

# Medicare Cost Comparison of Transcarotid Artery Revascularization Versus Transfemoral Carotid Artery Stenting

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## BACKGROUND

- Carotid artery disease (CAD) is a significant cause of morbidity and mortality worldwide, posing a substantial burden on healthcare systems.
- Two revascularization procedures, transcarotid artery revascularization (TCAR) and transfemoral carotid artery stenting (TF-CAS), are commonly used to manage carotid artery stenosis and reduce the risk of stroke in affected patients.
- While clinical outcomes have been studied, real-world cost comparisons between TCAR and TF-CAS remain limited.

## OBJECTIVE

This study compared the Medicare costs for TCAR versus TF-CAS among patients with CAD in the United States.

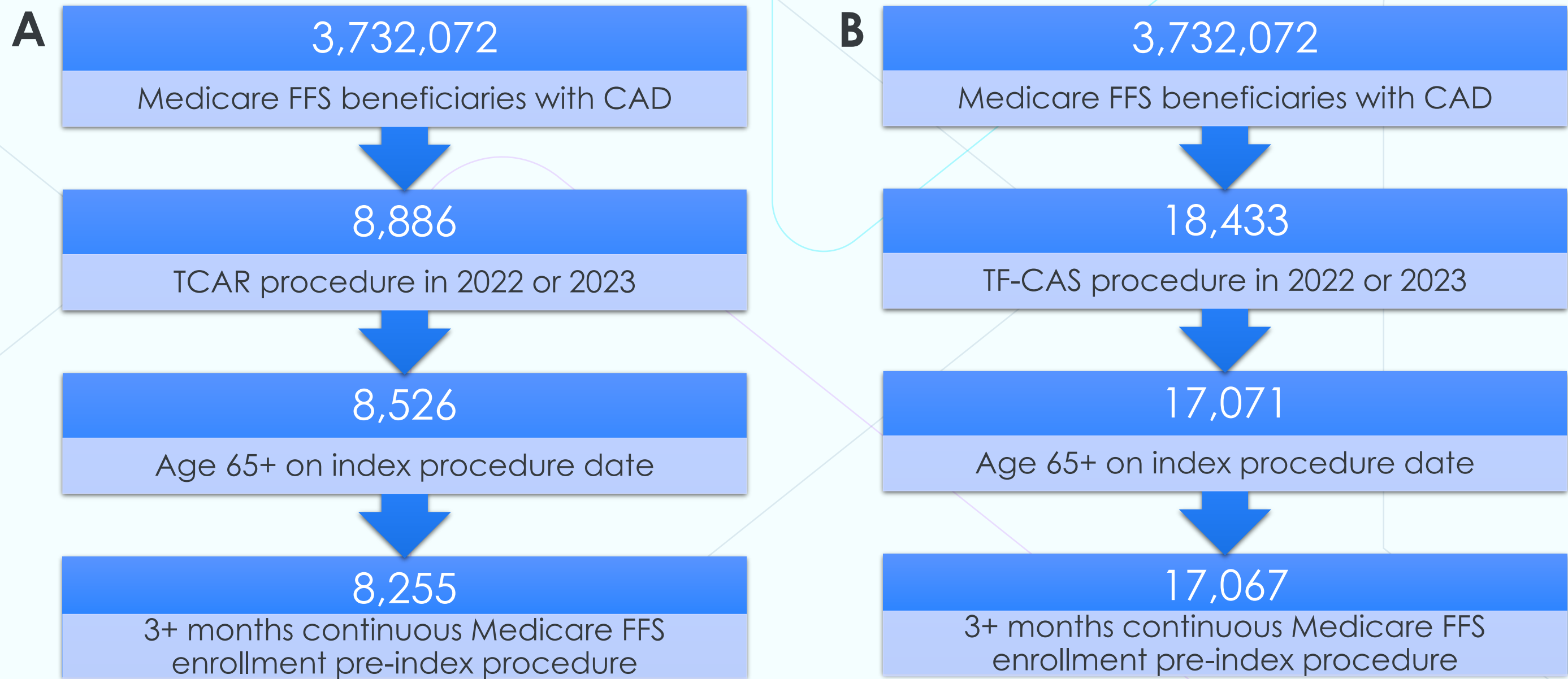
## METHODS

- A retrospective claims-based analysis was conducted using the Medicare 100% Standard Analytical Files.
- Medicare beneficiaries aged 65+ with CAD who underwent either TCAR or TF-CAS between 01/01/2022 and 12/31/2023, with at least 3 months of continuous Medicare Fee-for-Service (FFS) enrollment pre-procedure, were included.
- Costs were defined as the total Medicare amount paid for all medical services associated with the TCAR or TF-CAS procedure, inflation-adjusted to 2023 USD.
- Mean costs were compared using unpaired t-tests, while median costs were assessed using Mann-Whitney tests.

## RESULTS

- A total of 8,255 TCAR patients (mean age: 75.6 ± 6.34 years, mean Charlson Comorbidity Index [CCI] score: 2.6 ± 2.4) and 17,067 TF-CAS patients (mean age: 75.4 ± 6.4 years, mean CCI score 2.9 ± 2.5) were included in the study (**Figure 1**).
- Across the study period, TCAR was associated with significantly lower per-patient encounter-level medical costs compared to TF-CAS (**Table 1**).
- Cost savings were consistent when stratified by year, with TCAR demonstrating lower costs than TF-CAS in both 2022 and 2023 (**Table 1**).

**Figure 1.** Cohort Attrition for (A) TCAR and (B) TF-CAS



**Table 1.** Index Admission Costs for TCAR vs. TF-CAS by Year of Index Procedure

	TCAR	TF-CAS	Difference
<b>Full Study Period (2022-2023)</b>			
Mean (SD)	\$16,898 (\$8,265)	\$18,252 (\$11,388)	(\$1,354)
Median (IQR)	\$14,644 (\$12,643-\$18,235)	\$15,307 (\$12,547-\$21,051)	(\$663)
<b>Index Procedure in 2022</b>			
Mean (SD)	\$16,964 (\$8,807)	\$18,308 (\$11,398)	(\$1,344)
Median (IQR)	\$14,532 (\$12,305-\$18,505)	\$15,180 (\$12,365-\$21,340)	(\$648)
<b>Index Procedure in 2023</b>			
Mean (SD)	\$16,854 (\$8,500)	\$18,198 (\$11,379)	(\$1,344)
Median (IQR)	\$14,745 (\$12,597-\$18,199)	\$15,485 (\$12,707-\$20,753)	(\$740)

All mean and median comparisons significant at p<0.01.  
**Abbreviations:** SD = standard deviation; IQR = interquartile range

## CONCLUSIONS

- TCAR demonstrates significant cost savings to Medicare compared to TF-CAS in the treatment of CAD.
- Broader adoption of TCAR could help reduce healthcare expenditures while maintaining positive patient outcomes.
- Understanding these economic implications is essential for guiding evidence-based clinical and policy decisions to improve cost-effectiveness in patient care.

## LIMITATIONS

- This study used Medicare administrative claims, which lack clinical granularity, such as disease severity.
- Cohort assignment relied on administrative coding; if dedicated TCAR-specific codes were omitted, misclassification to the TF-CAS cohort may have occurred.
- This analysis was limited to Medicare beneficiaries aged 65+, thus findings may not be entirely generalizable to younger or non-Medicare populations.

## DISCLOSURES

This study was funded by Boston Scientific. All authors are full-time employees of, and shareholders in, Boston Scientific.