

## About the Data: Adult Health and Disease

### Introduction

The proportions of people with the chronic illnesses: diabetes, hypertension, asthma and chronic obstructive pulmonary disease (COPD), were derived from validated, disease registries maintained by the Institute for Clinical Evaluative Sciences (ICES). These databases were created using hospital discharge abstracts from the Canadian Institute for Health Information (CIHI), including same day surgery, and physician service claims from the Ontario provincial health insurance database (OHIP), and information regarding persons eligible for health care coverage in Ontario from the Registered Persons Database (RPDB). As such, all the chronic disease data are based on physician-diagnosed cases and do not capture individuals who may have a condition, but who have not been diagnosed by a physician. In addition, Community Health Centre (CHC) claims and non-OHIP visits are not available. Community Health Centres account for approximately 5% of physician claims in the province.

#### *About Community Health Centres (CHCs):*

There were 253,000 CHC clients reported in 2006/07 (not including clients of community programs). With the number of CHCs increasing from 54 in 2005 to 74 by 2010, the population served by CHCs is increasing. The percent of the population served by CHCs varies widely across the province but is highest (more than 6%) in the Toronto Central LHIN which has 18 CHCs (AOHC, 2008. Everyone Matters).

<http://www.aohc.org/aohc/index.aspx?CategoryID=71>

#### *Who do CHCs serve?*

"In some communities, anybody who registers as a client can access the programmes and services of the local CHC. In most cases, Centres identify priority populations – communities who have traditionally faced barriers accessing health services and programs. Some of the priority populations for CHCs include seniors, people with disabilities, youth, Francophones, Aboriginal Ontarians, low-income families, immigrants, as well as underserved rural populations. Some centres also place an emphasis on serving populations who face discrimination because of race, language, culture and sexual orientation." AOHC 2010. FAQ about CHCs.

### Diabetes

Individuals are considered to have diabetes if they have 2 physician claims (diagnosis code 250) or 1 OHIP fee code (Q040, K029 or K030 – diabetes management, insulin therapy support, diabetic management assessment codes, respectively) claim or 1 hospital admission for diabetes within a two

year period. Once a person is considered to have diabetes, they remain a person with diabetes in the database until death. Gestational diabetes is excluded from this definition based on the following algorithm: Whenever there was a hospital record with a diagnosis of pregnancy care or delivery between 120 days before and 180 days after a gestational admission date, the diabetic record was considered to be for gestational diabetes, and it was excluded.

Information on the original algorithm used to define diabetes cases was published in *Diabetes Care* 2002; 25: 512-516. In this validation study, the algorithm was found to have a sensitivity (the ability of a test to identify people who truly have the disease) of 86% and a specificity (the ability of a test to be negative for people who truly do not have the disease) of 97%.

### Asthma

Individuals are considered to be asthmatic if they have 2 physician claims or one hospital admission (including same day surgery) with an asthma diagnosis within two years. Once a person is considered to be asthmatic, they remain in the asthma database until death.

The asthma algorithm was validated through two chart abstraction studies. The algorithm yielded 89% sensitivity and 72% specificity in children (aged 0-17) and 84% sensitivity and 76% specificity in adults (aged 18+). Reference: Gershon A.S., Wang C., Vasilevska-Ristovska J., Guan J., Cicutto L., To T. Identifying patients with physician diagnosed asthma in health administrative databases. *Canadian Respiratory Journal* 2009 Nov-Dec; 16(6): 183-8.

### High Blood Pressure (Hypertension)

Individuals are considered to have hypertension if they have had: a) one hospital admission with a hypertension diagnosis, or b) an OHIP claim with a hypertension diagnosis followed within two years by either an OHIP claim or a hospital admission with a hypertension diagnosis. The following diagnostic codes are used for diagnosis of hypertension: 401.x, 402.x, 403.x, 404.x, or 405.x (International Classification of Disease, 9<sup>th</sup> revision) or I10.x, I11.x, I12.x, I13.x, or I15.x (International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision).

This algorithm was previously demonstrated to identify adults with hypertension with a sensitivity of 72%, specificity of 95%, positive predictive value (the probability that a patient with a positive test result really does have the condition for which the test was conducted) of 87% and negative predictive value (the probability that a patient with a negative test result really is free of the condition for which the test was conducted) of 88%.

Reference: Tu K, Campbell NR, Chen Z, Cauch-Dudek K, McAlister FA. Accuracy of administrative databases in identifying patients with hypertension. *Open Medicine* 2007 April; 1(1): 18-26.

### Chronic Obstructive Pulmonary Disease (COPD)

Individuals are considered to have COPD if they have one physician diagnosis or one hospitalization (including same day surgery) for COPD. This health administrative data driven definition of COPD was validated as a prevalence measure, not as an incidence measure. This definition was found to have a sensitivity of 85% and a specificity of 78.4%. Reference: Gershon AS, Wang C, Guan J, Vasilevska-Ristovska J, Cicutto L, To T. Identifying individuals with physician diagnosed COPD in health administrative databases. *J Chronic Obstructive Pulmonary Disease* 2009 Oct; 6(5): 388-94.

### Mental Health Conditions

Mental health conditions are defined by the occurrence of a doctor's visit for a symptom related to mental health. A mental health condition was assumed based on physician (OHIP) claims if a person had:

- 1) A general service code (A001, A003, A004, A005, A006, A007, A008, A888, A901, A905) AS WELL AS a mental health diagnostic code (295,296,297,298,300,301,302,306,309,311,303,304,897,898,899, 900, 901, 902, 904, 905, 906, 909);
- 2) A mental health service code (K005, K007, K623) AS WELL AS a mental health diagnostic code (as above).

Reference: Steele LS, Glazier RH, Lin E, Evans M. Using Administrative Data to Measure Ambulatory Mental Health Service Provision in Primary Care. *Medical Care* 2004; 42: 960–965.