

Longitudinal Approaches to Evaluate Health Care Quality and Outcomes: The Veterans Health Administration Diabetes Epidemiology Cohorts

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Abstract

Objective:

The Institute of Medicine proposed recently that, while current pay for performance measures should target multiple dimensions of care, including measures of technical quality, they should transition toward longitudinal and health-outcome measures across systems of care. This article describes the development of the Diabetes Epidemiology Cohorts (DEpiC), which facilitates evaluation of intermediate “quality of care” outcomes and surveillance of adverse outcomes for veterans with diabetes served by the Veterans Health Administration (VHA) over multiple years.

Methods:

The Diabetes Epidemiology Cohorts is a longitudinal research database containing records for all diabetes patients in the VHA since 1998. It is constructed using data from a variety of national computerized data files in the VHA (including medical encounters, prescriptions, laboratory tests, and mortality files), Medicare claims data for VHA patients, and large patient surveys conducted by the VHA. Rigorous methodology is applied in linking and processing data into longitudinal patient records to assure data quality.

Results:

Validity is demonstrated in the construction of the DEpiC. Adjusted comparisons of disease prevalence with general population estimates are made. Further analyses of intermediate outcomes of care demonstrate the utility of the database. In the first example, using growth curve models, we demonstrated that hemoglobin A1c trends exhibit marked seasonality and that serial cross-sectional outcomes overestimate the improvement in population A1c levels compared to longitudinal cohort evaluation. In the second example, the use of individual level data enabled the mapping of regional performance in amputation prevention into four quadrants using calculated observed to expected major and minor amputation rates. Simultaneous evaluation of outliers in all categories of amputation may improve the oversight of foot care surveillance programs.

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Abbreviations: (DEpiC) Diabetes Epidemiologic Cohort, (HCFA) Health Care Finance Administration, (HMO) health maintenance organizations, (VA) Veterans Affairs, (VHA) Veterans Health Administration

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Abstract cont.**Conclusions:**

The use of linked, patient level longitudinal data resolves confounding case mix issues inherent in the use of serial cross-sectional data. Policy makers should be aware of the limitations of cross-sectional data and should make use of longitudinal patient databases to evaluate clinical outcomes.

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