confidence Interval

## Conclusions

- The proportion of smokers undergoing LER is decreasing, but achieving smoking cessation has become more challenging
- Smoking cessation efforts should particularly focus on younger patients undergoing elective endovascular LER for claudication

## Results

Table 1: Baseline Characteristics of Continued Smoking vs Cessation

	Quit, N = 19,607	Continued, N = 37,737	p-value <sup>1</sup>
<b>COMORBIDITIES</b>			
Hypertension	16,414 (84%)	31,368 (83%)	0.067
Coronary Artery Disease	5,267 (27%)	10,183 (27%)	0.7
Chronic Heart Failure	2,366 (12%)	4,212 (11%)	0.001
Diabetes	8,078 (41%)	14,607 (39%)	<0.001
COPD	5,876 (30%)	13,479 (36%)	<0.001
Renal Status			<0.001
Normal	14,865 (76%)	30,017 (80%)	
Chronic Kidney Disease	3,960 (20%)	6,713 (18%)	
End-stage Renal Disease	652 (3.3%)	753 (2.0%)	
Prior LER	5,013 (26%)	9,903 (26%)	0.081
Prior CABG	2,151 (12%)	3,904 (11%)	0.002
<b>PROCEDURAL CHARACTERISTICS</b>			
Urgent/Emergent	3,012 (15%)	4,565 (12%)	<0.001
Indication			<0.001
Claudication	9,456 (48%)	20,545 (54%)	
CLTI	10,151 (52%)	17,192 (46%)	
Surgical Approach			<0.001
Endovascular	13,243 (68%)	27,772 (74%)	
Bypass	6,364 (32%)	9,965 (26%)	

<sup>1</sup>Wilcoxon rank sum test; Pearson's Chi-squared test

Patients who eventually quit smoking on long-term follow up were more likely to have the following postoperative complications

Longer Length of Stay  
(3.4 vs 2.5, P<0.001)

Cardiac Complication  
(2.8% vs 1.9%, P<0.001)

Pulmonary Complication  
(1.3% vs 0.8%, P<0.001)

Renal Complication  
(1.9% vs 1.5%, P=0.001)

Postoperative Infection  
(1.4% vs 1.0%, P<0.001)

Postoperative Major Amputation  
(1.3% vs 0.9%, P<0.001)

## References

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