

Vascular Quality Initiative + Medicare Long-term Outcomes

Overview: The Vascular Implant Surveillance and Interventional Outcomes Network (VISION) is a partnership between the Vascular Quality Initiative (VQI) and MDEpiNet that directly supports the mission of the VQI to improve the quality, safety, effectiveness and cost of vascular healthcare by collecting and exchanging information. VISION facilitates low-cost, but high value real-world effectiveness research through the creation of a national repository of linked clinical-claims analytic datasets. VISION data allows researchers to analyze device performance and long-term outcomes from vascular surgical techniques. Use of the data is governed by a Data Use Agreement (DUA) between Weill Cornell Medical College and the Center for Medicaid and Medicare Services (CMS). Data is kept on a secure server at Weill Cornell Medical College, Science and Infrastructure Center.

Scope: VISION projects must be approved by the VQI Research Advisory Committee and focus on evaluation of device outcomes, including the following:

- safety and efficacy of devices, which involves assessing predictor and comparative effectiveness studies using broad categories of devices, specific device designs, and components of devices;
- the impact of provider characteristics on device outcomes;
- health disparity related to device use and outcomes; and
- the impact of medical practice guidelines and healthcare policies.

Matching Process: VISION matches surgical cases in the Vascular Quality Initiative registry with information on long-term outcomes derived from Medicare claims data. Direct matching methods were used to match VQI cases to Medicare claims using SSN, date of birth (DOB), gender, and date of procedure. For VQI patients who were not matched to Medicare data through direct linkage (missing SSN), an indirect linkage based on a validated sequential algorithm (ref) was used to enhance matching. Variables used for indirect linkage were facility ID and state, patient date of birth, sex, procedure date, and zip code. The indirect linkage algorithm has been shown to have >90% sensitivity and >99% specificity in a state database.¹

Inclusion/exclusion criteria: We included linked records for which an index procedure record can be found in Medicare claims data. An index record was located using two combined criteria: 1) must have one of the procedure codes defining the procedure; 2) must have admission and discharge dates that encompassed the procedure date. We then excluded inaccurate match, one VQI patient linked to multiple Medicare beneficiaries or one Medicare beneficiary linked to multiple VQI patients.

Dataset description: Medicare-derived outcomes data are only available for patients in fee-for-service Medicare. The Medicare variables describe hospitalizations and outpatient procedures that occurred subsequent to the index hospitalization through the analytic end date. In the Medicare data, six major outcomes are identified:

1. Death
2. Procedure-specific adverse outcome (stroke, aortic rupture, amputation)
3. Reintervention (repeated vascular procedures)
4. Readmission
5. Post-procedure imaging
6. Cost

¹ References:

Mao J, Etkin CD, Lewallen DG, Sedrakyan A. Creation and Validation of Linkage Between Orthopedic Registry and Administrative Data Using Indirect Identifiers. *The Journal of arthroplasty*. 2019 Jun 1;34(6):1076-81.