QMonitor: The 2009 Report on the Performance of Ontario's Health Care System

2009 Technical Report

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

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Ontario Physician Human Resources Data Centre
Ontario Telemedicine Network
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Research

Geoff Anderson
Senior Scientist, Institute for Clinical Evaluative Sciences

Anjali Misra
Epidemiologist, Institute for Clinical Evaluative Sciences

Rebecca Comrie
Epidemiologist, Institute for Clinical Evaluative Sciences

Programming and Biostatistics

Minh Duong-Hua
Analyst, Institute for Clinical Evaluative Sciences

Alice Newman
Senior Analyst, Institute for Clinical Evaluative Sciences

Additional Support

Kinwah Fung, Thi Ho, Jenny Lam-McCulloch, Ruth Croxford, Susan Schultz, Jiming Fang, Geta Cernat and Longdi Fu*,* Institute for Clinical Evaluative Sciences

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1.0 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 collaboratively to identify a set of indicators that could be used in OHQC reports and provide data on those indicators. This year, in conjunction with external partners, we present the 2009 Report on Ontario's Health System (herein referred to as the 2009 Report) and this accompanying Technical Report.

The purpose of the Technical Report is to provide public access to details of the process that ICES used to generate indicator results. This information will be useful to others interested in replicating the indicators presented in the 2009 Report. Further details on the process and methods used to select the indicators in the 2009 Report can be obtained from the OHQC.

The indicator results presented in the 2009 Report came from two general areas. Approximately half of the indicators were obtained by ICES staff from public documents or through data requests from organizations external to ICES and the OHQC. The other half of indicators were calculated at ICES using registry, administrative and survey data housed at ICES.

This Technical Report is organized into three sections. Indicators that were sourced from reports or organizations outside of ICES or the OHQC are listed in Section 2. Each external data source includes a short description of the data and who to contact for more information. Section 3 provides a summary of the indicators that were calculated at ICES. This section includes descriptions of all the databases at ICES that were used to calculate indicators, a discussion and rationale for the use of crude and standardized rates, a description of how we identified that an indicator shows a trend over time and complete definitions for all indicators. The final section is the appendix.

2.0 Indicators from External Data Sources

This section lists the organizations and data sources for indicators that were not produced by ICES; in other words, organizations external to ICES and the OHQC whose data were presented in the 2009 Report. Each data source is briefly described with links to where additional information can be found. The indicators drawn from each data source are listed in a table at the end of each data source detailing which indicators in the 2009 Report were drawn from each data source.

2.1 Commonwealth Fund International Health Policy Survey of Sicker Adults

The 2008 Commonwealth Fund International Health Policy Survey of Sicker Adults was conducted by Harris Interactive Inc. on behalf of The Commonwealth Fund. Additional country-specific support for the survey came from the Health Council of Canada, the Commissaire à la Santé du Quebec, Ontario Health Quality Council, Haute Autorité de Santé (France), the Foundation for Quality and Efficiency in Health Care (Germany), the Centre for Quality of Care Research (WOK; Netherlands), and the UK Health Foundation.

Telephone interviews were carried out with nationally representative samples of adults age 18 and over who reported being in poor/fair health, having a serious illness, disability, hospitalization, or major surgery in the past two years. The survey was conducted in Australia, Canada, France, Germany, the Netherlands, New Zealand, the United Kingdom, and the United States. Fieldwork in all countries took place between March 3 and May 30, 2008. Country-level data was weighted by age, sex, region and education. Further details can be found online at http://www.commonwealthfund.org/Content/Surveys/2008/2008-Commonwealth-Fund-International-Health-Policy-Survey-of-Sicker-Adults.aspx.

Twelve indicators in the report were drawn from *The 2008 Commonwealth Fund International Health Policy Survey of Sicker Adults:*

Attribute	Indicator	Data Source
Accessible	Percentage of sicker adults who waited two or more hours for treatment after arriving in the emergency department, in Canada and select provinces, 2008	*Commonwealth Fund International Health Policy Survey of Sicker Adults, 2008*
	Percentage of sicker adults who were able to see their doctor on the same or next day the last time they were sick or needed medical attention, in Ontario and by country, 2008	
	Percentage of sicker adults who saw a specialist within four weeks of being referred, in Ontario and by country, 2008	
Effective	Percentage of sicker adults with diabetes who had their feet and eyes checked by a health professional in the last year in Ontario, Canada and other countries, 2008	

Patient-centered	Percentage of sicker adults who have a regular doctor or place or 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, 2008	
Efficient	Percentage of sicker adults who in the last two years often or sometimes felt their time was wasted because their medical care was poorly organized, in Ontario and by country, 2008	
	Percentage of sicker adults who reported that in the last two years their test results, medical records or reasons for referrals were not available at the of their scheduled doctor's appointment, in Ontario and by country, 2008	
	Percentage of sicker adults who in the last two years felt tests were unnecessary because the test had already been done, in Ontario and by country, 2008	
Integration	Percentage of sicker adults (who have a doctor and have seen a specialist in the last two years) whose primary care provider seemed informed and up-to-date about the care received from their specialist in Ontario, Canada and other countries, 2008	
	Percentage of sicker adults (taking medication) who, in the last two years, (always or often) had their doctors or pharmacists review and discuss all the different medications they were using, including medicines prescribed by other doctors, in Ontario and by country, 2008	
	Percentage of sicker adults (who saw or needed to see a specialist in the last two years) whose specialist had information on their medical history, in Ontario, Canada and other countries, 2008	
	Percentage of sicker adults (with multiple conditions) whose doctor ever gave instructions for one of their chronic conditions that conflicted with what they have been told to do for another condition in Ontario, Canada and other countries, 2008	

2.2 Wait Time Information System

The Ontario Wait Time Information System (WTIS), a program of the Ontario Ministry of Health and Long-Term Care (MOHLTC), was the data source for the wait times related data on the cancer surgeries, joint replacement procedures, cataract surgery and diagnostic imaging procedures. Wait times data on cardiac services was provided separately by the Cardiac Care Network (see 3.3). 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. Up to date wait time data can be found at www.ontariowaittimes.com.

The following 90th percentile wait times and percent of procedures completed within target indicators were presented in the 2009 Report:

Attribute	Indicator	Data Source
Accessible	90th Percentile wait times for cancer surgeries in Ontario, August/September, 2005 – December, 2008	*Wait Times Information System, Ministry of Health and Long-Term Care*
	Average monthly proportion of patients getting cancer surgery within target timeframes by priority in Ontario, 2008	
	90th Percentile wait time for hip replacement, knee replacement and cataract surgeries in Ontario, August/September, 2005 – December, 2008	
	Average monthly proportion of patients getting hip replacement, knee replacement and cataract surgeries within target timeframes by priority in Ontario, 2008	
	90th Percentile wait times for MRI or CT scans in Ontario, August/September, 2005-December, 2008	
	Average monthly proportion of patients getting MRI or CT scans within target timeframes by priority in Ontario, 2008	

2.3 Cardiac Care Network

The Cardiac Care Network (CCN) oversees the planning and provision of cardiac services in Ontario, which includes monitoring and measuring wait times to cardiovascular procedures in all regions of Ontario such as the priority cardiac services included in Ontario's Wait Times Strategy and that are presented in this Report. Target wait times for cardiac services differ from other wait times procedures in that each patient is assigned their own wait time target based on their unique health situation. The other wait time procedures (cancer, hip/knee replacement, cataract surgery and diagnostic imaging) have overarching targets that are applied to the whole population (but which vary according to one of 4 categories of disease severity). The patient specific cardiac procedure wait time target is called their Recommended Maximum Waiting Time (RMWT). Technical measurement details for each procedure can be found at http://www.ccn.on.ca/3_1.php.

The cardiac wait times measures included in the 2009 Report are:

Attribute	Indicator	Data Source
Accessible	90th percentile wait time for cardiac surgeries (angiography – all elective, angioplasty (scheduled PCI) – all urgency, bypass surgery – isolated elective) in Ontario, Aug/Sept 2005 to September 2008	*Cardiac Care Network*
	Average monthly proportion of patients getting angiography, angioplasty, bypass surgery within RWMT target timeframes by priority in Ontario, January-October 2008	

2.4 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 information about OTN can be found through their website: www.otn.ca.

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 2009 Report. OTN provided ICES with the volumes of clinical calls data by LHIN and using StatsCan population files ICES calculated the rates per 100,000 population that are presented in the 2009 Report.

Attribute	Indicator	Data Source
Accessible	Rate of telemedicine use for clinical patient consultations per 100,000 population in Ontario, 2003/04-2007/08	*Ontario Telemedicine Network and the Institute for Clinical Evaluative Sciences (for Ontario population files)*
	Rate of telemedicine use for clinical patient consultations per 100,000 population across Ontario, 2007/08	

2.5 Ontario Ministry of Health and Long-term Care

Several indicators in the 2009 Report were provided by different divisions and branches within the Ministry of Health and Long-term Care (MOHLTC). The Health Analytics and Health Data Branches within the Health System Information Management and Investment Division collect and analyze data on topics ranging from financial data to disease incidence and health services utilization data.

The latest data on rate of patients acquiring C. Difficile in hospital is publicly available through the MOHLTC's website: http://www.health.gov.on.ca/patient_safety/index.html.

The Primary Care Scorecard was developed by the Health System Strategy Division, MOHLTC to be used as a performance management tool that monitors and guides strategic decisions such as where to implements new health system performance improvement initiatives.

The Health Human Resources Strategy Division, MOHLTC provided us with the information to determine the number of first year health professional student placements indicator. Analysts acquired the most recent data from the Ministry's own databases, individual university admissions offices and related health care professional associations.

Technical details for each indicator can be obtained by contacting the OHQC. The following table lists the indicators presented in the 2009 Report that were calculated by or with data from the MOHLTC:

Attribute	Indicator	Data Source
Accessible	Median number of day to long-term care placement from acute care, community and overall in Ontario, 2006/07 to 2007/08 fiscal quarters	*Health Analytics Branch, MOHLTC*
	Median number of day to long-term care placement from acute care, community and overall across Ontario, 2007/08	
	Percentage of long stay residents who are placed in their first choice long-term care homes across Ontario, August 2008	*Health Data Branch, MOHLTC*

Safe	Rate of hospital acquired C. Difficile disease per 1,000 patient bed days in acute care hospitals in Ontario, August to December 2008	*MOHLTC*
Equity	Rate of potential years of life lost due to primary care sensitive conditions per 100,000 by gender in Ontario, 2001-2003	*Primary Care Scorecard, MOHLTC*
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, 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*
	Information systems and communication net expenses as a percentage of total net expenditure in select health sectors in Ontario, 2003/04 - 2007/08	*MOHLTC*

2.6 Registry of the Canadian Stroke Network

The Canadian Stroke Network (CSN), one of Canada's Networks of Centres of Excellence (www.nce.gc.ca), is a collaborative effort that brings together researchers, students, government, industry and the non-profit sector. The CSN puts Canada at the forefront of stroke research through its multidisciplinary research program, high-quality training for Canadian scientists and clinicians, and national and global partnerships. At present, the Network has more than 100 researchers at 32 universities across the country.

The Registry of the Canadian Stroke Network (RCSN) was established in 2001. Its mandate includes ongoing measurement and monitoring of the quality of stroke care delivery in Ontario. The stroke measures presented in the Report are also a part of the Ministry-LHIN accountability agreement performance indicator framework and calculated on a quarterly basis to meet the Ministry's reporting requirements. Further information on these indicators can be found by contacting the Canadian Stroke Network through their website: www.canadianstrokenetwork.ca.

Attribute	Indicator	Data Source
Effective	Percent of stroke patients with atrial fibrillation discharged with warfarin in Ontario, 2002/03-2007/08 fiscal quarters	*Registry of the Canadian Stroke Network Phase-3*
	Percent of stroke patients with atrial fibrillation discharged with warfarin by Ontario stroke centres, 2007/08	
	Percent of stroke patients discharged on ASA or antithrombotic therapy in Ontario, 2002/03-2007/08 fiscal quarters	

2.7 Canadian Institute for Health Information

2.7.1 Continuing Care Reporting System

The Canadian Institute for Health Information (CIHI) developed the Continuing Care Reporting System (CCRS) to enhance the collection of standardized facility-based long-term care information for national comparative reporting. The data is collected using an internationally accepted standard, the Resident Assessment Instrument Minimum Data Set Version 2.0 (interRAI MDS 2.0). Details of the methods used to calculate the two indicators that use the CCRS data can be found online: http://www.cihi.ca/cihiweb/dispPage.jsp?cw_page=services_ccrs_e or by searching the CIHI website for the Continuing Care Reporting System.

Attribute	Indicator	Data Source
Effective	Percent of long-term care nursing home residents experiencing worsening depression, Ontario 2006/07 to 2007/08 fiscal quarters	*Canadian Institute for Health Information, Continuing Care Reporting System (InterRAI MDS)*
	Percent of long-term care nursing home residents experiencing deterioration in functional status, Ontario 2006/07 to 2007/08 by fiscal quarters	

2.7.2 2008 Health Indicators

Each year CIHI publishes the Health Indicators report with the results of a standard set of indicators for all provinces to be able 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.icis.ca/cihiweb/dispPage.jsp?cw_page=tech_notes_2008_e or by searching the CIHI website for the 2008 Health Indicators Technical Notes.

The in-hospital hip fracture indicator was calculated using the Discharge Abstract Database. The results were risk-adjusted for age, sex, whether a surgical procedure was provided, and the presence of medical conditions that increase the chance of a fall.

Attribute	Indicator	Data Source
Safe	Risk-adjusted rate of in-hospital hip fracture per 1,000 inpatients in Ontario and Canada, 2000/2002 to 2004/2007	*Canadian Institute for Health Information*

2.7.3 Hospital Reports Research Collaborative 2005-2008

The Hospital Reports Research Collaborative started producing reports on the performance of Ontario's hospitals and other sectors within the health care system in 1999. The reports are now managed and produced by CIHI on an annually. Performance is assessed on a range of topics including clinical utilization and outcomes, financial performance, patient satisfaction and system integration and change. The 2009 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 analysis on patient satisfaction was conducted collaboratively among the Ontario Hospital Association (OHA), the National Research Corporation (NRC+Picker Canada), The University of Toronto, CIHI and approximately 90 participating Ontario hospital corporations. The acute care and emergency department reports used a modified version of the Picker Acute Care Survey that is used extensively in the United States and Europe. The Picker Acute Care Survey was modified, pilot tested and validated for a Canadian population.

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. Full technical details describing the survey design, administration, analytical approach and data quality is available online:

Full technical details regarding the survey questions, sampling techniques, sample sizes, inclusion/exclusion criteria, weighting and survey process are available online: http://www.hospitalreport.ca/downloads/year.html.

The following Hospital Reports measures were used in this report:

Attribute	Indicator	Data Source
Patient-centered	Patient satisfaction and patient experience score for hospitals in Ontario, 2003/04 to 2006/07	*Hospital Report Research Collaborative. Hospital Report 2005: Acute Care - Patient Satisfaction; Hospital Reports 2006: Acute Care - Patient Satisfaction; Hospital Reports 2007: Acute Care - Patient Satisfaction; Hospital e-Scorecard Report 2008: Acute Care*
	Patient satisfaction and patient experience score for emergency departments in Ontario, 2003/04 to 2006/07	*Hospital Report Research Collaborative. Hospital Report 2005: Emergency Department - Patient Satisfaction; Hospital Reports 2006: Emergency Department - Patient Satisfaction; Hospital Reports 2007: Emergency Department - Patient Satisfaction; Hospital e-Scorecard Report 2008: Emergency Department*
Appropriately Resourced	Score (out of 100) of selected Ontario acute-care hospitals on their use of clinical information technology by type of hospital, 2005 to 2008	*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 Technical Summary; Hospital e-Scorecard Report 2008: Acute Care*
Integration	Percent of Ontario patients	*Canadian Institute for Health Information.*

	leaving acute inpatient care or the emergency department who did not know whom to contact if they needed care or had questions in Ontario, 2004/05 – 2006/07	*The Picker acute care and emergency department surveys, 2004/05 to 2006/07*

2.7.4 National Health Expenditure Database

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.icis.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, 1998, 2003 and 2008 – current dollars	*Canadian Institute for Health Information, National Health Expenditure Trends*

2.8 Cancer Care Ontario

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.

The following indicators were requested from CCO and are available through the CSQI:

Attribute	Indicator	Data Source
Effective	Adjusted five-year relative survival ratio for patients with breast or colorectal cancers in Ontario1991-1995 to 2001-2005	*Cancer Care Ontario, Ontario Cancer Registry*

	Percent treated with guideline recommended radiation following breast conserving surgery in Ontario, all patients having surgery between April 2005 and March 2008	

2.9 Institute for Safe Medication Practices, Canada

The Institute for Safe Medication Practices (ISMP) Canada is an independent national non-profit agency committed to the advancement of medication safety in all healthcare settings. ISMP Canada works collaboratively with the healthcare community, regulatory agencies and policy makers, provincial, national and international patient safety organizations, the pharmaceutical industry and the public to promote safe medication practices.

Part of ISMP Canada's mandate is to review and analyze medication incident and near-miss reports according to a hazard identification model, identify contributing factors and causes and make recommendations for the prevention of harmful medication incidents. As such, ISMP Canada enlists hospitals and other health care facilities to voluntarily and anonymously submit data on medication incidents and as of November 2008 there were 47 acute-care hospitals submitting data to ISMP Canada on a regular basis. More information on ISMP Canada can be found on their website: http://www.ismp-canada.org/.

Attribute	Indicator	Data Source
Safe	Percent of reported medication incidents resulting in harm or death by type of medication incident in Ontario, 2000-2008	*Institute for Safe Medication Practices Canada*
	Percent of reported medication incidents resulting in harm or death outcomes by National Coordinating Council for Medication Error Reporting and Prevention category in Ontario, 2000-2008	

2.10 Statistics Canada

2.10.1 Canadian Survey of Experiences with Primary Health Care

The Canadian Survey of Experiences with Primary Health Care *(*CSE-PHC) was conducted by Statistics Canada from April to June 2008 with the cooperation and support of the Canadian Institute for Health Information (CIHI) and the Health Council of Canada (HCC).

Its purpose was to measure experiences with the healthcare system, in particular with access and utilization of various types of primary health care services. Respondents were asked about visits with various doctors and clinics, emergency rooms as well as their prescription medication use. Special attention was given to people living with chronic conditions.

The information gathered in this survey refers to the 12 months leading up to the interviews, which were conducted from April to June 2008. The sample consisted of 16,482 adults in the 10 provinces and 3 territories. Further technical details can be found at: http://www.statcan.gc.ca/daily-quotidien/090205/dq090205e-eng.htm.

Attribute	Indicator	Data Source
Patient-centredness	Percent of respondents who felt their care from their primary care provider was patient centred in Ontario and rest of Canada, 2007	*Statistics Canada, 2008; Canadian Survey of Experiences with Primary Health Care*
	Deal with anxiety and fears	
	Enough time to explain test results	
	Do not have language barriers to getting care	
	Asked about chronic disease goal setting	
	Know what each prescribed medication does	
	Know what to do at home to follow through on medical treatment	
	Know different medical treatment options	
	Know how to prevent further problems with health conditions	

Note: Graphs shows percentage of respondents who "agreed" or "strongly agreed" with each statement

2.10.2 National Survey of the Work and Health of Nurses

The National Survey of the Work and Health of Nurses was conducted in 2005 and was the first nationally representative survey to focus on nurses' working conditions and their physical and mental health. Nearly 19,000 nurses answered questions pertaining to their experiences and perceptions of work organization, including staffing, shift work, overtime and employee support

The survey also collected information on work stress, role overload, respect in the workplace and quality of patient care. The survey was produced through a partnership between CIHI and Health Canada. Technical information about the survey design can be found at: http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=5080&lang=en&db=imdb&adm=8&dis=2.

Attribute	Indicator	Data Source
Appropriately Resourced	Percent of nurses, doctors (general practitioners/specialists) and all employed people reporting job dissatisfaction in Ontario, 2003 (all), 2005 (nurses) and 2007 (physicians)	*Statistics Canada. National Survey of the Work and Health of Nurses, 2005*
	Percent of nurses reporting not having enough time to do what is expected in their job and having low control over their job by province, 2005	
	Percent of nurses reporting not having enough time to do what is expected in their job and having low control over their job by work setting in Ontario, 2005	

2.11 University of Toronto, Pilot Long-term Care Home Residents and Family Satisfaction

The Department of Health Policy Management and Evaluation conducted a pilot resident and family satisfaction survey on behalf of the Ontario Ministry of Health and Long Term Care and the Ontario Health Quality Council between November 2008 and January of 2009. The purpose of the study was to test two different pairs of resident and family survey instruments.

Thirty Long Term Care Homes were selected from the Greater Toronto and Greater Ottawa Areas, and Hamilton-Niagara regions. Homes were selected from these regions to be representative of for-profit, not-for-profit and municipal homes. The target sample was 60 residents and 120 families from each of the 30 participating homes. Resident sample targets were met in most homes and family response rate was 56%. Two surveys were randomly allocated to respondents (both family and resident) with a core set of common items included in the resident survey.

Further details regarding the survey and results can be found under the "Determinants of Quality in Ontario Long Term Care" at http://www.hpme.utoronto.ca/about/research/kt/research.htm. Seven questions about resident care with complementary resident and family responses and one resident-only question were included in this report:

Attribute	Indicator	Data Source
Patient-centred	Percent who rate quality of care/services in this long-term care home as excellent, very good/good, poor-fair, 2008	*University of Toronto, Pilot Long-Term Care Home Residents and Family Satisfaction 2008/09*
	Percent who would recommend this long-term care home to others (yes, maybe, no), 2008	
	Percent who feel encouraged to participate in decisions or whose family are involved in care as much as wanted (yes, sometimes, no), 2008	
	Percent who believe there are enough organized activities at their long-term care home during the week and on the weekends (yes, somewhat, no), 2008	
	Percent who believe that staff promptly answers call or whose family believes staff follows up on requests (yes, somewhat, no), 2008	
	Percent who feel free to speak up when they are unhappy with their care (yes, sometimes, no), 2008	
	Percent of resident who feel at home (yes, somewhat, no), 2008	

2.12 Ontario Physician Human Resources Data Centre and the College of Nurses of Ontario

The Ontario Physician Human Resources Data Centre (OPHRDC) is the definitive source for information on physicians and postgraduate medical trainees in Ontario. OPHRDC has maintained a registry of all licensed physicians practicing in Ontario, the Active Physician Registry. From this registry the Centre produces numerous reports and analyses, including an annual report, Physicians in Ontario (PIO) and special reports based on the annual PIO dataset.

The College of Nurses of Ontario (CNO) is the governing body for the 145,000 registered nurses (RNs) and registered practical nurses (RPNs) in Ontario. The College is committed to sharing statistical information about Ontario nurses. The supply of RPNs is publicly available through their online data query tool, which can be found at: http://www.cno.org/about/stats/dqt_disclaimer.htm.

The rate of primary care physicians and primary care nurse practitioners in the populations was calculated at the Institute for Clinical Evaluative Sciences using Statistics Canada population estimates.

Attribute	Indicator	Data Source
Appropriately Resourced	Supply of primary care physicians and primary care nurse practitioners per 100,000 population, Ontario, 2000-2007	*Ontario Physician Human Resources Data Centre; The College of Nurses of Ontario*

2.13 Workplace Safety and Insurance Board

Information on the frequency of work-related injury and disability in three sectors in the Ontario health care system was produced by the WSIB, using a standardized data resource termed the Enterprise Information Warehouse. The results were produced in consultation with the Institute for Work & Health and WSIB.

Tabulations of allowed time-loss and no-time loss claims between January 2002 and December 2007 inclusive are provided for health care employers in Ontario included in rate group 853 (Hospitals), rate group 851(Homes for Nursing Care) and rate group 857 (Home care services). The estimate of the full-time equivalent insured workforce is based on payroll information provided by facilities to the WSIB in the course of administrating premium payments. The rate of compensation claims per 100 full-time equivalent staff are reported in the table. Precise definitions of each rate group are available online:
http://www.wsib.on.ca/wsib/wecm.nsf/public/h85301 to
http://www.wsib.on.ca/wsib/wecm.nsf/public/h85308 (Hospitals)
http://www.wsib.on.ca/wsib/wecm.nsf/public/h85101 (Homes for Nursing Care)
http://www.wsib.on.ca/wsib/wecm.nsf/public/h85701 (Nursing Services)
Please contact the OHQC for further details on the definition.

Attribute	Indicator	Data Source
Appropriately Resourced	Reported injuries across largest health care employers per 100 FTE employees in Ontario, 2002-2007	*Ontario Workplace Safety and Insurance Board 2008*
	Causes of lost-time injuries among Ontario healthcare workers, 2008	

2.14 National Physician Survey

The overall goal of the National Physician Survey (NPS) project is to produce a comprehensive database documenting what all physicians in Canada are doing in their practices in response to both societal needs and personal and professional interests. The database also includes socio-demographic information, information on the work setting(s), patient care setting(s), patient access to care, practice profiles, allocation of time, income source, changes to practice, use of information technology and professional satisfaction. The survey is conducted once every three years. National and provincial results are publicly available online. See http://www.nationalphysiciansurvey.ca/nps/ for results as well as technical information.

Attribute	Indicator	Data Source
Appropriately Resourced	Percent of family physicians who use electronic medical records by province, 2007	*2007 National Physician Survey — The College of*

	Percent of family physicians who use electronic tools (electronic medical records) to improve quality in Ontario, 2007	*Family Physicians of Canada, Canadian Medical Association, The Royal College of Physicians and Surgeons of Canada*
	Percent of nurses, **doctors** and all employed people reporting job dissatisfaction in Ontario, 2003 (all), 2005 (nurses) and **2007 (physicians)**	

2.15 Ontario Association of Community Care Access Centres

Community Care Access Centres (CCACs) are funded by the MOHLTC and provide local community-based health care services such as home care visits by nurses, physiotherapists, personal support staff, etc to address a variety of health needs such as palliative care, respite care, mental health, etc. The Ontario Association of Community Care Access Centres (OACCAC) represents CCACs in Ontario on issues pertaining to provincial health policy and other issues common to all CCACs such as performance improvement practice. The OACCAC collects and analyzes data on the services provided by CCACs. They can be contacted through their website http://www.ccac-ont.ca for more information on the OACCAC indicators presented in the Report:

Attribute	Indicator	Data Source
Integration	Percent of acute clients receiving first service within three days of referral to CCAC across Ontario, 2007/08	*Ontario Association of Community Care Access Centres*

3.0 Indicators Calculated by ICES

The basic process for producing indicator data at ICES involves developing a set of decision rules for calculating the numerator and denominators of an indicator. ICES uses a structured format called an indicator dataset creation plan (IDCP) to describe the decision rules. ICES analysts translate the IDCP into computer program code in a software program called *SAS*. The *SAS* program is used to analyze a defined data set and calculate indicator results.

An IDCP also contains other information that is needed to analyze data including the ICES databases used to create the data set, time frames, factors by which to stratify the data (i.e. by gender, age, region, etc), units of analysis for the crude rate, and additional details to calculate standardized rates (further information on each database and crude vs. standardized rates calculations are detailed below).

Detailed descriptions of each variable in the analysis are listed in the last half of the IDCP. Patient age is a variable that is commonly used in indicator calculations and using age as an example, the variable section of an IDCP should detail the specific variable name and which database to draw age information from. The IDCP should also detail the range of patient ages to include in the analysis as well as the age categories in the standardized rate calculation.

In the final section of this report, all the IDCPs for each indicator calculated by ICES in the 2009 Report are listed. The *SAS* code for each IDCP was not included because the code contains complex variable names and software macros that are specific to ICES. Readers that are interested in the *SAS* code should contact the OHQC. As part of the process for verifying the data, two analysts independently check the *SAS* program code to ensure that it is consistent with the decision rules laid out in the IDCP.

3.1 Data sources

A wide range of data sources was used to create the indicator data presented in the 2009 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 are 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 patients with diabetes identified since 1991. A patient is said to have diabetes 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.

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.

Continuing Care Reporting System (CCRS)
The Continuing Care Reporting System (CCRS) was developed to collect clinical and demographic information on residents receiving facility based continuing care services. Data for the CCRS is collected using the Resident Assessment Instrument (RAI) Minimum Data Set assessment instrument. The CCRS includes a wide range of continuing care services (for example, complex continuing care, extended/chronic care) and residential care providing 24-hour nursing services (for example, nursing home, home for the aged).

Master Numbering System (MNS)
The MNS dataset contains general institution number and location information for all institutions opened since April 1970, along with the 'open' and 'close' variables that indicate the time period during which the number was in use. There is one record for every institution number ever issued.

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 are 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.

3.2 Crude vs. Standardized Rates

Unless otherwise stated all indicator results presented in the 2009 Report are crude rates (i.e. the rates as naturally observed in the population). Understandably, presenting crude rates makes it difficult to compare indicator results or performance between LHINs or over time since the population distributions are different. However, the benefit of presenting crude rates is that they tell the actual or true story of performance in each LHIN or at each point in time without any manipulation of the results. We believe this information is of more value to the public.

Standardized rates are presented for indicators in specific circumstances. Firstly, the outcome of interest is directly related to a population characteristic that biases the result in a way that is independent of the exposure. In this situation it cannot be determined with certainty that the indicator result is a consequence of the exposure therefore making the indicator is less meaningful. Secondly, the distribution of the characteristic in study population largely differs from the distribution of the characteristics in the standard population. This means that the sample population is such that it does not adequately represent the actual population. Standardization is useful if an indicator falls into both categories.

An example may help to explain. If mortality of diabetics is the outcome of interest and mortality is related to the age of the population independent of regular monitoring (i.e. the exposure) then standardized rates should be presented for this indicator. However, if the age distribution is exactly the same in the study population as in the standard population, then standardization is not necessary since the age distribution is not skewed in one direction or the other. If the sample is skewed because the study population has over sampled older people, then standardization is important.

In the 2009 Report, the indicators that present standardized results are:

Indicator	Factors adjusted	Standard population

Adjusted percent of people (aged 66+) with diabetes for more than a year who had a serious diabetes complication treated in the hospital in Ontario, 2003/2004 – 2007/2008 (Calculated by ICES)	Data is adjusted for age, sex and length of time since diabetes diagnosis.	Standard population is prevalent diabetes cases on April 1, 2006.
Adjusted five-year survival ratio for patients with breast or colorectal cancers in Ontario, 1991-1995 – 2001-2005 (Calculated by Cancer Care Ontario)	Data is age-adjusted.	Standard population is breast and colorectal cancer cases diagnosed between 1992-2001.
Risk-adjusted rate of in-hospital hip fracture per 1,000 inpatients in Ontario and Canada, 2000/2002 – 2004/2007 (Calculated by the CIHI)	Data are risk-adjusted for age, sex, whether a surgical procedure was provided, and the presence of medical conditions that increase the change of a fall.	N/A

Where adjusted rates are presented, the characteristics and the standard population are noted under the graph.

3.3 Determining a Trend

Before stating that a trend in an indicator exists we need to be sure that the results show a consistent change and little if any fluctuation above and below prior time points. In the 2009 Report, on any indicator a trend was stated to exist only if the data met the 'five time point rule'; that is, a trend exists only when one time point is higher than the previous point for five consecutive time points (in this case the results show an increasing trend). Similar, we say that a trend is decreasing only when one time point is lower than the previous time point for five consecutive time points. We were cautious to avoid stating that a trend exists when less than five time points were available. In these cases where less than five time points are available, the results were discussed in terms of the percent change in the most recent result relative to the baseline.

3.4 Definitions of ICES Indicators

2 Accessible

2.2 Access to Emergency Department

Indicator title	Percentage of emergency department visits completed within the recommended timeframe in Ontario, 2007/08
Data sources (for descriptions see section 4.1)	NACRS RPDB
The Indicator:	

Denominator (population) description	Yearly emergency department (ED) visits in 2007/08 fiscal year Exclude: a. Non-Ontario residents, and those who cannot be assigned age from RPDB b. Age > 105 c. ED Length of Stay (LOS) is zero or negative d. Planned ED visit e. Patient left without being seen f. 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:	Three CTAS levels
	Unit of Rate(s) per:	100 ED visits

Details of Variables:

Variable	Definition
Age	Age at the registration date.
Sex	Get the patient's sex from RPDB
Non Ontario resident	A subject is considered as non-Ontario resident if variable VALIKN ≠ V or, the first two characters of variable RESCODE are NOT between '01' and '50' or, the first two characters of variable RESCODE equals to '22'.
Planned ED visit	Variable VISITTYPE = 3, 4, or 5.
Left without being seen	Variable VISDISP[YYYY] = 2, or 3.
Unassigned triage	Variable TRIAGE ≠ 1, 2, 3, 4, or 5.
LHIN	Get the patient's best LHIN assignment from RPDB
ED Length of Stay (LOS)	ED Length of Stay (in hours/minutes) is the time 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. ED LOS = DISPTIME – REGTIME/ TRIAGETIME
Met guideline	Canadian Triage and Acuity Scale (CTAS) has 5 levels: 1 (resuscitation), 2 (emergent), and 3 (urgent)), 4 (less urgent – semi-urgent), and 5 (non-urgent). The LOS guidelines are CTAS 1/2: 8 hours, CTAS 3: 6 hours, and CTAS 4/5: 4 hours. Divide these people into 3 groups (CTAS levels 1 and 2; CTAS level 3; and CTAS levels 4 and 5). Determine the proportion of people within each of the three severity levels who ED LOS were within each guideline timeframes.

2.3 Access to Primary Care

Indicator title	Percent of adults (18+) without a regular medical doctor and of those the percent who are actively seeking a doctor in Ontario, 2005/2006 to 2007/2008 fiscal quarters

Data sources (for descriptions see section 4.1)	PCAS	
The Indicator:		
Denominator (population) description	All respondents aged 18 or above	
Numerator (Subset of denominator restricted as follows:)	Two separate calculates for two different denominators: 1. Have a regular medical doctor 2. Tried to find a family doctor	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall rate in each fiscal quarter (i.e. wave) Rate by LHIN for 2007/08 (combine waves 6 through 9) For 2007/08 (combine waves 6 through 9): ◦ Age (two categories: 18-64, 65+) ◦ Sex ◦ Immigrant status (3 categories) ◦ Education ◦ Income
	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
Tried to find a family doctor	ND_4B: 1 = yes
Immigrant status	Create three categories: 1. Born in Canada 2. Immigrated less than 10 years ago 3. Immigrated less than 5 years ago 1. Born in Canada category calculation: Use variable name BIRTHPLA (waves 1, 2) and BIRTHPLACE (waves 3 onwards) where, 1 = Canada 2-? = other Countries Provide results for 1) born in Canada Also create a cohort of respondents not born in Canada for time since immigration calculation. Time since immigration categories: Restricting to those born outside of Canada, subtract year of interview (variable INTYEAR; all waves) from year of immigration (variable IMM_YR; all waves) to calculate time since immigration.

	Create categories: 2. time since immigration is 5 years or less 3. time since immigration is 10 years or less Note: Respondents with invalid values (i.e. 9998 and 9999) are removed from the denominator but maintained for other analyses
Education	Variable name EDUC → ALL WAVES 1=Less than high school 2=Completed high school 3=Some community college or technical school 4=Completed community college or technical school 5=Some university 6=Completed Bachelor's Degree (Arts, Science, Eng, etc.) 7=Post graduate training: MA, MSc, MLS, MSW, MBA, etc. 8=Post graduate training: PhD, "doctorate" 9=Professional Degree (Law, Medicine, Dentistry) 98=Don't know 99=Refused Divided into 4 categories: Less than high school = 1 High school graduation = 2 Some post-secondary = 3, 5 Post-secondary graduation = 4, 6, 7, 8, 9 Removed 98, 99 from the denominator
Post-stratification weight	All the rates have to be weighted and are to be calculated by using this weight. Provincial weight: Variable PROVWGT in waves 1, 4 to 9 Variable PROVWGTW in wave 2 and 3

3 Effective

3.2 Getting the right drugs to manage chronic disease

Indicator title	Percentage of elderly patients (aged 66+) who filled a beta blocker, ACEI/ARB, statin or all three prescriptions within 90 days post-discharge for an AMI in Ontario, 2002/03-2007/2008	
Data sources (for descriptions see section 4.1)	ODB DAD RPDB	
The Indicator:		
Denominator (population) description	For fiscal years 2002/03 through 2007/08, all CIHI inpatient discharges with most responsible diagnosis of acute myocardial infarction. ICD-10 codes: I21 and I22, and ICD-9 code: 410 Exclude: a. Not admitted to an acute care hospital b. Age < 65 at time of discharge (originally it's age < 20, due to the drug data availability, we are limited to do the analysis for those aged 65 or above) c. Age > 105 at time of discharge (assume an error in the date of birth) d. Invalid health card number e. Not Ontario resident f. Admitted to non-cardiac surgical service g. Transferred from another acute care facility h. AMI within past year i. AMI coded as in-hospital complication j. Died within 90 days of discharge from entire episode of care k. Date inconsistency l. Date of birth/sex missing	
Numerator (Subset of denominator; restricted as follows:)	Outcomes within 90 days after the discharge: 1. Receiving beta-blocker 2. Receiving ACEI/AARB 3. Receiving Statin	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Fiscal year LHIN (2007 only)
	Unit of Rate(s) per:	100

Details of Variables:	
Variable	Definition
Age	Age from RPDB
Sex	Patient's sex from RPDB
Non-Ontario resident	Variable VALIKN ≠ V, The first two characters of RESCODE are not between '01' and '50' or are equal to '22'.
LHIN	Patient's best LHIN from RPDB
Previous AMI	A previous AMI is any discharge within the past year from the index

<table>
<tr><td></td><td>admission date with AMI (DXTYPE='M'):
(ICD-9 codes 410 (AMI) and 412 (old MI),
ICD-10-CA codes I21 (acute myocardial infarction), I22 (subsequent myocardial infarction).</td></tr>
<tr><td>Not admitted to non-acute care hospital</td><td>Variable INSTTYPE ≠ AP or AT</td></tr>
<tr><td>admitted to non-cardiac surgical service</td><td>Variable PRVSERV1 =
00030, 00032, 00034, 00035, 00036, 00037, 00039, 00050, 00059, 00060, 00062, 00064, 00073, 01000, 01001, 01002, 01003, 01004, 01005, 01006, 01007, 01008, 01009, 01010, 01011
<table>
<tr><th>Specialities recognized by the Royal College of Physicians and Surgeons of Canada</th><th>CIHI Service Number</th></tr>
<tr><td>General Surgery</td><td>00030</td></tr>
<tr><td>Neurosurgery</td><td>00032</td></tr>
<tr><td>Orthopedic Surgery</td><td>00034</td></tr>
<tr><td>Plastic Surgery</td><td>00035</td></tr>
<tr><td>Thoracic Surgery</td><td>00036</td></tr>
<tr><td>Vascular Surgery</td><td>00037</td></tr>
<tr><td>Urology</td><td>00039</td></tr>
<tr><td>Obstetrics and Gynecology</td><td>00050</td></tr>
<tr><td>Colorectal Surgery</td><td>00059</td></tr>
<tr><td>Otolaryngology</td><td>00060</td></tr>
<tr><td>Ophthalmology</td><td>00062</td></tr>
<tr><td>Psychiatry</td><td>00064</td></tr>
<tr><td>General Surgical Oncology</td><td>00073</td></tr>
<tr><td>Oral Surgeon</td><td>01003</td></tr>
<tr><td>Dentistry Group</td><td>01000</td></tr>
<tr><td>Dentist</td><td>01001</td></tr>
<tr><td>Dental Surgeon</td><td>01002</td></tr>
<tr><td>Orthodonist</td><td>01004</td></tr>
<tr><td>Paedodontist</td><td>01005</td></tr>
<tr><td>Periodontist</td><td>01006</td></tr>
<tr><td>Oral Pathologist</td><td>01007</td></tr>
<tr><td>Endodontist</td><td>01008</td></tr>
<tr><td>Oral Radiologist</td><td>01009</td></tr>
<tr><td>Dental Hygienist/Assistant</td><td>01010</td></tr>
<tr><td>Dental Mechanic</td><td>01011</td></tr>
</table></td></tr>
<tr><td>Transferred from another acute care facility</td><td>ICES computes the number of records related to a single episode or reason to visit the hospital using a variable called EPIVISIT. For this indicator, discharge records subsequent to the first discharge record in the same episode of care are excluded (exclude EPIVISIT does not equal 1).</td></tr>
<tr><td>Died within 90 days of discharge</td><td>Variable DTHDATE from RPDB represents the date of death
Variable DDATE from DAD represents date of discharge for episode of care
Calculate date of death minus date of discharge and exclude if less than or equal to 90 days</td></tr>
<tr><td>Data inconsistency</td><td>Variable DTHDATE from RPDB represents the date of death</td></tr>
</table>

	Variable ADMDATE from DAD represents the admission date Exclude records with data inconsistency where death occurs before admission, or: DTHDATE < ADMDATE
Receiving beta-blocker within 90 days post-discharge	A prescription within 90 days post discharge (from entire episode of care) of any beta-blocker listed in Appendix A.
Receiving ACEI/AARB within 30 and 90 days post-discharge	A prescription within 90 days post discharge (from entire episode of care) of any ACEI/AARB listed in Appendix A.
Receiving Statin within 30 and 90 days post-discharge	A prescription within 90 days post discharge (from entire episode of care) of any statin listed in Appendix A.

Indicator title	Percent of elderly patients (aged 66+) with diabetes who filled a ACEI/ARB, statin or both prescriptions in the past year in Ontario, 2003/04-2007/2008	
Data sources (for descriptions see section 4.1)	ODB RPDB ODD	
The Indicator:		
Denominator (population) description	For fiscal years 2003/04 to 2007/08, all patients with diabetes as of the day prior to the beginning of the fiscal year of interest identified in Ontario Diabetes Database (ODD). Exclude: a. Age at the beginning of fiscal year of interest < 66, b. Age at the beginning of fiscal year of interest > 105, c. Invalid sex, d. Incident diabetes cases (i.e. Registered in ODD for <1 year prior to start of fiscal year of interest)	
Numerator (Subset of denominator; restricted as follows:)	At least on script for the following drugs within previous year: 1. ACE inhibitor / AARB, 2. Antilipemic, 3. Both of the above	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Fiscal years LHIN (2007/08 only)
	Unit of Rate(s) per:	100
Details of Variables:		
Variable	Definition	
Age	Age at Apr. 1 of each fiscal year from RPDB.	
Sex	Patient's sex from RPDB	
LHIN	Patient's LHIN assignment from RPDB	
ACE/ARB use	Prescription for any ACEI/AARB in Appendix B	
Antilipemic use	Prescription for any Antilipemic in Appendix B	

Indicator title	Percentage of elderly patients (aged 66+) who filled an ACEI/ARB prescription within 90 days post-discharge for CHF in Ontario, 2002/2003 – 2007/2008	
Data sources (for descriptions see section 4.1)	ODB RPDB DAD	
The Indicator:		
Denominator (population) description	For fiscal years 2003/04 to 2007/08, all CIHI inpatient discharges with most responsible diagnosis of CHF (ICD-10 code: I50, and ICD-9 code: 428) Exclude: a. Admitted to hospital that is not specifically an acute care treatment hospital; b. Age < 65 at time of discharge (originally it's age < 20, due to the drug data availability, we are limited to do the analysis for those aged 65 or above); c. Age > 105 at time of discharge (assume an error in the date of birth); d. Invalid health card number; e. Not Ontario resident; f. Admitted to surgical service; g. Transferred from another acute care facility; h. CHF within the past THREE years; i. CHF coded as in-hospital complication; j. Died within 90 days of discharge; k. Date inconsistency (.<DTHDATE<ADMDATE); l. Date of birth/sex missing (i.e., incident cases)	
Numerator (Subset of denominator; restricted as follows:)	Receiving ACEI/AARB within 90 days after the discharge date of entire episode of care.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Fiscal year LHIN (2007/08 only)
	Unit of Rate(s) per:	100
Details of Variables:		
Variable	Definition	
Age	Age at the index discharge obtained from RPDB	
Sex	Patient's sex from RPDB	
Non-Ontario resident	VALIKN ≠ V, The first two characters of RESCODE are not between '01' and '50' or are equal to '22'.	
LHIN	Patient's LHIN assignment from RPDB	
Previous CHF	A previous CHF is any discharge within the past THREE years from the index discharge date with CHF (DXTYPE='M'): ICD-9 codes 428, ICD-10-CA codes I50.	
Admitted to hospital that is	Variable INSTTYPE in DAD does not equal 'AT' or 'AP'	

<table>
<tr><td>not specifically an acute care treatment hospital</td><td></td></tr>
<tr><td>admitted to surgical service (non-cardiac and cardiac surgeries)</td><td>Variable PRVSERV1 =
00030, 00031, 00032, 00034, 00035, 00036, 00037, 00038, 00039, 00050, 00059, 00060, 00062, 00064, 00073, 01000, 01001, 01002, 01003, 01004, 01005, 01006, 01007, 01008, 01009, 01010, 01011

<table><tr><th>Specialties recognized by the Royal College of Physicians and Surgeons of Canada</th><th>CIHI Service Number</th></tr><tr><td>General Surgery</td><td>00030</td></tr><tr><td>Neurosurgery</td><td>00032</td></tr><tr><td>Cardiac Surgery</td><td>00031</td></tr><tr><td>Orthopedic Surgery</td><td>00034</td></tr><tr><td>Plastic Surgery</td><td>00035</td></tr><tr><td>Thoracic Surgery</td><td>00036</td></tr><tr><td>Vascular Surgery</td><td>00037</td></tr><tr><td>Cardiothoracic Surgery</td><td>00038</td></tr><tr><td>Urology</td><td>00039</td></tr><tr><td>Obstetrics and Gynecology</td><td>00050</td></tr><tr><td>Colorectal Surgery</td><td>00059</td></tr><tr><td>Otolaryngology</td><td>00060</td></tr><tr><td>Ophthalmology</td><td>00062</td></tr><tr><td>Psychiatry</td><td>00064</td></tr><tr><td>General Surgical Oncology</td><td>00073</td></tr><tr><td>Dentistry Group</td><td>01000</td></tr><tr><td>Dentist</td><td>01001</td></tr><tr><td>Dental Surgeon</td><td>01002</td></tr><tr><td>Oral Surgeon</td><td>01003</td></tr><tr><td>Orthodonist</td><td>01004</td></tr><tr><td>Paedodontist</td><td>01005</td></tr><tr><td>Periodontist</td><td>01006</td></tr><tr><td>Oral Pathologist</td><td>01007</td></tr><tr><td>Endodontist</td><td>01008</td></tr><tr><td>Oral Radiologist</td><td>01009</td></tr><tr><td>Dental Hygienist/Assistant</td><td>01010</td></tr><tr><td>Dental Mechanic</td><td>01011</td></tr></table></td></tr>
<tr><td>Transferred from another acute care facility</td><td>ICES computes the number of records related to a single episode or reason to visit the hospital using a variable called EPIVISIT. For this indicator, discharge records subsequent to the first discharge record in the same episode of care are excluded (exclude EPIVISIT not equal to 1).</td></tr>
<tr><td>Died within 90 days of discharge</td><td>Variable DTHDATE from RPDB represents the date of death
Variable DDATE from DAD represents date of discharge for episode of care
Calculate date of death minus date of discharge and exclude if less than or equal to 90 days</td></tr>
<tr><td>Receiving ACEI/AARB within 90 days post-discharge</td><td>A prescription of ACEI/AARB in Appendix C prescribed within 90 days post discharge date of entire episode of care</td></tr>
</table>

3.4 Reducing complications of chronic disease

Indicator title	Percent of newly diagnosed diabetes patients (aged 20+) who had acute complications treated in emergency department or hospital in the year after diagnosis in Ontario, 2002/2003 – 2006/2007	
Data sources (for descriptions see section 4.1)	ODD NACRS RPDB	
The Indicator:		
Denominator (population) description	Population newly diagnosed with diabetes, by fiscal year, for 2002/03 through 2006/07 Exclude: a. Age < 20 at the time of diagnosis. This will exclude most, if not all, type I diabetics. b. Age > 105 at the time of diagnosis (suspect that ages > 105 are coding errors). NOTE: 2007/08 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 365 days after the day of the initial of diagnosis: 1. emergency department (ED) visits for hyperglycemia, 2. emergency department (ED) visits for hypoglycemia, 3. hospitalization for hyperglycemia, 4. hospitalization for hypoglycemia,	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	Unit of Rate(s) per:	100

Details of Variables:

Variable	Definition
Age	Date of birth from RPDB. Age when diabetes first diagnosed (variable DIAGDATE) from ODD.
Sex	Patient's sex from RPDB
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 hyperglycemia within 1 years of initial diagnosis	Inpatient hospitalization within the year after initial diagnosis with the 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

Indicator title	Adjusted percent of people (aged 66+) with diabetes for more than a year who had a serious diabetes complication treated in the hospital in Ontario, 2003/2004 – 2007/2008	
Data sources (for descriptions see section 4.1)	ODD DAD RPDB	
The Indicator:		
Denominator (population) description	All cases of diabetes that are prevalent on April 1 of each fiscal year from FY2003/04 to FY2007/08 Exclude: a. Age < 66 on April 1 of fiscal year of interest, b. Age > 105 on April 1 of fiscal year of interest, c. Invalid sex, d. In ODD <1 year prior to April 1 of fiscal year of interest (i.e., were incident in year prior to fiscal year of interest)	
Numerator (Subset of denominator; restricted as follows:)	Occurrence of the first adverse event between April 1 and March 31 of fiscal year of interest for each outcome listed below: 1. Death, 2. AMI, 3. Stroke, 4. Peripheral vascular disease (PVD), 5. The first occurrence of any of the above	
Rates:		
Standardized Rate Calculation	Method:	Direct
	Standard population:	Prevalent cases of diabetes on April 1, 2006
	Standardized by:	Age (66-74, 75+), sex, length of time since diabetes diagnosis
	Standardized Rate(s):	Overall (all years) LHIN (2007/08)

Details of Variables:	
Variable	Definition
Age	Patient's age on April 1 of each FY from RPDB
Length of time since diabetes diagnosis	April 1 of fiscal year of interest – diagnosis date (variable DIAGDATE from ODD). Dichotomize into <5 vs. 5+
LHIN	Patient's best LHIN assignment on Apr. 1 of fiscal year of interest from RPDB
Death	Death date from RPDB
Cardiac hospitalization	CIHI-DAD record with DXCODE or INCODE associated with AMI, PTCA, CABG:

	ICD-10 codes: I21, I22 (DXTYPE1=M), CCI codes : 1IJ50, 1IJ57, 1IJ76, Exclude if procedure associated with diagnosis of an aneurysm (ICD10 codes I67.1, I71, I72, I60, I77.0, I79.0, Q14.1, Q24.5, Q25.4, Q25.7, Q27.3, Q27.8, Q28.0-28.3)
Stroke	CIHI-DAD record with DXCODE or INCODE associated with Stroke, TIA 1. ICD10 codes I60, I61, I63, I64, G46.1, G45, G46.4, G46.5, G46.6, G46.7 (DXTYPE1=M) Exclude G45.4 2. CCI codes: 1JE50, 1JE57, 1JE76, 1JX50, 1JX57, 1JX76, 1JW50, 1JW57, 1JW76, 1JW35HHC1, 1JW35HAC1] Exclude all records with a diagnosis code of aneurysm [ICD10: I67.1, I71, I72, I60, I77.0, I79.0, Q14.1, Q24.5, Q25.4, Q25.7, Q27.3, Q27.8, Q28.0-28.3]
Hospitalization for PVD	CIHI-DAD record with INCODE associated with amputation or revascularization for PVD 1. CCI codes: 1VQ93, 1VC93, 1VG93, 1WL93, 1WA93, 1WE93, 1WJ93, 1WM93 Exclude all upper leg or foot amputations if in conjunction with ICD10: C40, C41, C46.1, C47, C49, D160, M46.2, M46.2, M86, M87, M89.6, M90.0-M90.5, Q00, Q38-Q40, S02.0, S09.0, S04.0, S15, S25, S25, T26 2. CCI codes: 1KG50, 1KG57, 1KG76, 1KG35HAC1, 1KG35HHC1 Exclude all records with a diagnosis code of aneurysm: ICD10: I67.1, I71, I72, I60, 177.0, 179.0, Q14.1, Q24.5, Q25.4, Q25.7, Q27.3, Q27.8, Q28.0-28.3

3.5 Getting it right the first time: Avoiding returns to hospital or emergency

Indicator title	Rate of readmission to the emergency department or acute care within 30 days of being discharged for AMI in Ontario, 2002/2003-2007/2008
Data sources (for descriptions see section 4.1)	DAD NACRS RPDB
The Indicator:	
Denominator (population) description	All discharges in which AMI was the most responsible diagnosis from April 1, 2002 to Feb 28, 2008. NOTE: March 2008 is not included because 30 days of follow-up is needed. Exclude: a. Invalid IKN, not Ontario resident, or if date of birth/sex missing, b. Age < 20 at time of diagnosis, c. Age > 105 at time of diagnosis (assume an error in the date of birth), d. Previous discharge in the past year in which AMI is the most responsible diagnosis, e. Died < 30 days after discharge from episode of care,

	f. Admitted to hospital that is not specifically an acute care treatment hospital, g. Admitted to non-cardiac surgical service, h. Transfers between acute care institutions, i. In-hospital complication.
Numerator (Subset of denominator; restricted as follows:)	AMI Readmission to ED/acute care within 30 days of being discharged from the episode of care for AMI hospitalization.

Rates:

Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	Unit of Rate(s) per:	100

Details of Variables:

Variable	Definition
Age, Sex	Get patient's age and sex from RPDB
LHIN	Get patient's best LHIN assignment from RPDB
Invalid IKN; non-Ontario resident	VALIKN ≠ V
Admitted to hospital that is not specifically an acute care treatment hospital	Variable INSTTYPE in DAD does not equal 'AT' or 'AP'
Admitted to non-cardiac surgical service	Variable PRVSERV1 = 00030, 00032, 00034, 00035, 00036, 00037, 00039, 00050, 00059, 00060, 00062, 00064, 00073, 01000, 01001, 01002, 01003, 01004, 01005, 01006, 01007, 01008, 01009, 01010, 01011

Specialties recognized by the Royal College of Physicians and Surgeons of Canada	CIHI Service Number
General Surgery	00030
Neurosurgery	00032
Orthopedic Surgery	00034
Plastic Surgery	00035
Thoracic Surgery	00036
Vascular Surgery	00037
Urology	00039
Obstetrics and Gynecology	00050
Colorectal Surgery	00059
Otolaryngology	00060
Ophthalmology	00062
Psychiatry	00064
General Surgical Oncology	00073
Dentistry Group	01000
Dentist	01001
Dental Surgeon	01002
Oral Surgeon	01003
Orthodonist	01004

	<table><tr><td>Paedodontist</td><td>01005</td></tr><tr><td>Periodontist</td><td>01006</td></tr><tr><td>Oral Pathologist</td><td>01007</td></tr><tr><td>Endodontist</td><td>01008</td></tr><tr><td>Oral Radiologist</td><td>01009</td></tr><tr><td>Dental Hygienist/Assistant</td><td>01010</td></tr><tr><td>Dental Mechanic</td><td>01011</td></tr></table>
Transferred from another acute care facility	ICES computes the number of records related to a single episode or reason to visit the hospital using a variable called EPIVISIT. For this indicator, discharge records subsequent to the first discharge record in the same episode of care are excluded since they should not be thought of as readmissions (exclude EPIVISIT not equal to 1). It is, however, important to remember to use the discharge date of the */ast* episode of care and calculate forward 30 days for the readmission rate calculation.
In-hospital complication	Another diagnosis code exists with a DXTYPE '2'
AMI readmission to ED/acute care within 30 days of being discharged	Readmission to acute care: Most responsible diagnosis (DXTYPE='M' without additional DXTYPE='2') of AMI (ICD-10 codes: I21/I22) within 30 days of being discharged. Readmission to ED: NACRS ED visit with DX10CODE = I21/I22 within 30 days of being discharged.

Indicator title	Rate of readmission to the emergency department or acute care within 30 days of being discharged for CHF in Ontario, 2002/2003-2007/2008
Data sources (for descriptions see section 4.1)	DAD NACRS RPDB
The Indicator:	
Denominator (population) description	All discharges in which CHF was the most responsible diagnosis from April 1, 2002 to Feb 28, 2008. NOTE: March 2008 is not included because 30days of follow-up is needed. Exclude: j. Invalid IKN, non Ontario resident, or if date of birth/sex missing, k. Age < 20 at time of diagnosis, l. Age > 105 at time of diagnosis (assume an error in the date of birth), m. Previous discharge in the past three years in which CHF is the most responsible diagnosis, n. Died < 30 days after discharge from episode of care, o. Admitted to hospital that is not specifically an acute care treatment hospital, p. Admitted to surgical service, q. Transfers between acute care institutions, a. In-hospital complication.
Numerator	CHF Readmission to ED/acute care within 30 days of being

(Subset of denominator; restricted as follows)	discharged from the hospital with CHF diagnosis	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	Unit of Rate(s) per:	100

Details of Variables:

Variable	Definition
Age, Sex	Get patient's age and sex from RPDB
LHIN	Get patient's best LHIN assignment from RPDB
Invalid IKN; non-Ontario resident	VALIKN ≠ V
Admitted to hospital that is not specifically an acute care treatment hospital	Variable INSTTYPE in DAD does not equal 'AT' or 'AP'
Admitted to surgical service	Variable PRVSERV1 = 00030, 00031, 00032, 00034, 00035, 00036, 00037, 00038, 00039, 00050, 00059, 00060, 00062, 00064, 00073, 01000, 01001, 01002, 01003, 01004, 01005, 01006, 01007, 01008, 01009, 01010, 01011

Specialties recognized by the Royal College of Physicians and Surgeons of Canada	CIHI Service Number
General Surgery	00030
Neurosurgery	00032
Cardiac Surgery	00031
Orthopedic Surgery	00034
Plastic Surgery	00035
Thoracic Surgery	00036
Vascular Surgery	00037
Cardiothoracic Surgery	00038
Urology	00039
Obstetrics and Gynecology	00050
Colorectal Surgery	00059
Otolaryngology	00060
Ophthalmology	00062
Psychiatry	00064
General Surgical Oncology	00073
Dentistry Group	01000
Dentist	01001
Dental Surgeon	01002
Oral Surgeon	01003
Orthodonist	01004
Paedodontist	01005
Periodontist	01006
Oral Pathologist	01007

	Endodontist: 01008 Oral Radiologist: 01009 Dental Hygienist/Assistant: 01010 Dental Mechanic: 01011
Transferred from another acute care facility	ICES computes the number of records related to a single episode or reason to visit the hospital using a variable called EPIVISIT. For this indicator, discharge records subsequent to the first discharge record in the same episode of care are excluded since they should not be thought of as readmissions (exclude EPIVISIT not equal to 1). It is, however, important to remember to use the discharge date of the **last** episode of care and calculate forward 30 days for the readmission rate calculation.
In-hospital complication	Another diagnosis code exists with a DXTYPE '2'
CHF readmission to ED/acute care within 30 days of being discharged	CHF readmission to acute care: Readmission diagnosis of I50 within 30 days of being discharged. Check inpatient admissions only. DXTYPE='M' CHF readmission to ED: NACRS ED visit with DX10CODE = I50 within 30 days of being discharged.

Indicator title	Rate of readmission to the emergency department within 3 days of being discharged for asthma in Ontario, 2002/2003-2007/2008
Data sources (for descriptions see section 4.1)	DAD NACRS RPDB
The Indicator:	
Denominator (population) description	Yearly ED visits for Asthma from 2002/03 to 2007/08 Diagnosis of asthma: a. Most responsible diagnosis, dx10code1 =: J45; OR b. Most responsible diagnosis, dx10code1 in: (R05, R060, R062, J96) AND any other diagnosis code =: J45; AND c. For either of the two diagnosis above, all patients were discharged to place of residence home (variable VISDISP[YYYY] = '01' or VISDISP2005 = '15'). Exclude: a. Non-Ontario residents, and those who cannot be assigned age/sex from RPDB, b. Age < 18 c. Age > 45 d. Initial ED visits with admit/registration/triage date of March 29, 2008 or later (since there won't be enough follow-up data), e. Transferred to another ED
Numerator (Subset of denominator; restricted as follows:)	Numerator is all return ED visits within 3 days (72 hrs) of the index ED visit (definition below). Count all visits in the denominator. Count all return visits within 72 hours in the numerator. For example, if a patient has three ED visits in close succession, the patient will contribute 3 counts to the

	denominator and may contribute 2 counts to the numerator.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	Unit of Rate(s) per:	100 asthma ED visits

Details of Variables:	
Variable	Definition
Invalid IKN; non-Ontario resident	VALIKN ≠ V
Age	Age at the registration date. Get from RPDB.
Sex	Patient's sex from RPDB
LHIN	Patient's best LHIN assignment from RPDB
Transferred to another ED	Variable TO_TYPE = E
Return ED 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 (01Apr2002, triage time, registration time). Visit end time is the time the visit was completed.

3.5.1 Keeping people healthy in long-term care

Indicator title	Rate per 100 person-years of ED visits of potentially preventable conditions by Long Term Care residents in Ontario, 2002/2003-2007/2008
Data sources (for descriptions see section 4.1)	OHIP ODB NACRS DAD RPDB CCRS MNS
The Indicator:	
Denominator (population) description	All LTC residents (see definition below) from 2002/03 to 2007/08. Exclude: a. Subjects with an invalid IKN or non-Ontario resident, b. Duplicate record for SERVDATE within IKN, c. Residents aged < 65 or > 105 on April 1 of each fiscal year of interest (selecting Apr 1 instead of Oct 1 will ensure resident eligible for ODB during look back), d. Dead on or prior to October 1 of each fiscal year of interest,

<table>
<tr><td></td><td colspan="2">e. Invalid sex and age values</td></tr>
<tr><td>Numerator
(Subset of denominator; restricted as follows:)</td><td colspan="2">Number of potentially preventable ED visits (see definition) during follow up period as defined in the person-years definition.

Exclude:
a. Associated codes for each condition (defined in the table below)</td></tr>
<tr><td colspan="3">Rates:</td></tr>
<tr><td rowspan="2">Crude Rate Calculation</td><td>Crude Rate(s) by:</td><td>Overall (all years)
LHIN (2007/08)</td></tr>
<tr><td>Unit of Rate(s) per:</td><td>100 person years</td></tr>
<tr><td colspan="3">Details of Variables:</td></tr>
<tr><td>Variable</td><td colspan="2">Definition</td></tr>
<tr><td>Age</td><td colspan="2">Age on Apr. 1 of fiscal year from RPDB. (to allow ODB records to be captured)</td></tr>
<tr><td>Sex</td><td colspan="2">Patient’s sex from RPDB</td></tr>
<tr><td>LTC residents</td><td colspan="2">Currently data that identifies LTC residents of Ontario is not fully available; therefore the following algorithm is used to identify people who are most likely LTC residents. Two or more records with unique dates between June 1 and September 30 of the year of interest that meet either of the following conditions:
a. OHIP record having a fee code starting with “W” where the INST type = ‘NH’ or ‘HF’
b. ODB record with an LTC flag</td></tr>
<tr><td>Invalid IKN or non-Ontario resident</td><td colspan="2">VALIKN ≠ V</td></tr>
<tr><td>Conditions presenting to the ED that are potentially preventable</td><td colspan="2"><u>Diagnostic codes for potentially preventable conditions</u> (Use “main problem”, i.e. DX10CODE1):
<table>
<tr><th>Condition</th><th>ICD-10-CA</th><th>Exclude</th></tr>
<tr><td>Angina</td><td>I20
I2382
I240
I248
I249</td><td>Cases with surgical procedure (CCI procedure: 1*, 2*, 5*)</td></tr>
<tr><td>Asthma</td><td>J45</td><td></td></tr>
<tr><td>Cellulitis*</td><td>L03</td><td>Cases with surgical procedures (CCI: 1*, 2*, 5*)</td></tr>
<tr><td>Chronic obstructive pulmonary disease (COPD)</td><td>J41 – J44
J47
J20 (only when “other diagnosis” of J41-J44, J47 is present)
J12 – J16, J18 (only when “other diagnosis” of J41-J44, J47 is present)</td><td></td></tr>
</table></td></tr>
</table>

	Congestive heart failure (CHF)	I50 J81	Cases with surgical procedures (CCI: 1IJ50, 1HZ85, 1IH76, 1HB53, 1HD53, 1HZ53, 1HB55, 1HD55, 1HZ55, 1HB54, 1HD54)
	Dehydration	E86	
	Diabetes	E101 E106, E107 E109 E110, E111 E116, E117 E119 E130, E131 E136, E137 E139 E140, E141 E146, E147 E149	
	Gastroenteritis*	K52 (other noninfective gastroenteritis and colitis)	
	Grand mal seizure disorders	G40 G41	
	Hypertension	I100 I101 I11	Cases with surgical procedures (CCI: 1IJ50, 1HZ85, 1IJ76, 1HB53, 1HD53, 1HZ53, 1HB55, 1HD55, 1HZ55, 1HB54, 1HD54)
	Hypoglycemia	E162	
	Injury/fracture from a fall*	W00 W03-W08 W10	
	Kidney/urinary tract infection	N10 N151 N11 N136 N390	
	Pneumonia	J12 – J16 J18	
	Severe ear, nose, or throat infection	J02, J03 J312	
Transfer to continuing care	Use assess_date on CCRS		
Admission to acute hospitalization	Use admdate on CIHI-DAD		
Death	Use dfthdate on RPDB		
LHIN	LHIN of patient from RPDB		
Person-years	Person years represent the total consecutive amount of time that each resident is followed until the first occurrence of any of the following:		

	a. Death, b. Acute care hospital admission, c. Transfer to Chronic Care, d. March 31 of fiscal year of interest

4 Safe

4.2 Drug Safety

Indicator title	Rate per 100 long-term care home residents with at least one potentially inappropriate prescription, 2002/2003 to 2006/2007	
Data sources (for descriptions see section 4.1)	ODB OHIP RPDB	
The Indicator:		
Denominator (population) description	Residents of LTC facilities (see definition below) from 2002/03 to 2007/08. Exclude: a. Non- Ontario residents b. Less than 65 years of age as of 120 days prior to the start of fiscal year of interest. (e.g. they must have been age 65 by December 1, 2006 for fiscal year 2007/08). c. Those who died prior to the end of the fiscal year (e.g. prior to March 31, 2008 for fiscal year 2007/08), d. 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, 2002 for fiscal year 2007/08)	
Numerator (Subset of denominator; restricted as follows:)	Filling one or more prescriptions for one of more inappropriate drugs at any time during the fiscal year of interest (see definition below)	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years)
	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
Invalid IKN or non-Ontario resident	VALIKN ≠ V
Death date	Get the patient's date of death from RPDB
Those who had no contact with the health care system in the 5 years prior to the start of the fiscal year	The Contact database at ICES contains information regarding RPDB eligibility status, history of health care contact and CAPE enrollment status. Check that there was at least one non-missing value for the variable ELIG during the 5 years of Contact data prior to the fiscal year of interest.
Community / nursing home resident	A person is classified as LTC home resident if s/he has met ALL following criteria: a. 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. b. 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.
Inappropriate prescribing	Yes if there is at least one drug from the drug list in Appendix D prescribed in the fiscal year of interest. Note: Appendix D excludes Hormone Replacement Therapy and low dose (less than or equal to 25mg) Amytriptylene.

4.3 Avoidable harm: Reducing falls, ulcers and infections in care settings

Indicator title	Rate of falls among seniors (aged 65+) resulting in an emergency department visit or inpatient hospitalization per 100 resident-years in long-term care homes in Ontario, 2002/2003 – 2007/2008	
Data Sources (for descriptions see section 4.1)	NACRS DAD OHIP RPDB	
The Indicator:		
Denominator (population) description	LTC residents in the fiscal years 2002/03 to 2007/08. Exclude: a. Residents aged < 65 or > 105 on of each fiscal year of interest b. dead on or prior to October 1 of each fiscal year of interest, c. Invalid sex and age values, d. Invalid health card number, e. Resident in palliative care	
Numerator (Subset of denominator; restricted as follows:)	Falls in nursing homes resulting in an ED visit/inpatient hospitalization from October 1 to March 31 of each fiscal year of interest.	
Rates:		
Standardized Rate Calculation	Crude Rate(s):	Overall (all years separately)
	Unit of Rate(s) per:	100 person years

Details of Variables:

Variable	Definition
Age	Age at October 1 of the fiscal year of interest. From RPDB
Sex	Patient's sex from RPDB
Death date	Patient's date of death from RPDB
LHIN	Patient's LHIN of residence from RPDB
LTC residents	Currently data that identifies LTC residents of Ontario is not fully available; therefore the following algorithm is used to identify people who are most likely LTC residents. Two or more records with unique dates between June 1 and September 30 of the year of interest that meet either of the following conditions: a. OHIP record having a fee code starting with "W" where the INST type = 'NH' or 'HF' b. ODB record with an LTC flag

Falls resulting in ED visit or inpatient admission	DAD-CIHI inpatient record with ICD-10-CA code W00 through W19 as pre-admit (M, 1, W, X, Y) condition or ED visit with ICD-10 code W00-W19 in any diagnosis code occurring during the follow-up period.
Fiscal year	The fiscal year in which the residents were located by using OHIP records
Institution type	Link the INST to the MNS data (/moh/inst/mns.sas7bdat) to find the INSTTYPE. We will not count the W claim if the INSTTYPE ≠ NH (nursing home) or ≠ HF (home for aged)
Person-years	Person years represent the total consecutive amount of time that each resident is followed until the first occurrence of any of the following: a. Death, b. Acute care hospital admission, c. Transfer to Chronic Care, d. March 31 of fiscal year of interest

4.4 Missed Diagnosis

Indicator title	Rate of missed AMI in the emergency department in Ontario, 2002/03 to 2007/08	
Data sources (for descriptions see section 4.1)	DAD NACRS RPDB	
The Indicator:		
Denominator (population) description	Inpatient admission with most responsible diagnosis of AMI (ICD-10 code I21.x) through emergency department each fiscal year (determined from discharge date) from 2002/03 to 2007/08. Exclude: a. Non-Ontario residents, b. Invalid sex and age values, c. Age < 20 or > 105 on the date of index admission, d. Date inconsistency e. Admissions where patients have a history of AMI, f. Non-first admission for AMI, g. Non-first visit in episode of care, After exclusions, each remaining AMI patient should have only one admission for AMI per time period. This admission is called the Index Admission. The ED visit that leads to this admission is called the Index ED visit (defined below).	
Numerator (Subset of denominator; restricted as follows:)	A Related ED visit (defined below) identified in the 7 days prior to the Index Admission with any of the specified diagnostic codes in the Main Problem field (DX10CODE1). Exclude: a. Patients that were admitted to hospital during the ED visit.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)

	Unit of Rate(s) per:	100

Details of Variables:

Variable	Definition
Age	Age at index admission from RPDB
Sex	Patient's sex from RPDB
Non-Ontario resident	A subject is considered as non-Ontario resident if: Variable VALIKN ≠ V or, The first two characters of variable RESCODE are NOT between '01' and '50' or, The first two characters of variable RESCODE equals to '22'.
Data inconsistency	Exclude patients who died before the start of each fiscal year. Variable DTHDATE is before April 1 of each fiscal year of interest
Admissions where patients have a history of AMI	Any discharges during the 12 months prior to the index admission with ICD-10 code: I21 in any DXTYPE.
Non-first admission for AMI in the time period	ICD10 code of 'I21' in any of the DX10CODE fields for any DXTYPE (diagnosis not limited to most responsible) with the admission date (ADMDATE) between 1 and 365 days prior to index admission (defined in the denominator).
Non-first visit in episode of care	An episode of care is a series of admissions to acute care, inpatient hospitals where admissions are linked because the patient was transferred from one hospital to another. ICES derived a variable called EPIVISIT to count the number of visits a patient makes to acute care or ED during one episode. Variable EPIVISIT ≠ 1 when there is a non-first visit in an episode of care.
Index ED visit	The Index ED visit is the ED visit that leads to the Index Admission (defined in the denominator), where a previously missed AMI is admitted. The Index ED visit is defined using NACRS records where the variable TO_TYPE = 'I' and TO_ID = the KEY variable of the Index Admission. Transferring ED visit(s) should be excluded and should not be picked up in the scan for related ED visits. Exclude transferring ED visits where TO_ID = NACRS and TO_TYPE=E. When a patient was transferred from one ED directly to another before admission, the very first visit to the ED is considered the Index ED visit.
Related ED visit	The Related ED visit is a previous ED visit where potential for an AMI was missed. Related ED visits are identified in the 7 days prior to the Index Admission and must have any one or more of the following diagnostic codes in the Main Problem field (DX10CODE1):

Diagnosis	ICD-10 code
Chest pain	R07.1-R07.4
Angina	I20
Shortness of breath/ Congestive heart failure	R06.0, R06.8, I50, J81
Abdominal pain	R10.1, R10.3, R10.4
Heartburn, esophagitis, or	R12, R13, K20, K21,

	gastritis: K22.9, K23.8, K29, K30 Syncope/malaise: R42, R53, R55 Transferring ED visit(s) should be excluded and should not be picked up in the scan for related ED visits. Exclude transferring ED visits where TO_ID = NACRS and TO_TYPE=E. Exclude patients admitted to hospital during the ED visit.

Indicator title	Rate of missed SAH in the emergency department in Ontario, 2002/03 to 2007/08	
Data sources (for descriptions see section 4.1)	DAD NACRS RPDB	
The Indicator:		
Denominator (population) description	Inpatient admission with most responsible diagnosis of SAH (ICD-10 code 160.x) through emergency department each fiscal year (determined from discharge date) from 2002/03 to 2007/08. Exclude: a. Non-Ontario residents, b. Invalid sex and age values, c. Age < 18, d. Date inconsistency e. History of SAH or cerebral aneurysm in past 12 years, f. Traumatic SAH admission g. Non-first visit in episode of care. After exclusions, each remaining SAH patient should have only one admission for SAH per time period. This admission is called the Index Admission. The ED visit that leads to this admission is called the Index ED visit (defined below).	
Numerator (Subset of denominator; restricted as follows:)	A Related ED visit (defined below) identified in the 14 days prior to the Index Admission with any of the specified diagnostic codes in the Main Problem field (DX10CODE1). Exclude: a. Index ED visit b. ED visit that was transferred to index ED visit c. ED visits that result in hospital admission where inpatient LOS is > 24hrs	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	Unit of Rate(s) per:	100

Details of Variables:

Variable	Definition
Age	Age at index admission. Use RPDB to derive the age.
Sex	Patient's sex from RPDB
LHIN	Patient's best LHIN assignment from RPDB

Non-Ontario resident	A subject is considered as non-Ontario resident if: 1. Variable VALIKN ≠ V or, 2. The first two characters of variable RESCODE are **NOT** between '01' and '50' or, 3. The first two characters of variable RESCODE **equals** to '22'.
Fiscal year	The fiscal year of index event's discharge date
History of SAH or cerebral aneurysm in past 12 years	Discharges in DAD in the past 12 years prior to the Index Admission (defined in the denominator) where ICD-10 code: I60 (SAH) or I671 (cerebral aneurysm) or ICD-9 code 430 (SAH) or 4373 (cerebral aneurysm) for any variable DXTYPE.
Traumatic SAH admission	Defined as DX10CODE1=:'I60' and a DXTYPE=9 with any of the following DX10CODEs: V01-V99, W03, W06-W09, W11-W17, W20-W45, W49-W60, W64-W77, W81, W83-W94, W99, X00-X19, X30-X39, X52, X58-X99, Y00-Y09, Y35, Y36
Non-first visit in episode of care	An episode of care is a series of admissions to acute care, inpatient hospitals where admissions are linked because the patient was transferred from one hospital to another. ICES derived a variable called EPIVISIT to count the number of visits a patient makes to acute care or ED during one episode. Variable EPIVISIT ≠ 1 when there is a non-first visit in an episode of care.
Index ED visit	The Index ED visit is the ED visit that leads to the Index Admission (defined in the denominator), where a previously missed SAH is admitted. The Index ED visit is defined using NACRS records where the variable TO_TYPE = 'I' and TO_ID = the KEY variable of the Index Admission. Transferring ED visit(s) should be excluded and should not be picked up in the scan for related ED visits. Exclude transferring ED visits where TO_ID = NACRS and TO_TYPE=E. When a patient was transferred from one ED directly to another before admission, the very last visit to the ED is considered the Index ED visit.
Related ED visit	The Related ED visit is a previous ED visit where symptoms of SAH were missed. Related ED visits are identified in the 14 days prior to the Index Admission and must have any one or more of the diagnostic codes in Appendix E the Main Problem field (DX10CODE1). Transferring ED visit(s) should be excluded and should not be picked up in the scan for related ED visits. Exclude transferring ED visits where TO_ID = NACRS and TO_TYPE=E. Exclude patients admitted to hospital during the ED visit.

6 Equitable

6.2 Equity in Access

Refer to the Accessible section above for additional indicators analyzed in the Equity section.

6.3 Equitable Effective Care

Refer to the Effective section above for additional indicators analyzed in the Equity section.

Indicator title	Hospital admission rate and rate of emergency department visits per 100 people for reasons related to asthma, congestive heart failure, or diabetes in Ontario (Errata: Visits by patients for asthma were calculated for emergency department visits only; not hospital admissions. The definition below produced the reported figures.)	
Data sources (for descriptions see section 4.1)	NACRS RPDB	
The Indicator:		
Denominator (population) description	RPDB weighted population aged 18 or up from 2002/03 to 2007/08 Exclude: a. Invalid IKN b. Missing age or gender c. Age < 18	
Numerator (Subset of denominator; restricted as follows:)	Calculate two separate numerators for each fiscal year: 1. Hospital admissions for congestive heart failure or diabetes (defined below) Exclude: a. In-hospitalization complication b. CHF patients with records stating specific CCI codes (defined below) 2. Emergency department visits for asthma or congestive heart failure or diabetes (defined below) Exclude: a. Transferred to another ED or overlapping ED visits	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Income (2007 only)
	Unit of Rate(s) per:	100
Details of Variables:		
Variable	Definition	
Age	Age from weighted RPDB (defined at July 1) for denominator Age at REGDATE for ED visit obtained from RPDB	
Sex	Patient's sex from RPDB	

<table>
<tr><td>Income quintile</td><td>Income is represented by the patient’s neighbourhood-level income. Using the StatsCan postal code conversion file (PCCF) and the patient’s postal code from RPDB, using variable INCQUINT.

For income level analysis only, exclude patients from denominator if INCQUINT missing.</td></tr>
<tr><td>Hospital admissions for asthma or congestive heart failure or diabetes</td><td>Occurring where the most responsible diagnosis (variable DXTYPE = M) for in-patient hospitalizations (DX10CODE) for the following conditions:
<table>
<tr><th>Condition</th><th>ICD-10</th><th>Excluded if specific procedures are found in the same discharge record</th></tr>
<tr><td>Asthma</td><td>J45</td><td>NA</td></tr>
<tr><td>Congestive Heart Failure</td><td>I50.0, J81</td><td>CCI 1.IJ.50, 1.HZ.85, 1.IJ.76, 1.HB.53, 1.HD.53, 1.HZ.53, 1.HB.55, 1.HD.55, 1.HZ.55, 1.HB.54, 1.HD.54</td></tr>
<tr><td>Diabetes</td><td>E10.1, E10.6, E10.7, E10.9, E11.0, E11.1, E11.6, E11.7, E11.9, E13.0, E13.1, E13.6, E13.7, E13.9, E14.0, E14.1, E14.6, E14.7, E14.9</td><td>NA</td></tr>
</table></td></tr>
<tr><td>In-hospital complications</td><td>Where, DXTYPE=M and 2 for asthma, congestive heart failure or diabetes patients</td></tr>
</table>

<table>
<tr><td>ED visits for diabetes or asthma or congestive heart failure</td><td>Where DXTYPE=M and DX10CODE1 is one of the following codes:
<table>
<tr><th>Condition</th><th>ICD-10</th><th>Excluded if specific procedures are found in the same discharge record</th></tr>
<tr><td>Asthma</td><td>J45</td><td>NA</td></tr>
<tr><td>Congestive Heart Failure</td><td>I50.0, J81</td><td>CCI 1.IJ.50, 1.HZ.85, 1.IJ.76, 1.HB.53, 1.HD.53, 1.HZ.53, 1.HB.55, 1.HD.55, 1.HZ.55, 1.HB.54, 1.HD.54</td></tr>
<tr><td>Diabetes</td><td>E10.1,
E10.6,
E10.7,
E10.9,
E11.0,
E11.1,
E11.6,
E11.7,
E11.9,
E13.0,
E13.1,
E13.6,
E13.7,
E13.9,
E14.0,
E14.1,
E14.6,
E14.7,
E14.9</td><td>NA</td></tr>
</table></td></tr>
<tr><td>Transfer to another ED or overlapping ED visits</td><td>Variable TO_TYPE in NARCS = ‘E’, ’O’</td></tr>
</table>

6.4 Equity of preventive health services

Refer to the Population Health section below for additional indicators analyzed in the Equity section.

6.5 Disparities in risk factors and healthy behaviours

Refer to the Population Health section below for additional indicators analyzed in the Equity section.

7 Efficient

7.2 Emergency department visits that might have been avoided

Indicator title	Adjusted rate of visits to emergency departments in census metropolitan areas (CMAs) for conditions that could be treated elsewhere, per 100 persons, 2002/03 to 2006/07	
Data Sources	NACRS RPDB	
The Indicator:		
Denominator (population) description	All visits to EDs located within a CMA during fiscal years 2002 to 2007 (defined below) Exclude: a. Invalid IKN, b. Missing LHIN, age or gender (found missing or invalid in RPDB), c. Planned or scheduled visit, d. Age < 1 or age > 74	
Numerator (Subset of denominator; restricted as follows:)	ED visits that could be managed elsewhere (see definition) Exclude: a. Patients with CTAS levels of I, II, III b. Admitted to hospital	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all CMAs for all years) CMAs by LHIN (for 2007/08 only)
	Unit of Rate(s) per:	100

Details of Variables:

Variable	Definition
Age	Age at the registration date.
Sex	Get the patient's sex from RPDBDEMO dataset by calling macro %getdemo
Invalid IKN	Variable VALIKN ≠ 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 Note: Year 2007/08, checked values of admitting to hospitals
LHIN	Patient's best LHIN from RPDB
Whether the ED is locate in a CMA	Census Metropolitan Area (CMA) is a geographical area created by Statistics Canada for the purposes of collecting and organizing data for large urbanized areas. CMAs are identified using StatsCan's Postal Code Conversion File (PCCF). To identify emergency department facilities that are located in CMAs, use NACRS variable AMINST to look up the postal code and then use PCCF to determine whether the postal code is located within a CMA.

Conditions that could be managed elsewhere outside of the ED	Where DXTYPE = M is one of the codes in Appendix F

Indicator title	Rate per 100 person-years of low acuity emergency department visits by long-term care residents in Ontario, 2002/2003 to 2007/2008	
Data sources (for descriptions see section 4.1)	OHIP ODB NACRS DAD RPDB CCRS MNS	
The Indicator:		
Denominator (population) description	LTC residents in Ontario from 2002/03 to 2007/08 defined in person-years (defined below) Exclude: a. Subjects with an invalid IKN, b. Duplicate record for SERVDATE within IKN, c. Residents aged < 65 or > 105 on April 1 of each fiscal year of interest (selecting Apr 1 instead of Oct 1 will ensure resident eligible for ODB during look back), d. Dead on or prior to October 1 of each fiscal year of interest, e. Invalid sex and age values	
Numerator (Subset of denominator; restricted as follows:)	Number of low acuity ED visits (see below for definition) during follow up period.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	Unit of Rate(s) per:	100 person years
Details of Variables:		

Variable	Definition
Age	Age on Apr. 1 of fiscal year from RPDB. (to allow ODB records to be captured)
Sex	Patient's sex from RPDB
Invalid IKN or non-Ontario resident	VALIKN ≠ V
LHIN	LHIN of patient from RPDB
LTC residents	Currently data that identifies LTC residents of Ontario is not fully available; therefore the following algorithm is used to identify people who are most likely LTC residents. Two or more records with unique dates between June 1 and September 30 of the year of interest that meet either of the following conditions:

	a. OHIP record having a fee code starting with "W" where the INST type = 'NH' or 'HF' b. ODB record with an LTC flag
Low acuity visits	At triage, CTAS score of 4 or 5 *AND* resident returned to NH without hospital admission. Defined as follows: a. Where variable TO_TYPE =' ' *AND* b. VISDISP, VISDISP2003, or VISDISP2005 (depending on year) ≠ 6-14 NOTE: This will not include residents who were either discharged or triaged but left without treatment (VISDISP: = 1-5) or who return to place of residence (VISDISP2005 =15).
Person-years	Person years represent the total consecutive amount of time that each resident is followed until the first occurrence of any of the following: a. Death, b. Acute care hospital admission, c. Transfer to Chronic Care, d. March 31 of fiscal year of interest

7.3 Use of low-cost drugs that work as well as more expensive ones

Indicator title	Rate of prescribing a thiazide as their first antihypertensive medication per 100 elderly people, 2005/06 and 2007/08
Data sources (for descriptions see section 4.1)	DAD OHIP ODB RPDB ODD
The Indicator:	
Denominator (population) description	People newly diagnosed with hypertension (definition below) in Ontario from 2005/06 to 2007/08 Exclude: a. Patient not at least 66 years old on index date b. Patients treated for hypertension in the 1 year prior to the index date (in order to restrict to patients diagnosed with hypertension for the first time) c. Patients who filled a prescription for one of the drugs on the "exclusion" list (see Appendix H) in the one year period prior to or on the index date. d. 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 (see definition below). e. Patients diagnosed with diabetes at any time prior to the index date (definition below).
Numerator (Subset of denominator; restricted as follows:)	People whose first prescription was a thiazide (definition below).
Rates:	

Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	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.
People newly diagnosed with hypertension	Anyone who filled a prescription for one of the drugs in Appendix G. The first such prescription for each person is the index date.
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:

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
Prescribed a thiazide	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. A patient is considered to be taking a thiazide drug if the prescription(s) filled on the index date are found on the thiazide drug list in Appendix I. In the event that a patient 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), the patient is

	considered to be taking a thiazide.

7.4 Reduce unnecessary tests

Indicator title	Rate of pre-operative ECG and X-ray testing per 100 cataract procedures, 2002/03 to 2006/07	
Data sources (for descriptions see section 4.1)	DAD NACRS OHIP RPDB	
The Indicator:		
Denominator (population) description	Inpatient or outpatients with a hospital discharge record that indicates cataract surgery was performed (see definition). Exclude: a. Invalid health card number or Ontario patient identifier, b. Age/sex missing, c. Patient age is < 20 at the time of admission, d. Patient age is > 105 at the time of admission, e. Non-elective admission, f. Procedure was done previously or out of hospital procedure, g. 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): 1. Electrocardiograms (OHIP fee code G313) 2. 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: a. Procedures performed on the day of surgery (since these are likely to be post-operative.)	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	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.

<table>
<tr><td>Invalid IKN</td><td>Variable VALIKN ≠ V</td></tr>
<tr><td>LHIN</td><td>Patient's best LHIN assignment from RPDB.</td></tr>
<tr><td>Cataract Surgery</td><td>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.
AND
ICD-10 codes: H25 - senile cataract, H26 - other cataract, or H28 - cataract and other disorders of lens in diseases classified elsewhere in any position</td></tr>
<tr><td>Non-elective admission</td><td>Inpatient admissions were considered to be non-elective if:
DAD variable ADMCAT ≠ L, or
DAD 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).</td></tr>
<tr><td>Out of hospital procedure</td><td>Variable INOOH[1-20] = 'Y'</td></tr>
<tr><td>Patient was discharged dead</td><td>Inpatient records: DISCHDISP = 07
Outpatient records:
<table>
<tr><th>Fiscal year</th><th>Variable and Value</th></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></td></tr>
</table>

9 Integrated

9.2 Smooth Handoffs from Hospital to Other Services

Indicator title	Percentage of stroke patients discharged from acute care to inpatient rehabilitation in Ontario, 2005/06-2007/08	
Data sources (for descriptions see section 4.1)	DAD NRS RPDB	
The Indicator:		
Denominator (population) description	Inpatient hospitalization with a most responsible diagnosis of stroke (either pre-admission or post-admission while in hospital), with episode ending in each fiscal year from 2005/06 to 2007/08 (defined below) Exclude: a. Invalid health card number or non-Ontario residents, b. Missing age/sex, c. Age < 20 or age > 105, d. Patient died in hospital, e. Previous stroke (defined below), f. Episode LOS > 30 days, g. Transferred from specialized facilities (defined below), h. Discharged after March 31, 2006	
Numerator (Subset of denominator; restricted as follows:)	Direct discharge to rehab facility (defined below)	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) LHIN (2007/08)
	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'.
Most responsible diagnosis for stroke	For index event, identify stroke patients where dxtype = M and dx10code1 = I60, I61, I63, I64. The date that the index event occurs is the index admission date and is used to calculate the episode length of stay (LOS) Note: Keep patient even if DXTYPE = 2, in other words, regardless of whether stroke occurred pre-admission or post-admission while in hospital
Patient died in hospital	Variable DISCHDISP = '07' at the end of episode of care
Episode length of stay (LOS)	LOS is computed as follows: 1. Compute difference between index admission date and the latest discharge date from the episode. 2. 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 specialized facilities	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	There was a rehab admission (NRS) after the index admission and not later than (2 days after the episode discharge)

Indicator title	Percent of patients with fractures who received a bone mineral densitometry test in Ontario, 2004/05-2007/2008
Data sources (for descriptions see section 4.1)	OHIP NACRS DAD
The Indicator:	
Denominator (population) description	People aged 50+ who had a low trauma fracture that was possibly due to osteoporosis during fiscal years 2004/05 to 2007/08 that resulted in an ED visit or hospital admission. Exclude: a. Invalid IKN (valikn ne 'V'); b. Age < 50 and > 105; c. Missing sex (i.e. the person is not in the RPDB); d. Patients who did not reside in Ontario at the time of the fracture; e. Patients who were dead on arrival in the ED or who died while in the ED or in the hospital; f. Patients who died within 6 months of the fracture (If they died within 6 months, we have no way of knowing whether they were scheduled to be tested but died first. At least one journal article suggests excluding those who do not have "significant expected longevity".); g. Patients with a hospital discharge (inpatient or same day) within two years prior to the fracture with a diagnosis of epilepsy, pathological fracture, or malignant neoplasm of the breast, bone, colon, rectum, or lung, or multiple myeloma. Also, exclude the fracture if any of these diagnoses are recorded in the same record as the fracture; h. Fractures that were not due to a minor fall. A minor fall is defined as a fall from no higher than standing level that is not associated with a transportation (e.g. car, bike) accident; i. Subsequent fractures for the same patient – retain only the first fracture; j. People who have "established or treated osteoporosis" (i.e.

	those who have already had a BMD test within 2 years prior to the fracture, or who filled at least one prescription for an osteoporosis medication within 1 months prior to the fracture) As a limitation, note that we can only detect medication for people aged 65+. But anyone who is on medication should have had a BMD test prior to starting their medication (and should be monitored periodically with BMD tests after starting medication), therefore, looking for previous BMD testing should be sufficient.	
Numerator (Subset of denominator; restricted as follows:)	A BMD test (detected using OHIP data) within 6 months after the fracture date	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years)
	Unit of Rate(s) per:	Per 100 people with a fracture (i.e. percentage of eligible people who did not have a BMD test)

Details of Variables:

Variable	Definition
Age and sex	Obtain using RPDB.
A low trauma fracture	A low trauma fracture is identified by having BOTH an external cause of injury code (see definition below) indicating the fracture was due to a minor fall (i.e. a fall that would not usually result in a fracture in someone with healthy bones) AND ALSO a diagnosis code of a fracture of the hip, ribs, spine, arm, shoulder, pelvis and/or leg (see definition below). If the record also indicates a transportation accident associated with the injury, the fracture will be EXCLUDED (see definition below)
External cause of injury codes that indicate a minor fall	Record must contain one of the following ICD-10-CA diagnosis codes: Low trauma falls (W00 – W10, W18, W19) W00 Fall on same level involving ice and snow W01 Fall on same level from slipping, tripping and stumbling W02 Fall involving skates, skis, sport boards and in-line skates W03 Other fall on same level due to collision with, or pushing by, another person W04 Fall while being carried or supported by other persons W05 Fall involving wheelchair and other types of walking devices W06 Fall involving bed W07 Fall involving chair W08 Fall involving other furniture W09 Fall involving playground equipment W10 Fall on and from stairs and steps W18 Other fall on same level W19 Unspecified fall

Fracture codes	In NACRS (ED visits) and the same day surgery data, look in diagnosis code fields 1 to 3 to identify fractures. In DAD (inpatient hospitalization) look at only the most responsible diagnosis. Identify fracture patients in the ED and also in same day surgery/inpatient surgery. If the same fracture appears in both, then use the hospital data for assigning the type of fracture since we expect coding to be better than in ED. The following types of fractures will be considered as possibly due to osteoporosis: 'Other Fractures' and fractures of the lower leg and ankle. (Data source – NACRS and CIHI; ICD-10 codes S32 (pelvis) and S82 (lower leg and ankle) S32.1 Fracture of sacrum S32.2 Fracture of coccyx S32.3 Fracture of ilium S32.4 Fracture of acetabulum S32.5 Fracture of pubis S32.7 Multiple fractures of lumbar spine and pelvis S32.8 Fracture of other and unspecified parts of lumbar spine and pelvis (Lower leg and ankle) ICD-10 codes S82) S82 Fracture of lower leg, including ankle S82.0 Fracture of patella S82.1 Fracture of upper end of tibia S82.2 Fracture of shaft of tibia S82.3 Fracture of lower end of tibia S82.4 Fracture of fibula alone S82.5 Fracture of medial malleolus S82.6 Fracture of lateral malleolus S82.7 Multiple fractures of lower leg S82.8 Fractures of other parts of lower leg S82.9 Fracture of lower leg, part unspecified
Transport accidents	Do NOT include fractures if the record also contains any of the following external causes of injury: V01 – V99
Date of discharge from an inpatient stay	For inpatient records, the date of discharge is the final discharge date for the episode of care. (Note: when there are multiple records for the same episode of care, they may not all contain a diagnosis for the fracture. As long as one of the records has a fracture, we will consider that the patient had a fracture. Then, find all records with the same "epi" value, in order to find out when the patient was finally fully discharged from the hospital.)
Exclusion criterion: dead on arrival in the ED or died in the hospital	visdisp = '10' in the ED data and same day surgery data dischdisp = '07' in the inpatient hospital data.

Exclusion criterion: ED visits transferred to same day or inpatient care	If the to type in the ED visit is 'S' (same day surgery) or 'I' (inpatient care), delete the hospital record. The patient was transferred to the hospital, and we believe the coding of the hospital record is more accurate. Thus, either the fracture will be picked up from SDS or the inpatient DAD, or – if it is not recorded in the hospital record – it we suspect the patient didn't really have a fracture.
Exclusion criterion: subsequent fractures in the same patient	Retain only the first fracture during the year for each patient. Testing and treatment should be within 6 months of the *first* fracture.
Exclusion criterion: death within 6 months after the fracture	Use RPDB to obtain date of death.
Exclusion criterion: hospital discharge in the two years prior to the fracture.	Any same day surgery or inpatient discharge where the date of discharge is within 2 years prior to the fracture date, and there is a diagnosis code (any dxtype *except* dxtype 3) of any one of the following. Also, exclude patients if one of the following codes appears in the ED, SAS, or inpatient record that identified the fracture. a. epilepsy (ICD-10 G40), b. pathological fracture (ICD-10 M80, M84.4), c. malignant neoplasms of breast (ICD-10 C50), bone (ICD-10 C40, C41), colon (ICD-10 C18), rectum (ICD-10 C20), or lung (ICD-10 C34) d. multiple myeloma (ICD-10 C90)
BMD test (this is both an exclusion criterion, if it was before the fracture, and the outcome variable, if it was after the fracture)	Below are the new OHIP fee schedule codes for BMD testing as of April 1, 2008: Baseline Test X145 - one site. . . . . 43.95 41.30 X146 - two or more sites . . . . . 56.60 49.40 Subsequent test - low risk patient X152 - one site. . . . . 43.95 41.30 X153 - two or more sites . . . . . 56.60 49.40 Subsequent test - high risk patient X149 - one site. . . . . 43.95 41.30 X155 - two or more sites . . . . . 56.60 49.40 Prior to April the codes are OHIP Codes for BMD testing: Low risk patient X152, X 153 High risk patient X149, X155 If the service date is within 2 years prior to the fracture, the patient is *excluded*. If the service date is within 6 months (183 days) <u>after</u> the fracture, the person had a timely BMD test. The numerator consists of people who did *not* have a test. If the fracture was treated on an inpatient basis, look for BMD tests any time from the date of admission to 6 months after the discharge date. That is, they might have been tested while in the hospital but if not we allow them 6 months after they are discharged.

10 Population Health

10.2 Prevention and early detection of disease

Indicator title	Percent of the adult population aged 18+, the adult population 18+ with chronic disease and the elderly (aged 65+) who reported receiving a flu shot in the previous year in Ontario, 2001, 2003, 2005 and 2007	
Data sources (for descriptions see section 4.1)	CCHS	
The Indicator:		
Denominator (population) description	Three groups of overall weighted CCHS population in 2001, 2003, 2005 and 2007: 1. General population 18+ years 2. Chronic disease population 18+ years 3. 65 years of age and older. Exclude: a. < 65 years of age b. Invalid flu shot indication (if FLU_162 is 7, 8, or 9)	
Numerator (Subset of denominator; restricted as follows:)	Receiving flu shot in the past year.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall rate (all years)
	Unit of Rate(s) per:	Per 100
Details of Variables:		

Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Chronic disease (heart disease or diabetes) CAD	Heart disease is determined using question CCCE_121 (do you have heart disease) in CCHS 3.1. In CCHS1.1, the variable name is CCCA_121. In CCHS2.1, the variable name is CCCC_121. In CCHS1.1, the diabetes questions are CCCA_101 (do you have diabetes), CCCA_10A (diabetes when pregnant), and CCCA_10B (diabetes diagnosed other than when pregnant). In CCHS2.1, the diabetes questions are CCCC_101 (do you have diabetes), CCCC_10A (diabetes diagnosed when pregnant), and

	CCCC_10B (diabetes diagnosed other than when pregnant) Diabetes is determined using question CCCE_101 (do you have diabetes) in CCHS3.1. However, if they answered "yes" to question CCCE_10A (were you pregnant when you were first diagnosed with diabetes) and also answered "no" to question CCCE_10B (other than during pregnancy, has a health professional ever told you that you have diabetes), then they do NOT have diabetes. CCHS 2007 variable CCC_121 (Do you have heart disease?) 1 = Yes 2 = No 7 = Don't know 9 = Not stated CCHS 2007 variable CCC_101 (Do you have diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated CCHS 2007 variable CCC_10A (WERE YOU pregnant when YOU WERE first diagnosed with diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated CCHS 2007 variable CCC_10B (Other than during pregnancy, has a health professional ever told YOU that YOU HAVE diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated Chronic disease - yes if heart disease or diabetes (excluding gestational diabetes) - yes if CCC_121 = 1 or - yes if CCC_101 = 1, but not counted as diabetic if CCC_10A = 1 and CCC_10B = 2
Receiving Flu shot in the past year	CCHS 2007 variable FLU_162 (When did you have your last flu shot?) 1 = Less than 1 year ago 2 = 1 to < 2 years ago 3 = 2 years ago or more 6 = Not applicable (i.e. FLU_160 = No) 7 = Don't know 8 = Refusal 9 = Not stated Receiving Flu shot in the past year? Yes if FLU_162 = 1 CCHS 2001 variable FLUA_162 CCHS 2003 variable FLUC_162

	CCHS 2005 variable FLUE_162
LHIN	CCHS 2007 variable GEODLHN Delete from the denominator if the answer is 99, keep in overall analysis
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of the receiving a flu shot in the previous year in Ontario, 2001, 2003, 2005 and 2007	
Data sources (for descriptions see section 4.1)	CCHS	
The Indicator:		
Denominator (population) description	Overall weighted CCHS population aged 18 or above with a chronic disease in 2001, 2003, 2005 and 2007. Two populations of interest: 1. General population 18+ years 2. Chronic disease population 18+ years Exclude: a. Invalid flu shot indication (FLU_162 is 7, 8, or 9)	
Numerator (Subset of denominator; restricted as follows:)	Receiving flu shot in the past year.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall rate (all years)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)

Details of Variables:	
Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Receiving Flu shot in the past year	CCHS 2007 variable FLU_162 (When did you have your last flu shot?) 1 = Less than 1 year ago 2 = 1 to < 2 years ago 3 = 2 years ago or more 6 = Not applicable (i.e. FLU_160 = No) 7 = Don't know

	8 = Refusal 9 = Not stated Receiving Flu shot in the past year? Yes if FLU_162 = 1 Delete from the denominator if FLU_162 is 7, 8, or 9 CCHS 2001 variable FLUA_162 CCHS 2003 variable FLUC_162 CCHS 2005 variable FLUE_162
LHIN	CCHS 2007 variable GEODLHN Delete from the denominator if the answer is 99 but keep in overall analysis
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of Ontario women aged 50-69 years of age who reported having a mammogram in the 2 years prior to the survey in Ontario, 2001, 2003, 2005, 2007	
Data sources (for descriptions see section 4.1)	CCHS	
The Indicator:		
Denominator (population) description	Overall weighted CCHS population of women age 50-69 years of age in 2001, 2003, 2005 and 2007. Exclude: a. Women < 50 years of age, b. Women > 69 years of age, c. Invalid mammography indication (MAM_32 = 7, 8, 9)	
Numerator (Subset of denominator; restricted as follows:)	Weighted number of women who reported having had a mammogram in the 2 years prior to the survey	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) Income (2007 only) Education (2007 only)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)
Details of Variables:		
Variable	Definition	
Age at interview	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE	
Had mammogram within	CCHS 2007 variable MAM_032 (When did you have your last	

previous 2 years	mammogram?) 1 = Less than 6 months ago 2 = 6 months to < 1 years ago 3 = 1 year to less than 2 years ago 4 = 2 years to less than 5 years ago 5 = 5 years ago or more 6 = Not applicable (i.e. MAM_030 (ever had a mammogram) = No) 7 = Don't know 8 = Refusal 9 = Not stated Receiving mammogram in the past 2 year? Yes if MAM_032 = 1, 2, 3 CCHS 3.1 variable MAME_032 CCHS 2.1 variable MAMC_032 CCHS 1.1 variable MAMA_032 Delete from the denominator if MAM_032 is 7, 8, or 9; same goes for all other years
Reasons for no mammogram in previous 2 years	CCHS 2007 variables: MAM_36A – MAM_36O
Income	CCHS 2007 variable names: INCDRPR – provincial Rank of adjusted household income within the provincial household distribution Report income quintiles 1-10 = deciles 99 = Not stated Combine deciles 1-2, 3-4, 5-6, 7-8, 9-10 to create quintiles. Delete from the denominator if the answer is 99, keep in overall analysis
Education	CCHS 2007 variable EDUDR04 (highest level of education – 4 levels) Delete from the denominator if the answer is 99, keep in overall analysis
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of Ontario women 20-69 years of age who reported having a Pap smear test in the 3 years prior to the survey in Ontario, 2001, 2003, 2005, 2007
Data sources (for descriptions see section 4.1)	CCHS
The Indicator:	
Denominator (population) description	Overall weighted CCHS population of women age 20-69 years of age in 2001, 2003, 2005 and 2007. Exclude from denominator: a. Women < 20 years of age,

	b. Women > 69 years of age, c. Invalid pap indication (PAP_022 = 7, 8, 9), d. Women who report not having a Pap smear test because of hysterectomy (PAP_26M=1), e. <25 years of age for education analysis	
Numerator (Subset of denominator; restricted as follows:)	Weighted number of women 20-69 who reported having had a Pap test in the 3 years prior to the survey	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) Income (2007 only) Education (2007 only)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)

Details of Variables:

Variable	Definition
Age at interview	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Had Pap smear test within previous 3 years	CCHS 2007 variable PAP_022 (When did you have your last PAP smear?) 1 = Less than 6 months ago 2 = 6 months to < 1 years ago 3 = 1 year to less than 3 years ago 4 = 3 years to less than 5 years ago 5 = 5 or more years ago 6 = Not applicable (i.e. PAP_020 = No) 7 = Don't know 8 = Refusal 9 = Not stated Receiving PAP in the last three years? Yes if PAP_022 = 1, 2, 3 CCHS 1.1 variable PAPA_022 CCHS 2.1 variable PAPC_022 CCHS 3.1 variable PAPE_022 Delete from the denominator if PAP_022 is 7, 8, or 9; same goes for all other years.
Reasons for no Pap test in previous 3 years	CCHS 2007 variables: PAP_26A – PAP_26O
Income	CCHS 2007 variable names: INCDRPR – provincial Rank of adjusted household income within the provincial household distribution Report income quintiles 1-10 = deciles

	99 = Not stated Combine deciles 1-2, 3-4, 5-6, 7-8, 9-10 to create quintiles. Delete from the denominator if the answer is 99, keep in overall analysis
Education	CCHS 2007 variable EDUDR04 (highest level of education – 4 levels) Delete from the denominator if the answer is 9, keep for overall analysis
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of Ontario men and women 50-74 years of age who reported having an FOBT (fecal occult blood test) in the 2 years prior to the survey in Ontario, 2001, 2003, 2005, 2007	
Data sources (for descriptions see section 4.1)	CCHS	
The Indicator:		
Denominator (population) description	Overall weighted CCHS Ontario population age 50-74 years of age in 2003, 2005 and 2007. Exclude from denominator: a. Individuals < 50 years of age, b. Individuals > 74 years of age, c. Invalid FOBT indication (CCS_182 = 97, 99), d. Those who have already had treatment for colon cancer (CCS_83E=1)	
Numerator (Subset of denominator; restricted as follows:)	Weighted number of individuals who reported having had an FOBT in the 2 years prior to the survey.	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)
Details of Variables:		
Variable	Definition	
Age at interview	CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE	
Sex	CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX	
Had FOBT within previous 2 years	CCHS 2007 variable CCS_182 (When did you last have a FOBT?) 1 = Less than 1 year ago 2 = 1 to < 2 years ago 3 = 2 to < 3 years ago	

	4 = 3 to < 5 years ago 5 = 5 to < 10 years ago 6 = 10 years ago or more 96 = Not applicable (i.e. CCS_180 = No) 97 = Don't know 99 = Not stated Receiving FOBT in the past 2 years? Yes if CCS_182 = 1, 2 Delete from the denominator if CCS_182 is 97 or 99
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of men and women aged 65 who had a bone mineral densitometry assessment since turning 55 years of age, 2002/2003 – 2007/2008	
Data sources (for descriptions see section 4.1)	RPDB OHIP	
The Indicator:		
Denominator (population) description	For each fiscal year, the denominator is everyone who was 65 years old on the first day of the fiscal year (i.e. April 1) from 2003/03 to 2007/08. For example, for 2002/03, the denominator will be everyone who is 65 years old on April 1, 2002 and therefore born between April 2, 1936 and April 1, 1937. Exclude: a. People who do not have a valid Ontario residence, on April 1, 2002 b. People who died during each fiscal year of interest (because they won't necessarily have a chance to have a BMD test before they die)	
Numerator (Subset of denominator; restricted as follows:)	Two different groups (from the denominator) form the numerator: 1. Everyone who had a DEXA (dual energy X-ray absorptiometry) bone mineral density test between their 55th birthday and the start of the fiscal year (in the example of fiscal year 2002/03, this would be anyone who had a BMD test between the date of their 55th birthday and March 31, 2002). OR 2. Everyone who did NOT have a prior BMD test (and therefore needed one) who received a BMD test during the fiscal year (in the case of fiscal year 2002/03, drop anyone who did not have a BMD test between April 1, 2002 and March 31, 2003, inclusive). numerator = numerator 1+ numerator 2 / denominator	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall (all years) Sex (all years)

	Unit of Rate(s) per:	100
Variable	**Definition**	
Date of birth, Age, Sex	Identify people aged 65 using the RPDB.	
Living in Ontario	Person's place of residence on the first day of the fiscal year from RPDB. A cnty value of 'OP' means the person was considered to be living outside Ontario. These people should be excluded from the denominator.	
Death date	Obtain this from RPDB	
BMD test	An OHIP record with a fee code of Fee codes used starting April 1, 2008 Baseline test X145 (one site) X146 (two or more sites) Subsequent test, low risk patient X152 (one site) X153 (two or more sites) Subsequent test – high risk patient X149 (one site) X155 (two or more sites) Fee codes used prior to April 1, 2008 X152 or X153 (low risk patients) X149 or X155 (high risk patients)	

10.3 Risk factors and healthy behaviour

Indicator title	Percent of the population aged 12+ AND percent of the population 12+ with chronic disease who smoke daily in Ontario, 2001, 2003, 2005, 2007
Data sources (for descriptions see section 4.1)	CCHS
The Indicator:	
Denominator (population) description	All respondents aged 12 or above and those with chronic disease for 2001, 2003, 2005 and 2007. Two populations of interest: 1. General population 12+ years, 2. Chronic disease population 12+ years Exclude: a. Invalid type of smoking status b. <25 years of age for education analysis
Numerator (Subset of denominator; restricted as follows:)	Smoke daily

Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall rate (all years) Education (2007 only) Income (2007 only)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)

Details of Variables:

Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Education	CCHS 2007 variable EDUDR04 (highest level of education – 4 levels) Delete from the denominator if the answer is 9, keep for overall analysis
Income	CCHS 2007 variable names: INCDRPR – provincial Rank of adjusted household income within the provincial household distribution Report income quintiles 1-10 = deciles 99 = Not stated Combine deciles 1-2, 3-4, 5-6, 7-8, 9-10 to create quintiles. Delete from the denominator if the answer is 99, keep in overall analysis
Chronic disease (heart disease or diabetes)	Heart disease is determined using question CCCE_121 (do you have heart disease) in CCHS 3.1. In CCHS1.1, the variable name is CCCA_121. In CCHS2.1, the variable name is CCCC_121. In CCHS1.1, the diabetes questions are CCCA_101 (do you have diabetes), CCCA_10A (diabetes when pregnant), and CCCA_10B (diabetes diagnosed other than when pregnant). In CCHS2.1, the diabetes questions are CCCC_101 (do you have diabetes), CCCC_10A (diabetes diagnosed when pregnant), and CCCC_10B (diabetes diagnosed other than when pregnant) Diabetes is determined using question CCCE_101 (do you have diabetes) in CCHS3.1. However, if they answered “yes” to question CCCE_10A (where you pregnant when you were first diagnosed with diabetes) and also answered “no” to question CCCE_10B (other than during pregnancy, has a health professional ever told you that you have diabetes), then they do NOT have diabetes. CCHS 2007 variable CCC_121 (Do you have heart disease?) 1 = Yes 2 = No 7 = Don’t know 9 = Not stated

	CCHS 2007 variable CCC_101 (Do you have diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated CCHS 2007 variable CCC_10A (WERE YOU pregnant when YOU WERE first diagnosed with diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated CCHS 2007 variable CCC_10B (Other than during pregnancy, has a health professional ever told YOU that YOU HAVE diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated Chronic disease - yes if heart disease or diabetes (excluding gestational diabetes) - yes if CCC_121 = 1 or - yes if CCC_101 = 1, but if CCC_10A = 1 and CCC_10B = 2 then not counted as diabetic
Smoke daily	CCHS 1.1 variable SMKADSTY = 1 (daily) CCHS 2.1 variable SMKCDSTY = 1 (daily) CCHS 3.1 variable SMKEDSTY = 1 (daily) CCHS 2007 variable SMKDSTY (Type of smoker) 1 = Daily 2 = Occasionally 3 = Always occasionally 4 = Former daily 5 = Former occasionally 6 = Never smoked 99 = Not stated Yes if SMKDSTY = 1 Delete from denominator if answer is 99
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of the population aged 20+ AND percent of the population 20+ with chronic disease who are obese in Ontario, 2001, 2003, 2005, 2007
Data sources (for descriptions see section 4.1)	CCHS
The Indicator:	
Denominator (population) description	All respondents aged 20 or above and those with chronic disease for 2001, 2003, 2005 and 2007.

	Two populations of interest: 1. General population 20+ years, 2. Chronic disease population 20+ years Exclude: a. Invalid BMI, b. <25 years of age for education analysis, c. Women who are pregnant
Numerator (Subset of denominator; restricted as follows:)	Obese

Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall rate (all years) Education (2007 only) Income (2007 only)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)

Details of Variables:

Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Chronic disease (heart disease or diabetes)	Heart disease is determined using question CCCE_121 (do you have heart disease) in CCHS 3.1. In CCHS1.1, the variable name is CCCA_121. In CCHS2.1, the variable name is CCCC_121. In CCHS1.1, the diabetes questions are CCCA_101 (do you have diabetes), CCCA_10A (diabetes when pregnant), and CCCA_10B (diabetes diagnosed other than when pregnant). In CCHS2.1, the diabetes questions are CCCC_101 (do you have diabetes), CCCC_10A (diabetes diagnosed when pregnant), and CCCC_10B (diabetes diagnosed other than when pregnant) Diabetes is determined using question CCCE_101 (do you have diabetes) in CCHS3.1. However, if they answered “yes” to question CCCE_10A (where you pregnant when you were first diagnosed with diabetes) and also answered “no” to question CCCE_10B (other than during pregnancy, has a health professional ever told you that you have diabetes), then they do NOT have diabetes. CCHS 2007 variable CCC_121 (Do you have heart disease?) 1 = Yes 2 = No 7 = Don’t know 9 = Not stated

	CCHS 2007 variable CCC_101 (Do you have diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated CCHS 2007 variable CCC_10A (WERE YOU pregnant when YOU WERE first diagnosed with diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated CCHS 2007 variable CCC_10B (Other than during pregnancy, has a health professional ever told YOU that YOU HAVE diabetes?) 1 = Yes 2 = No 6 = Don't know 9 = Not stated Chronic disease - yes if heart disease or diabetes (excluding gestational diabetes) - yes if CCC_121 = 1 or - yes if CCC_101 = 1, but if CCC_10A = 1 and CCC_10B = 2 then not counted as diabetes
Obese	In CCHS 1.1, BMI was only calculated up to age 64. Therefore, you will have to calculate the BMI for everyone in 1.1, and then categorize it. When calculating BMI, *exclude* women who are pregnant (MAMA_37 = 1). In CCHS 1.1, height in metres is HWTADHTM. Weight in kilograms is HWTADWTK. BMI is defined as weight in kilograms divided by height in meters squared. (To make sure the equation is right, you can compare your values with the variable HWTADBMI, which contains the BMI for people aged 20-64. Once you have the BMI, the categories are defined as follows: BMI < 18.50 = underweight 18.50 <= BMI < 25 = normal 25 <= BMI < 30 = overweight 30 <= BMI < 35 = obese (class I) 35 <= BMI < 40 = obese (class II) 40 <= BMI = obese (class III) In CCHS 2.1, the variable name is HWTCDISW. 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). Create two groups of people (aged >= 20 only): anyone who is overweight or obese, and only those who are obese. CCHS 2007 variable HWTDISW (BMI class for those aged 18+) 1 = Underweight 2 = Normal weight 3 = Overweight 4 = Obese – class 1 5 = Obese – class 2

	6 = Obese – class 3 96 = Not applicable 99 = Not stated Yes if HWTDISW = 4, 5, or 6 Delete from the denominator if answer is 96 or 99
Education	CCHS 2007 variable EDUDR04 (highest level of education – 4 levels) Delete from the denominator if the answer is 9, keep for overall analysis
Income	CCHS 2007 variable names: INCDRPR – provincial Rank of adjusted household income within the provincial household distribution Report income quintiles 1-10 = deciles 99 = Not stated Combine deciles 1-2, 3-4, 5-6, 7-8, 9-10 to create quintiles. Delete from the denominator if the answer is 99, keep in overall analysis
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of the population aged 12+ AND percent of the population aged 12+ with chronic disease reporting physical inactivity in Ontario, 2001, 2003, 2005, 2007	
Data sources (for descriptions see section 4.1)	CCHS	
The Indicator:		
Denominator (population) description	All respondents aged 12 or above and those with chronic disease for 2001, 2003, 2005 and 2007. Two populations of interest: 1. General population 12+ years, 2. Chronic disease population 12+ years Exclude: a. Age < 12 at the time of interview, b. Invalid physical activity index	
Numerator (Subset of denominator; restricted as follows:)	Physically inactive	
Rates:		
Crude Rate Calculation	Crude Rate(s) by:	Overall rate (all years) Education (2007 only) Income (2007 only)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)
Details of Variables:		

Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Chronic disease (heart disease or diabetes) CAD	Heart disease is determined using question CCCE_121 (do you have heart disease) in CCHS 3.1. In CCHS1.1, the variable name is CCCA_121. In CCHS2.1, the variable name is CCCC_121. In CCHS1.1, the diabetes questions are CCCA_101 (do you have diabetes), CCCA_10A (diabetes when pregnant), and CCCA_10B (diabetes diagnosed other than when pregnant). In CCHS2.1, the diabetes questions are CCCC_101 (do you have diabetes), CCCC_10A (diabetes diagnosed when pregnant), and CCCC_10B (diabetes diagnosed other than when pregnant) Diabetes is determined using question CCCE_101 (do you have diabetes) in CCHS3.1. However, if they answered “yes” to question CCCE_10A (where you pregnant when you were first diagnosed with diabetes) and also answered “no” to question CCCE_10B (other than during pregnancy, has a health professional ever told you that you have diabetes), then they do NOT have diabetes. CCHS 2007 variable CCC_121 (Do you have heart disease?) 1 = Yes 2 = No 7 = Don’t know 9 = Not stated CCHS 2007 variable CCC_101 (Do you have diabetes?) 1 = Yes 2 = No 6 = Don’t know 9 = Not stated CCHS 2007 variable CCC_10A (WERE YOU pregnant when YOU WERE first diagnosed with diabetes?) 1 = Yes 2 = No 6 = Don’t know 9 = Not stated CCHS 2007 variable CCC_10B (Other than during pregnancy, has a health professional ever told YOU that YOU HAVE diabetes?) 1 = Yes 2 = No 6 = Don’t know 9 = Not stated Chronic disease

	- yes if heart disease or diabetes (excluding gestational diabetes) - yes if CCC_121 = 1 or - yes if CCC_101 = 1, but not counted as diabetic if CCC_10A = 1 and CCC_10B = 2
Physical inactivity	CCHS 2001 variable PACADPAI CCHS 2003 variable PACCDPAI CCHS 2005 variable PACEDPAI CCHS 2007 variable PACDPAI 1 = active 2 = moderate 3 = inactive 9 = Not stated Yes if variable = 3 Delete from the denominator if the answer is 9
Education	CCHS 2007 variable EDUDR04 (highest level of education – 4 levels) Delete from the denominator if the answer is 9, keep for overall analysis
Income	CCHS 2007 variable names: INCDRPR – provincial Rank of adjusted household income within the provincial household distribution Report income quintiles 1-10 = deciles 99 = Not stated Combine deciles 1-2, 3-4, 5-6, 7-8, 9-10 to create quintiles. Delete from the denominator if the answer is 99, keep in overall analysis
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of the population 12+ reporting inadequate fruit and vegetable consumption in Ontario, 2001, 2003, 2005, 2007
Data sources (for descriptions see section 4.1)	CCHS
The Indicator:	
Denominator (population) description	All respondents aged 12 or above and those with chronic disease for 2001, 2003, 2005 and 2007. Exclude: a. Age < 12 at the time of interview
Numerator (Subset of denominator; restricted as follows:)	Reporting inadequate fruit and vegetable consumption
Rates:	

Crude Rate Calculation	Crude Rate(s) by:	Overall (all years)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)

Details of Variables:

Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Reporting inadequate fruit and vegetable consumption	CCHS 2001 variable FVCAGTOT CCHS 2003 variable FVCCGTOT CCHS 2005 variable FVCEGTOT CCHS 2007 variable FVCGTOT The variable has 3 levels: 1 = less than 5 servings of fruit and vegetables per day, 2 = 5 to 10, 3 = more than 10, 9 = not stated Yes if variable = 1 Delete from the denominator if the answer is 9
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

Indicator title	Percent of the population aged 12+ reporting regular heavy drinking in Ontario, 2001, 2003, 2005, 2007
Data sources (for descriptions see section 4.1)	CCHS
The Indicator:	
Denominator (population) description	All respondents aged 12 or above and those with chronic disease for 2001, 2003, 2005 and 2007. Exclude: a. Age < 12 at the time of interview depending on analysis, b. Invalid drinking consumption index (ALC_3 = 96, 97, 98, 99)
Numerator (Subset of denominator; restricted as follows:)	Reporting regular heavy drinking
Rates:	

Crude Rate Calculation	Crude Rate(s) by:	Overall (all years)
	Unit of Rate(s) per:	Per 100 people (i.e. percentages)

Details of Variables:

Variable	Definition
Age	CCHS 2001 variable DHHA_AGE CCHS 2003 variable DHHC_AGE CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_AGE
Sex	CCHS 2001 variable DHHA_SEX CCHS 2003 variable DHHC_SEX CCHS 2005 variable DHHE_AGE CCHS 2007 variable DHH_SEX
Regular heavy drinking	Have consumed 5 or more drinks on at least one occasion during the previous 12 months: CCHS 2001 variable ALCA_3 CCHS 2003 variable ALCC_3 CCHS 2005 variable ALCE_3 CCHS 2007 variable ALC_3 1 = Never 2 = Less than once per month 3 = Once per month 4 = 2-3 times per month 5 = Once per week 6 = More than once per week 96 = Not applicable 97 = Don't Know 98 = Refusal 99 = Not Stated Delete from the denominator if the answer is 96, 97, 98, or 99 Yes if variable = 3, 4, 5, or 6
Sampling weights	Sampling weights must be used for all estimates: Use WTS_S for estimates by province, age, income and education, Use variable FWGT from for estimates by LHIN. Ensure sample is large enough to be released by referencing Statistics Canada's Release Guidelines.

4.0 Appendices

Appendix A: Drug list for post-discharge AMI drug management (section 3.2)

Subclass name	Generic drug name
Beta Blockers	ACEBUTOLOL HCL ATENOLOL BISOPROLOL FUMARATE CARVEDILOL LABETALOL HCL METOPROLOL TARTRATE NADOLOL OXPRENOLOL HCL PINDOLOL PROPRANOLOL HCL SOTALOL HCL TIMOLOL MALEATE ATENOLOL & CHLORTHALIDONE PINDOLOL & HYDROCHLOROTHIAZIDE PROPRANOLOL HCL & HYDROCHLOROTHIAZIDE TIMOLOL MALEATE & HYDROCHLOROTHIAZIDE
ACE Inhibitors	BENAZEPRIL HCL CILAZAPRIL & HYDROCHLOROTHIAZIDE LISINOPRIL & HYDROCHLOROTHIAZIDE PERINDOPRIL ERBUMINE & INDAPAMIDE QUINAPRIL HCL & HYDROCHLOROTHIAZIDE RAMIPRIL & HYDROCHLOROTHIAZIDE BENAZEPRIL HCL CAPTOPRIL CILAZAPRIL ENALAPRIL MALEATE ENALAPRIL SODIUM FOSINOPRIL SODIUM LISINOPRIL LISINOPRIL & HYDROCHLOROTHIAZIDE PERINDOPRIL ERBUMINE QUINAPRIL HCL RAMIPRIL TRANDOLAPRIL
AARB	IRBESARTAN & HYDROCHLOROTHIAZIDE LOSARTAN POTASSIUM & HYDROCHLOROTHIAZIDE TELMISARTAN & HYDROCHLOROTHIAZIDE VALSARTAN & HYDROCHLOROTHIAZIDE EPROSARTAN MESYLATE EPROSARTAN MESYLATE & HYDROCHLOROTHIAZIDE IRBESARTAN LOSARTAN POTASSIUM TELMISARTAN

Subclass name	Generic drug name
	VALSARTAN
Statins	ATORVASTATIN CERIVASTATIN SODIUM FLUVASTATIN SODIUM LOVASTATIN PRAVASTATIN SODIUM ROSUVASTATIN CALCIUM SIMVASTATIN

Appendix B: Drug list for diabetes drug management (section 3.2)

Subclass name	Generic drug name
ACE INHIBITORS	BENAZEPRIL HCL
	CAPTOPRIL
	CILAZAPRIL
	ENALAPRIL MALEATE
	ENALAPRIL SODIUM
	FOSINOPRIL SODIUM
	LISINOPRIL
	PERINDOPRIL ERBUMINE
	QUINAPRIL HCL
	RAMIPRIL
	TRANDOLAPRIL
ACE INHIBITORS COMBINATION	CILAZAPRIL & HYDROCHLOROTHIAZIDE
	LISINOPRIL & HYDROCHLOROTHIAZIDE
	PERINDOPRIL ERBUMINE & INDAPAMIDE
	QUINAPRIL HCL & HYDROCHLOROTHIAZIDE
	RAMIPRIL & HYDROCHLOROTHIAZIDE
ANGIOTENSIN II ANTAGONIST	EPROSARTAN MESYLATE
	EPROSARTAN MESYLATE & HYDROCHLOROTHIAZIDE
	IRBESARTAN
	LOSARTAN POTASSIUM
	TELMISARTAN
	VALSARTAN
ANGIOTENSIN II COMBINATION	IRBESARTAN & HYDROCHLOROTHIAZIDE
	LOSARTAN POTASSIUM & HYDROCHLOROTHIAZIDE
	TELMISARTAN & HYDROCHLOROTHIAZIDE
	VALSARTAN & HYDROCHLOROTHIAZIDE
ANION EXCHANGE RESINS	CHOLESTYRAMINE RESIN
	COLESTIPOL HCL
ANTILIPEMIC: FIBRATES	BEZAFIBRATE
	CLOFIBRATE
	FENOFIBRATE
	GEMFIBROZIL

ANTILIPEMIC: OTHER	DEXTROTHYROXINE SODIUM
	EZETIMIBE
	PROBUCOL
ANTILIPEMIC: STATINS	ATORVASTATIN
	CERIVASTATIN SODIUM
	FLUVASTATIN SODIUM
	LOVASTATIN
	PRAVASTATIN SODIUM
	ROSUVASTATIN CALCIUM
	SIMVASTATIN

Appendix C: Drug list for post-discharge CHF drug management (section 3.2)

Subclass name	Generic drug name
ACE INHIBITORS	BENAZEPRIL HCL
	CAPTOPRIL
	CILAZAPRIL
	ENALAPRIL MALEATE
	ENALAPRIL SODIUM
	FOSINOPRIL SODIUM
	LISINOPRIL
	PERINDOPRIL ERBUMINE
	QUINAPRIL HCL
	RAMIPRIL
	TRANDOLAPRIL
ACE INHIBITORS COMBINATION	CILAZAPRIL & HYDROCHLOROTHIAZIDE
	LISINOPRIL & HYDROCHLOROTHIAZIDE
	PERINDOPRIL ERBUMINE & INDAPAMIDE
	QUINAPRIL HCL & HYDROCHLOROTHIAZIDE
	RAMIPRIL & HYDROCHLOROTHIAZIDE
ANGIOTENSIN II ANTAGONIST	EPROSARTAN MESYLATE
	EPROSARTAN MESYLATE & HYDROCHLOROTHIAZIDE
	IRBESARTAN
	LOSARTAN POTASSIUM
	TELMISARTAN
	VALSARTAN
ANGIOTENSIN II COMBINATION	IRBESARTAN & HYDROCHLOROTHIAZIDE
	LOSARTAN POTASSIUM & HYDROCHLOROTHIAZIDE
	TELMISARTAN & HYDROCHLOROTHIAZIDE
	VALSARTAN & HYDROCHLOROTHIAZIDE

Appendix D: Drug list for inappropriate drug use in seniors (section 4.2)

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 & ACETYLSALICYLIC 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
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
TRIPELENNAMINE HCL

*Only high dose (greater than 25mg) amytriptylene included

Appendix E: List of codes for non-traumatic SAH symptoms (section 4.4)

Non-traumatic SAH symptom	ICD-10 code

Non-traumatic SAH symptom	ICD-10 code
ENTEROVIRAL MENINGITIS	A870
LYMPHOCYTIC CHORIOMENINGITIS	A871
ADNOVIRAL MENINGITIS	A872
OTHER VIRAL MENINGITIS	A878
VIRAL MENINGITIS, UNSPECIFIED	A879
PSD, INCLUDES PSYCHOGENIC HEADACHE	F454
BACTERIAL MENINGITIS, NEC	G00
MENINGITIS	G01, G020-8, G030-9, G042
MIGRAINE WITHOUT AURA (COMMON)	G430
MIGRAINE WITH AURA (CLASSICAL)	G431
STATUS MIGRANOSUS	G432
COMPLICATED MIGRAINE	G433
MIGRAINE UNSPECIFIED	G438
OTHER MIGRAINE	G439
CLUSTER HEADACHE SYNDROME	G440
VASCULAR HEADACHE NECK	G441
TENSION-TYPE HEADACHE	G442
OTHER SPECIFIED HEADACHE SYNDROMES	G448
TRANSIENT CEREBRAL ISCHEMIC ATTACKS	G45
VERTEBROBASILAR ARTERY SYNDROME	G450
TRANSIENT CEREBRAL ISCHEMIC ATTACK, UNSPECIFIED	G459
STROKE, NOT SPEC HAEM OR INFARCT	I64
HYPERTENSIVE ENCEPHALOPATHY	I674
ESSENTIAL (PRIMARY) HYPERTENSION	I10
BENIGN HYPERTENSION	I100
MALIGNANT HYPERTENSION	I101
ACUTE SINUSITIS	J01
ACUTE MAXILLARY SINUSITIS	J010
ACUTE FRONTAL SINUSITIS	J011
ACUTE ETHMOIDAL SINUSITIS	J012
ACUTE SPHENOIDAL SINUSITIS	J013
ACUTE PANSINUSITIS	J014
OTHER ACUTE SINUSITIS	J018
ACUTE SINUSITIS, UNSPECIFIED	J019
CHRONIC SINUSITIS	J32
CHRONIC MAXILLARY SINUSITIS	J320
CHRONIC FRONTAL SINUSITIS	J321
CHRONIC ETHMOIDAL SINUSITIS	J322
CHRONIC SPHENOIDAL SINUSITIS	J323
CHRONIC PANSINUSITIS	J324
OTHER CHRONIC SINUSITIS	J328
CHRONIC SINUSITIS, UNSPECIFIED	J329
TORTICOLLIS	M436
DISCITIS, UNSPECIFIED, CERVICAL REGION	M4642
OTHER SPONDYLOSIS, CERVICAL REGION	M4782
SPONDYLOSIS, UNSPEC, CERVICAL REGION	M4792
SPINAL STENOSIS, CERVICAL REGION	M4802

Non-traumatic SAH symptom	ICD-10 code
CERV DISC DISORDER W/RADICULOPATHY	M501
OTHER CERVICAL DISC DISPLACEMENT	M502
OTHER CERVICAL DISC DEGENERATION	M503
OTHER CERVICAL DISC DISORDERS	M508
CERVICAL DISC DISORDER, UNSPEC SITE	M509
CERVICOCRANIAL SYNDROME	M530
CERVICOBRACHIAL SYNDROME	M531
CERVICALGIA	M542
WHIPLASH ASSOCIATED DISORDER	S1340-2
OTHER SPRAIN/STRAIN OF CERVICAL SPINE	S1348
SPRAIN/STRAIN UNSPEC PARTS OF NECK	S136
OTHER INJURY OF MUSCLE/TENDON NECK	S168
GIANT CELL ARTERITIS WITH PMR	M315
OTHER GIANT CELL ARTERITIS	M316
HEADACHE	R51
SYNCOPE AND COLLASPE	R55

Appendix F: List of codes for conditions presenting at the emergency department that could have been managed elsewhere (section 7.2)

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
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 SUPPURATVE OTITIS MEDIA
	H662	CHR ATTICOANTRAL SUPPURATVE 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 DISEASES CL/E
	H678	OTITIS MEDIA IN OTHER DISEASES CL/E
Upper Respiratory Infections	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
	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

Appendix G: List of drugs to identify people with hypertension in Thiazide analysis (section 7.3)

Subclass name	Generic drug name
ACE Inhibitors	BENAZEPRIL
	CAPTOPRIL
	CILAZAPRIL
	ENALAPRIL

Subclass name	Generic drug name
	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 BENAZEPRIL & HYDROCHLOROTHIAZIDE CANDESARTAN & HYDROCHLOROTHIAZIDE CHLORTHALIDONE & RESERPINE CILAZAPRIL & HYDROCHLOROTHIAZIDE ENALAPRIL & HYDROCHLOROTHIAZIDE FELODIPINE & METROPROLOL FELODIPINE & RAMIPRIL IRBESARTAN & HYDROCHLOROTHIAZIDE LISINOPRIL & HYDROCHLOROTHIAZIDE LOSARTAN & HYDROCHLOROTHIAZIDE

Subclass name	Generic drug name
	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 H: List of drugs to identify people to exclude from Thiazide analysis (section 7.3)

Subclass name	Generic drug name
ANTI-ARRHYTHMIA	ADENOSINE AMIDIORONE HCL AMIODARONE HCL BRETYLIUM 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

Appendix I: List of Thiazide drugs (section 7.3)

Subclass name	Generic drug name
ACE INHIBITORS	BENAZEPRIL HCL
	CAPTOPRIL
	CILAZAPRIL
	ENALAPRIL MALEATE
	FOSINOPRIL SODIUM
	LISINOPRIL
	PERINDOPRIL ERBUMINE
	QUINAPRIL HCL
	RAMIPRIL
	TRANDOLAPRIL
ACE INHIBITORS COMBINATION	BENAZEPRIL HCL & HYDROCHLOROTHIAZIDE
	CILAZAPRIL & HYDROCHLOROTHIAZIDE
	ENALAPRIL MALEATE & HYDROCHLOROTHIAZIDE
	FELODIPINE & RAMIPRIL
	LISINOPRIL & HYDROCHLOROTHIAZIDE
	PERINDOPRIL ERBUMINE & INDAPAMIDE
	QUINAPRIL HCL & HYDROCHLOROTHIAZIDE
	VERAPAMIL HCL & TRANDOLAPRIL
ANGIOTENSIN II ANTAGONIST	CANDESARTAN CILEXETIL
	EPROSARTAN MESYLATE
	IRBESARTAN
	LOSARTAN POTASSIUM
	TELMISARTAN
	VALSARTAN
ANGIOTENSIN II COMBINATION	CANDESARTAN CILEXETIL & HYDROCHLOROTHIAZIDE
	IRBESARTAN & HYDROCHLOROTHIAZIDE
	LOSARTAN POTASSIUM & HYDROCHLOROTHIAZIDE
	TELMISARTAN & HYDROCHLOROTHIAZIDE
	VALSARTAN & HYDROCHLOROTHIAZIDE
BETA BLOCKING AGENTS	BRIMONIDINE TARTRATE & TIMOLOL MALEATE

	TIMOLOL MALEATE & SODIUM CHLORIDE
	TIMOLOL MALEATE & TRAVOPROST
BETA-BLOCKERS	ACEBUTOLOL HCL
	ATENOLOL
	BISOPROLOL FUMARATE
	LABETALOL HCL
	METOPROLOL SUCCINATE
	METOPROLOL TARTRATE
	NADOLOL
	OXPRENOLOL HCL
	PINDOLOL
	PROPRANOLOL HCL
	TIMOLOL MALEATE
BETA-BLOCKERS COMBINATION	ATENOLOL & CHLORTHALIDONE
	FELODIPINE & METROPROLOL
	NADOLOL & BENDROFLUMETHIAZIDE
	PINDOLOL & HYDROCHLOROTHIAZIDE
	PROPRANOLOL HCL & HYDROCHLOROTHIAZIDE
	TIMOLOL MALEATE & HYDROCHLOROTHIAZIDE
CALCIUM BLOCKERS	AMLODIPINE BESYLATE
	DILTIAZEM HCL
	FELODIPINE
	NICARDIPINE HCL
	NIFEDIPINE
	NIMODIPINE
	VERAPAMIL HCL
CENTRALLY ACTING ANTIADRENERGIC WITH DUIRETICS	CHLORTHALIDONE & RESERPINE
	METHYLDOPA & CLOROTHIAZIDE
	METHYLDOPA & HYDROCHLOROTHIAZIDE
	RESERPINE & HYDROCHLOROTHIAZIDE
DIURETICS	BENDROFLUMETHIAZIDE
	CHLORTHALIDONE
	HYDROCHLOROTHIAZIDE
	INDAPAMIDE
	METHYCLOTHIAZIDE
	POLYTHIAZIDE
DIURETICS (POTASSIUM-SPARING)	AMILORIDE HCL
	AMILORIDE HCL & HYDROCHLOROTHIAZIDE
	SPIRONOLACTONE
	SPIRONOLACTONE & HYDROCHLOROTHIAZIDE
	TRIAMTERENE
	TRIAMTERENE & HYDROCHLOROTHIAZIDE
VASODILATOR ANTIHYPERTENSIVE DRUGS	RESERPINE & HYDROCHLOROTHIAZIDE & HYDRALAZINE HCL