

HEALTH SURVEILLANCE INDICATORS: ISCHEMIC HEART DISEASE



Public Health Relevance

Ischemic heart disease (IHD) is the most common type of cardiovascular disease, and is one of the leading causes of illness and death in Canada. IHD refers to problems with the circulation of blood to the heart muscle. A lack of blood getting to the heart can cause angina (heart pain) and can lead to heart attack.

Behavioural risk factors for IHD and other types of heart disease include smoking, lack of exercise, and a diet high in fatty foods and salt and/or low in fruit and vegetables. Additional risk factors include overweight/obesity, high blood pressure, high cholesterol, diabetes, and stress.

Highlights

1. IHD hospitalization and mortality rates in Toronto decreased from 2003 to the most recent year of data.
2. IHD hospitalization and mortality rates in Toronto were lower than the rest of Ontario and the rest of the GTA.
3. York South Humber and Danforth East York had higher hospitalization and mortality rates for IHD than Toronto as a whole.
4. The lowest income group had the highest IHD hospitalization rate.

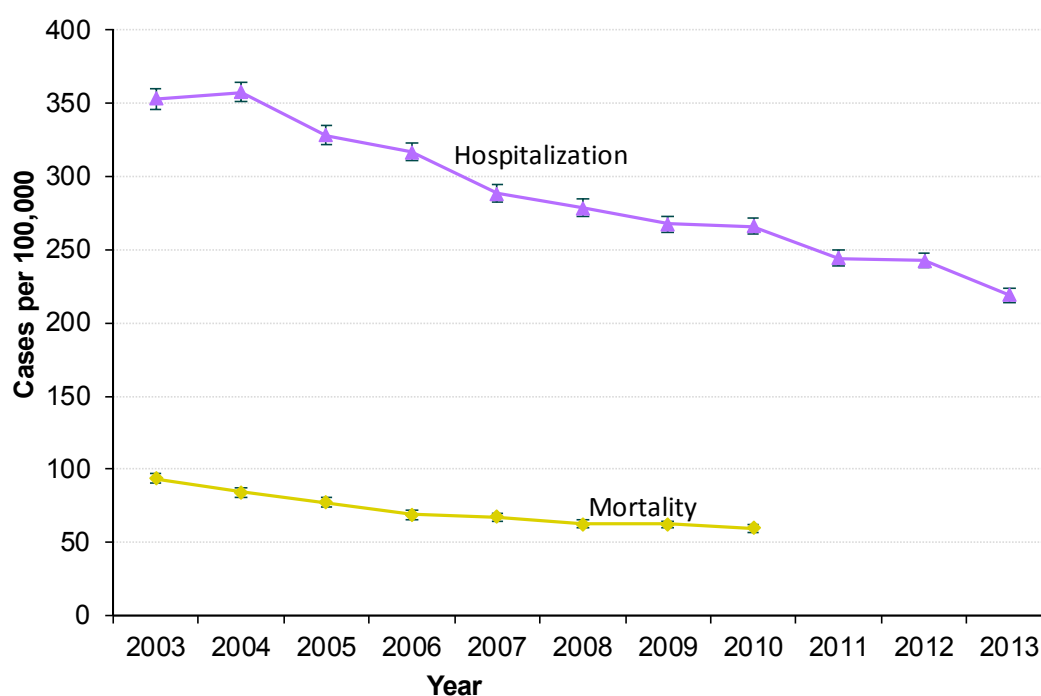
Trends Over Time

IHD hospitalization and mortality rates in Toronto decreased from 2003 to the most recent year of data.

Figure 1 shows age-standardized IHD hospitalization and mortality rates from 2003 to the most recent year of data.

The hospitalization rate decreased from 353 per 100,000 people in 2003 to 219 in 2013. The mortality rate decreased from 94 per 100,000 people in 2003 to 60 in 2010.

Figure 1: Age-Standardized Ischemic Heart Disease (IHD) Hospitalization and Mortality Rates, Toronto, 2003 to 2013*



*Data is presented to the most recent year available. Hospitalization includes data to 2013, and mortality to 2010.

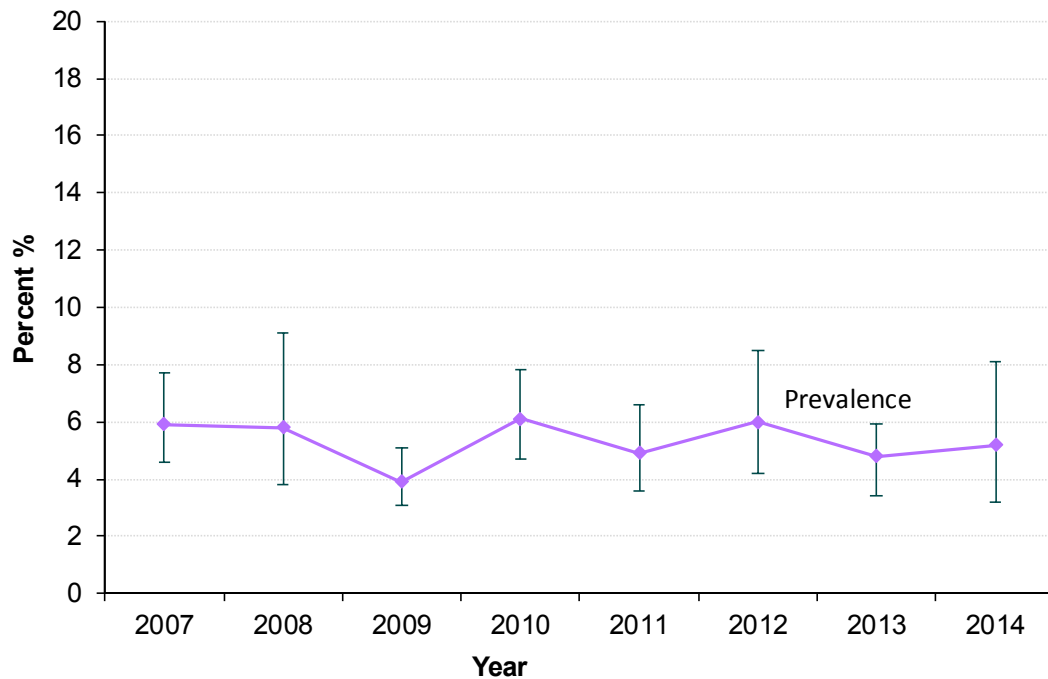
Error bars (I) represent 95% confidence intervals.

Data Sources: see Data Notes.

Figure 2 shows self-reported heart disease prevalence among adults aged 20 and older from 2007 to 2014 in Toronto.

Toronto heart disease prevalence remained stable from 5.9% in 2007 to 5.2% in 2014.

Figure 2: Self-Reported Heart Disease Prevalence, Adults Age 20 and Older, Toronto, 2007 to 2014



Error bars (I) represent 95% confidence intervals.

Data Sources: see Data Notes.

Regional Comparisons

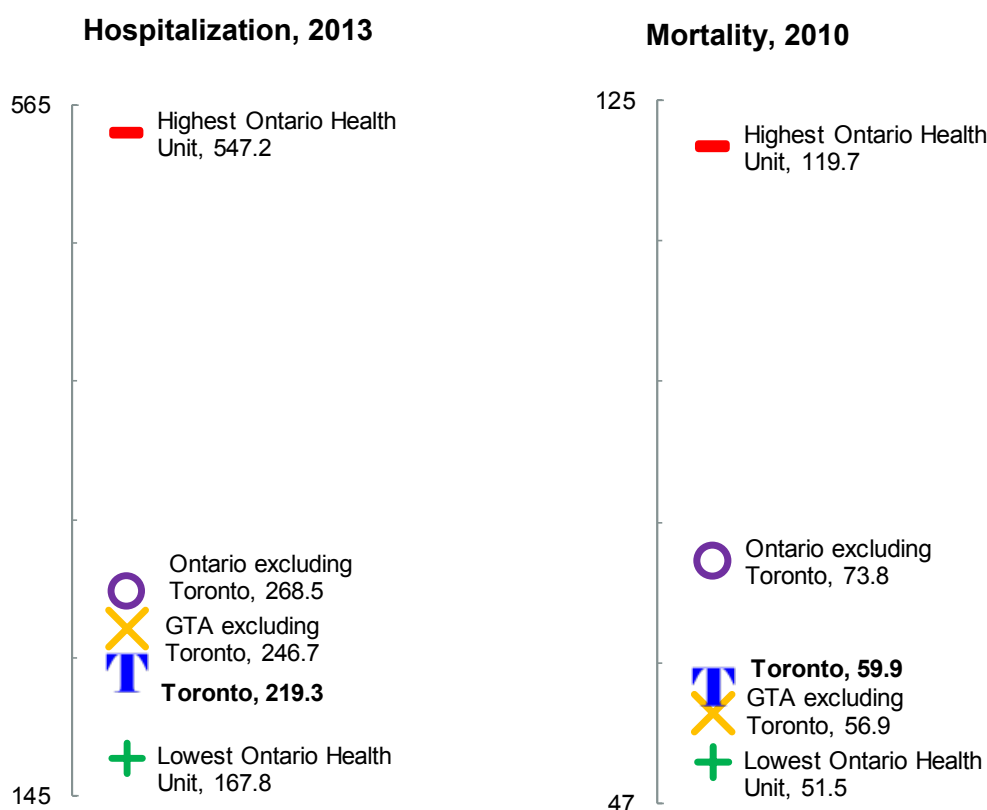
IHD hospitalization and mortality rates were lower in Toronto than the rest of Ontario and the rest of the GTA.

Figure 3 shows age-standardized IHD hospitalization and mortality rates for Toronto compared to the rest of Ontario (Ontario excluding Toronto), the rest of the Greater Toronto Area (GTA excluding Toronto), and the Ontario health units with the highest and lowest rates.

The hospitalization rate was significantly lower in Toronto than in the rest of Ontario and the rest of the GTA. Toronto ranked 31st of the 36 health units in Ontario, with the 36th ranked health unit having the lowest (most favourable) rate. The hospitalization rate was significantly higher than the health unit with the lowest rate.

The mortality rate was significantly lower in Toronto than in the rest of Ontario. Compared to the rest of the GTA, Toronto was not significantly different. Toronto ranked 33rd of the 36 health units in Ontario, with the 36th ranked health unit having the lowest (most favourable) rate. The mortality rate was also significantly higher than the health unit with the lowest rate.

Figure 3: Age-Standardized Hospitalization and Mortality Rates per 100,000 for Ischemic Heart Disease (IHD), Selected Regions in Ontario



Data Sources: see Data Notes.

Toronto Neighbourhood Comparisons

York South Humber and Danforth East York had higher hospitalization and mortality rates for IHD than Toronto as a whole.

Table 1 shows age-standardized IHD hospitalization and mortality rates for Toronto Public Health's Chronic Disease and Injury Prevention (CDIP) Service Delivery Areas (SDA). When compared to Toronto as a whole, significantly lower rates were found in:

- Toronto Centre (lower hospitalization rate)
- West Scarborough (lower hospitalization and mortality rates)
- Willowdale Don Mills (lower hospitalization and mortality rates)

Significantly higher rates were found in:

- Danforth East York (higher hospitalization and mortality rates)
- Humber-Downsview (higher hospitalization rate)
- Rexdale Etobicoke (higher hospitalization rate)
- York South Humber (higher hospitalization and mortality rates)

Table 1: Age-Standardized Hospitalization and Mortality Rates per 100,000 for Ischemic Heart Disease, by Service Delivery Areas*, Toronto

Service Delivery Area	Hospitalization (2011 to 2013 Combined)	Mortality (2008 to 2010 Combined)
Rexdale Etobicoke	284.9 ^H	64.0
York South Humber	250.7 ^H	65.7 ^H
Humber-Downsview	296.9 ^H	57.9
Willowdale Don Mills	218.5 ^L	47.7 ^L
Toronto Centre	192.0 ^L	58.5
Danforth East York	294.8 ^H	76.3 ^H
West Scarborough	222.5 ^L	47.9 ^L
East Scarborough	245.6	64.1
Toronto	239.1	58.6

^H Significantly higher than the Toronto total indicating a less favourable result for that area.

^L Significantly lower than the Toronto total indicating a more favourable result for that area.

Data Sources: see Data Notes.

Map 1 shows age-standardized IHD hospitalization rates for Toronto's 140 neighbourhoods, for 2011 to 2013 combined.

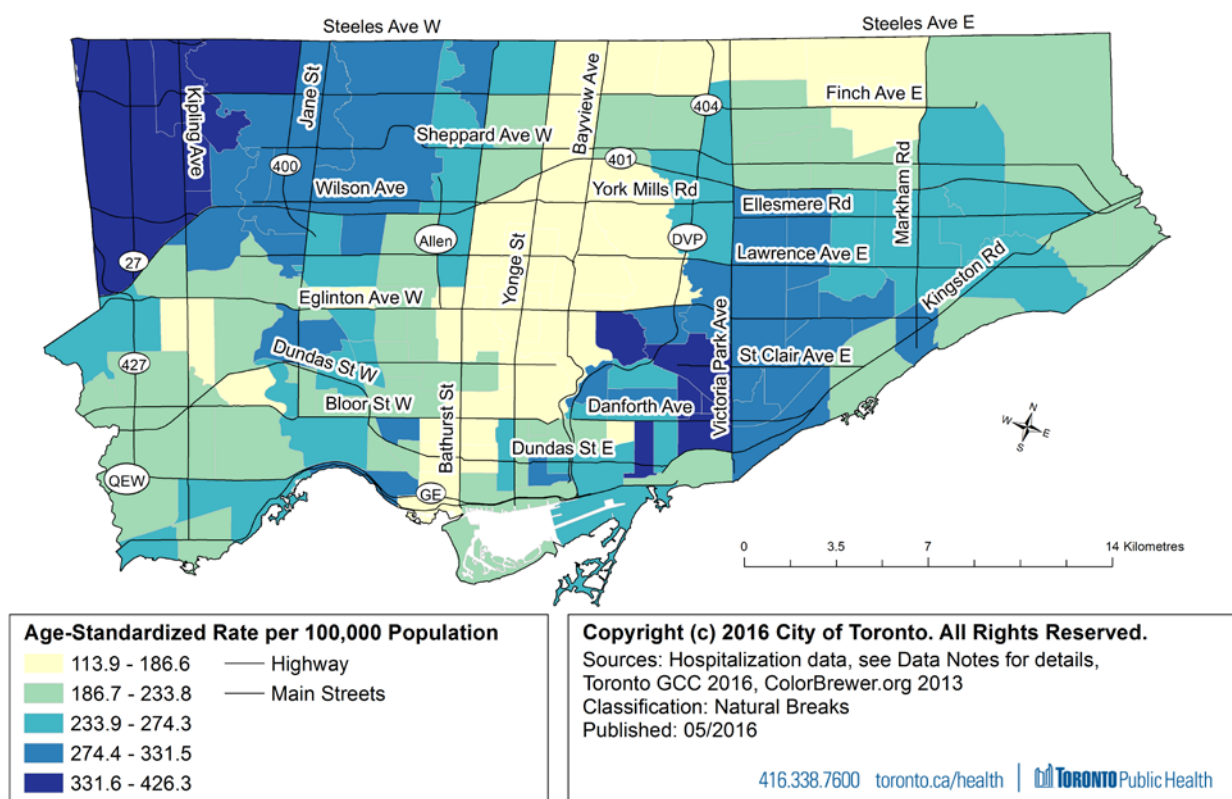
Hospitalization rates ranged from 114 to 429 per 100,000. The centre of the city, central Etobicoke, and northwest Scarborough had clusters of neighbourhoods with lower hospitalization rates than Toronto as a whole. Some neighbourhoods with significantly lower rates included:

- Bedford Park-Nortown
- Lawrence Park South
- Rosedale-Moore Park
- Steeles
- Trinity-Bellwoods
- Yonge-Eglinton

The old City of East York and northern Etobicoke had clusters of neighbourhoods with higher hospitalization rates than Toronto as a whole. Some neighbourhoods with significantly higher rates included.

- East End-Danforth
- Mount Olive-Silverstone-Jamestown
- Taylor-Massey
- Thistletown-Beaumont Heights
- West Humber-Clairville
- Woodbine-Lumsden

Map 1: Age-Standardized Hospitalization Rate for Ischemic Heart Disease by Neighbourhood, Toronto, 2011 to 2013 combined



Map 2 shows age-standardized IHD mortality rates for Toronto's 140 neighbourhoods, for 2008 to 2010 combined.

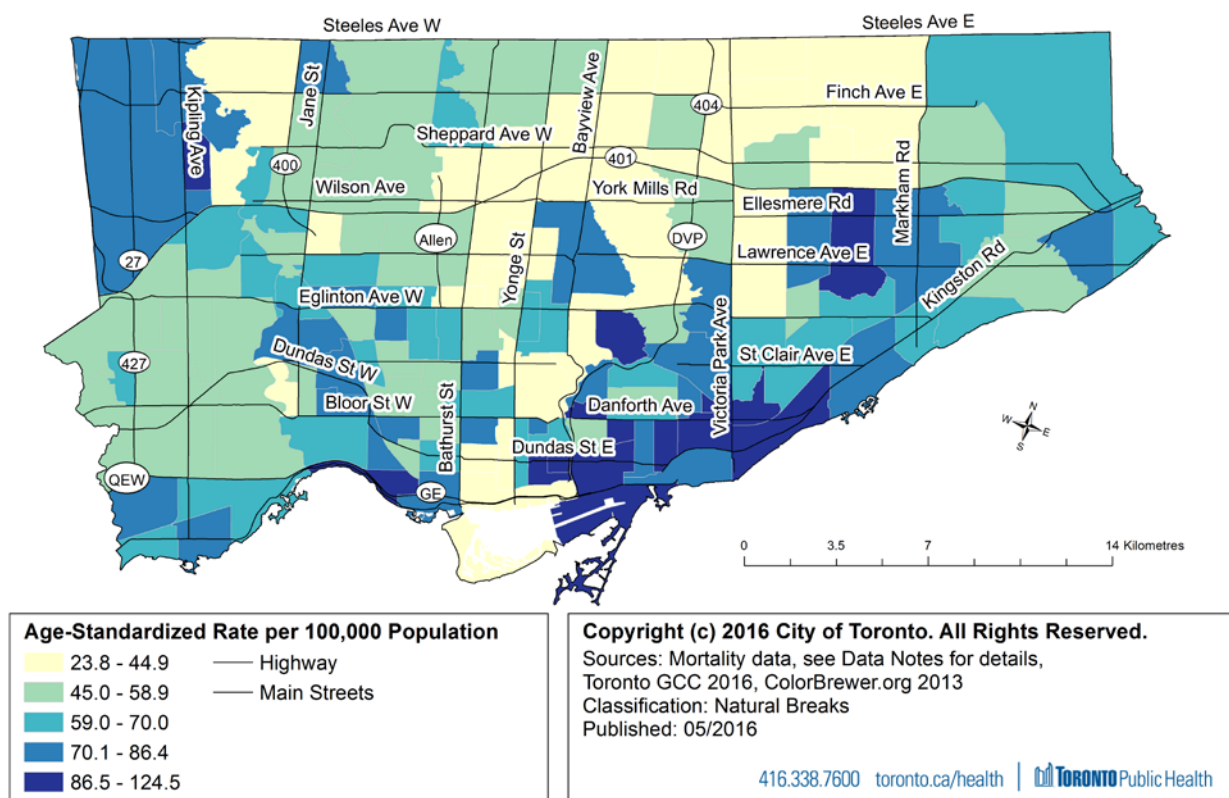
Mortality rates ranged from 24 to 125 per 100,000. Midtown and northwest Scarborough had clusters of neighbourhoods with lower mortality rates than Toronto as a whole. Some neighbourhoods with significantly lower rates included:

- Hillcrest Village
- Lansing-Westgate
- Leaside-Bennington
- Milliken
- Rosedale-Moore Park
- Steeles

The waterfront and southwest Scarborough had clusters of neighbourhoods with higher mortality rates than Toronto as a whole. Some neighbourhoods with significantly higher rates included:

- Blake-Jones
- East End-Danforth
- Moss Park
- Oakridge
- South Parkdale
- Woodbine Corridor

Map 2: Age-Standardized Mortality Rate for Ischemic Heart Disease by Neighbourhood, Toronto, 2008 to 2010 Combined



Socio-demographics

The lowest income group had the highest IHD hospitalization rate.

Table 2 shows age-standardized IHD rates by sex. Males had significantly higher hospitalization and mortality rates compared to females, but there was no significant difference for prevalence.

Table 2: Age-Standardized Ischemic Heart Disease Prevalence (%), Hospitalization and Mortality Rates (per 100,000) by Sex, Toronto

Sex	Prevalence (2013/14)	Hospitalization (2013)	Mortality (2010)
Male	6.3	330.3 H	84.9 H
Female	5.6	124.2 L	40.7 L

H Significantly higher than the other sex indicating a less favourable result for this group.

L Significantly lower than the other sex indicating a more favourable result for this group.

Data Sources: see Data Notes.

Table 3 shows IHD rates by three age groups. All rates increased as age increased for prevalence, hospitalization and mortality.

Table 3: Ischemic Heart Disease Prevalence (%), Hospitalization and Mortality Rates (per 100,000) by Age Group, Toronto

Age Group	Prevalence (2013 to14)	Hospitalization (2013)	Mortality (2010)
20 to 39 years	- F	10.0	0.8
40 to 64 years	5.4 E	341.8	41.4
65 Plus years	21.0	1186.0	535.6

F – Suppressed due to high sampling variability

E – Moderately high sampling variability; interpret with caution

Data Sources: see Data Notes.

Table 4 shows age-standardized IHD hospitalization and mortality rates per 100,000 people by income quintile. Quintile 1 includes areas in Toronto with the highest percent of people living below the low income measure (LIM). Quintile 5 includes areas in Toronto with the lowest percent of people living below the LIM.

The lower income groups (Quintiles 1, 2, 3 and 4) had significantly higher hospitalization rates than the highest income group (Quintile 5). Mortality rates in lower income groups (Quintiles 1, 3 and 4) were also significantly higher than the highest income group (Quintile 5).

Table 4: Ischemic Heart Disease (IHD) Hospitalization and Mortality Rates per 100,000 by Income Quintile, Toronto

Income Level	Hospitalization (2011 to 2013 Combined)	Mortality (2008 to 2010 Combined)
Quintile 1 (Lower income)	281.0 ^H	67.2 ^H
Quintile 2	240.2 ^H	50.6
Quintile 3	253.0 ^H	62.5 ^H
Quintile 4	230.7 ^H	60.6 ^H
Quintile 5 (Higher income)	205.7	54.5

^H Significantly higher than Quintile 5, the highest income group, indicating a less favourable result for that group.

Data Sources: see Data Notes.

Data Notes

Notes

- Significant differences were estimated using overlapping confidence intervals. Although this method is conservative ($\alpha \sim < 0.01$) and most appropriate when comparing mutually exclusive groups, it was chosen as an objective means of making conclusions on population-based data. Multiple comparisons performed in the analysis were not taken into consideration when choosing the level of significance to test.
- Toronto is compared to the rest of Ontario (Ontario with Toronto removed) as opposed to the Ontario total because Toronto comprises a large proportion of the Ontario population. Toronto is also compared to the rest of the GTA (Greater Toronto Area) for the same reason.
- Tables 1 and 4 and Maps 1 and 2 were based on three years of data combined in order to obtain a sample size large enough to analyze at smaller geographic levels or income groups. By combining years of data, changes over time in and between geographic areas may be hidden.
- For comparisons of smaller geographic areas, any person who could not be linked to a valid Toronto postal code was excluded from the total.
- Neighbourhoods identified as having significantly higher or lower rates than Toronto as a whole do not necessarily represent all such neighbourhoods. Cut-offs for inclusion in the written list are arbitrary.
- Rates (except for age-specific rates) are age-standardized to the 1991 Canadian population. This allows for comparison over time and geography. Because the standard population's distribution is younger than the current Toronto population, the age-standardized rates are lower than the true rates.

Definitions

95% Confidence Interval is the range within which the true value lies, 19 times out of 20.

Age Standardization is a technique based on weighted averaging which removes the effects of the distribution of age in two or more populations.

Heart Disease (prevalence) is defined by survey respondents who answered that they have heart disease.

Hospitalization includes people who have stayed in a hospital bed overnight because of ischemic heart disease.

Income Quintiles: Five groups, each containing approximately 20% of the population, were created by ranking Toronto's census tracts based on the percent of residents living below the Statistics Canada after-tax Low Income Measure (LIM). Quintile 1 includes the census tracts with the highest percent of people living below the LIM and is therefore the lowest income quintile. Quintile 5 includes the census tracts with the lowest percent of people living below

the LIM, making it the highest income quintile. LIM is an income level set at 50% of the median income in Canada in a given year, adjusted for household size.

Ischemic Heart Disease is a disease characterized by ischemia (reduced blood supply) of the heart muscle, usually due to atherosclerosis of the coronary arteries. It is defined by ICD-10 codes I-20 to I-25 and ICD-9 codes 410 to 414.

Mortality includes people whose primary cause of death was ischemic heart disease.

Sex defines people based on their biological characteristics, whereas gender is a socially constructed concept. From a social determinants of health perspective, certain health conditions can be associated with gender, and from a biological perspective, health conditions can be associated with sex. Although reporting based on both concepts would be preferable, the data source used here only collects information on sex, and not gender.

Sources

Canadian Community Health Survey: Canadian Community Health Survey (CCHS), 2007 to 2014. Statistics Canada, Share File, Knowledge Management and Reporting Branch, Ontario Ministry of Health and Long-Term Care. Used in:

- Figure 2
- Tables 2 and 3

Hospitalization: Inpatient Discharges 2003 to 2013, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Date Extracted: June 2015. Used in:

- Figures 1 and 3
- Tables 1, 2, 3 and 4
- Map 1

Income Quintiles: Income Estimates for Census Families and Individuals (T1 Family File), Table F-18, Statistics Canada, 2009-2013. Used in:

- Table 4

Mortality: Ontario Mortality Data 2003 to 2010, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Date Extracted: June 2015. Used in:

- Figures 1 and 3
- Tables 1, 2, 3 and 4
- Map 2

Denominator data:

Population for Toronto and Larger Areas: Population Estimates 2003 to 2013, Ontario Ministry of Health and Long-Term Care: IntelliHEALTH ONTARIO. Date extracted: June 2015. The population estimates for cancer incidence was extracted in May 2016. Used in:

- Figures 1 and 3
- Tables 2 and 3

Population for Neighbourhood or Service Delivery Areas or Income Quintile: 2011

Canada Census, Statistics Canada. Used in:

- Tables 1 and 4
- Maps 1 and 2

Health Surveillance Indicator: Ischemic Heart Disease

Category: Chronic Disease

Prepared: August, 2017

This indicator report is part of a series that informs the ongoing assessment of Toronto's health status. For a full list of the indicators, please go to: www.toronto.ca/health