

Chapter 2: How is Ontario's Publicly Funded Health System Performing?

Technical Report

**Prepared by the Institute for Clinical Evaluative Sciences
For the Ontario Health Quality Council**

May 2008

Table of Contents

1. Background	3
1.1. Introduction to the Technical Report	3
2. Overview of Indicators Selected for 2008 Report on Ontario's Health System	3
2.1. New indicators	3
2.2. Urban/rural focus on equity	4
2.3. Local Health Integration Network-level analyses and other stratifications	5
3. Indicators from Sources Outside of ICES	5
3.1. Commonwealth Fund and the Health Council of Canada	5
3.2. Wait Time Information System	6
3.3. Ontario Telemedicine Network	7
3.4. 2007 Health Indicators: Canadian Institute for Health Information	7
3.5. Hospital Reports Research Collaborative 2005-2007	8
3.6. National Health Expenditure Database: Canadian Institute for Health Information	10
3.7. Health Human Resources Strategy Division of the MOHLTC	10
3.8. Ontario Health System Scorecard	11
3.9. Cancer System Quality Index 2007	11
3.10. Health Reports: Statistics Canada	12
4. Indicators Calculated by ICES	12
4.1. Overview of the process for producing indicator data	12
4.2. Data sources	13
4.3. Indicator data set creation plans for ICES Indicators	15
Acknowledgements	69
Appendix A - Drug list	70
Appendix B - Inclusion list	74
Appendix C - Exclusion list	76
Endnote	77

1. Background

1.1. Introduction to the Technical Report

The Institute for Clinical Evaluative Sciences (ICES) entered into a contract with Ontario Health Quality Council (OHQC) in 2007 to work in collaboration with OHQC to identify a set of indicators that could be used in OHQC reports and to provide the OHQC with data on those indicators. This year, in conjunction with OHQC partners, we present the 2008 Report on Ontario's Health System (from here on referred to as the 2008 Report) and an accompanying Technical Report.

The purpose for writing a Technical Report is to provide public access on details of the process used to generate the data on the indicators included in the 2008 Report. These details make the measurement process more transparent and can serve as the basis for efforts by other groups to replicate the measures presented in the 2008 Report. Further details on the process and methods used to select the final set of indicators can be obtained by contacting the OHQC.

The indicator results presented in the 2008 Report came from two sources. The first source was indicators that ICES obtained from public documents or that ICES requested from other organizations. The second source of indicator results were indicators that were calculated by ICES staff using data sets housed at ICES.

The body of the Technical Report is divided into three sections. Section 2 provides an overview of the new indicators in this year's report, describes this year's focus of the equity section of the report and explains how LHIN-level analyses were conducted. Section 3 provides details on the indicators obtained from various data sources outside of ICES and is divided into subsections that describe indicators from each of the different data sources. Section 4 provides detail on the indicator data generated by ICES and is divided into subsections according to each of the nine OHQC attributes for a high performing health care system.

2. Overview of Indicators Selected for 2008 Report on Ontario's Health System

2.1. New indicators

The indicators included in each Report are selected through a consultative process between ICES and the OHQC with significant advice from the OHQC's Performance Measurement Advisory Board (PMAB). Indicator selection is guided by both the availability of indicators and the availability of high quality and timely Ontario data sets that reflect important aspects of the OHQC's nine attributes of a high performing health system. In line with quality improvement practices, the process strives to increase the relevancy, accuracy, coverage and comprehensiveness of the indicator data presented each year. This means that from one year to the next new indicators will be added to the report while other indicators are dropped. A number of changes will be noted in comparing the 2008 Report to last year's report.

The 2008 Report includes many new indicators that have been made available from new data sources. These new data sources include the Commonwealth Fund Surveys, the Hospital Reports Research Collaborative Reports and the MOHLTC Health Human Resource (HHR) Strategy Division HHR supply data. In addition, ICES calculated almost 20 new measures in the 2008 Report using existing administrative datasets. The new indicators help contribute to a comprehensive and balanced assessment across the nine attributes of a high performing health system.

Plans are underway to improve on the content for the 2009 Report. Of particular note, the Commonwealth Fund will be conducting the 2008 International Health Policy Survey of the General Public's Views of their Health Care System's Performance in Seven Countries with an expanded Ontario survey sample. The larger sample size will be useful for conducting statistical analyses with greater confidence and improving the representativeness of the results. ICES will continue to work with the OHQC and the PMAB to find new ways to measure integration, safety and healthy workplaces for health practitioners and to work on and advocate for better data sources across the continuum of care.

2.2. *Urban/rural focus on equity*

The OHQC believes that a high performing health care system should be equitable – that people should get the same quality of care regardless of who they are and where they live. Each year the OHQC selects one socio-demographic characteristic that becomes the focus for the Report's analysis of how equitable care is in Ontario. In 2007 the equity focus was on aboriginal and immigrant populations. This year the report presents comparative data on quality of care received by people who live in rural versus urban areas in Ontario.

There are different ways to define what a rural area is. The OHQC Report 2008 used a definition of rurality that was developed by the Ontario Medical Association (OMA) called the Rurality Index for Ontario (RIO). The index summarizes a range of variables related to the accessibility to medical care to create a value between 0 and 1 for every census sub-division¹. The government uses the cut-off of point of 0.45 or above on the RIO to identify rural areas to target for special physician access initiatives. The OHQC Report 2008 also uses 0.45 and above to define rural areas. Additional details on how the RIO score is constructed can be obtained from the October 2000 issue of the Ontario Medical Review.

Rates for individuals living in urban and rural parts of the province were calculated for a set of indicators that measured quality of care:

- Proportion of Ontario population (18 years and older) who have a regular medical doctor by rural/urban residence, 2007
- Proportion of Ontario population (18 years and older) with a chronic disease who have a regular medical doctor by rural/urban residence, 2007
- Adjusted rates of cataract surgery by rural/urban residence, per 100,000 population, 2002/03 to 2006/07
- Adjusted rates of CT scans by rural/urban residence, per 100,000 population, 2002/03 to 2006/07
- Adjusted rates of hip replacement by rural/urban residence, per 100,000 Population, 2002/03 to 2006/07

- Adjusted rates of death per 100 patients newly diagnosed with congestive heart failure by rural/urban residence in Ontario, 2002/03 to 2005/06
- Rates of at least one inappropriate prescription per 100 seniors in the community by rural/urban residence, per 100,000 Population, 2002/03 to 2006/07
- Proportion of Ontario population (aged 18 years and older) satisfied with their care when sick by rural/urban residence, 2007

Postal code information from the databases used to create the indicators was linked to census data at the census sub-division to determine if the individual was a resident of an urban or rural area as defined by the RIO score of 0.45 or greater. The denominator for calculating rates was estimated using information from the Registered Persons Database (RPDB).

2.3. Local Health Integration Network-level analyses and other stratifications

LHIN-level stratifications are presented for selected indicator data where the results at the LHIN-level contribute either important or new information. The approach used to calculate LHIN-level results varies by indicator and depends on the databases used in the analysis. In some cases the individual samples within the database have a LHIN assignment so no other coding is necessary. In other cases, the individual samples are linked by health card numbers to the Register Persons Database to acquire their LHIN assignment². The statistical program codes and variable names used to conduct these analyses are pre-written ‘macros’ codes that are specific to ICES and are therefore not detailed in this technical report. Contact the OHQC if you wish to learn more about how LHIN-level and other stratifications were conducted in the 2008 Report.

3. Indicators from Sources Outside of ICES

This section lists and describes the data sources for indicators calculated by sources other than ICES. Each data source is briefly described and provides links to additional information. In addition, the indicators drawn from each data source are listed in a table at the end of each description so that it is clear to the reader which indicators in the 2008 Report were drawn from each data source.

3.1. Commonwealth Fund and the Health Council of Canada

The Commonwealth Fund 2007 International Health Policy Survey of the general public's views of their health care system's performance in seven countries was sponsored by the Commonwealth Fund based in New York, USA. Funding for the Canadian sample was provided by the Health Council of Canada; the Dutch sample by The Dutch Ministry of Health, Welfare and Sport and The Centre for Quality of Care Research (WOK), Radboud University Nijmegen; and the German sample by the German Institute for Quality and Efficiency in Health Care. Harris Interactive was the survey sponsor and overseer of the telephone survey in all countries. Further details can be found from the Commonwealth Fund publication called *Toward Higher-Performance Health Systems: Adults' Health Care Experiences in Seven Countries, 2007*, November 1, 2007; Volume 92 or by reviewing the technical documentation online at: http://www.commonwealthfund.org/surveys/surveys_show.htm?doc_id=568326.

Nine indicators in the report were drawn from the Commonwealth Fund 2007 International Health Policy Survey. Country-level indicator results were weighted to provide a true population

estimate. Ontario-level indicators results were not weighted however respondents in the sample had a similar to the Ontario population.

Attribute	Indicator	Data Source
Accessible	Percentage of adults who have a regular doctor or place of care, in Ontario and by country, 2007	Health Council of Canada, 2007. Commonwealth Fund 2007 International Health Policy Survey of the General Public's Views of their Health Care System's Performance in Seven Countries
	Percentage of adults who could get a doctor's appointment the same or next day the last time they were sick or needed medical attention, in Ontario and by country, 2007	
	Percentage of the population who visited emergency and say they waited two hours or more for treatment after arrival, in Ontario and by country, 2007	
	Percentage of adults who have a regular doctor or place of care who can communicate with this health care provider by email, in Ontario and by country, 2007	
	Percentage of adults who called a telephone help line for medical or health advice in the past 12 months, in Ontario and by country, 2007	
Patient-centered	Percentage of adults who have a regular doctor or place of care who rate the over quality of medical care they received in the past 12 months as excellent or very good, in Ontario and by country, 2007	
	Percentage of adults who have a regular doctor or place of care who said this provider always explains things in a way they can understand, in Ontario and by country, 2007	
	Percentage of adults who have a regular doctor or place of care who said this provider always tells them about treatment options and involves them in decisions about the best treatment, in Ontario and by country, 2007	
	Percentage of adults who have a regular doctor or place of care who said this provider spent enough time with them, in Ontario and by country, 2007	

3.2. Wait Time Information System

The Ontario Wait Time Information System (WTIS) is a program of the Ontario Ministry of Health and Long-Term Care (MOHLTC) and was the data source for all wait times related data on the Ontario government's five priority wait times surgeries and procedures. Wait time calculations are based on closed cases submitted by hospitals through the WTIS or through the upload tool. The upload tool is an interim system of sending data from hospitals not yet integrated with WTIS. Up to date wait time data can be found at www.ontariowaittimes.ca. Full details of the wait time data collection methodology including definitions, calculations, data sources, comprehensiveness (inclusion and exclusion criteria), limitations, comparisons, data quality and privacy considerations can be found online at:

http://www.health.gov.on.ca/transformation/wait_times/providers/wt_data.html. The indicator data on wait times by time period were provided to ICES by request.

Data for the following 90th percentile wait times indicators was produced by the Wait Times Information Office:

Attribute	Indicator	Data Source
Accessible	90th Percentile wait times for cancer surgeries in Ontario, August/September, 2005 – December, 2007	WTIS
	90th Percentile wait times for angiography and angioplasty in Ontario, August/September, 2005 – December, 2007	
	90th Percentile wait time for cardiac bypass surgeries in Ontario, August/September, 2005 – December, 2007	
	90th Percentile wait time for hip and knee replacement and cataract surgeries in Ontario, August/September, 2005 – December, 2007	
	90th Percentile wait times for MRI and CT scans in Ontario, August/September, 2005-December, 2007	

3.3. Ontario Telemedicine Network

The Ontario Telemedicine Network (OTN) is one of the busiest and most comprehensive telemedicine programs in Canada. Using advanced information and communication technologies and electronic medical devices, OTN supports the delivery of clinical care, professional education and health-related administrative services to more than 440 sites across the province. OTN is an independent, not-for-profit organization funded by the MOHLTC. More detailed information can be found at www.otn.ca. OTN provided ICES with the indicator data included in the report.

OTN collects a broad range of data on volumes of telemedicine communication events. The core measure on clinical encounters is what was included in the 2008 Report:

Attribute	Indicator	Data Source
Accessible	Use of telemedicine for patient consultations across Ontario, 2003/04-2006/07	OTN, MOHLTC

3.4. 2007 Health Indicators: Canadian Institute for Health Information

Each year CIHI publishes the Health Indicators report with the results of a standard set of indicators from across the provinces to compare health status and health system performance. The final set of indicators is decided at a national consensus conference. The rationale, definitions, statistical model specification and data sources for all indicators can be found online at http://www.ices.ca/cihiweb/dispPage.jsp?cw_page=tech_notes_e or by searching the CIHI website for the 2007 Health Indicators Technical Notes.

The 2007 Health Indicators report indicators that were presented in the 2008 Report are listed in the table.

Attribute	Indicator	Data Source
Effective	Adjusted in-hospital rate of death within 30 days per 100 patients admitted for heart attack, by province, 2004	2007 Health Indicators: CIHI
	Adjusted in-hospital rate of death within 30 days per 100 patients admitted for stroke by province, 2004	

Both measures were calculated using the Discharge Abstract Database and the Hospital Morbidity Database both housed at CIHI. The results were risk-adjusted using an approach described in the technical notes.

3.5. Hospital Reports Research Collaborative 2005-2007

Since 1999, the Hospital Reports Research Collaborative has produced a series of reports on the performance of Ontario's hospitals and other sectors within the health care system. Performance is assessed on a range of topics including clinical utilization and outcomes, financial performance, patient satisfaction and system integration and change. This report draws on the research conducted in acute care and the emergency department and presents composite indicator data results from the patient satisfaction survey as well as summary scores on use of information technology from the system integration and change reports.

The patient satisfaction analysis resulted from the combined efforts of about 90 participating Ontario hospital corporations, the Ontario Hospital Association (OHA), the National Research Corporation (NRC+Picker Canada), The University of Toronto, and the CIHI. The acute care and emergency department reports employed a modified version of the Picker Acute Care Survey, which has been used extensively in the United States and Europe. The Picker Acute Care Survey was modified, pilot tested and validated for a Canadian population.

Sampling plans varied according to each participating Ontario acute care centre and hospital emergency department. Of those patients invited to respond to the survey each year, between 32-48% agreed to participate by responding to the survey. Each year the participating sample had at least 20,000 individuals. Survey questions were combined to build the three composite measures presented in the 2008 Report: communication, consideration and responsiveness. Full technical details regarding the survey questions, sampling techniques, sample sizes, inclusion/exclusion criteria, weighting and survey process are available online:

Acute Care: Patient Satisfaction

2007: http://www.hospitalreport.ca/downloads/2007/AC/2007_AC_patsat_techreport.pdf

2006: http://www.hospitalreport.ca/downloads/2006/AC/2006_AC_ps_techreport.pdf

2005: http://www.hospitalreport.ca/downloads/2005/EDC/2005_ED_PatSat_TechReport.pdf

Emergency Department: Patient Satisfaction

2007: http://www.hospitalreport.ca/downloads/2007/EDC/2007_ED_patsat_techreport.pdf

2005: http://www.hospitalreport.ca/downloads/2005/EDC/2005_ED_PatSat_TechReport.pdf

The use of clinical information technology indicator was constructed to reflect the degree to which clinical information is available electronically to care providers inside and outside of the organization. The survey was sent to approximately 123 participating Ontario hospitals and the response rate over the three years presented was approximately 85%. Hospitals were asked to complete one survey for the entire institution.

These survey questions are self-reported by hospital administrators and may be subject to social-desirability bias. To counteract this bias, an effort was made to construct survey questions that focused on specific behaviours rather than attitudes. CIHI analysts performed data quality checks on the completed surveys to ensure that all mandatory questions were answered and that skip logic, validation and question masking were performed correctly by the online survey. Full technical details describing the survey design, administration, analytical approach and data quality is available online:

Acute Care: System Integration and Change

2007: http://www.hospitalreport.ca/downloads/2007/AC/2007_AC_sic_techreport.pdf

2006: http://www.hospitalreport.ca/downloads/2006/AC/2006_AC_sic_technotes.pdf

2005: http://www.hospitalreport.ca/downloads/2005/AC/AC_SIC_TechReport_FINAL.pdf

The following Hospital Reports measures were used in this report:

Attribute	Indicator	Data Source
Patient-centered	Patient satisfaction and patient experience score for acute care in Ontario, 2003/04 to 2005/06	Hospital Reports Research Collaborative. Hospital Reports 2005: Acute Care Patient Satisfaction Technical Summary; Hospital Reports 2006: Acute Care Patient Satisfaction Technical Summary; Hospital Reports 2007: Acute Care Patient Satisfaction Technical Summary.
	Patient satisfaction and patient experience score for emergency departments in Ontario, 2003/04 to 2005/06	Hospital Reports Research Collaborative. Hospital Reports 2005: Emergency Department Care, Hospital Reports 2007: Emergency Department Care.
Appropriately Resourced	Score of selected Ontario acute-care hospitals on their use of information technology by type of hospital, 2005 to 2007	Hospital Report Research Collaborative. Hospital Report 2005: Acute Care System Integration and Change Technical Summary; Hospital Report 2006: Acute Care System Integration and Change Technical Summary; Hospital Report 2007: Acute Care System Integration and Change Tech. Summary
Integration	Percent of Ontario patients leaving emergency or acute inpatient care who knew whom to contact if they needed care or had questions, 2004/05 to 2005/06	Hospital Reports Research Collaborative. Hospital Reports 2007: Acute Care Patient Satisfaction Technical Summary; Hospital Reports 2007: Emergency Department Patient Satisfaction Technical Summary3

3.6. *National Health Expenditure Database: Canadian Institute for Health Information*

The National Health Expenditure database (NHEX) provides an overview of all health spending in Canada, by spending category and source of funding. Data are extracted from diverse public documents, including national and provincial/territorial public accounts and other financial reports. Other sources include private insurance companies, AC Nielsen Canada and Statistics Canada. CIHI strives to ensure that the quality of the information in their data holdings is suited to its intended uses, and that data users are provided good information about data quality. Full technical details for the report are available online at:

http://www.ices.ca/cihiweb/dispPage.jsp?cw_page=spend_nhex_e.

The following indicator data were drawn from the NHEX and included in the report:

Attribute	Indicator	Data Source
Appropriately Resourced	Total health expenditure as a percentage of gross domestic product by province, 1997, 2002 and 2007	Canadian Institute for Health Information, 2007. National Health Expenditure Trends, 1975-2007
	Percentage of total health expenditure funded by the Ontario government in 1997 constant dollars, 1997 - 2007	
	Percentage distribution of Ontario government health spending by use, 1997 and 2007	

3.7. *Health Human Resources Strategy Division of the MOHLTC*

The Health Human Resources Strategy Division of the MOHLTC determined the number of first year student placements for different health professionals. Analysts solicited the most recent data from the Ministry's own databases, universities and health care professional associations. The following table lists the specific professionals included in the 2008 Report and their associated data sources:

Attribute	Indicator	Data Source
Appropriately Resourced	Number of places for first-year students in Ontario, 2005/06 and 2007/08:	
	Undergraduate medical students	Physician Planning Unit, HHRPB, Ministry of Health and Long-Term Care, 2007
	Training and assessment opportunities for international trained medical graduates	
	Register nurses (RN)	Register Nurses' Association of Ontario, 2006/07
	Nurse practitioners (NP)	Public Announcement,

Attribute	Indicator	Data Source
		Ministry of Health and Long-Term Care, 2007
	Pharmacists	University of Waterloo and University of Toronto
	Midwives	Public Announcement, Ministry of Health and Long-Term Care, 2007

3.8. Ontario Health System Scorecard

The Ontario Health System Scorecard (OHSS) was developed by the Health System Strategy Division within the MOHLTC. It is a performance management tool that can be used to measure and guide strategic health system performance improvement initiatives. The Scorecard contains 30 performance indicators that measure the performance of the system against 14 strategic objectives. Indicator results were based on data sets from various databases and several different contributors conducted the statistical analyses. Full technical details are available from the OHQC upon request.

Three measures presented in this report were drawn from the work published in the OHSS:

Attribute	Indicator	Data Source
Appropriately Resourced	Supply of primary care physicians and primary care nurse practitioners per 100,000 population, Ontario, 2000-2006	Ontario Health System Scorecard 2007/08, MOHLTC
	Information systems and communications spending as a percentage of total net Ontario government health care spending, by Local Health Integration Network in 2006/07 and by year from 2003/04 to 2006/07	

3.9. Cancer System Quality Index 2007

Cancer Care Ontario (CCO) is an agency of the MOHLTC and is responsible for continually improving cancer services. The Cancer Quality Council of Ontario (CQCO) is an advisory group that works with the CCO to monitor and publicly report on the performance of the cancer system and provide advice on planning and strategic priorities. Each year the two groups publish the Cancer System Quality Index (CSQI).

The CSQI is a system-wide monitor that tracks the quality and consistency of key services delivered across Ontario's cancer system - from prevention to end-of-life care. There are approximately 30 indicators in the index. Details on targets, rationale, interpretation, and technical aspects of the measure such as definitions and data quality comments can be found online at: <http://www.cancercare.on.ca/qualityindex2007/index.html>.

Attribute	Indicator	Data Source
Focused on Population Health	Percentage of eligible women (age 50-69 years) who had a mammogram in 2004/05	CSQI 2007
	Percentage of eligible people (age 50-74) receiving one fecal occult blood test within the previous two years, in 2002/03 and 2004/05	

3.10. Health Reports: Statistics Canada

Statistics Canada's publication Health Reports covers a wide range of important health sector issues in a peer reviewed quarterly journal. The following measure was referenced from Kwong JC, Rosella LC & Johansen H. Trends in influenza vaccination in Canada, 1996/1997 to 2005. Statistics Canada Health Reports. November 2007; 18 (4).

Attribute	Indicator	Data Source
Focused on Population Health	Percent of the elderly population and the population with a chronic disease who got a flu vaccination, by province, 2005	Kwong JC, Rosella LC & Johansen H. Trends in influenza vaccination in Canada, 1996/1997 to 2005. Statistics Canada Health Reports. November 2007; 18 (4)

4. Indicators Calculated by ICES

4.1. Overview of the process for producing indicator data

The basic process for producing indicator data by ICES for the 2008 Report involves developing a set of decision rules for calculating the numerator and denominators for an indicator. These decision rules are used to generate a computer program in a software language called SAS. ICES uses a structured format called an indicator dataset creation plan (IDCP) to describe the decision rules. The IDCP is used by ICES staff to create a SAS program. The SAS program is then used to analyze a defined data set.

An IDCP identifies the ICES databases used to generate the indicator data and then describes how both the numerator and denominator for the rate are calculated including information on the exclusions and time frames. It then provides information on the crude rate for that indicator as well as any methods that were used to standardize the rate. The IDCP goes on to provide a detailed description of each of the variables used to create the indicator. This report provides an IDCP for each indicator calculated by ICES. The SAS code for each indicator includes complex variable names and software macros that are specific to ICES. Individuals interested in seeing the SAS code produced from the IDCP should contact the OHQC. As part of the process for verifying the data in the 2008 Report, two analysts independently checked the SAS code to ensure that it was consistent with the decision rules laid out in the IDCP.

4.2. Data sources

A wide range of data sources was used to create the indicator data presented in the 2008 Report. The data sources used for each indicator are listed in each IDCP. A brief glossary for these data sources is provided below. Data from many of the data sources can be linked using unique identifiers.

Registered Persons Data Base (RPDB)

The RPDB provides basic demographic information about anyone who has ever received an Ontario health card number. Data supplied to ICES by MOHLTC is enriched with information from other ICES data sets.

Ontario Health Insurance Plan (OHIP)

Claims for fee-for-service physician services are paid through OHIP. These claims provide information on the type of service provided. Approximately 94% of Ontario physicians have a fee for service practice. Some of the alternate funding plans use shadow billing (that is, a record for the service appears in the OHIP database, although the fee paid may be shown as \$0.00). The data is supplied to ICES by the MOHLTC.

Ontario Drug Benefit (ODB) plan

Each time a prescription is dispensed under the ODB program a claim is submitted to the ODB for payment. This claim contains information on the drug dispensed. The ODB data used in the report were limited to claims for individuals 65 years of age and over. The data is supplied to ICES by the MOHLTC.

Discharge Abstract Databases (DAD)

The DAD is a data collection tool developed by CIHI to collect information on patients treated in acute care hospitals. Each time an individual is discharged from an acute care hospital the hospital submits to CIHI an electronic record that contains patient demographic, diagnostic and treatment data. The DAD is supplied to ICES by CIHI.

National Ambulatory Care Reporting System (NACRS)

NACRS is a data collection tool developed by CIHI to capture information on patient visits to emergency departments. The NACRS data used in this report are collected on a routine basis by all emergency departments (ED) in Ontario. NACRS is supplied to ICES by CIHI.

National Rehabilitation Reporting System (NRS)

The NRS is a data source developed by CIHI. It contains client data collected from participating adult inpatient rehabilitation facilities and programs across Ontario, Canada. The data is supplied to ICES by CIHI.

Ontario Diabetes Database (ODD)

The ODD contains all Ontario diabetic patients identified since 1991. A patient is said to be diabetic if s/he had one hospital admission with a diabetes diagnosis recorded on the DAD or an OHIP claims with a diabetes diagnosis followed within two years by either an OHIP claim or a hospital admission with a diabetes diagnosis. The entire ODD is re-created yearly using updated OHIP, CIHI, and RPDB data.

Cardiac Care Network (CCN)

The CCN database is a computerized registry of all cardiac surgery patients province-wide. This database serves as a waiting list management system, which is used to facilitate and monitor access to cardiac surgery. CCN includes all 12 hospitals in Ontario that perform adult cardiac catheterization and surgery and is funded by the Ministry of Health and Long-Term Care. A patient is added to the list when s/he is referred for cardiac surgery; and removed from the list at the time of surgery, death, or a decision not to pursue surgery. Most of the data elements are coded by CCN's nurse coordinator at each hospital site. Some variables are computed by CCN's data gathering program; and a few (such as waiting time) are computed at ICES. ICES receives registry data from CCN on an annual basis.

Ontario Myocardial Infarction Database (OMID)

The Ontario Myocardial Infarction Database (OMID) is a database of patients hospitalized with a diagnosis of acute myocardial infarction (AMI) in Ontario between 1992 and 2006. It was created by linking together the following healthcare administrative databases: DAD, OHIP, ODB and RPDB. The OMID database contains information on demographic and clinical characteristics, outcomes, and health services used by patients hospitalized with an AMI. OMID was created by and is housed at ICES.

CHF Cohort

The CHF cohort is a database of all Ontarians diagnosed with CHF between 1994 and 2006 and includes both prevalent and incident cases. People with CHF were identified using data from three administrative databases: the OHIP database of physician billings, the DAD of inpatient records and the NACRS emergency department records. A person was identified as having CHF if they had an inpatient record with a diagnosis of CHF or if they had an OHIP billing or NACRS record with a CHF diagnosis followed by a second record (from any source) with a CHF diagnosis within 2 years. In the latter case, the diagnosis date is set to the date of the first CHF record. The CHF cohort was created by and is housed at ICES.

Statistics Canada Post-Censal Population Files

Statistics related to population size by sex, age and geographic area are collected in the census every four years by Statistics Canada. The latest post-censal population files are from 2001 and all estimates are of the population on July 1 of the given year. The data is supplied to ICES by Statistics Canada.

Canadian Community Health Survey (CCHS)

The CCHS is a national cross-sectional survey, conducted by Statistics Canada. The CCHS collects information related to health status, health care utilization and health determinants for the Canadian population. The target population of the CCHS includes household residents in all provinces and territories with the principal exclusion of populations on Indian Reserves, Canadian Forces Bases, in institutions and some remote areas.

Primary Care Access Survey (PCAS)

The PCAS is a cross-sectional voluntary telephone survey funded by the MOHLTC and conducted every three months by the Institute for Social Research (ISR) at York University. The

survey is administered in both English and French. The survey began in January 2006. The long-term goal of PCAS is to put in place a program to measure, on an ongoing basis, access to family doctors in Ontario. Measuring access includes determining the number of people in Ontario who do not have a regular family doctor, along with their experiences in attaining care and their health and socio-demographic characteristics. Respondents are asked about their primary care needs, providers of care (regular/family doctor or another provider), how long they waited for care, and the extent to which they were satisfied with the care they received. Data collection is conducted on a quarterly basis.

4.3. Indicator data set creation plans for ICES Indicators

Organized by indicator sections from the report:

2.1 Accessible

2.1.2 Gateway to healthcare — access to a family doctor

The below indicator is not presented in a table format in the report but rather in the text.

Indicator title		Proportion of Ontario population (18+ years) who have a regular medical doctor, 2007	
Data sources (for descriptions see section 4.2)		PCAS	
The Indicator:			
Denominator (population) description		All respondents aged 18 or above	
Numerator (Subset of denominator restricted as follows:)		Population with a regular medical doctor	
Rates:			
Crude Rate Calculation		Crude Rate(s) by:	Ontario overall
		Unit of Rate(s) per:	100
Details of Variables:			
Variable	Definition		
Age	AGE_2		
Sex	RGENDER: 1 = male, 5 = female		
Having a regular medical doctor	FAMDOC: 1 = yes		

2.1.3 The waiting game — access to specialized services

Indicator title	Percentage change in the adjusted rates of cancer surgery in Ontario from baseline 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)	DAD RPDB Post-Censal Population Estimates	
The Indicator:		
Denominator (population) description	Annual Ontario population from 2002 to 2006 Exclude: Age < 40 or > 105	
Numerator (Subset of denominator; restricted as follows:)	A procedure code for the named procedure plus a diagnosis code for the relevant cancer: hysterectomy for cancer mastectomy radical prostatectomy large bowel resection Exclude: Health card number invalid or cannot be matched to RPDB not Ontario resident if date of birth/sex missing, or if sex is not appropriate for the procedure (hysterectomy and mastectomy for females only, prostatectomy for males, bowel resection is both sexes) Endoscopic Surgery for Bowel Surgery for non-cancer diagnosis Multiple procedures on one day (e.g. count once if a patient received a bowel resection twice on a day). Include: Procedures which are abandoned after onset Duplicates per person, since a person may have more than one of (some) of these procedures	
Rates:		
Standardized Rate Calculation	Method:	Direct
	Standard population:	Ontario population 2001 aged 40+
	Standardized by:	Age and Sex. Age groups are 40-64, 65-74, 75-84, and 85+
	Standardized Rate(s):	Rate for years 2002 to 2006
	Unit of Rate(s) per:	100,000

Details of Variables:																							
Variable	Definition																						
Age	Date of birth from RPDB. Age calculated at the admission date from DAD.																						
Sex	Get the patient’s sex from RPDB																						
Invalid IKN or non-Ontario resident	VALIKN ≠ V																						
Fiscal year of procedure performed	The fiscal year of procedure performed is defined as follows: <table><tr><td>Discharge date of the admission in which the selected procedure was performed</td><td>Fiscal year</td></tr><tr><td>April 2002 to March 2003</td><td>2002</td></tr><tr><td>April 2003 to March 2004</td><td>2003</td></tr><tr><td>April 2004 to March 2005</td><td>2004</td></tr><tr><td>April 2005 to March 2006</td><td>2005</td></tr><tr><td>April 2006 to March 2007</td><td>2006</td></tr></table>			Discharge date of the admission in which the selected procedure was performed	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006								
Discharge date of the admission in which the selected procedure was performed	Fiscal year																						
April 2002 to March 2003	2002																						
April 2003 to March 2004	2003																						
April 2004 to March 2005	2004																						
April 2005 to March 2006	2005																						
April 2006 to March 2007	2006																						
Procedure for cancer	CCI codes for the procedures of interest are: <table><tr><td>Procedure</td><td>CCI codes</td><td>Exclusions</td><td>Cancer Diagnosis</td></tr><tr><td>Hysterectomy for cancer</td><td>1RM89 1RM91</td><td>NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day</td><td>dxcode1-25 all dxtypes C53, C54, C55, C56</td></tr><tr><td>Mastectomy</td><td>1YM89 1YM90 1YM91 1YM92</td><td>NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day</td><td>dxcode1-25 all dxtypes C50</td></tr><tr><td>Radical prostatectomy</td><td>1QT91</td><td>NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day</td><td>dxcode1-25 all dxtypes C61</td></tr><tr><td>Large bowel resection</td><td>1NM87 1NM89 1NM91</td><td>NO exclusion for abandoned procedure; NO exclusion for non-</td><td>dxcode1-25 all dxtypes C18, C19,</td></tr></table>			Procedure	CCI codes	Exclusions	Cancer Diagnosis	Hysterectomy for cancer	1RM89 1RM91	NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day	dxcode1-25 all dxtypes C53, C54, C55, C56	Mastectomy	1YM89 1YM90 1YM91 1YM92	NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day	dxcode1-25 all dxtypes C50	Radical prostatectomy	1QT91	NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day	dxcode1-25 all dxtypes C61	Large bowel resection	1NM87 1NM89 1NM91	NO exclusion for abandoned procedure; NO exclusion for non-	dxcode1-25 all dxtypes C18, C19,
Procedure	CCI codes	Exclusions	Cancer Diagnosis																				
Hysterectomy for cancer	1RM89 1RM91	NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day	dxcode1-25 all dxtypes C53, C54, C55, C56																				
Mastectomy	1YM89 1YM90 1YM91 1YM92	NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day	dxcode1-25 all dxtypes C50																				
Radical prostatectomy	1QT91	NO exclusion for abandoned procedure; NO exclusion for non-elective admission Limit to one procedure per patient per day	dxcode1-25 all dxtypes C61																				
Large bowel resection	1NM87 1NM89 1NM91	NO exclusion for abandoned procedure; NO exclusion for non-	dxcode1-25 all dxtypes C18, C19,																				

Details of Variables:				
Variable	Definition			
		1NQ87 1NQ89 1NQ90	elective admission Limit to one procedure per patient per day Exclude: endoscopic for bowel excision (1NM87BA 1NQ87BA)	C20, C21

Indicator title		Percentage change in the adjusted rates of cardiac surgeries in Ontario from baseline 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)		CCN RPDB Post-Censal Population Estimates	
The Indicator:			
Denominator (population) description		Annual Ontario population from 2002 to 2006 Exclude: Age < 20 or > 105	
Numerator (Subset of denominator; restricted as follows:)		Individuals receiving cardiac procedures of interest: cardiac angiography coronary angioplasty (PTCA) coronary artery bypass graft (CABG) cardiac revascularization (coronary angioplasty or CABG) Exclude: invalid health card number not Ontario resident	
Rates:			
Standardized Rate Calculation		Method:	Direct
		Standard population:	Ontario population 2001 aged 20+
		Standardized by:	Age and Sex. Age groups are 20-39, 40-64, 65-74, and 75+
		Standardized Rate(s):	Rate for years 2002 to 2006

	Unit of Rate(s) per:	100,000												
Details of Variables:														
Variable	Definition													
Age	Date of birth from RPDB. Age at the procedure date (variable REMOVDAT) from CCN.													
Sex	Get the patient’s sex from RPDB													
Non-Ontario resident	Get the patient’s resident’s status from RPDB													
Fiscal year of procedure performed	The date of the event is recorded in the REMOVDAT variable. The fiscal year of procedure performed is defined as follows: <table><tr><th>REMOVDAT</th><th>Fiscal year</th></tr><tr><td>April 2002 to March 2003</td><td>2002/03</td></tr><tr><td>April 2003 to March 2004</td><td>2003/04</td></tr><tr><td>April 2004 to March 2005</td><td>2004/05</td></tr><tr><td>April 2005 to March 2006</td><td>2005/06</td></tr><tr><td>April 2006 to March 2007</td><td>2006/07</td></tr></table>		REMOVDAT	Fiscal year	April 2002 to March 2003	2002/03	April 2003 to March 2004	2003/04	April 2004 to March 2005	2004/05	April 2005 to March 2006	2005/06	April 2006 to March 2007	2006/07
REMOVDAT	Fiscal year													
April 2002 to March 2003	2002/03													
April 2003 to March 2004	2003/04													
April 2004 to March 2005	2004/05													
April 2005 to March 2006	2005/06													
April 2006 to March 2007	2006/07													
Cardiac procedure	Codes for the procedures of interest are: <table><tr><th>Procedure</th><th>REMOVTYP</th></tr><tr><td>CABG</td><td>1 aortocoronary bypass (ACB)</td></tr><tr><td>Angioplasty</td><td>20 PTCA 21 PTCA with Stent 22 Adhoc PTCA 23 Adhoc PTCA with Stent</td></tr><tr><td>Angiography</td><td>30 Catheterization 51 EPS (electrophysiological study) with cath (originally EPS with LHC) 61 Ablation (see below) with EPS with Cath 63 Ablation no EPS with Cath 71 Biopsy with Cath (Used to be Biopsy with LHC) 27 Valvuloplasty (see below), valvotomy 28 Other PCI Procedure 22 Adhoc PTCA 23 Adhoc PTCA with Stent</td></tr><tr><td>Cardiac revasculari- zation (coronary angioplasty or CABG)</td><td>1 aortocoronary bypass (ACB)) 20 PTCA 21 PTCA with Stent 22 Adhoc PTCA 23 Adhoc PTCA with Stent</td></tr></table>		Procedure	REMOVTYP	CABG	1 aortocoronary bypass (ACB)	Angioplasty	20 PTCA 21 PTCA with Stent 22 Adhoc PTCA 23 Adhoc PTCA with Stent	Angiography	30 Catheterization 51 EPS (electrophysiological study) with cath (originally EPS with LHC) 61 Ablation (see below) with EPS with Cath 63 Ablation no EPS with Cath 71 Biopsy with Cath (Used to be Biopsy with LHC) 27 Valvuloplasty (see below), valvotomy 28 Other PCI Procedure 22 Adhoc PTCA 23 Adhoc PTCA with Stent	Cardiac revasculari- zation (coronary angioplasty or CABG)	1 aortocoronary bypass (ACB)) 20 PTCA 21 PTCA with Stent 22 Adhoc PTCA 23 Adhoc PTCA with Stent		
Procedure	REMOVTYP													
CABG	1 aortocoronary bypass (ACB)													
Angioplasty	20 PTCA 21 PTCA with Stent 22 Adhoc PTCA 23 Adhoc PTCA with Stent													
Angiography	30 Catheterization 51 EPS (electrophysiological study) with cath (originally EPS with LHC) 61 Ablation (see below) with EPS with Cath 63 Ablation no EPS with Cath 71 Biopsy with Cath (Used to be Biopsy with LHC) 27 Valvuloplasty (see below), valvotomy 28 Other PCI Procedure 22 Adhoc PTCA 23 Adhoc PTCA with Stent													
Cardiac revasculari- zation (coronary angioplasty or CABG)	1 aortocoronary bypass (ACB)) 20 PTCA 21 PTCA with Stent 22 Adhoc PTCA 23 Adhoc PTCA with Stent													

Indicator title		Percentage change in the adjusted rates of joint replacement in Ontario from baseline 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)		DAD RPDB Post-Censal Population Estimates	
The Indicator:			
Denominator (population) description		Annual Ontario population from 2002 to 2006 Exclude: Age < 20 or > 105	
Numerator (Subset of denominator; restricted as follows:)		CIHI inpatient discharge records in which either a hip or knee replacement was performed. Exclude (in order): invalid health card number not Ontario resident date of birth/sex missing (date of birth and sex are not in the discharge record and cannot be determined from RPDB) if the hip/knee replacement was a revision procedure Non-elective hospital admission entry from emergency cancer diagnosis Injury diagnosis External cause of injury	
Rates:			
Standardized Rate Calculation		Method:	Direct
		Standard population:	Ontario population 2001 aged 20+
		Standardized by:	Sex and Age Age groups are 20-64, 65-74, 75-84, and 85+.
		Standardized Rate(s):	Rate for years 2002 to 2006
		Unit of Rate(s) per:	100,000
Details of Variables:			
Variable		Definition	
Age		Date of birth from RPDB. Age at the admission date from DAD.	
Sex		Get the patient's sex from RPDB	
Invalid IKN		VALIKN ≠ V	
Non-Ontario resident		First 2 characters of RESCODE between 01 and 50, and not equal to 22.	

Details of Variables:	
Variable	Definition
Revision procedure	Variables INATSTAT[1-20] = R
Non-elective admission	Variable ADMCAT $\neq$ L
Entry from emergency	Variable ENTRY = E
Cancer	C40.2, C40.3, C40.8, C40.9, C79.5, all dxtypes
Injury	S32.4, S72.x, S82.0, S82.1, S82.2, S82.4, S82.7, S82.9, all dxtypes
External cause of injury	V01.x – V99.x, W00.x – W19.x
Hip replacement	CCI codes: 1.VA.53.LA-PN or 1.VA.53.PN-PN Note: Bilateral procedures are counted only once
Knee replacement	CCI codes: 1.VG.53 Note: Bilateral procedures are counted only once

Indicator title	
Percentage change in the adjusted rates of cataract surgery in Ontario from baseline 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)	OHIP RPDB Post-Censal Population Estimates
The Indicator:	
Denominator (population) description	Annual Ontario population from 2002 to 2006 Exclude: Age < 20 or > 105
Numerator (Subset of denominator; restricted as follows:)	OHIP claim for cataract surgery in the fiscal years 2002/03 to 2006/07. Exclude: invalid health card number not Ontario resident date of birth/sex missing if the OHIP record with variable TOTPAID = 0 and variable NUMSERV = '00' duplicate surgery on the same day, i.e. count once if > 1 surgery done on one day Include: When reporting overall Ontario rates, retain even if LHIN cannot be assigned.
Rates:	
Standardized Rate Calculation	Method: Direct

	Standard population:	Ontario population 2001 aged 20+
	Standardized by:	Sex and Age Age groups are 20-64, 65-74, 75-84, and 85+.
	Standardized Rate(s):	Rate for years 2002 to 2006
	Unit of Rate(s) per:	100,000

Details of Variables:													
Variable	Definition												
Age	Date of birth from RPDB. Age at the admission date from OHIP.												
Sex	Get the patient's sex from RPDB												
Invalid IKN or non-Ontario resident	VALIKN $\neq$ V												
Fiscal year of procedure performed	The fiscal year of procedure performed is defined as follows: <table border="1"> <thead> <tr> <th>Surgery date (SERVDATE)</th><th>Fiscal year</th></tr> </thead> <tbody> <tr> <td>April 2002 to March 2003</td><td>2002</td></tr> <tr> <td>April 2003 to March 2004</td><td>2003</td></tr> <tr> <td>April 2004 to March 2005</td><td>2004</td></tr> <tr> <td>April 2005 to March 2006</td><td>2005</td></tr> <tr> <td>April 2006 to March 2007</td><td>2006</td></tr> </tbody> </table>	Surgery date (SERVDATE)	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006
Surgery date (SERVDATE)	Fiscal year												
April 2002 to March 2003	2002												
April 2003 to March 2004	2003												
April 2004 to March 2005	2004												
April 2005 to March 2006	2005												
April 2006 to March 2007	2006												
Cataract surgery	OHIP FEECODE E140												

Indicator title	Percentage change in the adjusted rates of diagnostic scans in Ontario from baseline 2002/03 to 2006/07
Data sources (for descriptions see section 4.2)	OHIP RPDB Post-Censal Population Estimates
The Indicator:	
Denominator (population) description	Annual Ontario population from 2002 to 2006: Exclude: Age > 105
Numerator (Subset of denominator; restricted as follows:)	OHIP claim for CT/MRI scan in the fiscal years 2002/03 to 2006/07. Exclude: invalid health card number not Ontario resident date of birth/sex missing the OHIP record with variable TOTPAID = 0 and NUMSERV = 00'

		Include: Only one record per type of scan per body part per day since a person may have more than one body part scanned in the same day and/or may have both an MRI and a CT scan in the same day
Rates:		
Standardized Rate Calculation	Method:	Direct
	Standard population:	Ontario population 2001
	Standardized by:	Sex and Age Age groups are 0-39, 40-64, 65-74, 75+.
	Standardized Rate(s):	Rate for years 2002 to 2006
	Unit of Rate(s) per:	100,000
Details of Variables:		
Variable	Definition	
Age	Date of birth from RPDB. Age at the admission date from OHIP.	
Sex	Get the patient's sex from RPDB	
Invalid IKN or non-Ontario resident	VALIKN $\neq$ V	
Fiscal year of procedure performed	The fiscal year of procedure performed is defined as follows:	
	Scan date (SERVDATE)	Fiscal year
	April 2002 to March 2003	2002
	April 2003 to March 2004	2003
	April 2004 to March 2005	2004
	April 2005 to March 2006	2005
	April 2006 to March 2007	2006

Details of Variables:					
Variable	Definition				
MRI	Body part	FEEOCODE	Exclusions	Inclusions	Note
	abdomen	X451	count only one "body part specific" scan per day	use professional component of the OHIP claim, i.e. FEESUFF = C	Inpatient MRI scans are not captured
	extremities	X471, X488			
	head	X421			
	neck	X431			
	pelvis	X461			
	spine	X490, X493, X496			
	thorax	X441			

2.1.4 Access to emergency department care

Indicator title	Percentage of emergency patients whose care was completed within the recommended timeframe, 2002 to 2006	
Data sources (for descriptions see section 4.1)	NACRS RPDB	
The Indicator:		
Denominator (population) description	Yearly emergency department (ED) visits from 2002/03 to 2006/07 fiscal years Exclude: non-Ontario residents, and those who cannot be assigned age from RPDB age > 105 ED Length of Stay (LOS) is zero or negative Planned ED visit Patient left without being seen Unassigned triage	
Numerator (Subset of denominator; restricted as follows:)	From the denominator, numerator subset restricted to the population that met the guideline	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Rate for years 2002 to 2006
	Unit of Rate(s) per:	100

Details of Variables:		
Variable	Definition	
Age	Date of birth from RPDB. Age at the registration date from NACRS.	
Sex	Get the patient's sex from RPDB	
Non Ontario resident	Variable VALIKN $\neq$ V.	
Planned ED visit	Variable VISITTYPE = 3, 4, or 5.	
Left without being seen	Variable VISDISP[YYYY] = 2, or 3.	
Unassigned triage	Variable TRIAGE $\neq$ 1, 2, 3, 4, or 5.	
Fiscal year of ED visit	The fiscal year of ED visit is defined as follows:	
	ED registration date	Fiscal year
	April 2002 to March 2003	2002
	April 2003 to March 2004	2003
	April 2004 to March 2005	2004
	April 2005 to March 2006	2005
	April 2006 to March 2007	2006
ED LOS	Time in the ED (in hours/minutes) is measured from the time patient registered/was triaged (take the earliest non-missing value of the registration time and the triage time) until the patient was discharged. Right now, the "discharge" time is recorded in the "dtime" variable, which is the date and time the visit was completed.	
Met guideline	Divide the ED visits into 3 groups (CTAS levels 1 and 2; CTAS level 3; and CTAS levels 4 and 5). The guidelines are CTAS level 1 and 2 = LOS < 8 hours, CTAS level 3 = LOS < 6 hours, and CTAS level 4 and 5 = LOS < 4 hours. Determine the proportion of people within each of the two severity levels who were discharged within the appropriate period of time. Discharged means "leaving the ED", whether they were sent home, transferred, admitted, etc.	

2.2: Effective

2.2.2 Outcomes of hospital care for heart attack and stroke

Indicator title		Adjusted death rate from heart attack within 30 days per 100 patients in Ontario, 1999 to 2006	
Data sources (for descriptions see section 4.2)		OMID	
The Indicator:			
Denominator (population) description		Patients in OMID database in the fiscal years 1999 to 2006. Exclude: age < 20 sex missing	
Numerator (Subset of denominator; restricted as follows:)		Patients who survive 30 days following an AMI (use the date of AMI admission, not discharge).	
Rates:			
Standardized Rate Calculation	Method:		Direct
	Standard population:		Patients aged 20 or above who were admitted for AMI in fiscal year 2001/02
	Standardized by:		Sex and Age Age groups are by 5 years up to 89, and 90+
	Standardized Rate(s):		Rate for years 1999 to 2006
	Unit of Rate(s) per:		100
Details of Variables:			
Variable		Definition	
Age		Age at the admission from OMID	
Sex		Get sex from OMID	
Fiscal year of AMI admission	AMI admissions (ADMDATE)		Fiscal year
	April 1999 to March 2000		1999
	April 2000 to March 2001		2000
	April 2001 to March 2002		2001
	April 2002 to March 2003		2002
	April 2003 to March 2004		2003
	April 2004 to March 2005		2004
	April 2005 to March 2006		2005
	April 2006 to March 2007		2006
30-day survival		The opposite value of variable MORT30: Yes if MORT30 = 0 No if MORT30 = 1	

2.2.3 Return visits to the emergency department for children treated for asthma

Indicator title		Adjusted rate re-admission to emergency within 72 hours of initial treatment for asthma in children, 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)		NACRS RPDB	
The Indicator:			
Denominator (population) description		Yearly ED visits for Asthma from 2002/03 to 2006/07 Diagnosis of asthma: Most responsible diagnosis, dx10code1 =: J45, or Most responsible diagnosis, dx10code1 in: (R05, R060, R062, J96) AND any other diagnosis code =: J45 All patients were discharged home (variable VISDISP[YYYY] = ‘01’) Exclude: non-Ontario residents, and those who cannot be assigned age/sex or LHIN from RPDB age < 1 or > 19 initial ED visits with admit/registration/triage date of March 29, 2007 or later (since there won’t be enough follow-up data) Transferred to another ED	
Numerator (Subset of denominator; restricted as follows:)		Numerator is all repeat ED visits within 72 hours of the index ED visit. Count all visits in the denominator. Count all return visits within 72 hours in the numerator. For example, if the child has three ED visits in close succession, the child will contribute 3 counts to the denominator and may contribute 2 counts to the numerator.	
Rates:			
Standardized Rate Calculation		Method:	Direct
		Standard population:	ED visits for asthma in fiscal year 2002/03
		Standardized by:	Age and sex. Age groups are 1-5, 6-9, and 10-19.
		Standardized Rate(s):	Rate for years 2002 to 2006
		Unit of Rate(s) per:	100,000

Details of Variables:													
Variable	Definition												
Age	Date of birth from RPDB. Age at the registration date from NACRS.												
Sex	Get the patient's sex from RPDB												
Fiscal year of ED visit	The fiscal year of ED visit is defined as follows: <table border="1"> <thead> <tr> <th>ED discharge date (variable DDATE)</th><th>Fiscal year</th></tr> </thead> <tbody> <tr> <td>April 2002 to March 2003</td><td>2002</td></tr> <tr> <td>April 2003 to March 2004</td><td>2003</td></tr> <tr> <td>April 2004 to March 2005</td><td>2004</td></tr> <tr> <td>April 2005 to March 2006</td><td>2005</td></tr> <tr> <td>April 2006 to March 2007</td><td>2006</td></tr> </tbody> </table>	ED discharge date (variable DDATE)	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006
ED discharge date (variable DDATE)	Fiscal year												
April 2002 to March 2003	2002												
April 2003 to March 2004	2003												
April 2004 to March 2005	2004												
April 2005 to March 2006	2005												
April 2006 to March 2007	2006												
Return visit within 72 hours	The subsequent ED visit is a return visit if 0 hours < (follow-up start time – index visit end time) <= 72 hours subsequent ED visit is for asthma (dx10code1 =: 'J45' or (dx10code1 in: ('R05', 'R060', 'R062', 'J96') and any other diagnosis code =: 'J45') case is urgent or emergent (triage level 1, 2, or 3) Exclude from the numerator planned visits and those seen by non-ED providers (visit type 3 or 5) Visit start time is the earliest of (triage time, registration time). Visit end time is the time the visit was completed.												

2.2.4 Outcomes of care for people with chronic conditions

Indicator title	Adjusted rate of acute complications of diabetes per 100 newly diagnosed diabetes patients treated in emergency or hospital in Ontario, 2002/03 to 2005/06
Data sources (for descriptions see section 4.2)	ODD NACRS RPDB
The Indicator:	
Denominator (population) description	Population newly diagnosed with diabetes, by fiscal year, for 2002/03 through 2005/06 Exclude: Age < 20 at the time of diagnosis. This will exclude most, if not all, type I diabetics. Age > 105 at the time of diagnosis (suspect that ages > 105 are coding errors). NOTE: 2006/07 is not included because we need a year of follow-up
Numerator (Subset of denominator; restricted as follows:)	Occurrence of at least one of the following adverse events within the year after the initial of diagnosis: emergency department (ED) visits for hyperglycemia emergency department (ED) visits for hypoglycemia hospitalization for hyperglycemia

hospitalization for hypoglycemia hospitalization for common infections When we count 1 year after initial diagnosis, we start one day after the date of diagnosis and continue for 365 days. Note that for hospital admissions of initial diagnosis, the date of admissions was used as the data of diagnosis.											
Rates:											
Standardized Rate Calculation	Method: Direct										
	Standard population: 2001 population 20+ years newly diagnosed with diabetes										
	Standardized by: Age and Sex Age groups are 20-34, 35-49, 50-64, 65-74, and 75+										
	Standardized Rate(s): Rate for years 2002 to 2005										
	Unit of Rate(s) per: 100										
Details of Variables:											
Variable	Definition										
Age	Date of birth from RPDB. Age at the newly diagnosis date (variable DIAGDATE) from ODD.										
Sex	Get the patient's sex from RPDB										
Fiscal year of diabetes newly diagnosis	The fiscal year of diabetes newly diagnosis is defined as follows: <table border="1"> <thead> <tr> <th>DIAGDATE</th><th>Fiscal year</th></tr> </thead> <tbody> <tr> <td>April 2002 to March 2003</td><td>2002</td></tr> <tr> <td>April 2003 to March 2004</td><td>2003</td></tr> <tr> <td>April 2004 to March 2005</td><td>2004</td></tr> <tr> <td>April 2005 to March 2006</td><td>2005</td></tr> </tbody> </table>	DIAGDATE	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005
DIAGDATE	Fiscal year										
April 2002 to March 2003	2002										
April 2003 to March 2004	2003										
April 2004 to March 2005	2004										
April 2005 to March 2006	2005										
Emergency department (ED) visits for hyperglycemia within 1 years of initial diagnosis	ED visits within the year after initial diagnosis with the following ICD-10 codes: E101, E110, E111, E130, E131, E140, E141, R739, E100 (2006/07), E1368 (2006/07), E1468 (2006/07)										
Emergency department (ED) visits for hypoglycemia within 1 years of initial diagnosis	ED visits within the year after initial diagnosis with the following ICD-10 codes: ICD-10 codes: E15, E160, E161, E162, E1063, E1163, E1363, E1463										
Hospitalization for	Inpatient hospitalization within the year after initial diagnosis with the										

Details of Variables:		
Variable	Definition	
hyperglycemia within 1 years of initial diagnosis	following ICD-10 codes: ICD-10 codes: E101, E110, E111, E130, E131, E140, E141, R739, E100 (2006/07), E1368 (2006/07), E1468 (2006/07) DXTYPE = M or 1	
Hospitalization for hypoglycemia within 1 years of initial diagnosis	Inpatient hospitalization within the year after initial diagnosis with the following ICD-10 codes: ICD-10 codes: E15, E160, E161, E162, E1063, E1163, E1363, E1463 DXTYPE = M or 1	
Hospitalization for common infections within 1 years of initial diagnosis	Inpatient hospitalization within the year after initial diagnosis with the following ICD-10 codes:	
	Diagnosis	ICD-10 codes DXTYPE
	Urinary tract cystitis	N300, N308, N309 M or 1
	Urinary tract pyelonephritis	N10, N12 M or 1
	Urinary tract infection not otherwise specified	N390 M or 1
	Pneumonia	J110, J12, J13, J14, J15, J16, J17, J18 M or 1
	Bacteremia/septicaemia	A40, A41, A499, A394 M or 1
	Skin and soft tissue infections	L01, L02, L03, L04, L05, L08, A480, E1051, E1151, E1351, E1451, E1061, E1161, E1361, E1461, R02 M or 1

Indicator title	Adjusted rate of death per 100 patients in the year after diagnosis of congestive heart failure in Ontario, 2002/03 to 2005/06
Data sources (for descriptions see section 4.2)	CHF cohort RPDB
The Indicator:	
Denominator (population) description	The index event is a new diagnosis of CHF within the fiscal year, according to the CHF database. Exclude: not Ontario resident, or if date of birth/sex missing (because the CHF database is created at ICES, there probably won't be any deletions) age < 20 at time of diagnosis age > 105 at time of diagnosis (assume an error in the date of birth) died < 30 days after date of initial diagnosis. NOTE: 2006/07 is not included because we need a year of follow-up

Numerator (Subset of denominator; restricted as follows:)	Outcome is Death between 30 days and 1 year (365 days) of initial diagnosis, or CHF readmission between 30 days and 1 year (365 days) of initial diagnosis.	
Rates:		
Standardized Rate Calculation	Method:	Direct
	Standard population:	2001 population 20+ years newly diagnosed with CHF
	Standardized by:	Age and sex. Age groups are 20-39, 40-64, 65- 74, and 75+.
	Standardized Rate(s):	Rate for years 2002 to 2005
	Unit of Rate(s) per:	100,000
Details of Variables:		
Variable	Definition	
Age	Date of birth from RPDB. Age at the newly diagnosis date (variable ADMDATE) from CHF cohort.	
Sex	Get the patient's sex from RPDB	
Fiscal year of CHF newly diagnosis	We use the variables INC[1994-2006] in the CHF database. The number (1994 to 2006) denotes the fiscal year of the incidence if variable INC[1994-2006] = 1.	
Death within 30 days and 1 year of diagnosis	Get the date of death from RPDB	
CHF readmission within 30 days and 1 year of diagnosis	CHF readmission (preadmission diagnosis of I50) between 30 days and 1 year (365 days) of initial diagnosis. Check inpatient admissions only. Preadmission diagnoses are type 1, W, X, Y, and type M if not repeated as a type 2	

Indicator title	Adjusted rate of death per 100 heart attack patients between 30 days and one year after their first heart attack, 2002/03 to 2005/06	
Data sources (for descriptions see section 4.2)	RPDB	DAD
The Indicator:		
Denominator (population) description	Newly diagnosed with CAD, by fiscal year, for 2002/03 through 2005/06. The index event is a new diagnosis of coronary artery disease, operationalized as having an inpatient diagnosis of an AMI, and no evidence of an AMI within the previous 3 years. The “new” AMI can be pre-admission or post-admission. ICD-10-	

Indicator title		Adjusted rate of death per 100 heart attack patients between 30 days and one year after their first heart attack, 2002/03 to 2005/06	
		CA diagnosis codes are ICD-10-CA codes I21 (acute myocardial infarction) or I22 (subsequent myocardial infarction). Exclude: not Ontario resident, date of birth/sex missing age < 20 at time of admission age > 105 at time of admission (assume an error in the date of birth) died < 30 days after date of admission previous AMI within the previous 3 years NOTE: 2006/07 is not included because we need a year of follow-up	
Numerator (Subset of denominator; restricted as follows:)		Outcomes within 30 to 365 days after the initial AMI admission: Death (RPDB)	
Rates:			
Standardized Rate Calculation	Method:	Direct	
	Standard population:	2001 population of people newly diagnosed with an AMI	
	Standardized by:	Age and Sex Age groups are 20-39, 40-64, 65-74, and 75+	
	Standardized Rate(s):	Rate for years 2002 to 2005	
	Unit of Rate(s) per:	100	
Details of Variables:			
Variable	Definition		
Age	Date of birth from RPDB. Age at the newly diagnosis date (variable ADMDATE) from DAD.		
Sex	Get the patient's sex from RPDB		
Non-Ontario resident	VALIKN ≠ V		
Previous AMI	A previous AMI is any hospitalization within the previous 3 years from the index date with any code for an AMI: (ICD-9 codes 410 (AMI) and 412 (old MI), ICD-10-CA codes I21 (acute myocardial infarction), I22 (subsequent myocardial infarction).		
Fiscal year of CAD newly diagnosis	The fiscal year of CAD newly diagnosis is defined as follows:		
	ADMDATE		Fiscal year
	April 2002 to March 2003		2002
	April 2003 to March 2004		2003
	April 2004 to March 2005		2004
	April 2005 to March 2006		2005

Death within 30 days and 1 year of diagnosis	Get the date of death from RPDB
--	---------------------------------

2.3 Safe

2.3.2 Safety in acute-care hospitals

Indicator title	Adjusted rate of selected in-hospital complications per 100 admissions, 2002/03 to 2006/07 (pulmonary embolism or deep vein thrombosis)	
Data Sources (for descriptions see section 4.2)	RPDB DAD	
The Indicator:		
Denominator (population) description	All inpatient surgical discharges from an acute care hospital in the fiscal years 2002/03 to 2006/07. See the list of surgical CMGs in the “Details of variables” section. Exclude: age < 20 at time of discharge (adults only) age > 105 at time of discharge age or sex is missing. non-Ontario resident or invalid health card number patients with pre-admission diagnosis of DVT or PE ICD-10-CA T81.7, T82.8, T83.8, T84.8, T85.8, I80.1, I80.2, I80.3, I26.0, I26.9 diagnosis type 1 or diagnosis type MRDx that is not also a type 2 diagnosis Procedure code for complication (an operation for reducing the size of a hollow viscus by taking folds or tucks in its walls) or other interruption of the vena cava when this procedure occurs on the day of or previous to the day of the principal procedure: CCI 1.IS.51.GR-FK, 1.IS.51.GR-KA, 1.IS.51.LA in any position (status attribute not equal to A) and procedure date <= date of principal procedure. Patients with a procedure for interruption of vena cava that is the only operating room procedure: CCI 1.IS.51.GR-FK, 1.IS.51.GR-KA, 1.IS.51.LA (status attribute not equal to A) AND no other procedures recorded in the abstract All obstetric hospitalizations (MCC 14)	
Numerator (Subset of denominator; restricted as follows:)	Post admission deep vein thrombosis or pulmonary embolism	
Rates:		
Standardized Rate Calculation	Method:	Direct
	Standard population:	All inpatient surgical discharges

		from an acute care hospital in the fiscal year 2002/03 and age at the discharge date is 20 or above.												
	Standardized by:	Age and Sex Age groups are 20-64, 65-74, and 75+												
	Standardized Rate(s):	Rate for years 2002 to 2006												
	Unit of Rate(s) per:	1,000												
Details of Variables:														
Variable	Definition													
Age	Date of birth from RPDB. Age at the discharge date from DAD. Age groups are 20-64, 65-74, and 75+.													
Sex	Get the patient's sex from RPDB													
Invalid IKN or non-Ontario resident	VALIKN ≠ V or The first two characters are NOT between '01' and '50' or are equal to '22'.													
Surgical discharge	Variable CMG2005 falls into one of the following categories: Surgical 001, 003-007, 040, 050-055, 057, 075-078, 081-093, 125-129, 175-179, 181-186,188, 189, 191, 193, 194, 201-204, 210, 211, 215-218, 250-253, 255, 258, 260-262, 264-266, 269, 271, 310-315, 317, 320, 350-352, 354--356, 358-363, 365, 367-369,372, 374-386, 425, 427-429, 432, 434, 435--438, 476-480, 482, 500-510, 512, 514, 550-552, 554, 555, 575-579, 581--587, 650-670, 700, 701, 703, 725, 728, 733, 734, 750, 803-805, 830, 832, 833, 840, 880-885, 887, 890-893, 900-902, 906, 908													
Fiscal year	The fiscal year of the hospital discharge is defined as follows: <table><tr><td>Discharge date of the admission in which the selected procedure was performed</td><td>Fiscal year</td></tr><tr><td>April 2002 to March 2003</td><td>2002</td></tr><tr><td>April 2003 to March 2004</td><td>2003</td></tr><tr><td>April 2004 to March 2005</td><td>2004</td></tr><tr><td>April 2005 to March 2006</td><td>2005</td></tr><tr><td>April 2006 to March 2007</td><td>2006</td></tr></table>		Discharge date of the admission in which the selected procedure was performed	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006
Discharge date of the admission in which the selected procedure was performed	Fiscal year													
April 2002 to March 2003	2002													
April 2003 to March 2004	2003													
April 2004 to March 2005	2004													
April 2005 to March 2006	2005													
April 2006 to March 2007	2006													
Post admission deep vein thrombosis or pulmonary embolism	ICD-10-CA codes I80.1, I80.2, I80.3, I26.0, I26.9 diagnosis type 2 or ICD-9-CA T81.7, T82.8, T83.8, T84.8, T85.8, diagnosis type 2 PLUS ICD-10-CA I80.1, I80.2, I80.3, I26.0, I26.9 diagnosis type 3.													

Indicator title		Adjusted rate of selected in-hospital complications (infections due to medical care) per 100 admissions, 2002/03 – 2006/07	
Data Sources (for descriptions see section 4.2)		RPDB DAD	
The Indicator:			
Denominator (population) description		We include all the episodes of care that started and ended in the period from April 2002 and March 2007 and meet one of the following criteria: A surgical or medical episode of care where the patient age at episode discharge date is between 20 and 105 (the AHRQ specifies age 18+, but we’ve used age 20+ for everything else). We use the variable CMG2005 in the 1st admission within an episode to determine the type of episode, surgical or medical. The admission is for pregnancy or childbirth (MCC = 14). Retain all ages for pregnancy/childbirth admissions), Exclude: episode length of stay (LOS) <= 1 day. non-Ontario residents missing age/sex having an infection at admission hospitalizations with a diagnosis or procedure code indicating: an immunocompromised state, or cancer	
Numerator (Subset of denominator; restricted as follows:)		Post admission infection	
Rates:			
Standardized Rate Calculation		Method:	Direct
		Standard population:	All episodes from denominator in the fiscal year 2002/03 and age at the discharge date is 20 or above.
		Standardized by:	Age and Sex Age groups are 20-64, 65-74, and 75+
		Standardized Rate(s):	Rate for years 2002 to 2006
		Unit of Rate(s) per:	1,000
Details of Variables:			
Variable		Definition	
Age		Date of birth from RPDB. Age at the discharge date from DAD.	
Sex		Get the patient’s sex from RPDB	
Invalid IKN or non-Ontario		VALIKN ≠ V or The first two characters are NOT between ‘01’ and ‘50’ or are equal to	

Details of Variables:															
Variable	Definition														
resident	'22'.														
Episode length of stay (LOS)	It is calculated as follows: discharge date of the last discharge within an episode – admission date of the 1st discharge within an episode – ALCLOS of the last discharge within an episode. If ALCLOS is blank, we set it as 0. If episode LOS is less than 1, we set it as 1.														
Medical / Surgical episodes of care	We need to look at the variable CMG2005 of the 1st discharge within an episode: Medical 010-022, 028, 060, 062, 063, 100-102, 104, 107-109, 113-116, 135-147, 200, 205-208, 212, 213, 219, 220, 222, 225, 226, 229, 232-235, 237, 240, 242, 279, 281, 285, 286, 289, 290, 294, 297, 323-326, 329, 391-394, 397-399, 401, 402, 404, 407, 409, 411, 413, 414, 439, 440, 443, 446, 447, 452, 454, 483, 485, 487-489, 520-522, 524, 525-527, 529, 532, 534-536, 538, 560, 561-563, 592, 594-596, 674-696, 704, 709, 710, 726, 730, 735-737, 751, 756, 757, 761, 763, 811, 813, 818, 823, 831, 834, 841, 842, 846, 847, 849, 850-852, 860-868, 895, 898, 910, 999 Surgical 001, 003-007, 040, 050-055, 057, 075-078, 081-093, 125-129, 175-179, 181-186, 188, 189, 191, 193, 194, 201-204, 210, 211, 215-218, 250-253, 255, 258, 260-262, 264-266, 269, 271, 310-315, 317, 320, 350-352, 354-356, 358-363, 365, 367-369, 372, 374-386, 425, 427-429, 432, 434, 435--438, 476-480, 482, 500-510, 512, 514, 550-552, 554, 555, 575-579, 581-587, 650-670, 700, 701, 703, 725, 728, 733, 734, 750, 803-805, 830, 832, 833, 840, 880-885, 887, 890-893, 900-902, 906, 908														
Infection at admission	Within the episode of care, check for infection code (i.e. dxtype 1, dxtype M not repeated as type 2, dxtype W, X, Y): <table border="1"> <thead> <tr> <th>ICD-10 Code</th><th>Descriptions</th></tr> </thead> <tbody> <tr> <td>T802</td><td>Infections following infusion, transfusion and therapeutic injection</td></tr> <tr> <td>T880</td><td>Infection following immunization</td></tr> <tr> <td>T826</td><td>Infection and inflammatory reaction due to cardiac valve prosthesis</td></tr> <tr> <td>T827</td><td>Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts</td></tr> <tr> <td>T835</td><td>Infection and inflammatory reaction due to prosthetic device, implant and graft in urinary system</td></tr> <tr> <td>T836</td><td>Infection and inflammatory reaction due to</td></tr> </tbody> </table>	ICD-10 Code	Descriptions	T802	Infections following infusion, transfusion and therapeutic injection	T880	Infection following immunization	T826	Infection and inflammatory reaction due to cardiac valve prosthesis	T827	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts	T835	Infection and inflammatory reaction due to prosthetic device, implant and graft in urinary system	T836	Infection and inflammatory reaction due to
ICD-10 Code	Descriptions														
T802	Infections following infusion, transfusion and therapeutic injection														
T880	Infection following immunization														
T826	Infection and inflammatory reaction due to cardiac valve prosthesis														
T827	Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts														
T835	Infection and inflammatory reaction due to prosthetic device, implant and graft in urinary system														
T836	Infection and inflammatory reaction due to														

Details of Variables:																																			
Variable	Definition																																		
		prosthetic device, implant and graft in genital tract,																																	
	T845	Infection and inflammatory reaction due to internal joint prosthesis																																	
	T846	Infection and inflammatory reaction due to internal fixation device [any site]																																	
	T847	Infection and inflammatory reaction due to other internal orthopedic prosthetic devices, implants and grafts																																	
	T857	Infection and inflammatory reaction due to other internal prosthetic devices, implants and grafts																																	
	The following ICD-10-CA diagnosis codes were removed in 2007. Because we may repeat this indicator in future years, and would like the methods to be consistent, do NOT include them: T86.822: Infection of bone graft/flap T86.832: Infection of cornea transplant T86.842: Infection of soft tissue (skin, muscle, fascia, tendon, mucosa) graft/flap T86.882: Infection of other transplanted tissue																																		
Immunocompromis ed state	Immunocompromised states diagnosis codes: <table><tr><th colspan="2">ICD-9-CM diagnosis from the AHRQ</th><th colspan="2">Corresponding ICD-10-CA diagnosis</th></tr><tr><td>042</td><td>HIV</td><td>B24</td><td>HIV</td></tr><tr><td>1363</td><td>pneumocystosis</td><td>B59</td><td>pneumocystosis</td></tr><tr><td>260</td><td>kwashiorkor</td><td>E40</td><td>kwashiorkor</td></tr><tr><td>261</td><td>nutritional marasmus</td><td>E42</td><td>Marasmic kwashiorkor</td></tr><tr><td>262</td><td>Other severe protein-calorie malnutrition</td><td>E43</td><td>Unspecified severe protein-energy malnutrition</td></tr><tr><td>23873</td><td>Neoplasm of uncertain behavior of paraganglia</td><td>D44.7</td><td>Neoplasm of uncertain or unknown behaviour of aortic body and other paraganglia</td></tr><tr><td>23876</td><td>Neoplasm of uncertain behavior of meninges</td><td>D42.9</td><td>Neoplasm of uncertain or unknown behaviour of meninges, unspecified</td></tr></table> Exclude everyone with any of ICD-10-CA codes D80 (Immunodeficiency with predominantly antibody defects), D81 (Combined immunodeficiencies), D82 (Immunodeficiency associated with other major defects), D83 (Common variable immunodeficiency), and D84 (Other immunodeficiencies)			ICD-9-CM diagnosis from the AHRQ		Corresponding ICD-10-CA diagnosis		042	HIV	B24	HIV	1363	pneumocystosis	B59	pneumocystosis	260	kwashiorkor	E40	kwashiorkor	261	nutritional marasmus	E42	Marasmic kwashiorkor	262	Other severe protein-calorie malnutrition	E43	Unspecified severe protein-energy malnutrition	23873	Neoplasm of uncertain behavior of paraganglia	D44.7	Neoplasm of uncertain or unknown behaviour of aortic body and other paraganglia	23876	Neoplasm of uncertain behavior of meninges	D42.9	Neoplasm of uncertain or unknown behaviour of meninges, unspecified
ICD-9-CM diagnosis from the AHRQ		Corresponding ICD-10-CA diagnosis																																	
042	HIV	B24	HIV																																
1363	pneumocystosis	B59	pneumocystosis																																
260	kwashiorkor	E40	kwashiorkor																																
261	nutritional marasmus	E42	Marasmic kwashiorkor																																
262	Other severe protein-calorie malnutrition	E43	Unspecified severe protein-energy malnutrition																																
23873	Neoplasm of uncertain behavior of paraganglia	D44.7	Neoplasm of uncertain or unknown behaviour of aortic body and other paraganglia																																
23876	Neoplasm of uncertain behavior of meninges	D42.9	Neoplasm of uncertain or unknown behaviour of meninges, unspecified																																

Details of Variables:				
Variable	Definition			
	27900	Hypogamma-globulinaemia NOS	D80.1, D80.2	hereditary (D80.1) and non-familial (D80.2) hypogamma-globulinaemia
	27901	selective IGA immuno-deficiency	D80.2	Selective deficiency of immunoglobulin A [IgA]
	27902	selective IGM immuno-deficiency	D80.3	Selective deficiency of immunoglobulin G [IgG] subclasses
	27903	Other selective immuno-globulin deficiencies	D80.9	Immunodeficiency with predominantly antibody defects, unspecified
	27904	congenital hypogamma-globulinaemia	D80.0	Hereditary hypogamma-globulinaemia
	27905	Immuno-deficiency with hyper IGM	D80.5	Immunodeficiency with increased immuno-globulin M [IgM]
	27906	common variable immuno-deficiency	D83	Common variable immunodeficiency
	27909	Other deficiency of humoral immunity (B-cell/antibody deficiency)	D80.9	Immunodeficiency with predominantly antibody defects, unspecified
	27910	Immuno-deficiency with predominant t-cell defect unspecified	D83.1	Common variable immunodeficiency with predominant immunoregulatory T-cell disorders
	27911	digeorges syndrome	D82.1	Di George's syndrome
	27912	Wiskott-Aldrich Syndrome	D82.0	Wiskott-Aldrich Syndrome
	27913	nezelofs syndrome	D81.4	Nezelof's syndrome
	27919	Other deficiency of cell-mediated immunity	Include d in D83 and D84.9	cell-mediated immunity depends on T-cells and lymphocytes
	2792	Combined	D81	Combined

Details of Variables:				
Variable	Definition			
		immunity deficiency		immunodeficiencies
	2793	unspecified immunity deficiency	D84.9	Immunodeficiency, unspecified
	2794	autoimmune disease NEC	M35.9	Systemic involvement of connective tissue, unspecified site Autoimmune disease (systemic) NOS
	2798	other specified disorders involving the immune mechanism	D84.8	Other specified immunodeficiencies
	2799	unspecified disorder of immune mechanism	D84.9	Immunodeficiency, unspecified
	28409	const aplastic anemia NEC	D61.0	Constitutional aplastic anaemia
	2841	pancytopenia	D61.9	Aplastic anaemia, unspecified
	2880	agranulocytosis	D70	Agranulocytosis
	28800	Neutropenia NOS	D70.0	Neutropenia, including NOS, cyclic, drug-induced and congenital
	28801	Congenital neutropenia		
	28802	Cyclic neutropenia		
	28803	drug induced neutropenia		
	28809	Neutropenia NEC		
	2881	Functional disorders of polymorpho-nuclear neutrophils	D71	Functional disorders of polymorphonuclear neutrophils
	2882	genetic anomaly leukocyte	D72.0	Genetic anomalies of leukocytes
	2884	Hemophagocytic syndromes	D76.2	Haemophagocytic syndrome, infection-associated
	28850	Leukocytopenia, unspecified	D70.0	Neutropenia

Details of Variables:				
Variable	Definition			
	28851	lymphocytopenia	D72.8	Other specified disorders of white blood cells, includes lymphopenia
	28859	other decreased WBC count	D70.0	Neutropenia
	28953	neutropenic splenomegaly	D70.0	Neutropenia, includes Neutropenic splenomegaly
	28983	myelofibrosis	D47.1	Myelofibrosis (with myeloid metaplasia)
	40301 40311 40391	hypertensive chronic kidney disease, [malignant, benign, unspecified], with chronic kidney disease stage V or end stage renal disease	I12 + N18.0	hypertensive renal disease plus chronic renal failure, end stage renal disease
	40402 40403 40412 40413 04092 40493	hypertensive heart and chronic kidney disease, [malignant, benign, unspecified], [with, without] heart failure, and with chronic kidney disease stage V or end stage renal disease	I13 + N18.0	hypertensive heart and renal disease plus chronic renal failure, end stage renal disease
	5793	Other and unspecified postsurgical nonabsorption	K91.2	Postsurgical malabsorption, not elsewhere classified
	585	chronic kidney disease, any stage	N18	chronic renal failure

Details of Variables:					
Variable	Definition				
	5855 5856	chronic kidney disease stage V end stage renal disease	N18.0	chronic renal failure, end stage renal disease	
	9968 99680 99681 99682 99683 99684 99685 99686 99687 99689	complications of transplanted organ, complications of organ transplant NOS, complications of [kidney, liver, heart, lung, marrow, pancreas, intestine, other organ] transplant	T86	failure and rejection of transplanted organ	
	V420 V421 V426 V427 V428 V4281 V4282 V4283 V4284 V4289	[kidney, heart, lung, liver, other specified organ or tissue, bone marrow specified, peripheral stem cells, pancreas, intestines, other] replaced by transplant	Z940 (kidney) Z941 (heart) Z942 (lung) Z943 (heart and lung) Z944 (liver) Z945 (skin) Z946 (bone) Z947 (corneal) Z9480 (bone marrow) Z9481 (intestine) Z9482 (pancreas) Z9488 (other) Z949 (unspecified)		
	V451 V560 V561 V562	Postsurgical renal dialysis status Aftercare involving extracorporeal dialysis	Z99.2 Z49.0 Z49.1 Z49.2	Dependence on renal dialysis preparatory care for dialysis extracorporeal dialysis peritoneal dialysis	
Immunocompromised States procedure codes:					

Details of Variables:				
Variable		Definition		
	ICD-9-CM procedure code from AHRQ		Corresponding CCI procedure codes	
	0018	infuse immunosup antibody	8.ZZ.70	Immunization (to prevent) immune disorder NEC
	335 3350 3351 3352	lung transplantation lung transplantation NOS unilateral lung transplantation bilateral lung transplantation	1.GR.85 1.GT.85	transplant, lobe of lung transplant, lung NEC
	336	combined heart-lung transplantation	1.HY.85	transplant, heart with lung(s)
	375 3751	heart transplantation heart transplantation	1.HZ.85	transplant, heart NEC
	410 4100 4101 4102 4103	operations on bone marrow and spleen bone marrow transplant NOS autologous bone marrow transplant w/o purging allogeneic bone marrow transplant w/ purging allogeneic bone marrow transplant w/o purging	1.WY.19	transfusion, bone marrow
	4104 4105	autologous hematopoietic stem cell transplant w/o purging allogeneic hematopoietic stem cell transplant w/o purging	1.LZ.19.H H-U7-A 1.LZ.19.H H-U7-J	transfusion of stem cells (A = autologous, J = allogeneic)
	4106	cord blood stem cell transplant	1.LZ.19.H H-U8	transfusion of cord blood stem cells

Details of Variables:				
Variable	Definition			
	4107 4108	autologous hematopoietic stem cell transplant w/ purging allogeneic hematopoietic stem cell transplant w/ purging	1.LZ.19.H H-U7-A 1.LZ.19.H H-U7-J (same codes as above)	transfusion of stem cells (A = autologous, J = allogeneic)
	4109	autologous bone marrow transplant w/ purging	1.WY.19 (same code as above)	bone marrow transplant
	5051	auxiliary liver transplant (auxiliary liver transplant leaving patient's own liver in situ)	there doesn't seem to be an equivalent CCI code	
	5059	liver transplant NOS	1.OA.85	transplant, liver
	5280	pancreatic transplant NOS	1.OJ.85	transplant, pancreas
	5281 5282	reimplantation of pancreatic tissue homotransplant of pancreas	1.OJ.83	transfer, pancreas Replantation, pancreas [tissue], to muscle [e.g. thigh] Autotransplantation, pancreas [tissue] following pancreatectomy
	5283	heterotransplant of pancreas	included under 1.OJ.85	
	5285	allotransplantation of cells of islets of langerhans	included under 1.OJ.85	
	5286	transplantation of cells of islets of langerhans, NOS	included under 1.OJ.85	
	5569	other kidney transplantation	1.PC.85	transplant, kidney
Cancer	The ICD-9-CM codes used by the AHRQ comprise a complete list of all of the malignant neoplasm codes. Therefore, exclude all ICD-10-CA diagnosis codes which start with 'C'. The AHRQ also used all of the codes referring to a "history" of a malignant neoplasm. Therefore, exclude ICD-10-CA codes Z850 through Z859, which are all "personal			

Details of Variables:													
Variable	Definition												
	history of malignant neoplasm")												
Fiscal year	The fiscal year of the hospital discharge is defined as follows: <table border="1"> <thead> <tr> <th>Discharge date of the admission in which the selected procedure was performed</th><th>Fiscal year</th></tr> </thead> <tbody> <tr> <td>April 2002 to March 2003</td><td>2002</td></tr> <tr> <td>April 2003 to March 2004</td><td>2003</td></tr> <tr> <td>April 2004 to March 2005</td><td>2004</td></tr> <tr> <td>April 2005 to March 2006</td><td>2005</td></tr> <tr> <td>April 2006 to March 2007</td><td>2006</td></tr> </tbody> </table>	Discharge date of the admission in which the selected procedure was performed	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006
Discharge date of the admission in which the selected procedure was performed	Fiscal year												
April 2002 to March 2003	2002												
April 2003 to March 2004	2003												
April 2004 to March 2005	2004												
April 2005 to March 2006	2005												
April 2006 to March 2007	2006												
Post admission deep vein thrombosis or pulmonary embolism	ICD-10-CA codes I80.1, I80.2, I80.3, I26.0, I26.9 diagnosis type 2 Or ICD-9-CA T81.7, T82.8, T83.8, T84.8, T85.8, diagnosis type 2 PLUS ICD-10-CA I80.1, I80.2, I80.3, I26.0, I26.9 diagnosis type 3. The following ICD-10-CA diagnosis codes were removed in 2007. Because we may repeat this indicator in future years, and would like the methods to be consistent, do NOT include them: T86.822: Infection of bone graft/flap T86.832: Infection of cornea transplant T86.842: Infection of soft tissue (skin, muscle, fascia, tendon, mucosa) graft/flap T86.882: Infection of other transplanted tissue:												

2.3.3 Safety in long term care

Indicator title	Adjusted rate of falls resulting in visits to emergency per 100 long-term care residents, 2003/04 to 2006/07
Data Sources (for descriptions see section 4.2)	NACRS DAD OHIP RPDB
The Indicator:	
Denominator (population) description	Residents in Ontario LTC facilities in the fiscal years 2003/04 to 2006/07. Search for all "W" OHIP feecodes between 4 months (i.e. Dec. 1) prior to and 4 months (July 31) after April 1 of the fiscal year of interest. Include the LTC resident only if there was at least one "W" feecode within 120 days prior to April 1 AND within the 120 days on or after April 1 of the fiscal year of interest. Exclude: residents aged < 65 or > 105 on April 1, 2006, dead on April 1, 2006, invalid sex and age values

Indicator title	
Adjusted rate of falls resulting in visits to emergency per 100 long-term care residents, 2003/04 to 2006/07	
	invalid health card number resident in palliative care
Numerator (Subset of denominator; restricted as follows:)	Falls in nursing homes resulting in an ED visit/inpatient hospitalization.
Rates:	
Standardized Rate Calculation	Method:
	Direct
	Standard population:
	Residents in Ontario LTC facilities in the fiscal years 2003/04.
	Standardized by:
	Age and sex. Age groups are 65-69, 70-74, 75-79, 80-84, and 85+.
	Standardized Rate(s):
	Standardized overall rate by year from 2003/04 to 2006/07
	Unit of Rate(s) per:
	100
Details of Variables:	
Variable	Definition
Age	Age at April 1 of the fiscal year of interest. Age groups are 65-69, 70-74, 75-79, 80-84, and 85+.
Sex	Get the patient's sex from RPDB
Death date	Get the patient's date of death from RPDB
Invalid IKN	VALIKN $\neq$ V
In palliative Care	We define residents as in palliative care if: OHIP feecode A945, C945, C882, C982, W872, W882, W972, or W982 or K023 in the year prior to and including April 1, 2006, or CIHI record with patserv=58 in the year prior to and including index date, April 1, 2006
Fall resulting in ED visit or inpatient admission	ICD-10-CA code W00 through W19 as the main reason for the ED visit (dx10code1) or as one of the pre-admission diagnosis codes in the CIHI inpatient record (DXTYPE = M but not 2, 1, W, X, or Y)
Fiscal year	The fiscal year in which the residents were located by using OHIP records

Indicator title	
Rate per 100 long-term care home residents with at least one potentially inappropriate prescription, 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)	ODB OHIP RPDB
The Indicator:	

Denominator (population) description	For fiscal years 2002/03 to 2006/07, include all Ontario residents (from RPDB) age 65 years or older as of 120 days prior to the start of fiscal year of interest. (e.g. they must have been age 65 by December 1, 2005 for fiscal year 2006/07). We are only interested in LTC home residents in Ontario (see definition) Exclude: those who died prior to the end of the fiscal year (e.g. prior to March 31, 2007 for fiscal year 2006/07) those who had no contact with the health care system in the 5 years prior to the start of the fiscal year (e.g. no contact after April 1, 2001 for fiscal year 2006/07)	
Numerator (Subset of denominator; restricted as follows:)	Filling one or more prescriptions for one of the listed drugs (see Appendix A) (excluding hormone replacement drugs) at any time during the fiscal year of interest	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	For fiscal years 2002/04 to 2006/07
	Unit of Rate(s) per:	100
Details of Variables:		
Variable	Definition	
Age	Age at April 1 of the fiscal year of interest. Age groups are 65-74, 75-84, and 85+.	
Sex	Get the patient's sex from RPDB	
Death date	Get the patient's date of death from RPDB	
Community / nursing home resident	A person is classified as LTC home resident if s/he has met ALL following criteria: Any prescriptions with (LTC = '1') OR any 'W' OHIP fee code in OHIP in the period starting 120 days prior to the start of the fiscal year. Any prescriptions with (LTC = '1') OR any 'W' OHIP fee code in the 120 days after the beginning of the fiscal year A person is classified as community resident if s/he has none of the above record. We code the person unclassified if s/he does not fall into either category.	
Daily use of Fluoxetine	Yes if there is at least one refill of the Fluoxetine drug (i.e. from the drug list, any drug with DRUGNAME starting with 'FLUOXETINE') within 1.5 times the days supplied during the fiscal year of interest.	
Inappropriate	Yes if there is at least one drug from the drug list (excluding hormone	

prescribing	replacement drug) prescribed in the fiscal year of interest.
-------------	--

* Please see Appendix A – Drug List.

2.3.4 Drug safety in community-based care for the elderly

Indicator title		Rate of inappropriate prescribing per 100 seniors in the community, 2002/03 to 2006/07	
Data sources (for descriptions see section 4.2)		ODB OHIP RPDB	
The Indicator:			
Denominator (population) description		For fiscal years 2002/03 to 2006/07, include all Ontario residents (from RPDB) age 65 years or older as of 120 days prior to the start of fiscal year of interest. (e.g. they have to have been age 65 by December 1, 2005 for fiscal year 2006/07). We are only interested in elderly Ontario Community residents (see definition) Exclude: those who died prior to the end of the fiscal year (e.g. prior to March 31, 2007 for fiscal year 2006/07) those who had no contact with the health care system in the 5 years prior to the start of the fiscal year (e.g. no contact after April 1, 2001 for fiscal year 2006/07)	
Numerator (Subset of denominator; restricted as follows:)		Filling one or more prescriptions for one of the listed drugs (excluding hormone replacement drug) at any time during the fiscal year of interest	
Rates:			
Crude Rate Calculation		Crude Rate(s) by:	For fiscal years 2002/04 to 2006/07
		Unit of Rate(s) per:	100
Details of Variables:			
Variable		Definition	
Age		Date of birth from RPDB. Age at April 1 of the fiscal year of interest.	
Sex		Get the patient's sex from RPDB	
Death date		Get the patient's date of death from RPDB	
Community / nursing home resident		A person is classified as LTC home resident if s/he has met ALL following criteria: Any prescriptions with (LTC = '1') OR any 'W' OHIP fee code in OHIP in the period starting 120 days prior to the start of the fiscal year. Any prescriptions with (LTC = '1') OR any 'W' OHIP fee code in the 120 days after the beginning of the fiscal year	

Details of Variables:	
Variable	Definition
	A person is classified as community resident if s/he has none of the above record. We code the person unclassified if s/he does not fall into either category.
Daily use of Fluoxetine	Yes if there is at least one refill of the Fluoxetine drug (i.e. from the drug list, any drug with DRUGNAME starting with 'FLUOXETINE') within 1.5 times the days supplied during the fiscal year of interest.
Inappropriate prescribing (excluding hormone replacement drug)	Yes if there is at least one drug from the drug list (excluding hormone replacement drug) prescribed in the fiscal year of interest.

2.5 Equity

Refer to the Accessible, Effective and Safe sections above for technical details for additional indicators analyzed in the Equity section.

Indicator title		Proportion of Ontario population (18 years and older) with and without a chronic disease who have a regular medical doctor, 2007	
Data Sources		PCAS	
The Indicator:			
Denominator (population) description (source, exclusions, time frame)		Two separate definitions for the denominator: All respondents aged 18 or above All respondents aged 18 or above who have chronic disease Exclude: Those for whom it is not possible to tell if they have a chronic disease due to invalid responses.	
Numerator (Subset of denominator; restricted as follows:)		Population with a regular medical doctor	
Rates:			
Crude Rate Calculation	Crude Rate(s) by:	Ontario overall	
	Unit of Rate(s) per:	100	
Details of Variables:			
Variable	Definition		
Age	AGE_2		
Sex	RGENDER: 1 = male, 5 = female		
Having a regular medical doctor	FAMDOC: 1 = yes		
Chronic diseases	RH_2A: high blood pressure RH_2B: diabetes RH_2C: arthritis RH_2D: heart disease (in wave 5, this question was changed to ask about heart disease or stroke) RH_2E: cancer RH_2F: asthma (this question is only available in wave 5) RH_2G: respiratory problems such as COPD (this question is only available in wave 5) RH_2H: depression (this question is only available in wave 5) for each disease, invalid responses are 8: don't know 9: refused		

Variable	Definition
	If the person answers “yes” to at least one of the chronic disease questions, then they have a chronic disease (even if they give an invalid response to the remainder of the questions) Note: Starting with wave 5, some additional chronic diseases were added. Because the newly added diseases include depression, which is one of the four chronic conditions OHQC is focused on, and because wave 6, when it comes, will also have these additional diseases, we’ll include the additional questions. Thus, it will appear that there is less chronic disease among people interviewed in wave 4 than in waves 5 and 6.

Indicator title		Proportion of Ontario population (aged 18 years and older) with and without a chronic condition who were satisfied with their care when sick, 2007
Data Sources		PCAS
The Indicator:		
Denominator (population) description (source, exclusions, time frame)		Two separate definitions for the denominator: 1. All respondents aged 18 or above 2. All respondents aged 18 or above who have chronic disease Exclude: 3. Those for whom it is not possible to tell if they have a chronic disease due to invalid responses.
Numerator (Subset of denominator; restricted as follows:)		Satisfied with care when they were sick
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Ontario overall
	Unit of Rate(s) per:	100
Details of Variables:		
Variable	Definition	
Age	AGE_2	
Sex	RGENDER: 1 = male, 5 = female	
Satisfied with care when they were sick	PCAS variable SICK_10B 1: very satisfied or 2: somewhat satisfied 8: don’t know 9: refused to answer	

Variable	Definition
	Yes, satisfied if variable value is 1 or 2 No, not satisfied if variable value is 3, 4, or 5 Exclude records if variable value is 8, or 9 (but after the post-stratification weights are computed)
Chronic diseases	RH_2A: high blood pressure RH_2B: diabetes RH_2C: arthritis RH_2D: heart disease (in wave 5, this question was changed to ask about heart disease <u>or</u> stroke) RH_2E: cancer RH_2F: asthma (this question is only available in wave 5) RH_2G: respiratory problems such as COPD (this question is only available in wave 5) RH_2H: depression (this question is only available in wave 5) for each disease, invalid responses are 8: don't know 9: refused If the person answers "yes" to at least one of the chronic disease questions, then they have a chronic disease (even if they give an invalid response to the remainder of the questions) Note: Starting with wave 5, some additional chronic diseases were added. Because the newly added diseases include depression, which is one of the four chronic conditions OHQC is focused on, and because wave 6, when it comes, will also have these additional diseases, we'll include the additional questions. Thus, it will appear that there is less chronic disease among people interviewed in wave 4 than in waves 5 and 6.

2.6: Efficient

2.6.2 Visits to emergency that could be done in a doctor's office

Indicator title		Adjusted rate of visits to emergency for conditions that could be treated elsewhere, per 100 persons, 2002/03 to 2006/07		
Data Sources		NACRS RPDB		
The Indicator:				
Denominator (population) description		Weighted population from year 2002 to 2006 Exclude: Age < 1 Age > 74		
Numerator (Subset of denominator; restricted as follows:)		ED visits with one of the ICD-10-CA diagnosis codes listed below in the details of variables, with dxtype = MAIN. They all refer to the conditions that could have been treated somewhere else.		
		Conditions	ICD-10 codes	Description
		Conjunctivitis	A740	CHLAMYDIAL CONJUNCTIVITIS
			B309	VIRAL CONJUNCTIVITIS UNSPECIFIED
			H100	MUCOPURULENT CONJUNCTIVITIS
			H101	ACUTE ATOPIC CONJUNCTIVITIS
			H102	OTHER ACUTE CONJUNCTIVITIS
			H103	ACUTE CONJUNCTIVITIS UNSPECIFIED
			H104	CHRONIC CONJUNCTIVITIS
			H105	BLEPHAROCONJUNCTIVITIS
			H108	OTHER CONJUNCTIVITIS
			H109	CONJUNCTIVITIS UNSPECIFIED
			H130	FILARIAL INFECTION CONJUNCTIVA
			H131	CONJUNCTIVITIS INFECT & PARASIT DIS CL/E
			H132	CONJUNCTIVITIS IN OTHER DISEASES CL/E
			H133	OCULAR PEMPHIGOID

Indicator title				Adjusted rate of visits to emergency for conditions that could be treated elsewhere, per 100 persons, 2002/03 to 2006/07			
	Cystitis	N300	ACUTE CYSTITIS				
		N301	INTERSTITIAL CYSTITIS (CHRONIC)				
		N302	OTHER CHRONIC CYSTITIS				
		N303	TRIGONITIS				
		N304	IRRADIATION CYSTITIS				
		N308	OTHER CYSTITIS				
		N309	CYSTITIS UNSPECIFIED				
		N330	TUBERCULOUS CYSTITIS				
		N390	URINARY TRACT INFECTION SITE NOT SPEC				
	Otitis Media	H650	ACUTE SEROUS OTITIS MEDIA				
		H651	OTHER ACUTE NONSUPPURATIVE OTITIS MEDIA				
		H652	CHRONIC SEROUS OTITIS MEDIA				
		H653	CHRONIC MUCOID OTITIS MEDIA				
		H654	OTH CHRONIC NONSUPPURATIVE OTITIS MEDIA				
		H659	NONSUPPURATIVE OTITIS MEDIA UNSPECIFIED				
		H660	ACUTE SUPPURATIVE OTITIS MEDIA				
		H661	CHR TUBOTYMPANIC SUPPURATIVE OTITIS MEDIA				
		H662	CHR ATTICOANTRAL SUPPURATIVE OTITIS MEDIA				
		H663	OTHER CHRONIC SUPPURATIVE OTITIS MEDIA				
		H664	SUPPURATIVE OTITIS MEDIA UNSPECIFIED				
		H669	OTITIS MEDIA UNSPECIFIED				
		H670	OTITIS MEDIA IN BACTERIAL DISEASES CL/E				
		H671	OTITIS MEDIA IN VIRAL				

Indicator title				Adjusted rate of visits to emergency for conditions that could be treated elsewhere, per 100 persons, 2002/03 to 2006/07			
	Upper Respiratory Infections				DISEASES CL/E		
			H678		OTITIS MEDIA IN OTHER DISEASES CL/E		
			J00		ACUTE NASOPHARYNGITIS [COMMON COLD]		
			J010		ACUTE MAXILLARY SINUSITIS		
			J011		ACUTE FRONTAL SINUSITIS		
			J012		ACUTE ETHMOIDAL SINUSITIS		
			J013		ACUTE SPHENOIDAL SINUSITIS		
			J014		ACUTE PANSINUSITIS		
			J018		OTHER ACUTE SINUSITIS		
			J019		ACUTE SINUSITIS UNSPECIFIED		
			J028		ACUTE PHARYNGITIS DT OTH SPEC ORGANISMS		
			J029		ACUTE PHARYNGITIS UNSPECIFIED		
			J038		ACUTE TONSILLITIS DT OTH SPEC ORGANISMS		
			J039		ACUTE TONSILLITIS UNSPECIFIED		
			J040		ACUTE LARYNGITIS		
			J041		ACUTE TRACHEITIS		
			J060		ACUTE LARYNGOPHARYNGITIS		
			J068		OTHER ACUTE URTI OF MULTIPLE SITES		
			J069		ACUTE URTI UNSPECIFIED		
			J310		CHRONIC RHINITIS		
			J311		CHRONIC NASOPHARYNGITIS		
			J312		CHRONIC PHARYNGITIS		
			J320		CHRONIC MAXILLARY SINUSITIS		
			J321		CHRONIC FRONTAL SINUSITIS		
			J322		CHRONIC ETHMOIDAL SINUSITIS		
			J323		CHRONIC SPHENOIDAL SINUSITIS		

Indicator title			Adjusted rate of visits to emergency for conditions that could be treated elsewhere, per 100 persons, 2002/03 to 2006/07
	J324	CHRONIC PANSINUSITIS	
	J328	OTHER CHRONIC SINUSITIS	
	J329	CHRONIC SINUSITIS UNSPECIFIED	
	J350	CHRONIC TONSILLITIS	
	J351	HYPERTROPHY OF TONSILS	
	J352	HYPERTROPHY OF ADENOIDS	
	J353	HYPERTROPHY TONSILS AND ADENOIDS	
	J358	OTH CHRONIC DISEASES TONSILS & ADENOIDS	
	J359	CHRONIC DISEASE TONSILS & ADENOIDS NOS	
	J399	DISEASE OF UPPER RESPIRATORY TRACT NOS	
			Exclude: Invalid health card number missing age or gender (found missing or invalid in RPDB) planned or scheduled visit age < 1 or age > 74 CTAS levels I, II, and III admitted to hospital
Rates:			
Standardized Rate Calculation	Method:	Direct	
	Standard population:	RPDB weighted population in 2001	
	Standardized by:	Age and sex. 5-year age groups from 1-5 to 70-74.	
	Standardized Rate(s):	Rate for years 2002 to 2006	
	Unit of Rate(s) per:	100	

Details of Variables:													
Variable	Definition												
Age	Age at the registration date. Get date of birth from RPDB.												
Sex	Get the patient's sex from RPDB												
Invalid IKN	Variable VALIKN $\neq$ V												
Planned or scheduled visit	Variable VISITTYPE = 3, 4, or 5												
CTAS levels I, II, or III	Variable TRIAGE = 1, 2, or 3												
Admitted to hospital at ED discharge	Variable VISITDISP2002, VISITDISP2003, or VISITDISP2005 = 06 or 07												
Fiscal year of ED visit	The fiscal year of ED visit is defined as follows: <table border="1"> <tr> <td>ED registration date (variable REGDATE)</td><td>Fiscal year</td></tr> <tr> <td>April 2002 to March 2003</td><td>2002</td></tr> <tr> <td>April 2003 to March 2004</td><td>2003</td></tr> <tr> <td>April 2004 to March 2005</td><td>2004</td></tr> <tr> <td>April 2005 to March 2006</td><td>2005</td></tr> <tr> <td>April 2006 to March 2007</td><td>2006</td></tr> </table>	ED registration date (variable REGDATE)	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006
ED registration date (variable REGDATE)	Fiscal year												
April 2002 to March 2003	2002												
April 2003 to March 2004	2003												
April 2004 to March 2005	2004												
April 2005 to March 2006	2005												
April 2006 to March 2007	2006												
Whether the patient resides in a CMA	Yes if SACTYPE = '1' and No, otherwise SACTYPE can be first looked up by using Census Sub-division and then secondly by using CMA. Here is a piece of SAS codes to determine whether an individual resides in a CMA: <pre>sactype=put(prcdcsd,\$sactype.); if sactype=' ' then sactype=put(put(substr(prcddabl,1,8),\$dacma.),\$sacty2_.); label sactype= 'statistical area type (cma, tr-ca, untr-ca miz)'; cma = (sactype = '1');</pre>												

2.6.3 Unnecessary tests before cataract surgery

Indicator title	Rate of pre-operative testing per 100 cataract procedures, 2002/03 to 2006/07 (ECG and X-ray)
Data sources (for descriptions see section 4.2)	OHIP RPDB
The Indicator:	
Denominator (population)	A hospital discharge record (inpatient or outpatient) is selected if it

description	indicates cataract surgery. Cataract surgery was defined using the CIHI definition found at www.cihi.ca/cihiweb/en/downloads/WaitTimesReport_tech_Cataracts_e.pdf Cataract surgery is identified using a combination of a procedure code and diagnosis codes: CCI code 1.CL.89 - (Excision total, lens. Includes: Lens extraction (for cataract) with or without insertion of intraocular lens prosthesis) in any position. ICD-10 codes H25 - senile cataract H26 - other cataract, or H28 - cataract and other disorders of lens in diseases classified elsewhere in any position Exclude: Invalid health card number or Ontario patient identifier age/sex missing patient age is < 20 at the time of admission patient age is > 105 at the time of admission non-elective admission procedure was “previous” or out of hospital procedure patient was discharged dead	
Numerator (Subset of denominator; restricted as follows:)	Two kinds of pre-operating tests dated in the 30 days (i.e. 1 <= admission date – OHIP servdate <= 30) prior to admission for surgery (not the date of surgery): Electrocardiograms (ECG), OHIP fee code G313 Chest X-rays (fee codes X090, X091, and X092) Rates of pre-operative ECG and chest X-ray testing are calculated as the number of patients receiving an ECG or chest X-ray (count one ECG even if the patient had more than 1 ECG, and count one chest X-ray even if the patient had more than one chest X-ray), respectively, in the 30 days prior to hospital admission divided by the total number of discharges (we are considering individual discharges, not episodes of care). Exclude: Procedures performed on the day of surgery (since these are likely to be post-operative.)	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Rate for years 2002 to 2006

	Unit of Rate(s) per:	100												
Details of Variables:														
Variable	Definition													
Age	Date of birth from RPDB. Age at the admission date.													
Sex	Get the patient’s sex from RPDB.													
Invalid IKN	Variable VALIKN ≠ V													
Non-elective admission	Inpatient admissions were considered to be non-elective if CIHI variable ADMCAT ≠ L, or CIHI variable ENTRY ≠ C, D, or P Outpatient procedures were considered to be non-elective if admission by ambulance (SDS variable ADMAMBUL = A, G, W, or C).													
Out of hospital procedure	Variable INOOH[1-20] = ‘Y’ In CIHI data 2002 and after, there is not any variable indicating previous procedure.													
Patient was discharged dead	Inpatient records: DISCHDISP = 07 Outpatient records: <table><tr><td>Fiscal year</td><td>Variable and Value</td></tr><tr><td>2002/03</td><td>DISCHDISP = 07</td></tr><tr><td>2003/04</td><td>VISDISP2003 = 10</td></tr><tr><td>2004/05</td><td>VISDISP2003 = 10</td></tr><tr><td>2005/06</td><td>VISDISP2005 = 10</td></tr><tr><td>2006/07</td><td>VISDISP2005 = 10</td></tr></table>		Fiscal year	Variable and Value	2002/03	DISCHDISP = 07	2003/04	VISDISP2003 = 10	2004/05	VISDISP2003 = 10	2005/06	VISDISP2005 = 10	2006/07	VISDISP2005 = 10
Fiscal year	Variable and Value													
2002/03	DISCHDISP = 07													
2003/04	VISDISP2003 = 10													
2004/05	VISDISP2003 = 10													
2005/06	VISDISP2005 = 10													
2006/07	VISDISP2005 = 10													
Fiscal year of Cataract surgery performed	The fiscal year of procedure performed is defined as follows: <table><tr><td>Admission date (ADMDATE)</td><td>Fiscal year</td></tr><tr><td>April 2002 to March 2003</td><td>2002</td></tr><tr><td>April 2003 to March 2004</td><td>2003</td></tr><tr><td>April 2004 to March 2005</td><td>2004</td></tr><tr><td>April 2005 to March 2006</td><td>2005</td></tr><tr><td>April 2006 to March 2007</td><td>2006</td></tr></table>		Admission date (ADMDATE)	Fiscal year	April 2002 to March 2003	2002	April 2003 to March 2004	2003	April 2004 to March 2005	2004	April 2005 to March 2006	2005	April 2006 to March 2007	2006
Admission date (ADMDATE)	Fiscal year													
April 2002 to March 2003	2002													
April 2003 to March 2004	2003													
April 2004 to March 2005	2004													
April 2005 to March 2006	2005													
April 2006 to March 2007	2006													

2.6.4 Use of expensive drugs when lower cost alternatives are available

Indicator title	Adjusted rate of prescribing a thiazide as their first antihypertensive medication per 100 elderly people, 2005/06 and 2006/07
Data sources (for descriptions see section 4.2)	DAD OHIP ODB RPDB

Indicator title		Adjusted rate of prescribing a thiazide as their first antihypertensive medication per 100 elderly people, 2005/06 and 2006/07	
		ODD	
The Indicator:			
Denominator (population) description		People newly diagnosed with hypertension. Select everyone who filled a prescription for one of the drugs on the “inclusion” list (see Appendix B) during the two-year period from April 1, 2005 to March 31, 2007. Select only the first such prescription for each person. This is the index date. Exclude: Patient not at least 66 years old on index date. Patients with previous prescriptions for one of the drugs in the list, in the 1 year prior to the index date. This is because we want only people who are being treated for hypertension for the first time. Patients who filled a prescription for one of the drugs on the “exclusion” list (see Appendix C) in the one year period prior to or on the index date. Patients with the most responsible diagnoses within the 3 years prior to the index date which suggest that the diuretics were prescribed for something other than hypertension. Patients diagnosed with diabetes at any time prior to the index date.	
Numerator (Subset of denominator; restricted as follows:)		The numerator is the number of people whose first prescription was just a thiazide. See “Success” in the details of variable section.	
Rates:			
Standardized Rate Calculation		Method:	Direct
		Standard population:	People newly diagnosed with hypertension in 2005/06
		Standardized by:	Age and sex. Age groups are 66-74 and 75+.
		Standardized Rate(s):	Rate for years 2005/06 to 2006/07
		Unit of Rate(s) per:	100

Details of Variables:																									
Variable	Definition																								
Age	Age at the index date. Get date of birth from RPDB. Age groups are 66-74 and 75+.																								
Sex	Get the patient's sex from RPDB.																								
Diuretics were prescribed for something other than hypertension	Within the 3 years prior to the index date, there was at least one inpatient hospitalization with a most responsible diagnosis one of the following: <table border="1"> <thead> <tr> <th>Exclusion diagnosis</th><th>ICD-10-CA codes</th></tr> </thead> <tbody> <tr> <td>heart failure</td><td>I50</td></tr> <tr> <td>migraine</td><td>G43</td></tr> <tr> <td>ischaemic heart disease</td><td>I20, I21, I22, I23, I24, I25</td></tr> <tr> <td>Paroxysmal tachycardia, other cardiac arrhythmias</td><td>I47, I49</td></tr> <tr> <td>cerebral infarction (stroke), stroke not specified as haemorrhage or infarction</td><td>I63, I64</td></tr> <tr> <td>some transient cerebral ischaemic attacks and related syndromes</td><td>G450, G451, G452, G453, G458, G459</td></tr> <tr> <td>some codes for vascular syndromes of brain in cerebrovascular diseases</td><td>G464, G465, G466, G467</td></tr> <tr> <td>Chronic nephritic syndrome</td><td>N03</td></tr> <tr> <td>chronic renal failure, unspecified renal failure</td><td>N18, N19</td></tr> <tr> <td>Alcoholic cirrhosis of liver, primary biliary cirrhosis, secondary biliary cirrhosis, biliary cirrhosis, unspecified, other and unspecified cirrhosis of liver</td><td>K703, K743, K744, K745, K746</td></tr> <tr> <td>Oesophageal varices</td><td>I85</td></tr> </tbody> </table>	Exclusion diagnosis	ICD-10-CA codes	heart failure	I50	migraine	G43	ischaemic heart disease	I20, I21, I22, I23, I24, I25	Paroxysmal tachycardia, other cardiac arrhythmias	I47, I49	cerebral infarction (stroke), stroke not specified as haemorrhage or infarction	I63, I64	some transient cerebral ischaemic attacks and related syndromes	G450, G451, G452, G453, G458, G459	some codes for vascular syndromes of brain in cerebrovascular diseases	G464, G465, G466, G467	Chronic nephritic syndrome	N03	chronic renal failure, unspecified renal failure	N18, N19	Alcoholic cirrhosis of liver, primary biliary cirrhosis, secondary biliary cirrhosis, biliary cirrhosis, unspecified, other and unspecified cirrhosis of liver	K703, K743, K744, K745, K746	Oesophageal varices	I85
Exclusion diagnosis	ICD-10-CA codes																								
heart failure	I50																								
migraine	G43																								
ischaemic heart disease	I20, I21, I22, I23, I24, I25																								
Paroxysmal tachycardia, other cardiac arrhythmias	I47, I49																								
cerebral infarction (stroke), stroke not specified as haemorrhage or infarction	I63, I64																								
some transient cerebral ischaemic attacks and related syndromes	G450, G451, G452, G453, G458, G459																								
some codes for vascular syndromes of brain in cerebrovascular diseases	G464, G465, G466, G467																								
Chronic nephritic syndrome	N03																								
chronic renal failure, unspecified renal failure	N18, N19																								
Alcoholic cirrhosis of liver, primary biliary cirrhosis, secondary biliary cirrhosis, biliary cirrhosis, unspecified, other and unspecified cirrhosis of liver	K703, K743, K744, K745, K746																								
Oesophageal varices	I85																								
Diagnosed with diabetes at any time prior to the index date	ODD variable DIAGDATE is prior to or on the index date																								
Success	A list of the thiazide drugs is found in /home/kinwah/data/ohqc/efficient/thiazide/din_thiazide.sas7bdat, a copy of /home/ruth/data/merrick/thiazide/din_thiazide.sas7bdat. A drug is considered to be a thiazide drug if variable THIAZIDE = 1 in this dataset. A thiazide is either a drug whose only active ingredient is some form of thiazide, or a drug which contains a thiazide plus (amiloride, triamterene, or spironolactone). The reason we count these combination drugs as thiazides is that the second ingredient (which is also a diuretic) is included because it is "potassium sparing". Thiazides tend to deplete the body of potassium, and so the second drug is included to counteract this effect. That is, the second drug is not there because it is a diuretic, and it is there to help the body retain potassium.																								

Details of Variables:	
Variable	Definition
	“Success” occurs if the only prescription from the included_drug_list which was filled on the index date was a thiazide. (You may find two prescriptions, both for a thiazide. Sometimes when a doctor wants to use a dose which is mid-way between two available doses, the doctor will prescribe one prescription at the low dose and one at the high dose, and tell the patient to take one of each. As long as the only prescriptions from the inclusion list which were filled on the index date are for drugs on the din_thiazide list, this is a “success”.) → There will be a few people who filled one prescription for a thiazide and a separate prescription for amiloride, triamterene, or spironolactone (DRUGNAME = AMILORIDE HCL, AMILORIDE HCL & HYDROCHLOROTHIAZIDE, TRIAMTERENE, TRIAMTERENE HYDROCHLOROTHIAZIDE, SPIRONOLACTONE, or SPIRONOLACTONE HYDROCHLOROTHIAZIDE). These should be counted as a “success”, as if they were taking one of the combination drugs that contained thiazide plus a potassium sparing diuretic. If the drugname is “AMILORIDE HCL & HYDROCHLOROTHIAZIDE” or if it is “TRIAMTERENE HYDROCHLOROTHIAZIDE” or “SPIRONOLACTONE HYDROCHLOROTHIAZIDE” then it is already counted as a thiazide drug in the din_thiazide dataset. However, some doctors, instead of prescribing one of these “combination” drugs, wrote two prescriptions: one prescription for a thiazide and a separate prescription for amiloride, triamterene, or spironolactone. Normally, if we see the patient filling a prescription for a thiazide plus a second prescription for a different diuretic, we would count this as a “failure”. However, if the second prescription happens to be one of these three (and if there aren’t any additional drugs) then it counts as a “success”. So, you only have to double-check for AMILORIDE HCL, TRIAMTERENE, and SPIRONOLACTONE on their own. “Failure” occurs if the patient fills a prescription for a diuretic which is not a thiazide OR if the patient fills a prescription for a thiazide but also fills a prescription for one of the other drugs on the list.

*Please see Appendices B and C – Inclusion and exclusion drug list.

2.8: Integrated

2.8.2 Proportion of patients with strokes who get rehabilitation services

Indicator title		Percentage of Ontario stroke patients discharged from acute care to inpatient rehabilitation, by local health integration network, 2005/06	
Data sources (for descriptions see section 4.2)		DAD NRS RPDB	
The Indicator:			
Denominator (population) description		Inpatient hospitalization with a most responsible diagnosis of stroke (either pre-admission or post-admission), with episode ending in fiscal year 2005/06. For index event, stroke ICD10 codes are: I60, I61, I63, I64. This is the index event and we will link this to find all related discharges in an episode by using the variable EPI. Exclude: Invalid health card number or non-Ontario residents missing age/sex age < 20 or age > 105 patient died in hospital previous stroke LOS > 30 days (this is the 90th percentile LOS for stroke, and the patient is not a good candidate for rehab so long after the stroke) transferred from specific facility discharged after March 31, 2006 Include: Pre-admission and post-admission strokes	
Numerator (Subset of denominator; restricted as follows:)		Direct discharge to rehab facility	
Rates:			
Crude Rate Calculation	Crude Rate(s) by:	Rate for fiscal year 2005/06	
	Unit of Rate(s) per:	100	
Details of Variables:			
Variable	Definition		
Age	Date of birth from RPDB. Age at the discharge date of the episode.		
Sex	Get the patient's sex from RPDB		
Invalid IKN or non-Ontario resident	VALIKN ≠ V or the first two characters are NOT between '01' and '50' or are equal to '22'.		
Patient died in	Variable DISCHDISP = '07' at the end of episode of care		

Details of Variables:	
Variable	Definition
hospital	
Episode length of stay (LOS)	LOS is computed as follows: Compute difference between index admission date and the latest discharge date from the episode Subtract the ALOS (Alternate care LOS) of the last admission (i.e. the one with the latest discharge) in the episode
Previous stroke	Look back for 3 years ($3 * 365 = 1,095$ days) from the discharge date of the index episode for any discharge with diagnosis code I60, I62, I63, or I64 in any diagnosis type. Note: Stroke is identified from a most responsible diagnosis of 'I60', 'I61', 'I63', 'I64'. The definition does not include 'I62' nor 'G45'. However, when excluding people with an earlier stroke, add I62.
Transferred from specific facility	The variable INSTFTYP from the index event = 2, 3, 4, 5, 7, or 9 2 general rehab hospital 3 chronic hospital 4 nursing home 5 psychiatric hospital 7 special rehabilitation hospital 9 home for aged
Direct discharge to rehab facility	Discharge to rehab, defined two ways: The final discharge from the episode was to a rehab hospital (instttyp 2 or 7) There was a rehab admission (NRS) after the index admission and not later than (2 days after the episode discharge) NOTE: The tables are based on the second, NRS-based definition. Allowing 48 hours from discharge until admission in rehab matches the 48 hours used to define a single episode of care in an acute care hospital. The 48 hour rule in the acute care hospital episode of care applies to instances where the discharge and re-admission refer to the same institution. In the case of acute care hospitals which have special rehab units, the two institution numbers are not the same (e.g. Kingston General Hospital acute care inst number is 1100, their special rehab inst number is 1101). Rather than trying to match up acute care and rehab inst numbers, just apply a 2-day rule.

2.9: Focused on Population Health

2.9.4 Risk factors

Indicator title		Percentage of Ontarians experiencing food insecurity, by income deciles, 2005	
Data sources (for descriptions see section 4.2)		CCHS 3.1	
The Indicator:			
Denominator (population) description		All respondents weighted by the survey weight Exclude: < 20 years > 105 years	
Numerator (Subset of denominator; restricted as follows:)		Reporting food insecurity	
Rates:			
Crude Rate Calculation		Crude Rate(s) by:	Overall for each survey cycle. For CCHS 3.1 only: Household income distribution
		Unit of Rate(s) per:	100
Details of Variables:			
Variable		Definition	
Age		The variable is DHHE AGE.	
Household income distribution		The variable is INCEDRPR.	
Survey weights		Survey weights are needed to calculate weighted rates. The variable is WTSE S.	
Reporting food insecurity		Yes if variable FSCEDHFS = 1, 2, or 3 Variable FSCEDHFS has 4 levels: 0 = secure, 1 = food insecure without hunger, 2 = food insecure with moderate hunger, 3 = food insecure with severe hunger. 1 means some members of the household worried about running out of food or compromised their diets by choosing less desirable or less expensive food. 2 means adults in the household experienced hunger repeatedly in the previous year 3 means adults experienced hunger more often and their children also	

Variable	Definition
	experienced hunger We should find approx. 3.3% of Ontarians age 12+ are insecure without hunger, approx. 2.5% are insecure with moderate hunger, and approx. 0.3% are insecure with severe hunger. See www.phsa.ca/NR/rdonlyres/76D687CF-6596-46FE-AA9A-A536D61FB038/24932/PHSAreportfoodinsecurityfinal.pdf page 16.

Indicator title		Percentage of Ontarians, who report not eating enough fruit and vegetables, by income deciles, 2005	
Data sources (for descriptions see section 4.2)		CCHS 3.1	
The Indicator:			
Denominator (population) description		All respondents weighted by the survey weight Exclude: < 20 years > 105 years	
Numerator (Subset of denominator; restricted as follows:)		Reporting inadequate fruit and vegetable consumption	
Rates:			
Crude Rate Calculation		Crude Rate(s) by:	Overall for each survey cycle. For CCHS 3.1 only: Household income distribution
		Unit of Rate(s) per:	100
Details of Variables:			
Variable		Definition	
Age		The variable is DHHE_AGE.	
Household income distribution		The variable is INCEDRPR.	
Survey weights		Survey weights are needed to calculate weighted rates. The variable is WTSE_S.	
Reporting inadequate fruit and vegetable consumption		Yes if variable FVCEGTOT = 1 Variable FVCEGTOT has 3 levels: 1 = less than 5 servings of fruit and vegetables per day, 2= 5 to 10, 3= more than 10.	

Indicator title							
Percentage of Ontarians with heart disease or diabetes who smoke daily or are obese, 2001, 2003 and 2005							
Data sources (for descriptions see section 4.2)	CCHS 1.1, 2.1, 3.1						
The Indicator:							
Denominator (population) description	All respondents weighted by the survey weight, and: Had heart disease or diabetes Had heart disease Had diabetes Exclude: < 20 years > 105 years						
Numerator (Subset of denominator; restricted as follows:)	Smoking (weighted by the survey weight) defined two ways: Daily smokers Daily or occasional smokers Overweight (weighted by the survey weight) defined two ways: Obese Overweight or obese						
Rates:							
Crude Rate Calculation	Crude Rate(s) by: Overall for each survey cycle						
	Unit of Rate(s) per: 100						
Details of Variables:							
Variable	Definition						
Smoking Status 1 (daily)	<table border="1"> <tr> <td>In CCHS1.1:</td><td>1 if SMKADSTY = 1 (daily smoker) 0 otherwise</td></tr> <tr> <td>In CCHS2.1:</td><td>1 if SMKCDSTY = 1 (daily smoker) 0 otherwise</td></tr> <tr> <td>In CCHS3.1:</td><td>1 if SMKEDSTY = 1 (daily smoker) 0 otherwise</td></tr> </table>	In CCHS1.1:	1 if SMKADSTY = 1 (daily smoker) 0 otherwise	In CCHS2.1:	1 if SMKCDSTY = 1 (daily smoker) 0 otherwise	In CCHS3.1:	1 if SMKEDSTY = 1 (daily smoker) 0 otherwise
In CCHS1.1:	1 if SMKADSTY = 1 (daily smoker) 0 otherwise						
In CCHS2.1:	1 if SMKCDSTY = 1 (daily smoker) 0 otherwise						
In CCHS3.1:	1 if SMKEDSTY = 1 (daily smoker) 0 otherwise						
Smoking status 2 (daily or occasional)	In CCHS1.1: 1 if SMKADSTY = 1 (daily smokers) = 2 (occasional smoker (former daily smoker)) = 3 (occasional smoker (never daily smoker or < 100 cigarettes in lifetime)) 0 otherwise						

Variable	Definition			
	In CCHS2.1:	1 if SMKCDSTY = 1 (daily smokers) = 2 (occasional smoker (former daily smoker)) = 3 (occasional smoker (never daily smoker or < 100 cigarettes in lifetime)) 0 otherwise		
	In CCHS3.1:	1 if SMKEDSTY = 1 (daily smokers) = 2 (occasional smoker (former daily smoker)) = 3 (occasional smoker (never daily smoker or < 100 cigarettes in lifetime)) 0 otherwise		
Overweight / obese:	In CCHS 3.1: Variable HWTEDISW categorizes adults by BMI into underweight, normal weight, overweight, and obese (obese is further classified as I, II, or III).			
Overweight (overweight or obese)	1 if overweight or obese 0 if underweight or normal			
Obese	1 if obese 0 if underweight, normal, or overweight			
Heart Disease	Heart disease is present when the answer to the question “do you have heart disease” is 1. In CCHS 1.1, the variable name is CCCA_121 In CCHS 2.1, the variable name is CCCE_121 In CCHS 3.1, the variable name is CCCC_121			
Diabetes	Diabetes is determined using question “Do you have diabetes”. However, if they answered “yes” to question “Were you pregnant when you were first diagnosed with diabetes” and also answered “no” to question “Other than during pregnancy, has a health professional ever told you that you have diabetes”, then they do NOT have diabetes.			
	Question	CCHS1.1	CCHS2.1	CCHS3.1
	Do you have diabetes?	CCCA_101	CCCC_101	CCCE_101
	Diabetes when pregnant?	CCCA_10A	CCCC_10A	CCCE_10A
	Diabetes diagnosed other than pregnant?	CCCA_10B	CCCC_10B	CCCE_10B

Variable	Definition
Age	In CCHS1.1: The variable is dhha_age. In CCHS2.1: The variable is dhhc_age. In CCHS3.1: The variable is dhhe_age.
Household income distribution	The variable is lncedrpr in CCHS3.1
Survey weights	We are to calculate weighted rates and this is why we need the survey weights. In CCHS3.1: The variable is wtse_s.

Acknowledgements

ICES would like to acknowledge its staff and their fine work that went into preparing this chapter in the 2008 Report on Ontario's Health System. The programming and biostatistics staff who contributed to the report are Azim Bhamani, Kinwah Fung, Cindy Ho, Alice Newman and Julie Xu. The epidemiology and research coordination staff who contributed to the report are Ruth Croxford, Anjali Misra and Asma Razzaq. Geoff Anderson is the principal investigator and oversaw the project.

Appendix A – Beers drug list

ACETAMINOPHEN & CAFFEINE & CHLORPHENIRAMINE MALEATE & PHENYLEPHRINE HYDROCHLORIDE
 ACETAMINOPHEN & CHLORPHENIRAMINE & CODEINE & PSEUDOEPHEDRINE
 ACETAMINOPHEN & CHLORPHENIRAMINE & PSEUDOEPHEDRINE
 ACETAMINOPHEN & CHLORPHENIRAMINE & PSEUDOEPHEDRINE COMPOUND
 ACETAMINOPHEN & CHLORPHENIRAMINE MALEATE & DEXTROM
 ACETAMINOPHEN & CHLORPHENIRAMINE MALEATE & PSEUDOEPHEDRINE HCL
 ACETAMINOPHEN & CHLORPHENIRAMINE MALEATE & PSEUDOEPHEDRINE HYDROCHLORIDE & VITAMIN C
 ACETAMINOPHEN & DEXTROMETHORPHAN & PSEUDOEPHEDRINE & DIPHENHYDRAMINE
 ACETAMINOPHEN & DEXTROMETHORPHAN HBR & CHLORPHENIRAMINE MALEATE
 ACETAMINOPHEN & DEXTROMETHORPHAN HBR & PHENYLEPHRINE HCL & CHLORPHENIRAMINE MALEATE
 ACETAMINOPHEN & DIPHENHYDRAMINE HCL & PSEUDOEPHEDRINE HCL
 ACETAMINOPHEN & GUAIFENESIN & PSEUDOEPHEDRINE HCL & DEXTROMETHORPHAN HBR & CHLORPHENIRAMINE MALEATE
 ACETAMINOPHEN & PHENYLEPHRINE HCL & CHLORPHENIRAMINE HCL
 ACETAMINOPHEN & PHENYLEPHRINE HCL & CHLORPHENIRAMINE MALEATE
 ACETAMINOPHEN & PHENYLPROPANOLAMINE HCL & CHLORPHENIRAMINE MALEATE
 ACETAMINOPHEN & PHENYLPROPANOLAMINE HCL & CHLORPHENIRAMINE MALEATE COMPOUND
 ACETAMINOPHEN & PSEUDOEPHEDRINE & CHLORPHENIRAMINE
 ACETAMINOPHEN & PSEUDOEPHEDRINE & DEXTROMETHORPHAN & CHLORPHENIRAMINE
 ACETAMINOPHEN & PSEUDOEPHEDRINE & DIPHENHYDRAMINE
 ACETAMINOPHEN & PSEUDOEPHEDRINE HCL & DEXTROMETHORPHAN HBR & CHLORPHENIRAMINE MALEATE
 ACETYLSALICYCLIC ACID & CAFFEINE & CHLORPHENIRAMINE MALEATE & PHENYLEPHRINE HCL
 AMITRIPTYLINE HCL
 AMITRIPTYLINE HCL & BACLOFEN
 AMITRIPTYLINE PAMOATE
 AMITRIPTYLINE/COMBINATION
 AMMONIUM CHLORIDE & CODEINE PHOSPHATE & DIPHENHYDRAMINE HCL
 AMMONIUM CHLORIDE & DIPHENHYDRAMINE HCL & DEXTROMETHORPHAN
 AMMONIUM CHLORIDE & DIPHENHYDRAMINE HCL & DEXTROMETHORPHAN HBR
 BELLADONNA ALKALOIDS
 BELLADONNA ALKALOIDS & PECTIN & KAOLIN COMPOUND
 BELLADONNA ALKALOIDS & PHENOBARBITAL
 CAFFEINE & ACETYLSALICYCLIC ACID & DEXTROPROPOXYPHENE HYDROCHLORIDE
 CALAMINE & DIPHENHYDRAMINE HCL
 CALAMINE & ZINC OXIDE & DIPHENHYDRAMINE HCL
 CHLORDIAZEPOXIDE & ESTERIFIED ESTROGENS
 CHLORDIAZEPOXIDE & PENTAERYTHRITOL TETRANITRATE

CHLORDIAZEPOXIDE HCL
 CHLORDIAZEPOXIDE HCL & CLIDINIUM BROMIDE
 CHLORPHENIRAMINE & DEXTROMETHORPHAN & PHENYLPROPANOLAMINE &
 ACETAMINOPHEN
 CHLORPHENIRAMINE & PHENYLPROPANOLAMINE
 CHLORPHENIRAMINE & PHENYLPROPANOLAMINE & DEXTROMETHORPHAN
 CHLORPHENIRAMINE & PHENYLPROPANOLAMINE & GUAIFENESIN
 CHLORPHENIRAMINE & POLISTIREX & CODEINE
 CHLORPHENIRAMINE MALEATE
 CHLORPHENIRAMINE MALEATE & ASA
 CHLORPHENIRAMINE MALEATE & ASA & PHENYLPROPANOLAMINE HCL
 CHLORPHENIRAMINE MALEATE & DEXTROMETHORPHAN HYDROBROMIDE &
 PSEUDOEPHEDRINE HYDROCHLORIDE
 CHLORPHENIRAMINE MALEATE & EPINEPHRINE
 CHLORPHENIRAMINE MALEATE & PHENYLEPHRINE HYDROCHLORIDE &
 ACETAMINOPHEN
 CHLORPHENIRAMINE MALEATE & PHENYLPROPANOLAMINE HCL
 CHLORPHENIRAMINE MALEATE & PHENYLPROPANOLAMINE HCL & CODEINE
 PHOSPHATE
 CHLORPHENIRAMINE MALEATE & PSEUDOEPHEDRINE HCL & ACETAMINOPHEN
 CHLORPHENIRAMINE MALEATE & PSEUDOEPHEDRINE HYDROCHLORIDE
 CHLORPHENIRAMINE MALEATE & PSEUDOEPHEDRINE SULFATE
 CHLORPHENIRAMINE/DEXCHLOR/PLUS 1&2
 CHLORPROPAMIDE
 CIMETIDINE
 CIMETIDINE HYDROCHLORIDE
 CLONIDINE HCL
 CLORAZEPATE DIPOTASSIUM
 CODEINE & CHLORPHENIRAMINE & EPHEDRINE & PHENYLTOLOXAMINE
 CODEINE PHOSPHATE & PROMETHAZINE HCL & POTASSIUM GUAIACOLSULFONATE
 *CONJUGATED ESTROGENS
 CYPROHEPTADINE HCL
 CYPROHEPTADINE HYDROCHLORIDE
 DEXCHLORPHENIRAMINE MALEATE
 DEXTROMETHORPHAN & CHLORPHENIRAMINE & PHENYLEPHRINE & GUAIFENESIN
 DEXTROMETHORPHAN HBR & CHLORPHENIRAMINE
 DEXTROMETHORPHAN HBR & PSEUDOEPHEDRINE HCL & CHLORPHENIRAMINE
 DEXTROPROPOXYPHENE HCL
 DEXTROPROPOXYPHENE NAPSYLATE & ASA & CAFFEINE
 DIAZEPAM
 DIAZEPAM & METHYLCELLULOSE
 DICYCLOMINE HCL
 DICYCLOMINE HCL & PHENOBARBITAL
 DICYCLOMINE PLUS CMPD
 DIPHENHYDRAMINE & DEXTROMETHORPHAN HBR & AMMONIUM CHLORIDE
 DIPHENHYDRAMINE HCL
 DIPHENHYDRAMINE HCL & DEXTROMETHORPHAN HBR & PHENYLPROPANOLAMINE

DIPHENHYDRAMINE HCL & MENTHOL
 DIPHENHYDRAMINE HCL & PSEUDOEPHEDRINE HCL
 DISOPYRAMIDE
 DOXEPIN HCL
 ERGOTAMINE & DIPHENHYDRAMINE
 *ESTERIFIED ESTROGENS
 *ESTRADIOL
 *ESTRONE
 *ESTROPIPATE
 *ETHINYL ESTRADIOL
 FLUOXETINE HCL
 FLURAZEPAM HCL
 FLURAZEPAM HYDROCHLORIDE
 HYDROXYZINE HCL
 IBUPROFEN & PSEUDOEPHEDRINE HCL & CHLORPHENIRAMINE MALEATE
 INDOMETHACIN
 MEPERIDINE HCL
 MESORIDAZINE BESYLATE
 METHAQUALONE & DIPHENHYDRAMINE HCL
 METHYLDOPA
 METHYLDOPA & CLOROTHIAZIDE
 METHYLDOPA & HYDROCHLOROTHIAZIDE
 METHYLDOPATE HCL
 NIFEDIPINE
 ORPHENADRINE & ASA & CAFFEINE
 ORPHENADRINE CITRATE
 ORPHENADRINE HCL
 PENICILLIN & DIHYDROSTREPTOMYCIN & DIPHEMANIL METHYLSULFATE & PROCAINE
 HCL & CHLORPHENIRAMINE MALEATE
 PENTAZOCINE
 PENTAZOCINE PLUS
 PENTOBARBITAL SODIUM
 PERPHENAZINE & AMITRIPTYLINE HYDROCHLORIDE
 PHENYLEPHRINE HCL & CHLORPHENIRAMINE MALEATE & ASA
 PHENYLPROPANOLAMINE HCL & CHLORPHENIRAMINE MALEATE
 PHENYLPROPANOLAMINE HCL & CHLORPHENIRAMINE MALEATE & ASA
 PHENYLPROPANOLAMINE HCL & CHLORPHENIRAMINE MALEATE & ASA & CAFFEINE
 PHENYLPROPANOLAMINE HCL & CHLORPHENIRAMINE MALEATE & ASA COMPOUND
 PHENYLPROPANOLAMINE HYDROCHLORIDE & CHLORPHENIRAMINE MALEATE &
 ACETAMINOPHEN
 PREDNISONE & CHLORPHENIRAMINE COMPOUND
 PROMETHAZINE HCL
 PROMETHAZINE HCL & DEXTROMETHORPHAN HBR & PSEUDOEPHEDRINE
 PROMETHAZINE HCL & PETHIDINE HCL
 PROMETHAZINE HCL & PHENYLEPHRINE HCL & POTASSIUM GUAIACOLSULFONATE
 PROMETHAZINE HCL & PHENYLEPHRINE HCL & POTASSIUM GUAIACOLSULFONATE &
 CODE

PROMETHAZINE HCL & POTASSIUM GUAIACOLSULFONATE
PROPANTHELINE BROMIDE
PROPOXYPHENE HCL
PROPOXYPHENE HCL & ASA & CAFFEINE
PROPOXYPHENE NAPSYLATE
PROPOXYPHENE PLAIN
PSEUDOEPHEDRINE HCL & CHLORPHENIRAMINE M
PSEUDOEPHEDRINE HCL & CHLORPHENIRAMINE MALEATE
PSEUDOEPHEDRINE HCL & CHLORPHENIRAMINE MALEATE & ASCORBIC ACID
PSEUDOEPHEDRINE HCL & CHLORPHENIRAMINE MALEATE & DEXTROMETHORPHAN &
GUAIFENESIN
PSEUDOEPHEDRINE HCL & DIPHENHYDRAMINE
SECOBARBITAL SODIUM
THIORIDAZINE HCL
THYROID
TICLOPIDINE HCL
TRIPLENNAMINE HCL
*UNCLASSIFIED THERAPEUTIC

*Hormone replacement drugs were excluded

Appendix B - Inclusion list

Subclass name	Generic drug name
ACE Inhibitors	BENAZEPRIL CAPTOPRIL CILAZAPRIL ENALAPRIL FOSINOPRIL LISINOPRIL PERINDOPRIL QUINAPRIL RAMIPRIL TRANDOLAPRIL
Angiotensin II Inhibitors	CANDESARTAN EPROSARTAN IRBESARTAN LOSARTAN TELMISARTAN VALSARTAN
Beta Blockers	ACEBUTOLOL ATENOLOL BISOPROLOL LABETALOL METOPROLOL NADOLOL OXPRENOLOL PINDOLOL PROPRANOLOL TIMOLOL
Calcium Channel Blockers	AMLODIPINE DILTIAZEM FELODIPINE NICARDIPINE NIFEDIPINE NIMODIPINE VERAPAMIL
Diuretics	AMILORIDE CHLORTHALIDONE HYDROCHLOROTHIAZIDE INDAPAMIDE TRIAMTERENE SPIRONOLACTONE AMILORIDE HCL & HYDROCHLOROTHIAZIDE SPIRONOLACTONE & HYDROCHLOROTHIAZIDE TRIAMTERENE & HYDROCHLOROTHIAZIDE
Combination Agents	ATENOLOL & CHLORTHALIDONE

Subclass name	Generic drug name
	BENAZEPRIL & HYDROCHLOROTHIAZIDE CANDESARTAN & HYDROCHLOROTHIAZIDE CHLORTHALIDONE & RESERPINE CILAZAPRIL & HYDROCHLOROTHIAZIDE ENALAPRIL & HYDROCHLOROTHIAZIDE FELODIPINE & METOPROLOL FELODIPINE & RAMIPRIL IRBESARTAN & HYDROCHLOROTHIAZIDE LISINAPRIL & HYDROCHLOROTHIAZIDE LOSARTAN & HYDROCHLOROTHIAZIDE METHYLDOPA & CLOROTHIAZIDE METHYLDOPA & HYDROCHLOROTHIAZIDE NADOLOL & BENDROFLUMETHIAZIDE PERINDOPRIL & INDAPAMIDE PINDOLOL & HYDROCHLOROTHIAZIDE PROPRANOLOL & HYDROCHLOROTHIAZIDE QUINAPRIL & HYDROCHLOROTHIAZIDE RESERPINE & HYDROCHLOROTHIAZIDE TELMISARTAN & HYDROCHLOROTHIAZIDE TIMOLOL & HYDROCHLOROTHIAZIDE VALSARTAN & HYDROCHLOROTHIAZIDE VERAPAMIL & TRANDOLAPRIL

Appendix C - Exclusion list

Subclass name	Generic drug name
ANTI-ARRHYTHMIA	ADENOSINE AMIDORONE HCL AMIODARONE HCL BRETILIUM TOSYLATE DISOPYRAMIDE FLECAINIDE ACETATE MEXILETINE HCL PROCAINAMIDE HCL PROPAFENONE HCL QUINIDINE BISULFATE QUINIDINE GLUCONATE QUINIDINE PHENYLETHYLBARBITURATE QUINIDINE POLYGALACTURONATE QUINIDINE SULFATE SOTALOL HCL, TOCAINIDE HCL
ANTIHYPERTENSIVES	DEBRISOQUINE SULFATE
DIGITALIS PREPARATIONS	DIGITOXIN DIGOXIN
DIURETICS	METOLAZONE ETHACRYNATE SODIUM ETHACRYNIC ACID FUROSEMIDE
VASODILATORS	ISOSORBIDE DINITRATE ISOSORBIDE-5-MONONITRATE NITROGLYCERIN
MIGRAINES THERAPY	FLUNARIZINE HCL, NARATRIPTAN HCL RIZATRIPTAN BENZOATE SUMATRIPTAN SUCCINATE ZOLMITRIPTAN DIHYDROERGOCORNINE METHANESULFONATE DIHYDROERGOTAMINE MESYLATE ERGOTAMINE ERGOTAMINE & CYCLIZINE ERGOTAMINE & DIPHENHYDRAMINE ERGOTAMINE & PENTOBARBITAL COMPOUND ERGOTAMINE COMPOUND ERGOTAMINE TARTRATE ERGOTAMINE TARTRATE & CAFFEINE ERGOTAMINE/DIMENHYDRINATE
ANTITHYROID AGENTS	METHIMAZOLE PROPYLTHIOURACIL

Endnote

1 Kralj, B. (2000). Measuring “rurality” for purposes of health-care planning: an empirical measure for Ontario. *Ontario Medical Review*, October, 33-49.

2 In all cases, the approach used follows the data privacy and confidentiality policies of ICES and the Ministry of Health and Long-term Care for Ontario.

3 Please note mistake in 2008 OHQC Report – the correct data source for this indicator is Hospital Reports Research Collaborative not CIHI.