Chapter 2

Estimated current cancer mortality

Mortality measures the number of deaths caused by cancer. This chapter presents projected statistics on cancer mortality in Ontario for the current year.

Expected deaths from cancer

"In 2018, 30,574 deaths from cancer are expected to occur in Ontario, 16,039 in males and 14,535 in females."

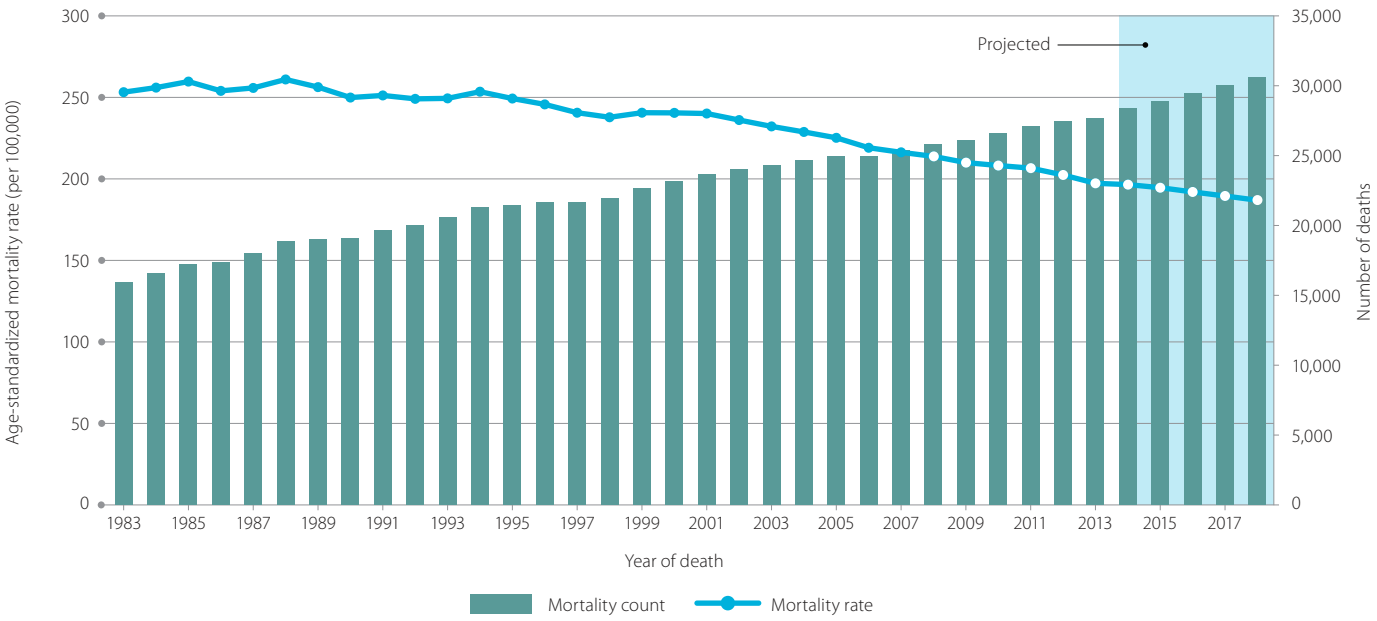
While the number of cancer deaths in Ontario (mortality) has increased over the past three decades, the mortality rate has declined. In general, cancer mortality is affected by:

- the incidence of cancer;
- cancer survival;
- socio-demographic factors;
- the effectiveness of early detection for cancer in extending life; and
- the availability of and access to effective treatment for cancer.

The statistics reported in this chapter are projections for the years 2014 to 2018.

In 2018, an estimated 30,574 deaths from cancer (excluding non-melanoma skin cancer) are expected to occur in Ontario, resulting in an age-standardized mortality rate (ASMR) of 186.9 per 100,000 people (Figure 2.1). While the number of cancer deaths has increased each year since 1983, the ASMR peaked in 1988 and has decreased every year since 1999.

Figure 2.1 **Projected mortality counts and age-standardized rates for all cancers combined, Ontario, 1983–2018**



Note: Rates are per 100,000 and standardized to the age distribution of the 2011 Canadian population.
Analysis by: Surveillance, Analytics and Informatics, CCO
Data source: Ontario Cancer Registry (November 2016), CCO

Mortality by sex

Among males, 16,039 deaths are expected to be caused by cancer in 2018, resulting in an ASMR of 219.5 per 100,000 (Figure 2.2). As with cancer incidence, the numbers are expected to be lower for females, with 14,535 deaths expected to occur for an ASMR of 162.5 per 100,000. Males are projected to account for 52.5% of all cancer deaths in 2018. This number has stayed remarkably stable over time; in 1983, males accounted for 54.4% of all cancer deaths.

While the number of cancer deaths has increased over time, the ASMR has declined for both males and females. The male ASMR started declining with each year in 1995; the female rate did not start declining in the same way until 2001. The later decline in the female ASMR is probably due to lung cancer mortality. The lung cancer mortality rate for females did not start to decline until 2000—more than 10 years after the male rate started to decline.

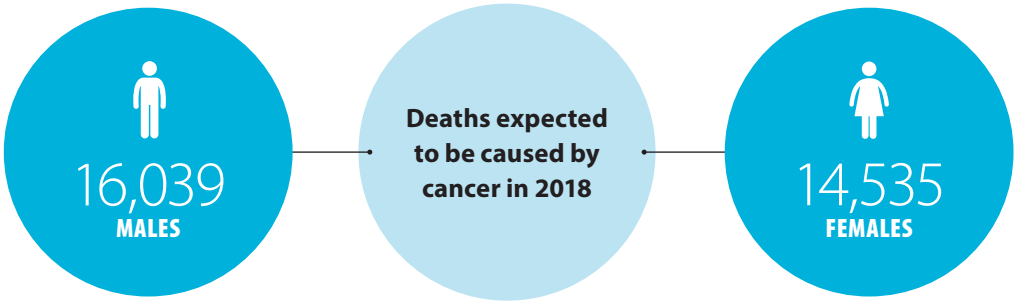
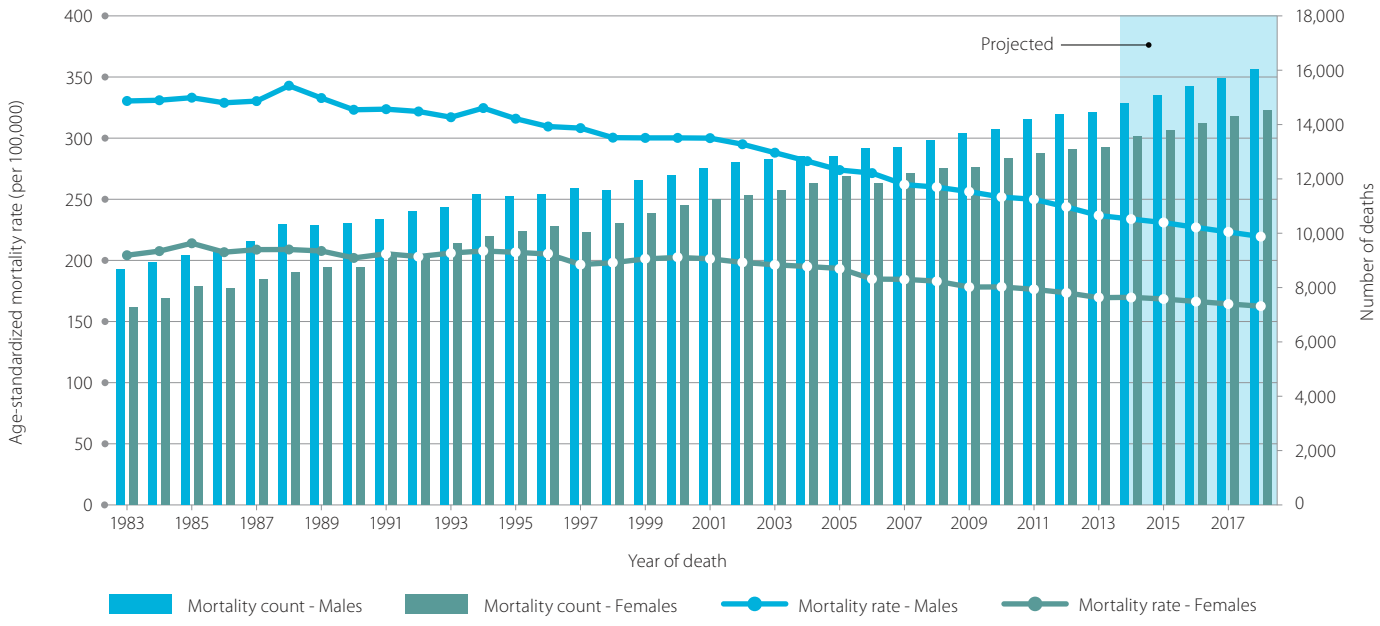


Figure 2.2 **Projected mortality counts and age-standardized rates by sex for all cancers combined, Ontario, 1983–2018**



Note: Rates are per 100,000 and standardized to the age distribution of the 2011 Canadian population.
Analysis by: Surveillance, Analytics and Informatics, CCO
Data source: Ontario Cancer Registry (November 2016), CCO

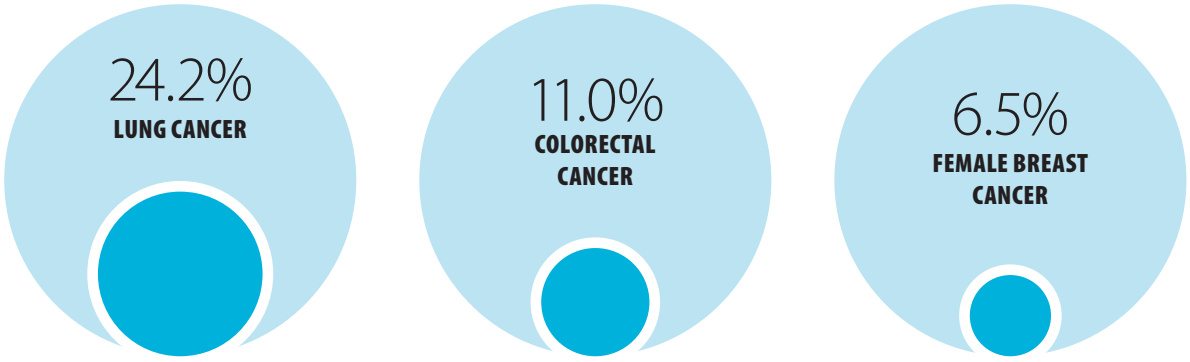
Mortality by cancer type

In 2018, the leading cause of cancer death is expected to be lung cancer, which is projected to account for almost one quarter of all cancer deaths (7,414 deaths or 24.2% of all cancer deaths). This will be followed by colorectal (3,359 deaths or 11.0%) and female breast cancer (1,977 deaths or 6.5%). Pancreatic cancer, despite having a much lower incidence, is projected to cause almost as many deaths (1,956 deaths) as breast cancer.

Lung cancer will also be the leading cause of cancer death for both males and females separately, although the ASMR is projected to be significantly higher for males (52.0 per 100,000) than females (39.6 per 100,000).

For all the cancers listed in Table 2.1, the ASMR is expected to be higher for males than females. Beyond the fact that more males than females are diagnosed with cancer (see *Chapter 1: Estimated current cancer incidence in Ontario*), which translates into higher mortality rates for males, higher male mortality rates can also be attributed to increased prevalence of risk factors such as obesity, alcohol and tobacco use among males, lower use of medical services compared to females and the influence of sex hormones.[1–5]

Leading causes of cancer death as a percentage of all cancer deaths



Pancreatic cancer, despite having a much lower incidence, is projected to cause almost as many deaths (1,956 deaths) as breast cancer.

The greatest disparities between males and females in cancer mortality in 2018 are expected to be the same as the greatest disparities in incidence:

- bladder cancer, for which the male ASMR will be more than three times that of the female rate; and
- liver cancer, for which the male ASMR will be more than twice that of the female rate.

Table 2.1 **Projected mortality counts and age-standardized rates by cancer type and sex for selected cancers, Ontario, 2018**

Cancer type	Both sexes		Males		Females	
	Deaths	ASMR	Deaths	ASMR	Deaths	ASMR
All cancers	**30,574**	**186.9**	**16,039**	**219.5**	**14,535**	**162.5**
Bladder	914	5.5	655	9.1	259	2.7
Breast (female)	—	—	—	—	1,977	23.0
Colorectal	3,359	20.4	1,811	24.9	1,548	16.8
Liver	1,299	8.0	887	11.9	412	4.5
Lung	7,414	45.1	3,865	52.0	3,549	39.6
Pancreas	1,956	11.9	977	13.2	979	10.8
Prostate	—	—	1,647	23.3	—	—

ASMR=Age-standardized mortality rate
Note: Rates are per 100,000 and standardized to the age distribution of the 2011 Canadian population.
Analysis by: Surveillance, Analytics and Informatics, CCO
Data source: Ontario Cancer Registry (November 2016), CCO

Mortality by age group

The greatest number of cancer deaths in 2018 are expected to occur in the 60 to 79 age group, with an estimated 50.3% of all deaths projected to occur in this age group (Table 2.2). The next most common age group for cancer deaths will be the 80 and older group (35.3%). The mortality rate however will be highest in the 80 and older group (1675.6 deaths per 100,000). Cancer mortality before the age of 40 will be rare with only 382 deaths expected to occur in this age group (1.2% of all cancer deaths).

Cancer mortality in 2018 is expected to increase significantly with age. The mortality rate is projected to increase from 5.5 per 100,000 in people ages 39 and younger to 1675.6 per 100,000 in people ages 80 and older. Further:

- The mortality rates for bladder, breast, colorectal, pancreas and prostate cancers will also increase significantly with age.
- The mortality rates for liver and lung cancers will increase non-significantly with age.

Cancer mortality in 2018 is expected to increase significantly with age. The mortality rate is projected to increase from 5.5 per 100,000 in people ages 39 and younger to 1675.6 per 100,000 in people ages 80 and older.

Percentage of deaths by age group

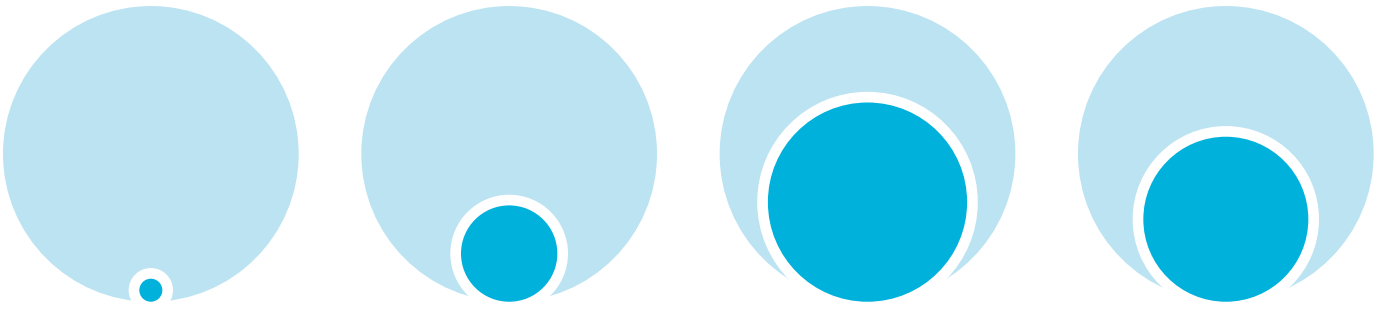


Table 2.2 **Projected mortality counts and age-specific rates by cancer type and age group for selected cancers, Ontario, 2018**

Cancer type	Age group (years)							
	0–39		40–59		60–79		80+	
	Deaths	Age-specific rate	Deaths	Age-specific rate	Deaths	Age-specific rate	Deaths	Age-specific rate
All cancers*	**382**	**5.5**	**3,999**	**101.4**	**15,394**	**560.2**	**10,799**	**1,675.6**
Bladder*	**	**	60	1.5	380	13.8	472	73.3
Breast (female)*	43	1.3	468	23.4	839	58.4	627	161.8
Colorectal*	27	0.4	389	9.9	1,546	56.3	1,397	216.8
Liver	10	0.1	183	4.6	745	27.1	361	56.0
Lung	19	0.3	854	21.6	4,377	159.3	2,165	336.0
Pancreas*	7	0.1	266	6.7	1,053	38.3	630	97.7
Prostate*	0	0	50	2.6	648	49.5	949	368.8

*Significant increasing trend in age-specific rates with increasing age
**Supressed due to small cell counts (n<6)
Analysis by: Surveillance, Analytics and Informatics, CCO
Data source: Ontario Cancer Registry (November 2016), CCO

This chapter presented an overview of projected cancer mortality frequencies and rates for 2018 for selected cancers. For more information on cancer mortality in Ontario, including data on more cancer types and trends over time, see *Chapter 5: Cancer mortality rates and trends*.

References

1. Dorak MT, Karpuzoglu E. Gender differences in cancer susceptibility: an inadequately addressed issue. Front Genet. 2012;3:268.
2. Bouman A, Heineman MJ, Faas MM. Sex hormones and the immune response in humans. Hum Reprod Update. 2005;11(4):411-23.
3. Chandanos E, Lagergren J. Oestrogen and the enigmatic male predominance of gastric cancer. Eur J Cancer. 2008;44(16):2397-403.
4. Ober C, Loisel DA, Gilad Y. Sex-specific genetic architecture of human disease. Nat Rev Genet. 2008;9(12):911-22.
5. Cook MB, McGlynn KA, Devesa SS, Freedman ND, Anderson WF. Sex disparities in cancer mortality and survival. Cancer Epidemiol Biomarkers Prev. 2011;20(8):1629-37.