

## BACKGROUND

- Asthma is one of the most common chronic conditions affecting Canadians, but its burden is poorly understood.
- Electronic medical records (EMRs) provide a source of clinical data from primary care practices that can be used to determine prevalence and epidemiologic characteristics of asthma.
- The Canadian Primary Care Sentinel Surveillance Network (CPCSSN) has developed a process that enables data from provincial EMR databases to be extracted, cleaned, and merged into a single national primary-care data set.

## OBJECTIVE

To develop and validate a case definition and case-finding algorithm to identify adults with asthma who consult family physicians and provide estimates of asthma prevalence in the community.

## METHODS

### DESIGN

- A case definition to identify adults with asthma was developed using clinical expertise.
- Following a consensus development exercise with 100 patient records, four clinicians examined 250 records each to identify asthmatic adults.
- A computer-generated case definition (Table 1) was applied to a case-by-case auditing of the same 1000 patient records.
- A computerized case-finding algorithm was then used to identify adult asthmatic patient records in an electronic database.

### DATA SOURCE

- The study utilized electronic records from the Southern Alberta Primary Care Research Network (SAPCRen), which is a regional network participating within CPCSSN.

### PARTICIPANTS

- Patients over age 17 of any gender and health status who had visited a CPCSSN primary care provider during the period January 1, 2014-December 31, 2016.

### OUTCOME MEASURES

- Case definition quality characteristics (sensitivity, specificity, positive predictive value, and negative predictive value) and asthma prevalence.

### ETHICS

- the study received approval from the Health Research Ethics Board at the University of Alberta (Pro00072496) and the Conjoint Health Research Ethics Board (CHREB) at the University of Calgary (REB17-1710).

## RESULTS

### INTER-RATER AGREEMENT

- The Fleiss Kappa coefficient was 0.71 (95% CI: 0.64 – 0.78, p<0.001), indicating ‘substantial agreement’ between the four raters.

### VALIDATION METRICS

- The case definition had: **83.33% sensitivity** (95% CI: 63.61-93.88%); **99.28% specificity** (95% CI: 98.51-99.67%); **positive predictive value of 74.07%** (95% CI: 55.03-87.14%); and **negative predictive value of 99.59%** (95% CI: 98.93-99.86%).

### PREVALENCE

- The prevalence of adult asthma in southern Alberta was **4.20%** (95% CI: 4.09-4.31).

**Table 1. Case definition for adult asthma**

“Billing diagnosis” in data set	“Encounter diagnosis” in data set	“Health condition” in data set
At least <u>two</u> occurrences of the following ICD9 code: - 493 - asthma	At least <u>two</u> occurrences of the following ICD9 code: - 493 - asthma	At least <u>one</u> occurrence of the following ICD9 code: - 493 - asthma
	At least two occurrences of the following text: - asthm*	At least two occurrences of the following text: - asthm*
	The following text are excluded: - *asthma*query* - *query*asthma* - *asthma*?*	The following text are excluded: - *asthma*query* - *query*asthma* - *asthma*?*

## CONCLUSIONS

- This study provides a valid case definition and case-finding algorithm for the identification of adults with asthma in the primary care setting in Canada.
- The use of the validated case definition and algorithm may be used to improve patient care and improve understanding of the prevalence and burden of asthma in primary care in Canada.

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