

Response to Letter Regarding Article "Impact of Annual Operator and Institutional Volume on Percutaneous Coronary Intervention Outcomes: A 5-Year United States Experience (2005-2009)".

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Response to Letter Regarding Article “Impact of Annual Operator and Institutional Volume on Percutaneous Coronary Intervention Outcomes: A 5-Year United States Experience (2005–2009)”

We appreciate Khera and colleagues for their interest in our study on the percutaneous coronary intervention (PCI) volume–outcome relationship.¹ Khera and colleagues point out the limitations of using administrative claims data, some of which we have acknowledged in our article. Despite the inconsistencies and deficiencies in operator identification in the Nationwide Inpatient Sample (NIS) data set, our methodology has been well validated in previous studies.^{2,3}

Among 457 498 PCIs identified in our data set, only 820 procedures (0.2%) were performed in hospitals that reported a single operator. Likewise, the operator volume–outcome relationship did not change in a subgroup analysis by different operator variable identifiers in states that consistently reported unique physician identifiers for the study time period. More than 92% of the procedures identified in our study were listed as primary procedures, highly limiting the possibility of a wrong procedure being linked to the operator.

Finally, a direct comparison of median operator volume between NIS and the National Cardiovascular Data Registry (NCDR) CathPCI is not prudent because of differences in representative populations. NIS is designed to approximate a 20% sample of US community hospitals (nonfederal, short-term, general, and specialty), with missing operator volume data on 45% of total PCIs. Registries such as the NCDR CathPCI include operator information for almost all of the PCIs performed in participating hospitals. However, the NIS includes a wealth of administrative data that are not necessarily available in NCDR CathPCI, such as cost of care and concomitant procedures including valvuloplasty and others.

The true strength of our study lies in the largest cohort studied to date and reflects the real-world experience of a complex PCI volume–outcome relationship. Our study has greater implications in the current interventional era, where a marked reduction in overall PCI volumes, coupled with a growth of PCI centers in the United States, has led to an overall reduction in PCI procedures at the institutional and operator levels. Indeed, a previous analysis of Medicare fee-for-service PCI data reported that a majority (≈61%) of the operators performed <40 PCIs annually.⁴

We believe that administrative data sets (eg, NIS and Centers for Medicare & Medicaid Services data) complement NCDR registries. The linkage of CathPCI and other NCDR registries with longitudinal Centers for Medicare & Medicaid Services data has proven to be a quantum leap in outcomes research. A similar NCDR integration with NIS may offer a multi-insurance outlook. Examination of such administrative data sets provides thought-provoking results that complement the existing literature. The lack of uniform public reporting across the nation will, however, limit the outcomes of any study investigating volume metrics of patient care.

We conclude that a strong operator and hospital volume relationship exists in today’s world and is backed by preliminary NCDR data. We look forward to further clarification from the NCDR CathPCI registry.⁵

Disclosures

None.

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