

POSTER ABSTRACTS

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Development and Application of a Computer Algorithm to Identify Epilepsy Cases in Managed Care Organizations

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Background: The purpose of this study was to develop and apply computer algorithms to an administrative dataset to identify the prevalence and incidence of epilepsy, and epilepsy-related mortality within a managed care organization.

Methods: The study consisted of three phases: exploratory, confirmatory, and application of the algorithm to estimate prevalence, incidence, and mortality. Exploratory: Potential epilepsy patients were identified based on epilepsy-related codes in administrative data; a random sample of charts were reviewed to confirm epilepsy cases. An algorithm was developed utilizing combinations of epilepsy-related diagnoses, procedures, and medications based on chart review results. Confirmatory: The algorithm derived in the exploratory phase was then applied to a new dataset from the same MCO; a second confirmatory chart review was conducted. Further algorithm refinement was accomplished by applying logistic regression models to the combined chart review data from both phases. Application: The final models were applied to 1-, 3-, and 5-year datasets to identify prevalent and incident cases which were then linked to a statewide death registry to derive mortality estimates.

Results: The best model used diagnoses and anti-epileptic drugs as predictors, had a positive predictive value of 84% (sensitivity, 82%;, specificity 94%), and correctly classified 90% of the cases. Prevalence rates of 7–10/1000 across the 1-, 3-, and 5-year datasets, depending on age, gender, and ethnicity, were obtained. Annualized incidence for members continuously enrolled for 3 years was 47/100,000 and 71/100,000 for members continuously enrolled for 5 years. Crude mortality rates were 2 – 2.5 times higher for epilepsy patients identified with the best model compared to controls.

Conclusion: The algorithm developed in this project can be used to monitor trends in incidence, prevalence, and mortality to inform decisions critical to improving the health care and overall quality of life for epilepsy patients.