Validation of the Use of Electronic Health Records for Classification of ADHD Status

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Abstract

Objective:
To validate an electronic health record (EHR)–based algorithm to classify ADHD status of pediatric patients.

Method:
As part of an applied study, we identified all primary care patients of The Children’s Hospital of Philadelphia [CHOP] health care network who were born 1987-1995 and residents of New Jersey. Patients were classified with ADHD if their EHR indicated an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis code of “314.x” at a clinical visit or on a list of known conditions. We manually reviewed EHRs for ADHD patients (n = 2,030) and a random weighted sample of non-ADHD patients (n = 807 of 13,579) to confirm the presence or absence of ADHD.

Results:
Depending on assumptions for inconclusive cases, sensitivity ranged from 0.96 to 0.97 (95% confidence interval [CI] = [0.95, 0.97]), specificity from 0.98 to 0.99 [0.97, 0.99], and positive predictive value from 0.83 to 0.98 [0.81, 0.99].

Conclusion:
EHR-based diagnostic codes can accurately classify ADHD status among pediatric patients and can be used by large-scale epidemiologic and clinical studies with high sensitivity and specificity.