



Economic Impact of Contrast-Induced Nephropathy in Percutaneous Coronary Intervention: A Medicare Payer Perspective

Boston
Scientific

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BACKGROUND

- Contrast-induced nephropathy (CIN) is a common and morbid complication of percutaneous coronary intervention (PCI), occurring in up to 5% of patients.
- CIN after PCI not only increases morbidity/mortality risk but is also associated with a large potential impact on costs, particularly in elderly Medicare patients.

OBJECTIVE

To estimate the short- and long-term economic impact of CIN in Medicare patients undergoing PCI.

METHODS

- Patients undergoing inpatient PCI between 1/1/2017 and 6/30/2020 were identified from Medicare 100% administrative and claims data.
- PCI, and CIN within the PCI admission, were identified using diagnosis and procedure codes.
- Patients diagnosed with CIN during their index admission were propensity-score matched (PSM) 1:1 to non-CIN patients.
- Total payer costs were identified (Medicare paid amount inflated to 2020) from 6 months before and up to 12 months after PCI.
- After PSM matching confirmed no cost differences during 6 months before index PCI, doubly robust, generalized linear modelling was used to estimate the expected cumulative cost difference in those with CIN (vs. without) during the index admission and during 12 months of follow-up.

RESULTS

- Among 8,930 propensity-matched patients (4,465 in each group), the mean age was 77, 56% were male, 85% were white, and 47% had an Elixhauser score ≥ 5 .
- After PSM, standardized differences among demographic, clinical, and procedural variables were <0.1 .
- The average cost of the index admission was \$35,181 for CIN compared with \$29,995 for no CIN (Δ \$5,186; $P<0.001$). The average cumulative cost during 12-month follow-up was \$69,425 and \$59,105, respectively (Δ \$10,320; $P<0.001$) (**Figure 1**).
- The average index admission length of stay (LOS) was 10.9 days for CIN versus 7.9 days for no CIN (Δ 3.0 days; $P<0.001$) (**Figure 2**).
- While average monthly costs were virtually identical for CIN versus no CIN prior to the index PCI admission, costs during follow-up were significantly higher in CIN patients (**Figure 3**).

Figure 1. Index Admission and Cumulative 1-Year Costs

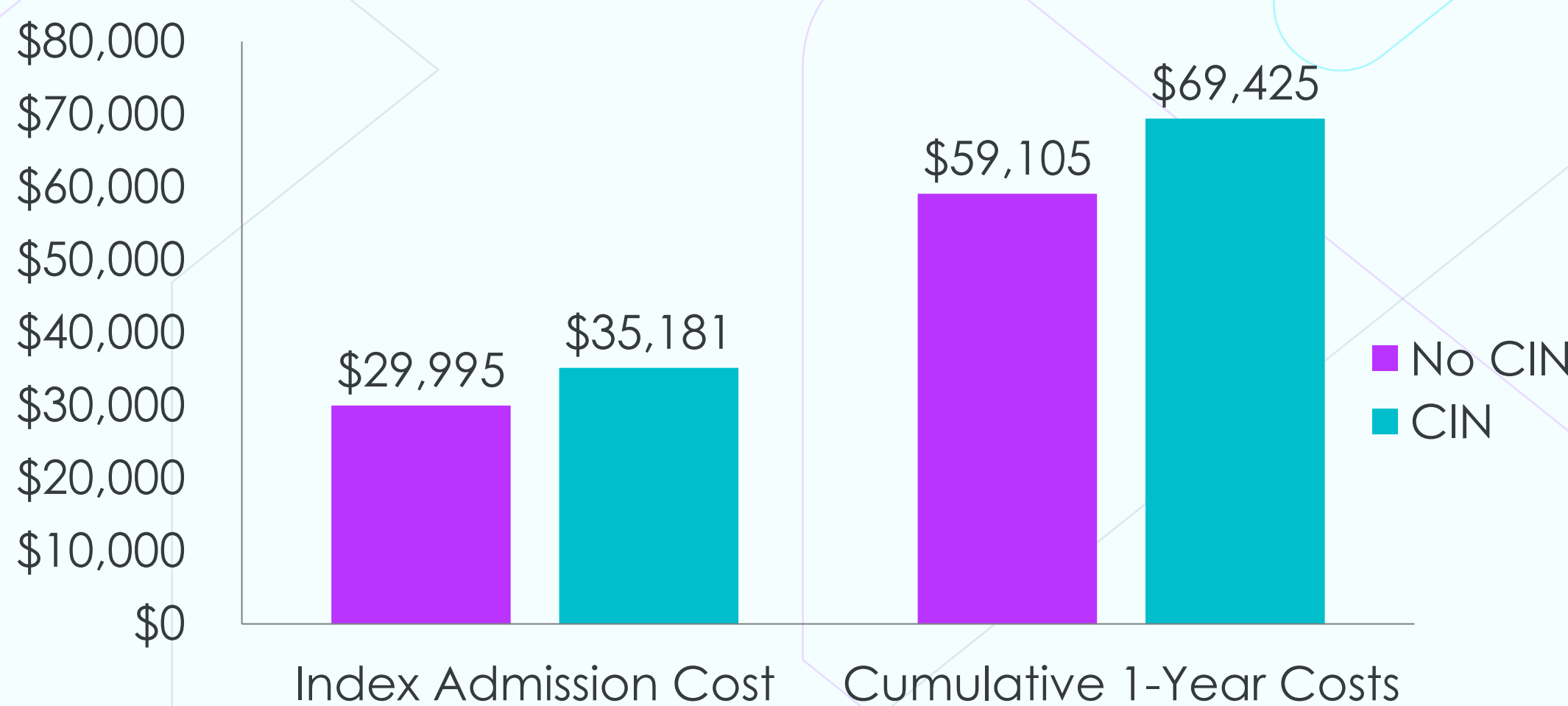


Figure 2. Index Admission LOS

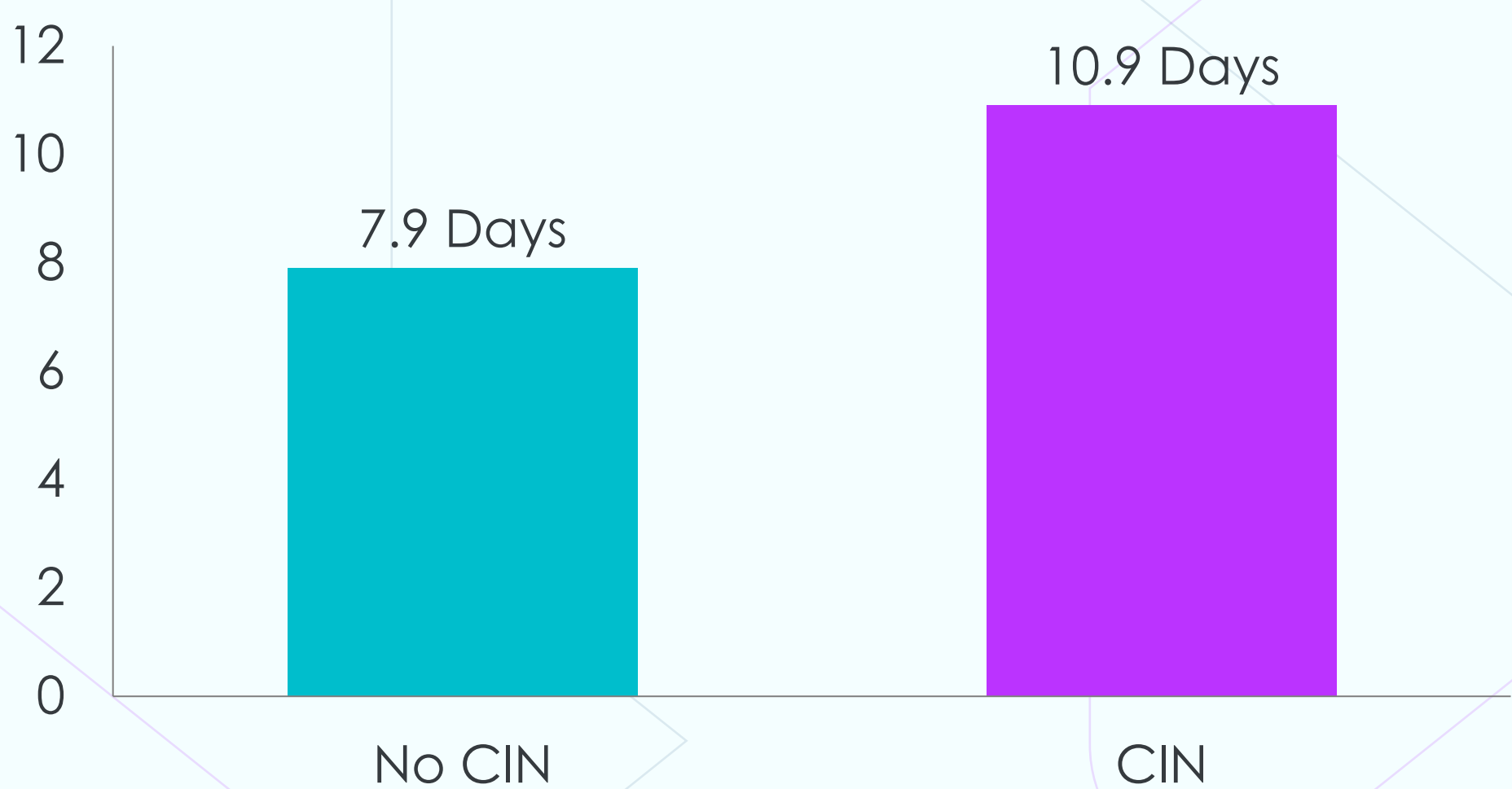
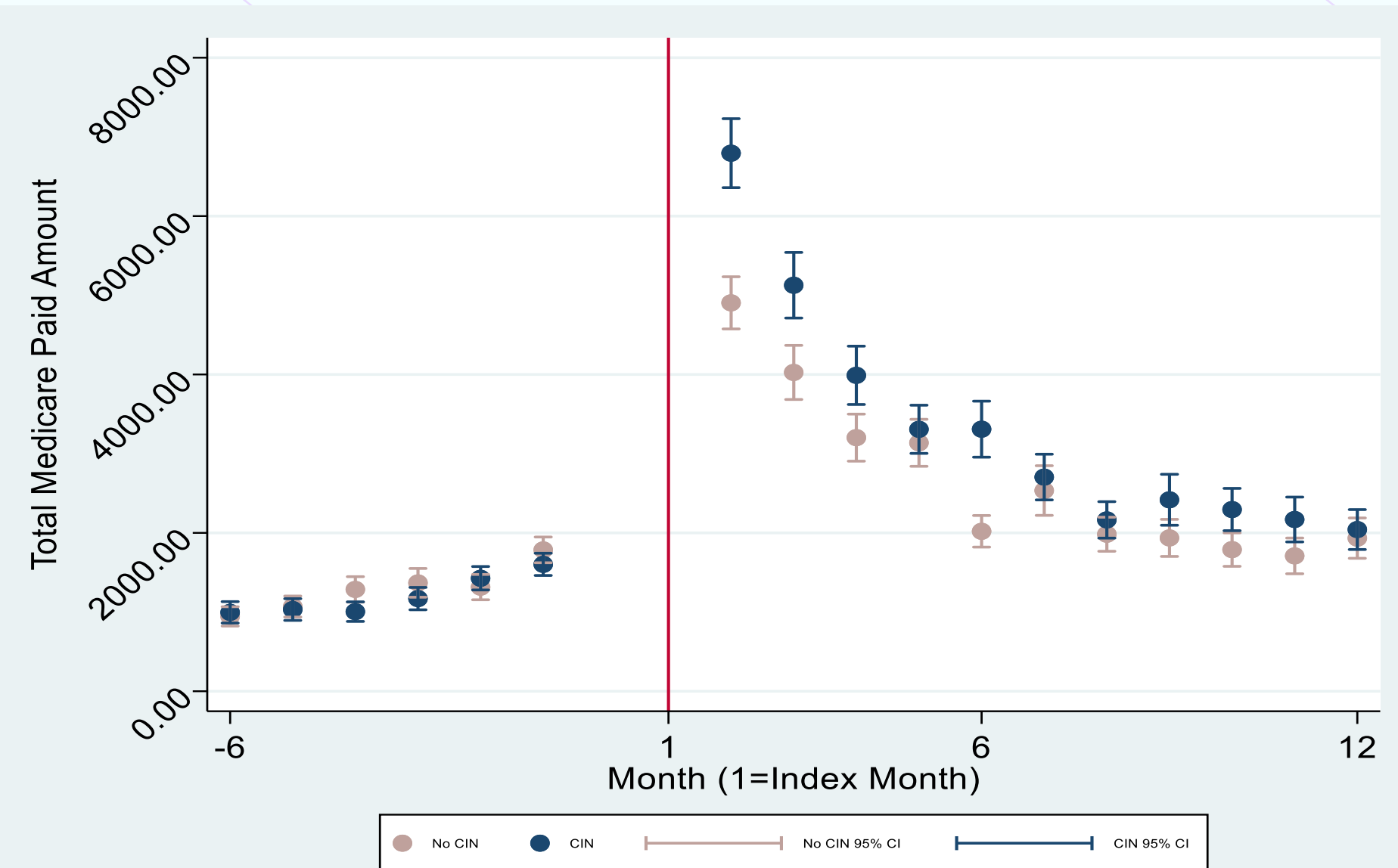


Figure 3. Monthly Medicare Paid Amount



CONCLUSIONS

- CIN after PCI has a large economic impact on the US health system.
- CIN is associated with increased costs during the index hospitalization, which increase further at 12 months.
- Additional research is warranted to assess the economic and clinical impact of the adoption of contrast-sparing strategies and protocols.

LIMITATIONS

- Limitations of observational claims-based Medicare data may include unmeasured confounding and misclassification of CIN.
- This study only included Medicare beneficiaries.

DISCLOSURES

This study was funded by Boston Scientific. Ms. McGovern, Dr. Cavalcante, Dr. Bhawe, Ms. Hargens, and Dr. Griffiths are full-time employees of Boston Scientific. Dr. Amin is a paid clinical consultant to Boston Scientific but was not compensated for his participation in this study.