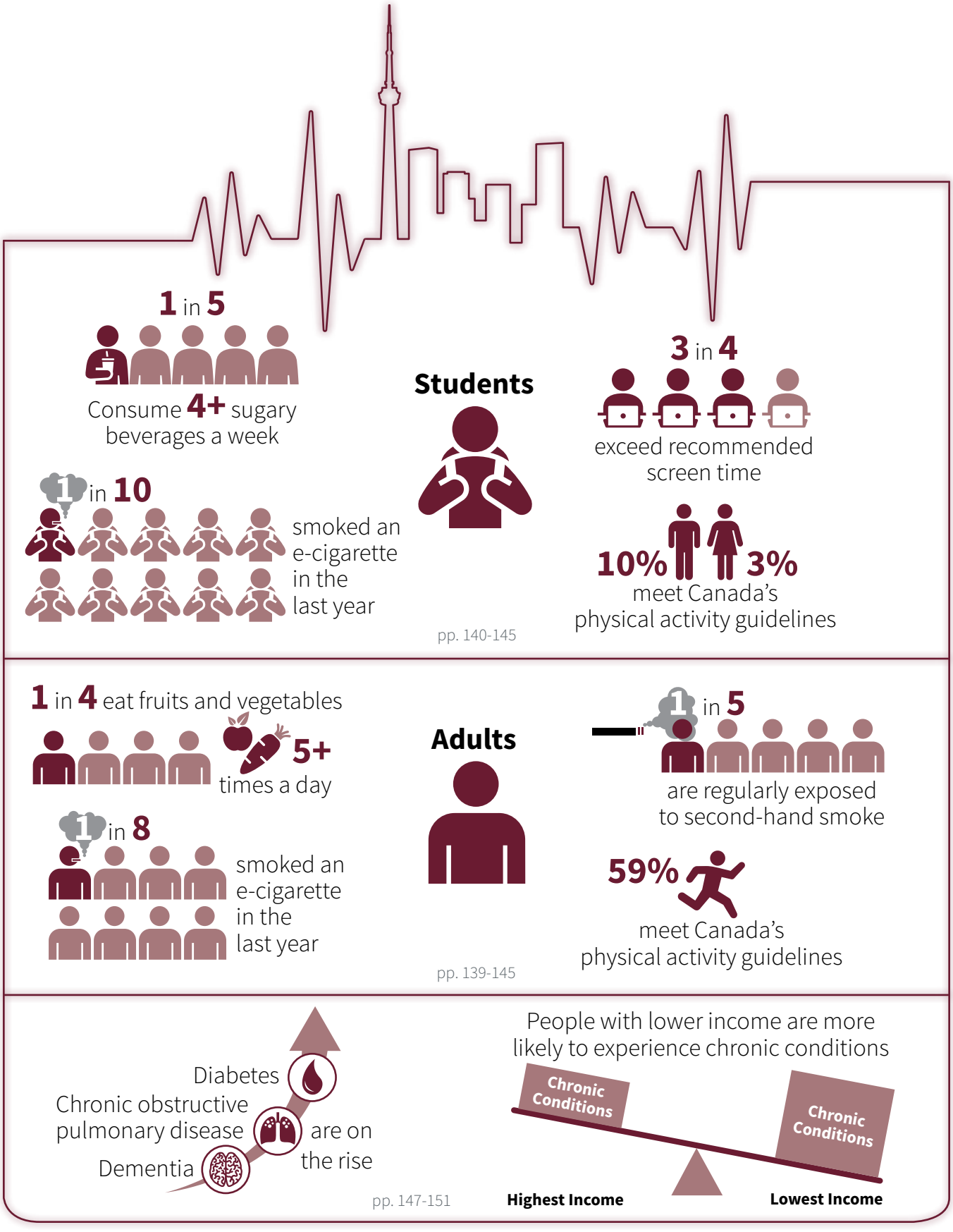
Introduction

Chronic diseases, such as cancer, diabetes, cardiovascular disease, and respiratory disease, are leading contributors to death and disability, both locally and nationally [1]. With the aging population in Canada, most chronic diseases are increasing in burden, including dementia, which is emerging as a condition with growing public health importance [2]. Like other population health outcomes, chronic conditions are influenced by complex interactions of biological, social and environmental determinants, and risk factors including individual behaviours. Chapters 2 and 3 of this report include some of the key social and environmental issues that influence the health of Torontonians. This chapter investigates important risk factors for chronic disease including cigarette smoking, physical inactivity, unhealthy eating. The majority of Canadians have at least one of these risk factors, which have a strong influence on several disease outcomes [3].

Health-related behaviours provide critical opportunities for chronic disease prevention and improved health. A lifestyle including healthy eating and physical activity directly contributes to positive health outcomes, and can also modify other risk factors, such as overweight status/obesity. Tobacco use is also a major contributor to disease and disability in Canada, associated with cancer, cardiovascular disease, and respiratory disease [4]. Smoking prevention and cessation activities are essential to reducing the incidence and prevalence of chronic disease in Toronto. Although individual choice plays a role, the prevalence of chronic diseases will not be reduced one person at a time. Addressing determinants of health through healthy public policy and a comprehensive health promotion strategy at the population level is essential to reduce the burden of chronic disease.

The majority of the data on risk factors reported here are self-reported. Evidence shows that self-reports may over- or underestimate the true prevalence of many behaviours; for example, people tend to overestimate how much physical activity they are getting [5], and underestimate their weight [6].


1 in 5
Consume 4+ sugary beverages a week
1 in 10
smoked an e-cigarette in the last year
Students
3 in 4
exceed recommended screen time
10%
3%
meet Canada's physical activity guidelines
pp. 140-145
1 in 4 eat fruits and vegetables
5+
times a day
1 in 8
smoked an e-cigarette in the last year
Adults
1 in 5
are regularly exposed to second-hand smoke
59%
meet Canada's physical activity guidelines
pp. 139-145
Diabetes
Chronic obstructive pulmonary disease
Dementia
are on the rise
pp. 147-151
People with lower income are more likely to experience chronic conditions
Chronic Conditions
Chronic Conditions
Highest Income
Lowest Income

Healthy Eating

Nutrition is vital for optimal growth and development, health, and well-being. A healthy diet is an important factor for preventing chronic disease and maintaining a healthy body weight. *Canada's Food Guide 2019* emphasizes the consumption of more vegetables and fruits, choosing whole grain foods, and eating foods high in protein, especially plant-based sources [7]. It also advises limiting highly processed foods and drinks that contribute excess sugar, sodium, or saturated fat, and emphasizes home-cooking.

Data available to assess healthy eating and dietary intake in Toronto are limited. Accurate data on nutrition at the population level is difficult to collect, as it requires detailed information on portion size and consumption behaviours over time. As such, the indicators reported here address specific aspects of a healthy diet, and reflect approximations of proper nutrition.

Healthy eating in childhood and adolescence is important for proper growth and development and to prevent various health conditions. However, there is no regular source of reportable nutrition data for Toronto children.

Vegetable and Fruit Consumption

The health benefits associated with a diet high in vegetables and fruits include a reduced risk of cardiovascular disease [8, 9], certain types of cancer [10, 11], and obesity [12]. *Canada's Food Guide 2019* recommends that vegetables and fruits should fill half of a plate, emphasizing their importance in a healthy diet [7].

Among Toronto students in grades 7 to 12, in 2014:

- The majority of students were not consuming enough vegetables and fruits. Just 13% met the guidelines[1] for daily vegetable and fruit consumption.
- Students in grades 7 and 8 (20%) were significantly more likely to consume enough vegetables and fruits per day compared to students in grades 9 to 12 (10%).

Among Toronto adults (18 years of age and over), in 2015/16:

- 25% consumed vegetables and fruits five or more times per day.
- Younger adults 18 to 24 years of age were significantly less likely to consume vegetables and fruits five or more times daily (12%)[2] compared to older adults (27% for 25 years of age and over).
- Females (30%) were significantly more likely to consume vegetables and fruits five or more times per day compared to males (19%).

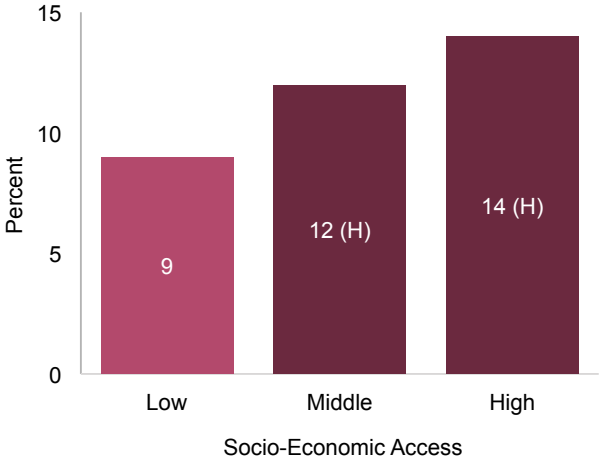
In 2014, Toronto students (grades 7 to 12) in the low socio-economic access group[3] were less likely to meet the vegetable and fruit consumption guidelines compared to students in the middle and high socio-economic access groups (Figure 11.1).

[1] At the time of data collection, *Canada's Food Guide* recommended that youth under 14 years of age consume 6 servings of vegetables and fruits per day, youth aged 14 to 18 years consume 7 to 8 servings per day.

[2] High degree of variability. Interpret with caution.

[3] A student's "socio-economic access" was assessed by asking students that took part in the 2014 TPH Student Survey to rank their family's access to goods and services. 'Low Socio-Economic Access' represents students who ranked their families' access as five or less; 'Middle Access' as six or seven; and 'High Access' as eight, nine, or ten.

Figure 11.1: Students (Grades 7 to 12) Who Met the Guidelines for Vegetable and Fruit Consumption by Socio-Economic Access, Toronto, 2014



H: Significantly higher than the low socio-economic access group.
Data Source: TPH Student Survey, 2014.

Sugar-Sweetened Beverage Consumption

Sugar-sweetened beverages are drinks with added sugars, which include non-diet carbonated soft drinks, energy drinks, sports drinks, sweetened tea, coffee drinks, and fruit drinks with less than 100% fruit juice. Sugar-sweetened beverage consumption is associated with a number of health concerns including increased risk of weight gain [13], type 2 diabetes [14], and dental caries [15], with risk increasing with amount consumed.

Among Toronto students in grades 7 to 12, in 2014:

- 9% consumed at least one sugar-sweetened beverage daily and another 20% consumed four or more sugar-sweetened beverages per week.
- Secondary school students in grades 9 to 12 (22%) were significantly more likely to consume four or more sugar-sweetened beverages per week compared to students in grades 7/8 (15%).

Among Toronto adults (18 years of age and over), in 2017:

- 25% reported consuming a sugar-sweetened beverage (excluding diet pop) once a day or more in the past week.

Fast Food and Salty Snack Consumption

Highly processed foods, such as many fast food options and salty snacks like chips, are often high in sodium and calories. These foods are often chosen instead of healthier choices, which may lead to lower intake of nutrients.

Among Toronto students in grades 7 to 12, in 2014:

- 19% reported eating salty snacks such as potato chips, nachos, or buttered popcorn more than three times per week.
- 9% of reported eating food prepared or purchased at a fast food restaurant more than three times per week.
- Grade 7/8 students were more likely to rarely or never eat fast food (58%) compared to grade 11/12 students (42%).

DATA GAP

Data on adult consumption of fast food and salty snacks is not available at the Toronto level.

Breakfast Consumption

Eating a regular, healthy breakfast has a positive impact on the health of children and youth. It has been linked to a higher intake of nutrients [16], a healthier body weight [17] and to improved academic performance [18].

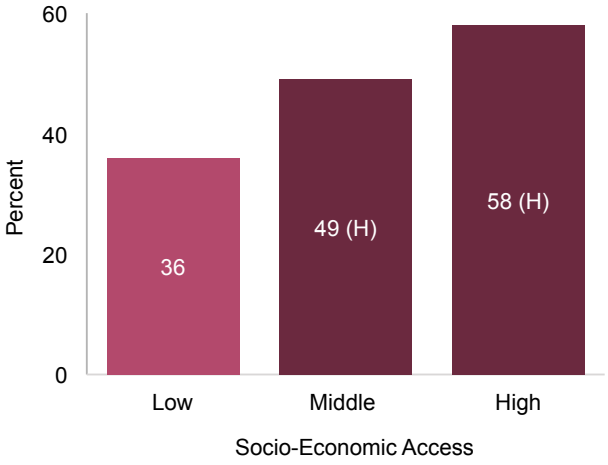
Among Toronto students in grades 7 to 12, in 2014:

- 54% ate breakfast every weekday. This figure increased to 73% for both days of the weekend.
- Students in grades 7/8 (65%) were significantly more likely to eat breakfast every weekday compared to secondary school students (54% for grades 9/10, 46% for grades 11/12).

HEALTH INEQUITIES

In 2014, Toronto students (grades 7 to 12) with low socio-economic access were significantly less likely to eat breakfast every weekday compared to students with middle and high socio-economic access (Figure 11.2).

Figure 11.2: Percent of Students (Grades 7 to 12) Who Ate Breakfast Every Weekday by Socio-Economic Access, Toronto, 2014



H: Significantly higher than the low socio-economic access group.
Data Source: TPH Student Survey, 2014.

Physical Activity

Regular physical activity contributes to the prevention of many chronic health conditions, including heart disease, hypertension, type 2 diabetes, obesity, and some cancers, as well as premature death [19]. Exercise is also associated with improved mental health and psychological well-being [20]. Physical activity is important for individuals of all ages, including older adults. Exercise interventions are associated with a reduction in the risk of falling [21].

Community design that supports active transportation promotes physical activity. **More information** on active transportation is included in Chapter 3.

Physical Activity Levels

The *Canadian Physical Activity Guidelines* recommend that youth aged 12 to 17 years accumulate at least 60 minutes of moderate to vigorous-intensity physical activity daily [24].

Among Toronto students in grades 7 to 12, in 2014[4]:

- 7% were meeting the level of physical activity recommended by Canada's physical activity guidelines.
- Males (10%) were significantly more likely to meet the guidelines compared to females (3%).

The *Canadian Physical Activity Guidelines* recommend that adults (18 to 64 years) and older adults (65 years and over) accumulate at least 150 minutes of moderate to vigorous-intensity aerobic physical activity per week [25, 26].

Among Toronto adults (18 years of age and over), in 2015/16[5]:

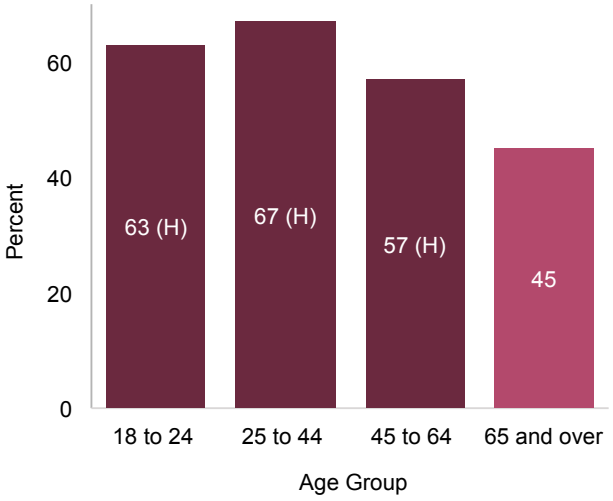
- 59% were physically active at or above the level recommended by Canada's physical activity guidelines.
- Seniors (65 years of age and over) were significantly less likely to meet the guidelines compared to younger age groups (Figure 11.3).

[4] Physical activity includes activity during physical education class, lunch, after school, evenings, and spare time.
[5] Physical activity includes active transportation, recreational, and other physical activities.

DATA GAP

Children and youth who are physically active are more likely to remain active into adulthood [23]. However, there is no regular source of reportable data on the physical activity and sedentary behaviour of Toronto children.

Figure 11.3: Percent of Adults (18 Years of Age and Over) Who Met Canada's Physical Activity Guidelines by Age Group, Toronto, 2015/16



H: Significantly higher than the 65 years and over age group.
Data Source: Canadian Community Health Survey, 2015/16.

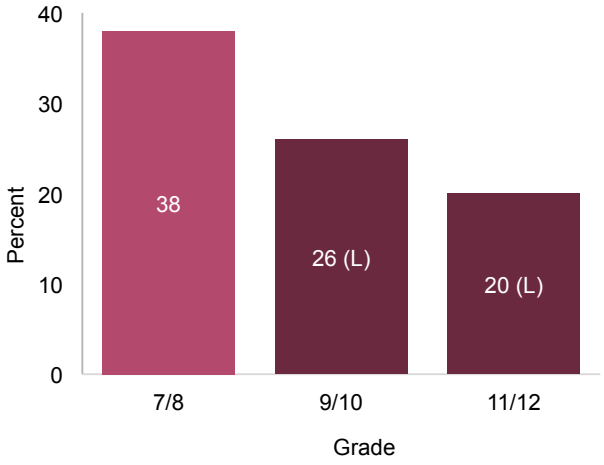
Sedentary Behaviour: Screen Time

Independent of physical activity, high levels of screen time and other sedentary behaviours have been associated with increased risk of obesity, cardiovascular disease, type 2 diabetes, all-cause mortality, and some cancers [27]. The *Canadian 24-Hour Movement Guidelines* recommend no more than two hours of recreational screen time per day for children and youth aged 5 to 17 years [28].

Among Toronto students in grades 7 to 12, in 2014:

- 27% had less than two hours of screen time outside of school every day of the past week.
- Students in grades 7 and 8 were significantly more likely to meet the *24-Hour Movement Guidelines* compared to secondary school students (Figure 11.4).

Figure 11.4: Percent of Students (Grades 7 to 12) Who Had Less than Two Hours of Screen Time Every Day by Grade, Toronto, 2014



L: Significantly lower than the grade 7/8 group.
Data Source: TPH Student Survey, 2014.

DATA GAP

While most studies about the effects of screen time are focused on children and youth, it is important to note that screen time can have negative effects on adults as well. For example, high levels of screen time can lead to weight gain, vision issues, poor sleep, and impaired cognitive function [29, 30]. There is no regular source of screen time data for Toronto adults.

Population Weight Status

Body weight is affected by a number of factors, including genetics, living environment, and individual behaviours. Overweight status and obesity are risk factors for many chronic health conditions such as type 2 diabetes, heart disease, and some cancers [31]. Excess body weight can also have a negative impact on mental well-being [32]. Body Mass Index (BMI), which is based on height and weight, is commonly used as a population-based measure of overweight status and obesity.

Overweight Status/Obesity

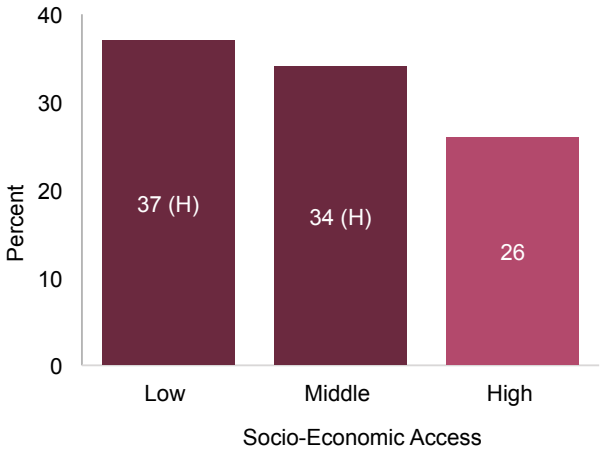
Among Toronto students in grades 7 to 12, in 2014[6]:

- 20% had overweight status and 9% had obesity.
- Males (31%) were significantly more likely than females (25%) to have overweight status/obesity.

HEALTH INEQUITIES

In 2014, Toronto students (grades 7 to 12) in the low and middle socio-economic access groups were significantly more likely to have overweight status/obesity compared to students in the high socio-economic access group (Figure 11.5).

Figure 11.5: Percent of Students (Grades 7 to 12) Who Had Overweight Status/Obesity by Socio-Economic Access, Toronto, 2014



H: Significantly higher than the high socio-economic access group.
Data Source: TPH Student Survey, 2014.

DATA GAP

There are critical gaps in childhood healthy weight surveillance in Ontario. Data are not collected regularly or systematically for children and data that do exist are often not reportable at the local level due to small sample sizes.

Among Toronto adults (18 years of age and over), in 2015/16[7]:

- 52% had overweight status/obesity (33% had overweight status and 19% had obesity).
- Males (57%) were significantly more likely to have overweight status/obesity compared to females (48%).

Sleep

Sleep is associated with many aspects of both physical and mental health. In the context of chronic disease, insufficient sleep can lead to an increased risk of obesity, diabetes, and cardiovascular disease [33]. Adequate sleep is especially important for children and youth due to their rapid growth and development. The *Canadian 24-Hour Movement Guidelines* recommend 9 to 11 hours of uninterrupted sleep per night for children aged 5 to 13 years and 8 to 10 hours per night for those aged 14 to 17 years [28].

- In 2015, 40% of Toronto students in grades 7 to 12 reported sleeping eight or more hours on an average school night.

DATA GAP

Despite the importance of sleep for children and youth and their health, data are not regularly or systematically collected in Ontario.

[6] Overweight status and obesity were determined through BMI calculation using measured height and weight.
[7] Overweight status and obesity were determined through BMI estimates using self-reported height and weight. The estimates were adjusted using equations that correct for self-reported height and weight.

Sleep and mental health are closely interrelated. Insufficient sleep can negatively impact positive mental health and exacerbate mental illness [74]. Conversely, poor mental health can interfere with healthy sleep patterns [75]. **More information** on mental health is included in Chapter 6.

Cigarette Smoking and Vaping

Cigarette smoking and other forms of commercial tobacco use comprise the leading cause of preventable death and disease in Ontario [34]. Commercial tobacco contains nicotine, which is a highly addictive psychoactive stimulant [35]. Smoking has negative health effects on nearly every organ in the body, increasing the risk for many chronic diseases including cancer, cardiovascular diseases, and respiratory diseases. Tobacco use, primarily smoking, is responsible for 80 to 90% of all cases of chronic obstructive pulmonary disease [34]. Exposure to second-hand smoke and smoking is also associated with disability and decline in physical function [36, 37]. Quitting smoking can enhance both quality and length of life, and reduce risk of disease [38].

Cigarette Smoking

Cigarette smoking is the most common form of commercial tobacco use worldwide [39]. People who start smoking tobacco cigarettes before the age of 21 can have a more difficult time quitting than those who start in adulthood [40]. The younger an individual starts smoking, the more health complications and harms it can cause throughout the lifespan.

Among Toronto students in grades 7 to 12, in 2014[8]:

- 16% had tried cigarette smoking.
- The percentage of students who had tried smoking increased with grade, up to 28% in grade 11/12.
- 5% smoked cigarettes in the past 30 days.

Among Toronto adults (18 years of age and over), in 2015/16[9]:

- 16% were current smokers (10% daily and 6% occasional).
- Males (20%) were significantly more likely to be current smokers compared to females (12%).

In 2016, 63% of Toronto Indigenous adults 15 years of age and over smoked [41], almost four times the rate of all Toronto adults (18 years of age and over) in 2015/16.

In 2015/16, a significantly higher percentage of Toronto individuals identifying as bisexual or homosexual[10] were current smokers (35%)[11] compared to heterosexual individuals (15%).

Smoking Cessation

Smoking cessation is associated with both short-term and long-term health benefits. Sustained cessation reduces the risk of mortality from smoking-related diseases [42]. Although the benefits of quitting smoking are greater the earlier an individual quits, there are benefits to quitting at any age.

[8] "Tried cigarette smoking" is defined as having ever tried cigarette smoking, even just a few puffs.
[9] "Current smokers" are defined as both daily and occasional smokers.
[10] These terms were used by the survey tool that collected these data, and do not reflect the terminology used by Toronto Public Health
[11] High degree of variability. Interpret with caution.

Among Toronto adults (18 years of age and over), in 2013/14[12]:

- 49% of current smokers seriously considered quitting smoking in the immediate future (i.e., within the next 30 days).
- 49% of current smokers had stopped smoking for at least 24 hours in the past 12 months because they were trying to quit smoking.
- Individuals in older age groups (42% for 45 to 64 years of age, 34% for 65 years of age and over) were significantly less likely to report trying to quit smoking in the past twelve months compared to those in the youngest age group (57% for 18 to 24 years of age).

Electronic Cigarette Vaping

Vaping is the act of inhaling aerosol produced by a battery operated device known as an electronic cigarette. Electronic cigarettes, also known as e-cigarettes, simulate the feeling of smoking, but do not contain tobacco [42]. Most e-cigarettes are flavored and some contain nicotine, the addictive drug in tobacco [42]. While vaping is less harmful than cigarette smoking, it is not without risk and many of the short and long-term health effects are still being studied [43, 44]. E-cigarettes have been shown to contain multiple toxic substances (propylene glycol, carcinogenic compounds, heavy metals and volatile organic compounds), particulate matter, and in many cases high nicotine concentrations. The effectiveness of e-cigarettes as a cessation aid for smokers remains unclear and they are not approved for this purpose [44]. There is also emerging evidence of the health and safety risks associated with vaping and exposure to second-hand aerosol [44]. Long-term studies are needed to further assess the safety of e-cigarettes and their effectiveness as a cessation aid.

Among Toronto students (grades 7 to 12), in 2015:

- 9% reported having more than just a few puffs of an e-cigarette in the past year.

Among Toronto adults (18 years of age and over), in 2017:

- 12%[13] reported having at least one puff of an e-cigarette in the past 12 months.

Given the rise in e-cigarette use and the emerging evidence of health and safety risks associated with vaping [45], it is important to monitor the frequency of use. Currently, there is no local data available to report on daily vaping among youth or adults.

Second-Hand Smoke Exposure

Second-hand smoke refers to the smoke exhaled by smokers and the smoke released into the air from burning cigarettes, pipes, and cigars. Like individuals who smoke themselves, non-smokers who are regularly exposed to second-hand smoke have an increased risk of lung cancer, heart disease, and respiratory illness [46]. There is no risk-free level of second-hand smoke exposure.

Among Toronto students in grades 7 to 12, in 2014:

- 20% were exposed to second-hand smoke every day or almost every day.

In 2015/16, 21% of non-smoking Toronto adults (18 years of age and over) were regularly exposed to second-hand smoke in public places. This was significantly higher than in the rest of Ontario (13%).

[12] This module was not included in the 2015/16 Canadian Community Health Survey.
[13] High degree of variability. Interpret with caution.

DATA GAP

For individuals living in multi-unit housing, exposure to second-hand smoke between individual units can be an issue, particularly for those living with a pre-existing health condition, such as asthma. Currently, there is no data on second-hand smoke exposure in multi-unit housing, an issue of particular concern in a vertically expanding urban environment.

Consumption of alcohol is another major contributor to morbidity and mortality from chronic disease. Long-term use of other substances such as cannabis, can also increase the risk of some chronic diseases. **More information** on alcohol and substance use is included in Chapter 7.

Cancer

Cancer is a leading cause of death in Ontario [47]. The disease involves uncontrolled division of abnormal cells, and can affect different types of tissue all over the body [48].

Some types of cancer are more affected by modifiable risk factors than others. These risk factors can include smoking, alcohol consumption, unhealthy diet, overweight status/obesity, physical inactivity, and sun exposure [49]. Morbidity and mortality associated with some types of cancer can be reduced by early detection and treatment, making regular screening important [47].

From a public health perspective, promoting and facilitating behaviours that contribute to prevention or early detection can make an impact at the population level. Cancers that are common, affected by risk factors, and/or can be caught early by screening are relevant to monitor in the population. These cancers include female breast, prostate, lung, colorectal, cervical, oral, and melanoma of the skin.

A change in the case definition for new cancer diagnoses was implemented in 2010. As such, incidence counts and rates cannot be compared before and after this time. Please see the cancer section of Appendix 3 for more information.

Cancer Incidence

Among Toronto residents, in 2014[14]:

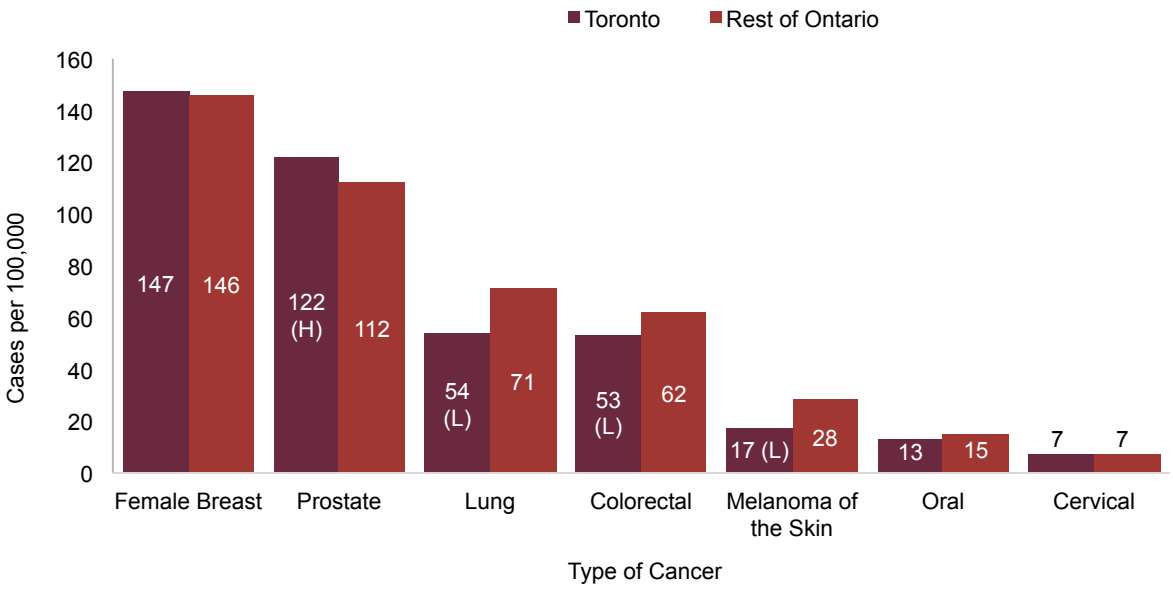
- 14,314 new cancer cases were diagnosed.
- The all-cancer age-standardized incidence rate was 511 per 100,000 population, which was similar to the rate in 2010 (517 per 100,000).
- Males had a significantly higher all-cancer age-standardized incidence rate (538 per 100,000 population) compared to females (500 per 100,000).
- Cancers of the female breast and prostate were the most common cancers in Toronto, with age-standardized incidence rates of 147 per 100,000 and 122 per 100,000, respectively.
- Lung, colorectal, melanoma of the skin, and oral cancers were more common among males compared to females.

COMPARING TO

In 2014, Toronto had a higher age-standardized incidence rate of prostate cancer but lower age-standardized incidence rates of lung cancer, colorectal cancer, and melanoma of the skin than the rest of Ontario (Figure 11.6).

[14] Cancer includes all malignant neoplasms unless otherwise specified.

Figure 11.6: Cancer Incidence, Selected Types, Toronto and Rest of Ontario, 2014



H: Significantly higher than Ontario excluding Toronto.
L: Significantly lower than Ontario excluding Toronto.
Rates are age-standardized.
The denominator for female breast and cervical cancer incidence is all females. The denominator for prostate cancer incidence is all males.
Data Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Snapshots: Cancer Incidence Snapshot 2014.

Cancer Mortality

Among Toronto residents, in 2015:

- Lung cancer was the most common cancer leading to death, and was the third leading cause of death of all causes (after ischemic heart disease and dementia). The age-standardized rate of 34 lung cancer deaths per 100,000 people is lower than in 2010, when it was 41 per 100,000. Dying from lung cancer was more common among men (45 per 100,000) than among women (26 per 100,000).
- Colorectal cancer was the second most common cancer leading to death, at a rate of 20 cases per 100,000 people. It was also more common for men to die from colorectal cancer (23 deaths per 100,000) than it was for women (15 per 100,000).
- Female breast cancer (23 deaths per 100,000 women) and prostate cancer (19 deaths per 100,000 men) were also leading cases of cancer mortality among women and men, respectively. Breast cancer was the leading cause of death overall among women 40 to 64 years of age.

More information on cancers caused by infection is included in Chapter 9. Information on oral health is included in Chapter 5.

Diabetes

Diabetes is a condition in which the body either cannot produce enough insulin (type 1) or cannot properly use the insulin it produces (type 2), resulting in elevated levels of sugar in the blood [50]. If left uncontrolled, diabetes can lead to serious health complications, including cardiovascular disease, vision loss/blindness, limb amputations, and kidney failure [51]. Type 2 diabetes has many modifiable risk factors, including overweight status/obesity and physical inactivity [51]. While the results below include type 1 and type 2 diabetes combined, type 2 accounts for about 90% of all Canadian adult cases [52].

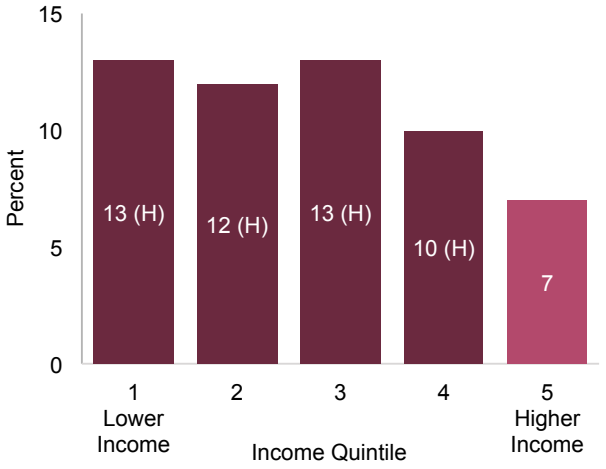
In Toronto, in 2016 (fiscal year),

- The age-standardized prevalence of diabetes was 10% among adults aged 20 years of age and over, an increase from 7% in 2007.
- The age-standardized incidence rate during the same time period, however, decreased from 7 cases to 6 cases per 1,000 population.

HEALTH INEQUITIES

In 2016 (fiscal year), among Toronto adults (20 years of age and over), the lower income quintiles (quintiles 1, 2, 3, and 4) had significantly higher age-standardized prevalence rates of diabetes compared to the highest income quintile (Figure 11.7).

Figure 11.7: Diabetes Prevalence, Adults (20 years of Age and Over) by Income Quintile, Toronto, 2016



H: Significantly higher than income quintile 5 (highest).

Rates are age-standardized.

Data Sources:

Diabetes: Ontario Diabetes Database (ODD), Fiscal Year 2016, Institute for Clinical Evaluative Sciences (ICES). Population: Registered Persons Data Base (RPDB), Fiscal Year 2016, Institute for Clinical Evaluative Sciences (ICES).

Income: Income Estimates for Census Families and Individuals (T1 Family File), Table F-18, Statistics Canada, 2016.

In Toronto, in 2015, diabetes:

- Was the seventh leading cause of death overall, with an age-standardized rate of 12 deaths per 100,000 people. This is significantly lower than in 2010, when there was 19 deaths per 100,000.
- Mortality was more common among males (16 diabetes deaths per 100,000) than females (9 per 100,000).
- Was also likely a precursor for other conditions leading to death, such as cardiovascular disease. Diabetes mortality rates reflect only cases where diabetes was the main cause of death.

More information on mortality and causes of death is included in Appendix 1.

DATA GAP

Evidence points to a higher rate of diabetes among certain ethno-racial subpopulations [52]. However, diabetes incidence and prevalence data in Ontario do not include ethno-racial identity.

Cardiovascular Disease

Cardiovascular disease (CVD) is among the most common causes of illness and death in Canada [2]. CVD refers to diseases of the circulatory system, which includes the heart and blood vessels. The six types of CVD are ischemic heart disease, cerebrovascular disease (also known as stroke), peripheral vascular disease, heart failure, rheumatic heart disease, and congenital heart disease. Behavioural risk factors for CVD include smoking, lack of exercise, and a diet high in fatty foods and salt and/or low in fruit and vegetables [53]. Additional risk factors include overweight status/obesity, high blood pressure, high cholesterol, diabetes, and stress [53, 54].

Among Toronto residents, in 2017:

- The age-standardized hospitalization rate for CVD was 809 per 100,000 population.
- Males (961 per 100,000 population) had a significantly higher age-standardized CVD hospitalization rate compared to females (669 per 100,000).

DATA GAP

Prevalence and incidence data for diagnosed cardiovascular disease in Toronto is not collected. Hospitalization rates have been reported here as a proxy measure. Hospitalization rates do not measure the total burden of disease, and are influenced by factors related to the health care system.

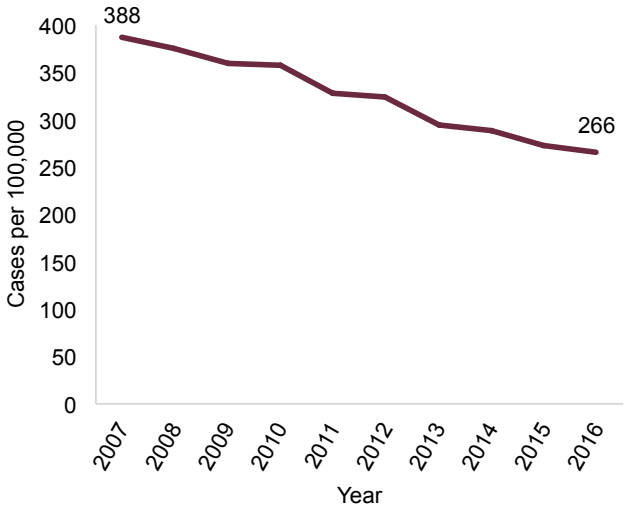
Ischemic Heart Disease

Ischemic heart disease (IHD) is the most common type of cardiovascular disease (CVD), and is a leading cause of disability and death in Canada [55]. IHD is characterized by the accumulation of plaque in the heart's arteries that can lead to a heart attack, heart failure, or death [56]. It is more easily preventable than other types of CVD by limiting modifiable risk factors including smoking, physical inactivity, unhealthy diet, overweight status/obesity, high blood pressure, and stress [57].

Among Toronto residents:

- IHD was the leading cause of death in 2015, with an age-standardized rate of 74 deaths per 100,000 people. This is a significant decrease from 2010, when the IHD mortality rate was 89 deaths per 100,000.
- Males had double the IHD mortality rate of females (102 deaths per 100,000 compared to 51 deaths per 100,000).
- From 2007 to 2016, the age-standardized hospitalization rate for ischemic heart disease decreased from 388 per 100,000 population to 266 per 100,000 (Figure 11.8). This decrease may be due to better outpatient management rather than a decrease in the disease itself.
- In 2016, males (414 per 100,000 population) had significantly higher age-standardized hospitalization rates of ischemic heart disease compared to females (137 per 100,000).

Figure 11.8: Ischemic Heart Disease Hospitalization, Toronto, 2007 to 2016



Rates are age-standardized.

Data Sources:

Hospitalizations: Inpatient Discharges 2007 to 2016, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Date Extracted: July 2018.

Population: Population Estimates 2007 to 2016, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO. Date Extracted: July 2018.

Heart Attack and Stroke

Acute myocardial infarction (AMI), also known as heart attack, and stroke both are sudden and serious CVD events that require urgent care. Hospitalization rates for these conditions provide some insight into the burden of acute CVD in the population.

Among Toronto adults (18 years of age and over), in 2016:

- The age-standardized AMI event rate was 163 per 100,000, a decrease from 202 per 100,000 in 2010.
- The age-standardized stroke event rate was 135 per 100,000, a decrease from 167 per 100,000 in 2010.
- The age-standardized AMI and stroke event rates were higher for males (245 and 160 per 100,000 respectively) compared to females (93 and 112 per 100,000, respectively).

In Toronto, in 2015,

- Cerebrovascular disease, which includes stroke, was the fourth leading cause of death, with an age-standardized rate of 26 deaths per 100,000 people. This is a decrease from 2010, when it was 36 deaths per 100,000.

In 2017, the CVD age-standardized hospitalization rate in the lowest income quintile in Toronto was 881 cases per 100,000 population, compared to 752 per 100,000 in the highest income quintile. This difference may reflect a true difference in the prevalence of CVD among lower income people and/or an inequity in access to primary care in the community, leading to exacerbation in symptoms and more urgent health care needs.

Respiratory Disease

Respiratory disease includes acute and chronic illness of the respiratory system, including the sinus, throat, bronchus, and lung (excluding cancer). Some respiratory diseases are caused by pathogens, like viruses and bacteria, and others can be caused by smoking and indoor and outdoor air pollution [58, 59]. Both types can progress into longer-term chronic illnesses [60, 61]. Examples of respiratory disease include the common cold, flu, pneumonia, bronchitis, and chronic obstructive pulmonary disease (COPD). Respiratory diseases are common causes of illness, hospitalization, and mortality in Canada [62].

In Toronto:

- The 2017 age-standardized hospitalization rate for respiratory disease was 546 per 100,000. Males (594 per 100,000 population) had significantly higher age-standardized hospitalization rates for respiratory disease compared to females (497 per 100,000).
- Chronic lower respiratory diseases, which includes chronic obstructive pulmonary disease (COPD), was the sixth leading cause of death in 2015, with an age-standardized rate of 18 deaths per 100,000 people.

More information about communicable respiratory diseases like influenza and pneumonia is included in Chapter 9.

Chronic Obstructive Pulmonary Disease Prevalence

Chronic obstructive pulmonary disease (COPD) is one of the most common types of chronic respiratory diseases [63]. It is a condition characterized by gradual airway obstruction, shortness of breath, cough, and sputum production [64]. Although several risk factors contribute to COPD, cigarette smoking is the primary modifiable risk factor, responsible for 80 to 90% of COPD cases [34]. Therefore, COPD is almost completely preventable.

Among Toronto residents:

- From 2007 to 2016 (fiscal year), the age-standardized prevalence rate of COPD among adults (20 years of age and over) increased from 3.7% to 4.7%.

HEALTH INEQUITIES

In 2016, among Toronto adults (20 years of age and over) the lowest income group had the highest age-standardized prevalence rate of COPD, 5.3%, compared with 3.8% in the highest income group.

COMPARING TO

In Toronto in 2017, the age-standardized hospitalization rate for respiratory disease was 546 per 100,000. This was significantly lower than the rest of Ontario (624 per 100,000).

In 2016, among adults (20 years of age and over) the age-standardized prevalence rate of COPD was 4.7% in Toronto, lower than the rest of Ontario (5.4%).

Dementia

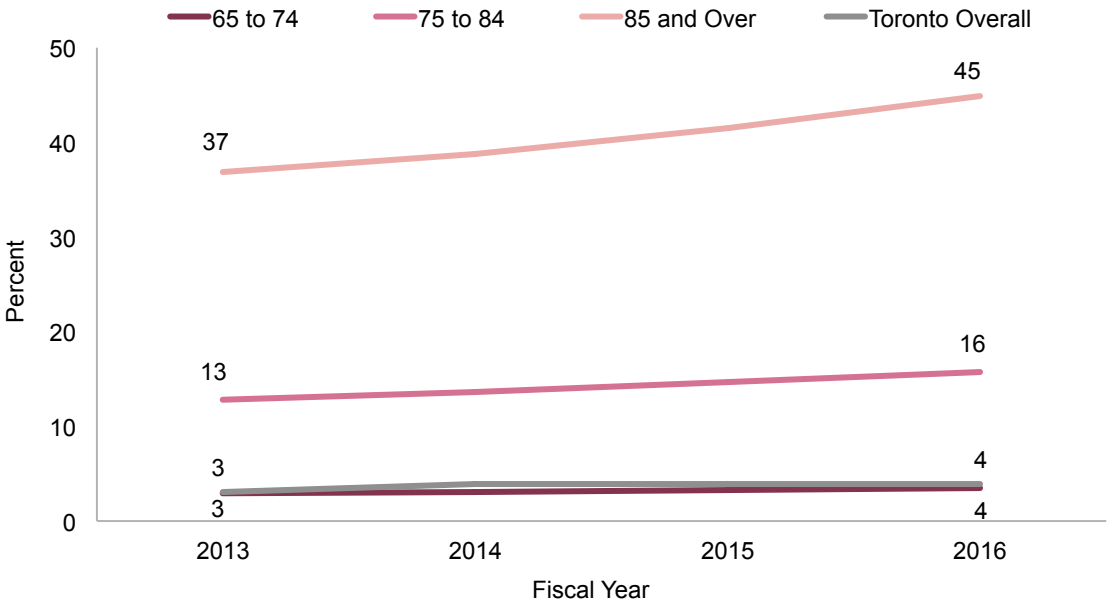
Dementia is an umbrella term used to describe a range of symptoms and diseases associated with a decline in mental and cognitive function severe enough to reduce a person's ability to perform everyday activities [65]. Although affecting mainly older individuals, dementia is not a normal part of healthy aging and is one of the major causes of disability and dependency among older people [66, 67]. Studies have shown that people with dementia also have a higher burden of other chronic diseases, higher rates of injuries, and higher mortality rates [68, 69]. Some research suggests that risk factors for other chronic diseases, such as hypertension, obesity, and diabetes, increase the risk of dementia as well [70]. Factors that affect brain health across the life span, such as education, nutrition, and preventive health care, also play a role in the risk of dementia [71].

Dementia can have major physical, psychological, social, and economic impact on caregivers, families, and societies [67]. With Toronto's aging population, the number of people living with dementia is expected to rise in the near future.

In Toronto, in 2016 (fiscal year):

- 4% of adults aged 40 years of age and over had dementia. Females aged 40 years of age and over were more likely to have dementia (6%) compared to males (4%). Some of this difference can be attributed to higher life expectancy among females.
- 16% of seniors 75 to 84 years of age and 45% of seniors 85 years of age and over were living with dementia.
- The prevalence of dementia increased among those 75 years of age and over from each preceding year since 2013 (fiscal year) (Figure 11.9). This increase could be partially attributable to more people living longer and being at higher risk for developing and living with the disease.

Figure 11.9: Percent of Individuals with Dementia, by Age Group and Overall (40 Years of Age and Over), Toronto, Fiscal Years 2013 to 2016



Data Sources:

Dementia: Discharge Abstract Database (DAD), National Ambulatory Care Reporting System (NACRS), Ontario Health Insurance Plan Claims Database (OHIP), and Ontario Drug Benefit Claims (ODB) Database, 2013/2014 to 2016/2017 calendar years. Data provided by the Ministry of Health and Long-Term Care, Date extracted: July 2018.

Population: Registered Persons Database (RPDB), 2013/2014 to 2016/2017 calendar years. Data provided by the Ministry of Health and Long-Term Care, Date extracted: July 2018.

In Toronto, in 2015:

- Dementia and Alzheimer's disease were the second leading cause of death, with an age-standardized rate of 52 deaths per 100,000 people.
- Dementia is one of the few leading causes of death that has not decreased since 2010, and one of the few leading causes of death that is not more common among males than females. It is the leading cause of death among women 65 years of age and over.

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