Data Sources, Methods and Limitations

The main data sources, methods and limitations of the data used in this report are described below:

Local Surveys

Rapid Risk Factor Surveillance System Survey

The Rapid Risk Factor Surveillance System (RRFSS) is an on-going telephone survey occurring in various public health units across Ontario. On a monthly basis, a random sample of 100 Peel residents, aged 18 years and older, is interviewed regarding risk behaviours, knowledge and attitudes and awareness about health-related topics of importance to public health. The survey content varies from year to year.

National Surveys

Canadian Community Health Survey

The 2000/2001 and 2003 Canadian Community Health Surveys were conducted nationally by Statistics Canada. Data are available provincially and for specified regions within each province. Responses to these surveys were limited to respondents aged 12 years and older. Data presented in this report are for respondents aged 65 years and older. Data were not age-standardized.

Data from national surveys used in this report are all based on self-reports from survey respondents or their proxies. Self-reported data may be subject to errors in recall, over- or under-reporting because of social desirability, or errors from proxy reporting.

Proportions reported within the text were rounded to the nearest whole percentage. For example, if a proportion was 5.0% to 5.4%, it was rounded down to 5%, whereas if a proportion was 5.5% to 5.9%, it was rounded up to 6%. Proportions presented in tables and figures were rounded to one decimal point.

Certain proportions in this report which include the notation, "use with caution," reflect estimates that may have high sampling variability.

Canadian Community Health Survey data are not standardized for age or sex which mean that any comparison between Peel and Ontario or males and females must be interpreted with caution. Since chronic conditions tend to increase with age and females generally live longer than males, the proportion of certain chronic conditions or activity limitations, for example, would be higher in women compared to men.

Body mass index (BMI) categories in surveys are based on self-reported height and weight. Since people tend to underestimate their weight and overestimate their height, the values of the index are probably low. Exact weight may also differ from stated weight due to a lack of information (not weighed recently, poorly adjusted scale in the home, recall bias, etc.). Studies estimate that obesity would be approximately one and a half times more prevalent if calculations were based on true measures.

Emergency Department Visits

Emergency department visit data in this report are from the Canadian Institute of Health Information (CIHI) and collected through the National Ambulatory Care Reporting System (NACRS). Data for Peel for 2003 were obtained through the Provincial Health Planning Database (PHPDB) initiative at the Ontario Ministry of Health and Long-Term Care.

The NACRS collects detailed data on emergency department visits, day surgeries, medical day and night care, and special high cost clinics (such as oncology and renal clinics). This report was based on data for the 2003 calendar year and included data for emergency department visits only.

Emergency department data for 2003 were coded based on the International Classification of Diseases 10th Revision (ICD-10-CA).

Limitations of emergency department data include:

- Only the main problem for the visit is available for analysis. The "Main Problem" represents the patient's main problem or diagnosis as determined by the emergency department. All visits have one main problem and up to nine other problems, but only the main problem is available for analysis.
- Ambulatory visit data provide only a crude measure of the prevalence of a cause since a person may not visit the emergency department, or may visit several times for the same disease or injury event, or may visit more than one hospital for the same disease or injury event.
- Ontario residents visiting hospitals outside of the province are excluded. Areas bordering other provinces may be more affected.

Hospitalization

Hospitalization data in this report are collected by the Canadian Institute for Health Information (CIHI). Data from 1995 through 1998 were distributed to Peel Public Health from the Central East Health information Partnership (CEHIP). For 1999 to 2003, data were obtained through the Provincial Health Planning Database (PHPDB) initiative at the Ontario Ministry of Health and Long-Term Care. The hospitalization data in this report were based on hospital discharge data only and do not include data from hospital services provided on an outpatient basis.

Hospitalization data for the years 1986 to 2002 were coded based on the International Classification of Diseases, 9th Revision (ICD-9) system of classifying causes of death and hospital stay. Hospitalization data for 2003 were coded based on ICD-10-CA.

Limitations of the hospital separation data are as follows:

- Only cases serious enough to require hospital admission are captured;
- Codes presented in the hospital separation data set reflect the cause of stay upon discharge, not admission;
- People admitted to hospital more then once in a year for the same cause are counted for each hospital stay, not as an individual case;
- Other reasons, such as factors related to physician referral, screening, and admission practices, may explain changes in the data over time.

Mortality

Mortality data for this report were from the Mortality Data File, collected by the Ontario Office of the Registrar General and distributed to Peel Public Health through the Health Planning System (HELPS) initiative of the Ontario Ministry of Health and Long-Term Care. Mortality data for the years 1986 to 1999 were coded based on the International Classification of Diseases, 9th Revision (ICD-9) system of classifying causes of death and hospital stay. Mortality data for 2000 and 2001 were coded based on ICD-10-CA.

ICD-9/ICD-10-CA Coding Changes

Coding changes from ICD-9 to ICD-10-CA have caused mortality rates to either increase or decrease between 1999 and 2000.[100] Some of the more prominent examples in the mortality and hospitalization data presented in this report are described further in this section.

Alzheimer's Disease Coding Changes

In ICD-9, a definitive diagnosis was required as a classification for Alzheimer's disease (AD). Terms such as "Alzheimer's-type dementia" or "Alzheimer's dementia" were classified as Presenile dementia rather than Alzheimer's disease. In addition, if an unspecified chronic organic psychotic condition was mentioned with Alzheimer's disease, the two conditions formed a link under ICD-9 and were classified as Presenile dementia. Under ICD-10-CA, this linkage does not exist and restrictions were relaxed, thus any mention of Alzheimer's is classified as AD. This would explain the increase in the mortality rates from Alzheimer's disease between 1999 and 2000.[100]

Pneumonia Coding Changes

In ICD-9, when pneumonia was listed on the death certificate with another cause of death, and it was an obvious direct consequence of that other cause, then the other cause was selected as the underlying cause of death. In ICD-10-CA this rule is applied more broadly than in ICD-9 and specifies many more causes for which pneumonia is considered a direct consequence. Thus, deaths classified as pneumonia in ICD-9 are classified in ICD-10-CA to

many other causes such as diseases of the heart, cerebrovascular disease, malignant neoplasms, chronic lower respiratory diseases, septicaemia, malnutrition and chronic liver disease and cirrhosis. This would explain the decrease in the mortality rates from pneumonia between 1999 and 2000.[100]

Falls Coding Changes

The method by which falls are coded using ICD-10-CA compared to ICD-9 is as follows: In ICD-9, if the term "fracture" was listed without an external cause it was classified as fracture, cause unspecified and grouped with accidental falls. In ICD-10-CA, a fall is not assumed to be responsible for the unspecified fracture, and is classified to exposure to unspecified factor, which while classified as an unintentional injury, it is not counted as a fall. This would explain the decrease in the mortality rates from falls between 1999 and 2000.[100]

Please note coding changes described above for mortality data are likely similar for hospitalization data; however there is no supporting documentation for hospitalization changes at this time.

Mortality rates for injury were only available up to 1999, since S and T ICD-10-CA codes were not provided in the mortality data file for 2000 and 2001.

ICD-9/ICD-10-CA Code Categories

The ICD-9 and ICD-10-CA codes used for the diseases and conditions included in this report are as follows:

Diseases/Conditions	ICD-10-CA	ICD-9
General Health		
Diseases of the eye and adnexa	H00-H59.9	360.0-379.9; 998.8
Mental Health		
Mood disorders	F30-F33.9; F34.1-F39; F41.2; F53.0	296.0-296.9; 298.0; 300.4; 301.1; 311.0
Bipolar disorder	F31-F31.9	Not available
Dementia	F01-F03; F05.1	290.0-290.9
Alzheimer's disease	G30-G30.9	331.0
Schizophrenia	F20-F20.9	295.0-295.3; 295.6; 295.8-295.9
Communicable Disease		
Tuberculosis (overall)	A15-A19.9	010.0-018.9
Pneumonia and influenza	J10-J18.9	480.0-483.8; 485.0-487.8; 514.0

Diseases/Conditions	ICD-10-CA	ICD-9
Cardiovascular Disease		
Ischemic heart disease	I20-I25.9; I51.6	410.0-414.9; 423.0; 423.9; 429.2; 429.5; 429.6; 429.8
Stroke (cerebrovascular disease)	I60-I69.8	430.0-434.9; 436.0-438.0
Cancer		
Trachea, bronchus and lung cancer	C33-C34.99	162.0-162.9
Prostate cancer	C61	185.0
Cervical cancer	C53-C53.9	180.0-180.9
Breast cancer	C50-C50.99	174.0-175.9
Colorectal cancer	C18-C21.8	153.0-154.9
Chronic Obstructive Lung Disease	J40-J47	490.0-494.0; 496.0
Diabetes Mellitus	E10-E14.909	250.0-250.9
Arthritis and Rheumatism	M00-M00.99; M02.3-M02.4; M02.8-M02.99; M05-M08.9; M10-M10.99; M11.8-M13.99; M15-M19.9; M22-M25.99; M30-M35.9; M45-M48.99; M60-M62.99; M65-M67.99; M70-M72.99; M75-M79.99; M89.4	099.3; 274.0-274.9; 446.0-446.7; 710.0-719.5; 719.8-721.9; 725.0-729.9
Injury	S00-T14.9	800.0-904.9; 910.0-929.9; 950.0-959.9
Other Diseases/Conditions		
Cholelithiasis	K80-K80.81	574.0-574.5
Heart failure	I50-I50.9	428.0-428.9
Hernia	K40-K46.9	550.0-553.9
Hyperplasia of prostate	N40	600.0
Lymphatic and haematopoietic malignancy	C81-C96.9	200.0-208.9
Urinary tract infection	N39.0	599.0

External Causes*	ICD-10-CA	ICD-9
Falls	W00-W19	E880.0-E888.9
Complications of medical and surgical care	Y40-Y84.9; Y88-Y88.3	E870.0-E876.9; E878.0-E879.9; E930.0-E949.9
Environmental and natural factors	W53-W64; W85-W99; X10-X39; X50-X59	E900.0-E909.9
Other accidents	W20-W43; W45-W52	E916.0-E928.9
Injury undetermined if accidental or purposeful	Y10-Y20; Y22-Y34; Y87.2; Y89.9; Y90-Y91.9; Y95-Y98	E980.0-E989.9
Accidents caused by suffocation and foreign bodies	W44; W75-W84	E911.0-E915.9
Accidental poisoning by drugs, medicaments and biologicals/solid, liquid substances, gases and vapours	X40-X49	E850.0-E869.9
Late effects of injury	Y85-Y86	E929.0-E929.9
Motor vehicle accidents	V02-V04.9; V09-V09.9; V12-V14; V19-V19.2; V19.4-V19.6; V20-V79.9; V80.3-V80.5; V82.1; V83-V83.4; V84-V84.3; V85-V87.5; V87.7; V87.8; V89.0; V89.2	E810.0-E819.9; E820.0-E825.9
Suicide and self-inflicted injury	X60-X84; Y87.0	E950.0-E959.9

Reportable Disease Information System (RDIS)

The communicable diseases contained in this report are required to be reported to the local Medical Officer of Health under the Health Protection and Promotion Act (HPPA). Since 1990, reportable diseases have been monitored through a public health surveillance system called the Reportable Disease Information System (RDIS). Data for Peel for the years 1995 to 2004 were collected by Peel Public Health. Data for Ontario for the same time period were obtained from the Public Health Branch of the Ontario Ministry of Health and Long-Term Care. Please refer to the Peel Health Status Report *Communicable Disease 1995-2004:* 2005 for more details.

* This is supplementary information to the causes of emergency department visits, hospitalization and/or mortality.

Life Expectancy

Life expectancy is calculated from birth and death data that exclude the following: stillbirths; births and deaths of non-residents of Canada and residents of Canada whose province or territory of residence was unknown; and deaths for which the age of the decedent was unknown. The difference in life expectancy between men and women was calculated on unrounded figures.

Life expectancy is the number of years a person would be expected to live, starting at birth (for life expectancy at birth) if the age- and sex-specific mortality rates for a given observation period (such as a calendar year) were held constant over the estimated life span.

Rates used in this figure for the calculation of life expectancy are based on data tabulated by place of residence.

Further explanation can be found through Statistics Canada.[101]

Prevalence and Incidence Rates

Crude rates are described throughout this report. The data were not age-standardized because the population was aged 65 years and older. Some of the rate differences between Peel and Ontario may be due to the difference in the distribution of the various age groups (e.g., 65 to 69 years of age, 70 to 74 years of age, 75 years and older) within each respective population.