About the Data: Adult Health and Disease - Chronic Illness

Last Updated: May 08, 2015

Adult Health and Disease: 2012, 2011, 2010, 2007

Introduction

This document provides an overview of adult health: chronic disease for the most common chronic diseases among the adult population, male and female:
- ages 20+ for diabetes, high blood pressure, asthma and mental health visits
- ages 35+ for chronic obstructive pulmonary disease
- ages 0+ for Specific Health Conditions among total population, by Health Link, 2010 fiscal year: diabetes, high blood pressure, asthma, mental health, chronic obstructive pulmonary disease (COPD), cancer, coronary heart failure (CHF), myocardial infarction (MI)

The data are provided at the following levels of geography:
- City of Toronto neighbourhood
- Health Link (HL)
- Local Health Integration Network (LHIN)

Data Source

Numerator

The proportions of people with the chronic illnesses: diabetes, high blood pressure, 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-DAD), including same day surgery, and physician service claims from the Ontario provincial health insurance database (OHIP).
Mental health conditions are defined by the occurrence of a doctor`s visit for a symptom related to mental health.

Denominator

Information regarding persons eligible for health care coverage in Ontario derived from the Ontario Ministry of Health and Long-Term Care (MOHLTC) Registered Persons Database (RPDB).

NOTE

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 7% of physician claims in the province.

See the information at the bottom of this document that provides further details regarding the definitions for each of the chronic illnesses listed and validation methods.

A Note About Community Health Centres (CHCs):

Ontario's Community Health Centres (CHCs) are community governed not-for-profit primary health care organizations. In Ontario, a total of 75 CHCs, 17 located in the Toronto Central LHIN, serve approximately 500,000 people with 250, 000 of these accessing primary care services.

Who do CHCs serve?

Each of Ontario's CHCs is unique. CHCs offer clinical care that include doctors, nurse practitioners, nurses, dietitians, social workers and other kinds of health providers under one roof. They offer care to those populations that have, for whatever reason, traditionally faced barriers accessing health care. CHCs offer culturally-adapted programs for the needs and preferences of the communities they serve including delivering services in many different languages.
Information about CHCs from http://aohc.org/ accessed on January 26, 2015. For more information about CHCs, see the link, above.

Adult Health and Disease, 2012

Denominator: Population in 2011 based on Ontario Ministry of Health and Long-Term Care Registered Persons Database (RPDB) with at least one health claim in the previous five years (Alive at April 1, 2012 and date of last contact after April 1, 2007)

Numerator (Diabetes): is based on prevalence cases reported in ICES Diabetes data base in 2012 and derived from the Ontario Diabetes Database (ODD) maintained by the Institute for Clinical Evaluative Sciences (ICES)

Numerator (High Blood Pressure): is based on prevalence cases reported in ICES Hypertension data base in 2012

Numerator (Asthma): is based on prevalence cases reported in ICES Asthma data base in 2012

Numerator (Chronic Obstructive Pulmonary Disease (COPD)): is based on prevalence cases reported in ICES COPD data base in 2012

Numerator (Mental Health Visits): is the average number of patients with mental health visits derived from Ontario Health Insurance Plan (OHIP) during the 2011 and 2012 fiscal years

Adult Health and Disease, 2011

Denominator: Ontario Ministry of Health and Long-Term Care Registered Persons Database (RPDB), population aged 20+ who were alive and living in the City of Toronto on April 1st, 2011.

Numerator: derived from the Ontario Diabetes Database (ODD) maintained by the Institute for Clinical Evaluative Sciences (ICES). Community Health Centre (CHC) visits and non-OHIP claims are not available.

Adult Health and Disease, 2010

Prevalence * of Specific Health Conditions Among Total Population, by Health Link, 2010 Fiscal Year: Cancer, Asthma, COPD (Chronic Obstructive Pulmonary Disease), Hypertension, Diabetes, CHF (Coronary Heart Failure), Mental Health, MI (Myocardial Infarction)

Note: * Prevalence is calculated as the proportion of the total population with the specific health condition (not age-adjusted).

Adult Health and Disease, 2007

Denominator: Ontario Ministry of Health and Long-Term Care Registered Persons Database (RPDB), population with at least 1 health claim in the previous three years

About the ICES-derived validated disease registries

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, 9th revision) or I10.x, I11.x, I12.x, I13.x, or I15.x (International Statistical Classification of Diseases and Related Health Problems, 10th 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.

Cancer

Cancer cases are identified from Ontario Cancer Registry (OCR).

The OCR is a computerized database of information on all Ontario residents who have been newly diagnosed with cancer (“incidence”) or who have died of cancer (“mortality”). All new cases of cancer are registered, except non-melanoma skin cancer.

Reference: Information about OCR
from https://www.cancercare.on.ca/toolbox/systeminfo/
accessed on May 06, 2015.

Coronary Heart Failure (CHF)

CHF cases were identified from ICES coronary heart failure (CHF) database. This database define cases based on the algorithm developed by Schultz et.al (see reference). A patient is said to have CHF if s/he had one hospital admission (either from the DAD or from OMHRS) with a CHF diagnosis or an OHIP claim/NACRS ED record with a CHF diagnosis followed within one year by either a second record with a CHF diagnosis from any source.

Reference: S. E. Schultz, D. M. Rothwell, Z. Chen, K. Tu, Identifying cases of congestive heart failure from administrative data: a validation study using primary care patient records. Chronic Diseases and Injuries in Canada Volume 33 · Number 3 · June 2013