

Economic Burden of Lower Extremity Endovascular Reintervention in Patients with Peripheral Artery Disease: A Real-World Cost Analysis

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BACKGROUND

- Patients with peripheral artery disease (PAD) are often treated with lower extremity (LE) endovascular revascularization procedures, yet repeat (reintervention) procedures may be required over time.
- While clinical outcomes of PAD interventions are well studied, the hospital-level economic impact of repeat endovascular procedures is not well characterized.

OBJECTIVE

To quantify hospital costs of LE endovascular reintervention procedures among patients with PAD in the United States and examine differences across high-risk subgroups.

METHODS

- **Study Design:** Retrospective cost analysis from the hospital perspective.
- **Data Source:** Premier PINC AI™ Healthcare Database.
- **Population:** Adults aged 18+ with a PAD diagnosis from January 1, 2017 to December 31, 2022 who had an initial LE endovascular procedure (angioplasty, stenting, or atherectomy).
- **Reintervention Definition:** Subsequent LE endovascular procedure occurring 6+ months after discharge from the initial LE endovascular intervention encounter.
- **Outcome:** Direct hospital costs of the reintervention encounter (admission to discharge), inflation-adjusted to 2024 United States dollars.
- **Comorbid Condition Subgroups:** Patients with diabetes, chronic kidney disease (CKD), or chronic limb-threatening ischemia (CLTI).
- **Analysis:** Descriptive statistics; subgroup comparisons using two-sample t-tests and Mann-Whitney tests.

RESULTS

- A total of 42,382 patients met the inclusion criteria, with a mean age of 65.7 years and a Charlson Comorbidity Index (CCI) score of 0.65 (**Table 1**).
- The mean hospital cost of LE endovascular reintervention was \$20,808 (standard deviation [SD]: \$23,938) and the median cost was \$14,356 (interquartile range [IQR]: \$8,533-\$24,904) (**Figure 1**).
- Patients with diabetes, CKD, or CLTI had higher mean (+\$3,652, +\$5,203, +\$4,091, respectively) and median (+\$1,691, +\$2,895, +\$2,577, respectively) reintervention costs than patients without these conditions (**Figure 2**).

Table 1. Baseline Cohort Characteristics

Study Population N=42,382	
Age in years, mean ± SD	65.7 ± 10.5
Female sex, %	40.3
CCI Score, mean ± SD	0.65 ± 1.36
Diabetes, %	23.7
CKD, %	10.5
CLTI, %	66.8

Figure 1. Hospital Costs of Endovascular Reintervention Encounter

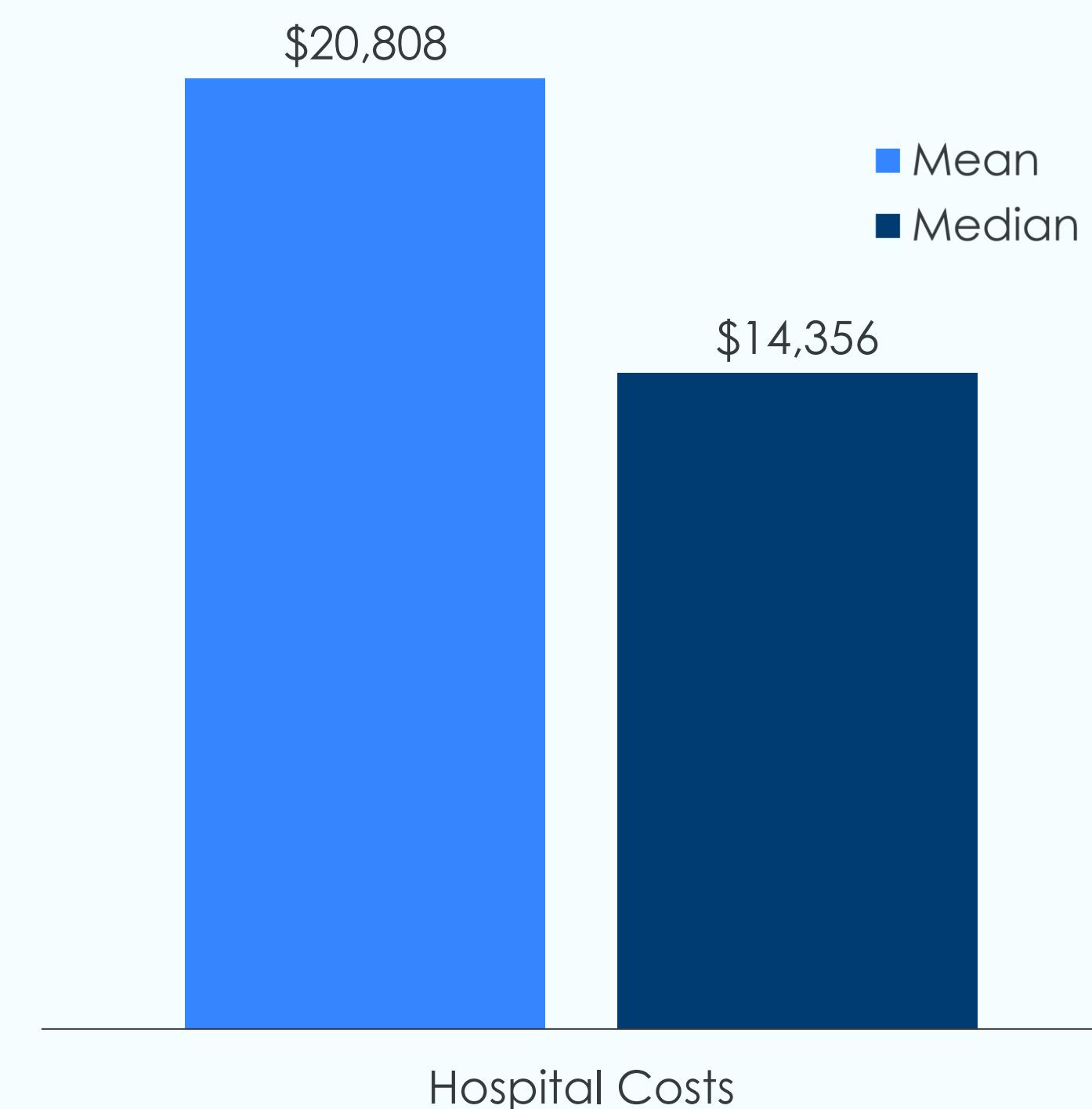
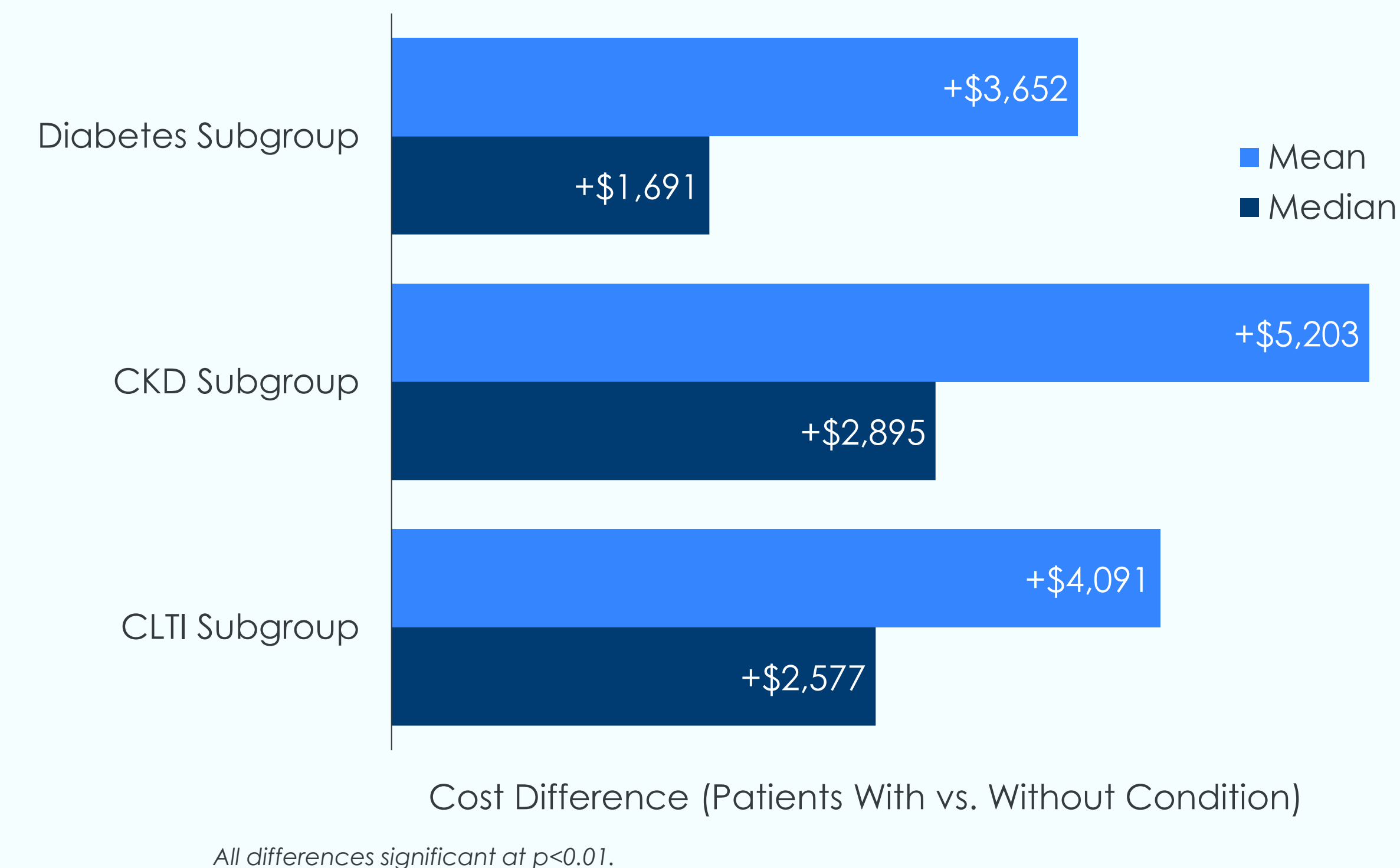


Figure 2. Incremental Mean and Median Hospital Costs by Comorbidity Status



CONCLUSIONS

- LE endovascular reintervention in PAD is associated with substantial hospital costs, averaging over \$20,000 per healthcare encounter.
- Costs are significantly higher among high-risk subgroups, including patients with diabetes, CKD, and CLTI.
- These findings highlight the economic burden of repeat interventions in PAD management.
- Strategies that improve durability and reduce reintervention rates may offer meaningful cost savings to hospitals.

LIMITATIONS

- The results are based on administrative claims data, which may be subject to coding errors and misclassification.
- Costs reflect the hospital perspective and do not capture other costs such as physician fees or indirect costs.
- Results are limited to hospitals within the PINC AI Healthcare Database and may not reflect care patterns in non-participating institutions.

DISCLOSURES

This study was funded by Boston Scientific. AMM, NA, AOW, and MRJ are full-time employees of, and shareholders in, Boston Scientific. VJ was a paid Intern at Boston Scientific at the time of this research.