

362,557

**people living in Ontario with a cancer diagnosis
within the previous 10 years**

5

Prevalence

There are more people in Ontario living with a diagnosis of cancer today than there were 20 years ago.

The number of people previously diagnosed with a malignant cancer who are alive at a given point in time is known as the prevalence. Cancer prevalence is a function of the incidence of and survival from cancer. As both incidence and survival rates have been increasing in Ontario, prevalence over time has also been increasing.

Trends in cancer prevalence reflect the increase, decrease or stability of cancer rates in the population. As a result, they can be used to help determine the allocation of diagnostic, treatment and care resources.¹

This chapter presents limited-duration, person-based prevalence. Limited-duration cancer prevalence describes the number of people alive on a certain date (the index date) who were diagnosed with cancer within a specified previous number of years (e.g., two, five or 10 years). In this report, the index date is January 1, 2013.

Cancer cases diagnosed in the previous 10 years represent the greatest impact on the healthcare system. In the first two years after diagnosis, healthcare services used would likely include primary treatment. During the next three years, services would include close clinical assessment for recurrence. In the final five years after diagnosis, the use of healthcare services would consist mainly of follow-up.

Prevalence by cancer type and sex

As of January 1, 2013, there were an estimated 362,557 people living in Ontario (about 2.7% of the population) who had been diagnosed with cancer within the previous 10 years. The split between the sexes was fairly even: 49.3% of prevalent cases were male and 50.7% were female.

Among males, those diagnosed with prostate cancer (75,945 cases) formed the largest proportion of 10-year prevalent cases (**Figure 5.1**), which reflects the high incidence and survival for this cancer. Colorectal cancer (24,065) was the second most prevalent cancer among males, followed by melanoma (9,572) and non-Hodgkin lymphoma (9,083).

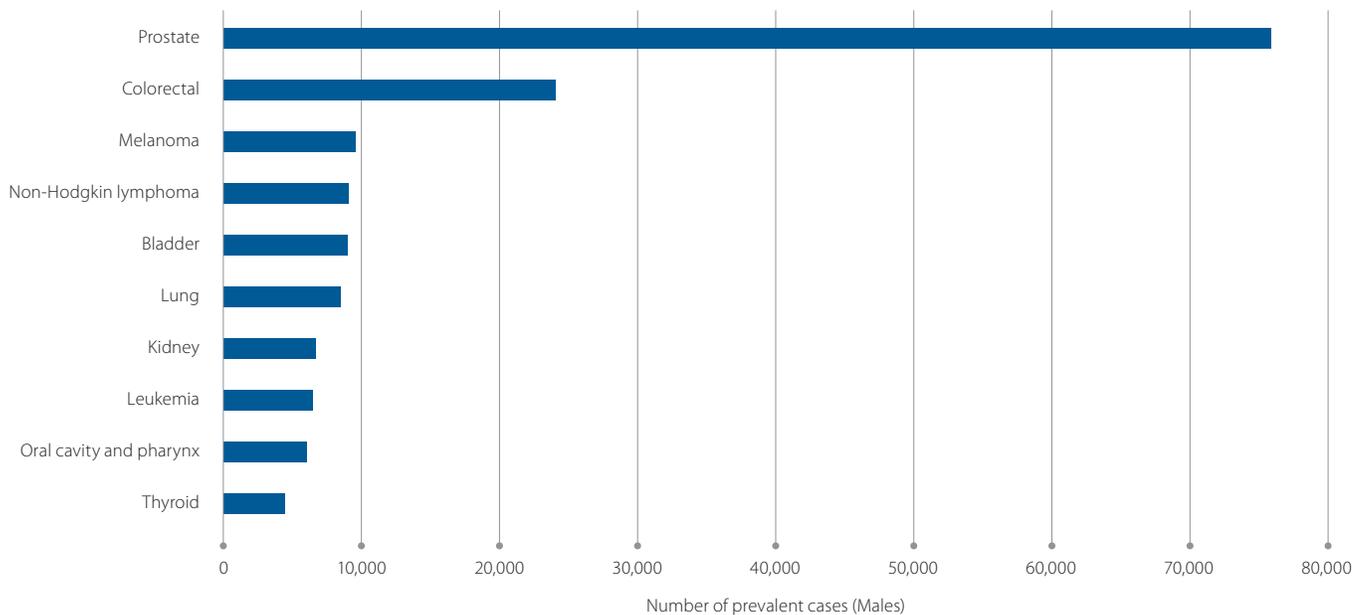
Among females, those diagnosed with breast cancer (67,779) formed the largest proportion of 10-year prevalent cases. Like prostate cancer, the high prevalence of breast cancer

reflects both high incidence and high survival. As with males, colorectal cancer (20,494) was the second most prevalent cancer. The next most prevalent cancers in females were thyroid (17,180) and uterus (14,930).

For both males and females, lung cancer was not among the four most prevalent cancers despite being the second most commonly diagnosed cancer for each sex in 2012. This reflects the low survival ratios for lung cancer. As a result, less commonly diagnosed cancers (melanoma and non-Hodgkin lymphoma in males and thyroid and uterus in females) were more prevalent in the population.

Figure 5.1

Distribution of 10-year prevalence, by cancer type and sex, Ontario, January 1, 2013



Note: Prevalence counts: males n=178,825; females n=183,732.

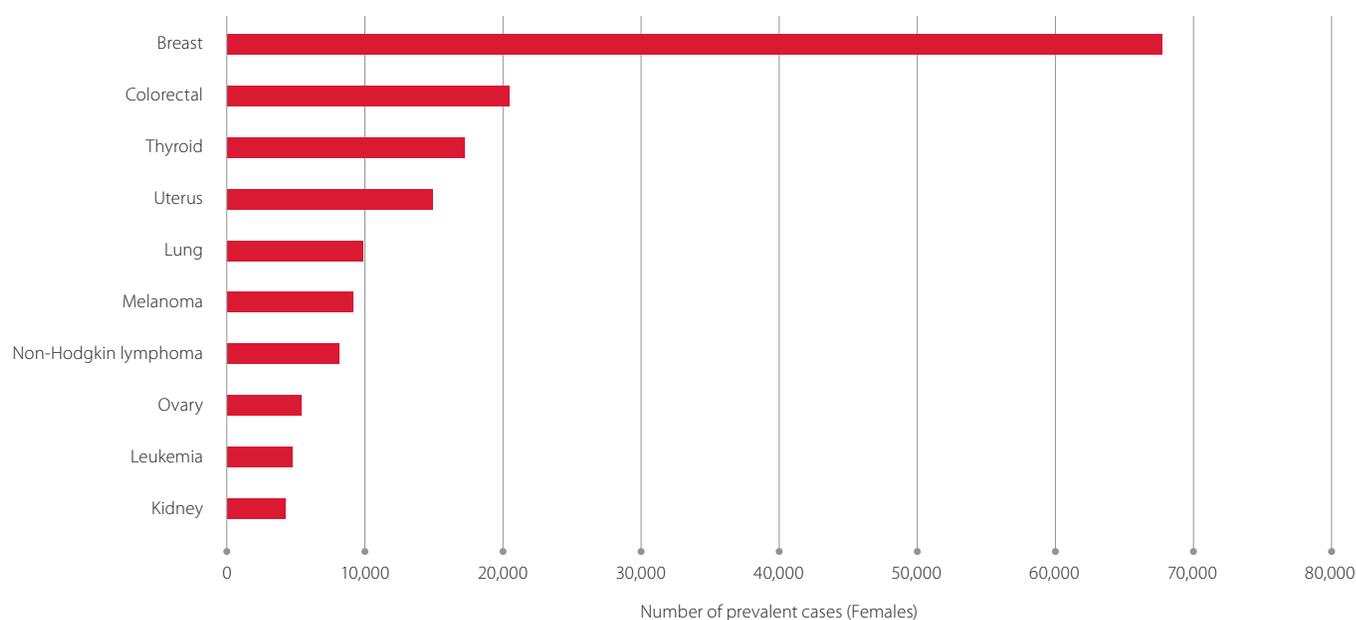
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Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)

Prostate, female breast and colorectal cancers had the highest 10-year prevalence.

There were some notable differences in 10-year prevalence between the sexes:

- Bladder cancer accounted for 8,951 prevalent cases among males and 2,794 among females. The higher prevalence of bladder cancer in males is in part due to the higher incidence rate in males (ASIR of 58.2 per 100,000 in 2012) compared to females (ASIR of 16.0 per 100,000). Males also have higher relative survival compared to females.
- The prevalence of head and neck cancers was higher among males than among females. Oral cavity and pharynx cancer accounted for 5,999 prevalent cases among males compared to 3,062 among females, while there were 1,945 prevalent cases of laryngeal cancer among males and 374 among females. Like bladder cancer, the incidence rates for oral cavity and laryngeal cancers are higher among males than females.
- On the other hand, thyroid cancer was more prevalent among females (17,180) than among males (4,439). Thyroid cancer incidence and survival is higher among females than males, resulting in more prevalent cases among females.



Prevalence by age group

The vast majority (80.1%) of 10-year prevalent cases were in people over the age of 50 at diagnosis. The most prevalent age group was 60 to 69 years at diagnosis, with 28.0% of all prevalent cases occurring in this age group. Cancer prevalence was low in children and adolescents, with only 1.3% of prevalent cases diagnosed in people younger than 20 years of age, reflecting the low incidence of cancer in this age group.

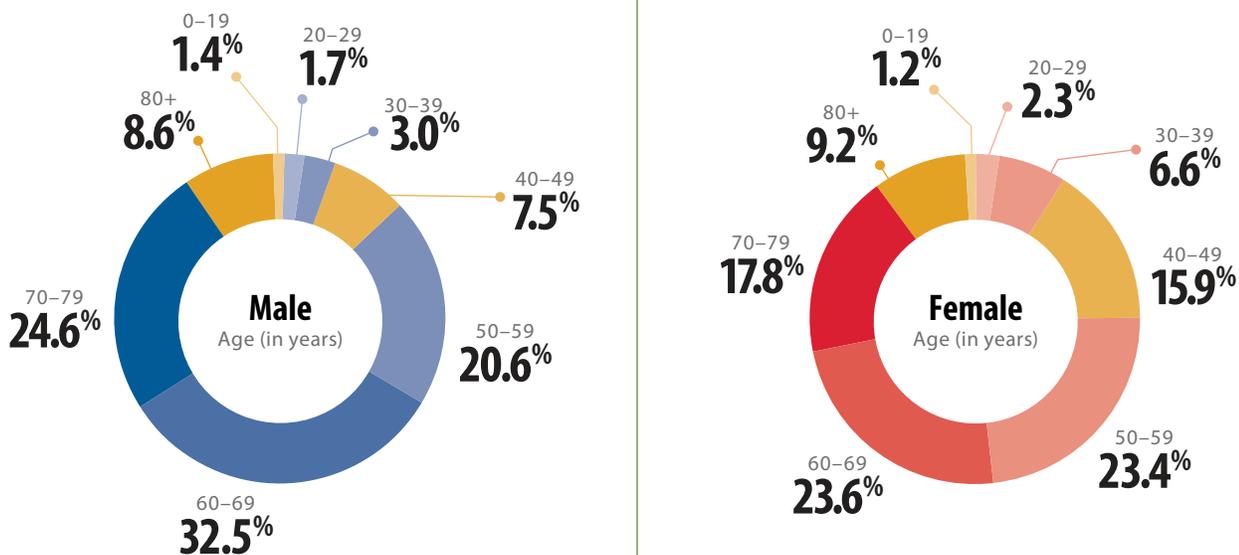
Between the sexes, there were some notable differences in 10-year prevalence (**Figure 5.2**):

- While the age group with the most prevalent cases for both sexes was 60 to 69 years, a larger percentage of prevalent cases was found among males in this age group at 32.5% than among females at 23.6%.

- Prevalent cases were more likely to have been diagnosed at younger ages among females than males. For males, 6.1% of 10-year prevalent cases were diagnosed in people under the age of 40. For females, 10.1% were diagnosed in this age group. In addition, 33.2% of cases were diagnosed after the age of 70 among males compared to 27.0% of cases among females. This is likely due to the high prevalence of breast cancer in females, which has a wide age distribution at diagnosis, and the high prevalence of prostate cancer in males, which is more commonly diagnosed at older ages.

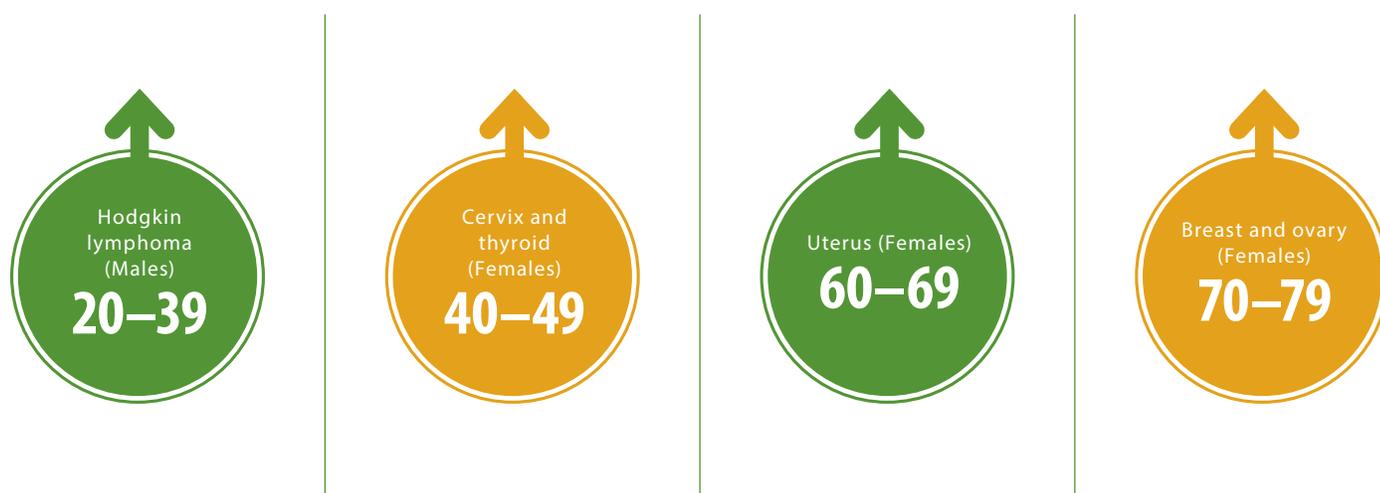
Figure 5.2

Distribution of 10-year prevalence, by sex and age group, Ontario, January 1, 2013



Analysis by: Surveillance, Analytics and Informatics, CCO
Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)

Peak age (in years) for 10-year cancer prevalence proportions



Among male adults, significant increases with advancing age in 10-year prevalence proportions were seen for all cancers except for Hodgkin lymphoma and testicular, brain and thyroid cancers (**Table 5.1**).

- For Hodgkin lymphoma and testicular cancer, which both peaked in the youngest age group (20 to 39 years of age), 10-year prevalence proportions decreased significantly with increasing age.
- The 10-year prevalence proportion for brain cancer peaked in people 50 to 59 years of age and then decreased in the older age groups, while the proportion for thyroid cancer peaked among people 60 to 69 years of age.

Among female adults, 10-year prevalence proportions increased significantly with increasing age for all cancers except brain, breast, cervix, Hodgkin lymphoma, ovary, thyroid and uterus (**Table 5.1**).

- As with males, the 10-year prevalence proportion for Hodgkin lymphoma decreased significantly with increasing age, peaking in the youngest age group (people 20 to 39 years of age).
- Prevalence proportions for breast and ovarian cancers increased with age group, peaking in those 70 to 79 years of age and decreasing in those 80 years of age and older.
- The uterine cancer prevalence proportion peaked in women 60 to 69 years of age and then decreased among women in older age groups.
- Cervical and thyroid cancers peaked among women 40 to 49 years of age and then decreased in women in older age groups.

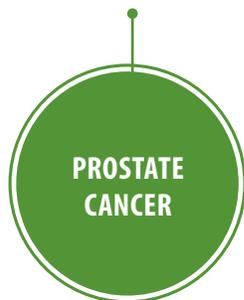
Prevalence by duration

Among people alive on January 1, 2013, the 10-year prevalence proportion was 2,689.5 per 100,000 (**Table 5.3**). The five-year prevalence proportion was 1,646.8 per 100,000 and the two-year prevalence proportion was 786.9 per 100,000. For all cancers combined, the split between males and females was relatively even in each duration period.

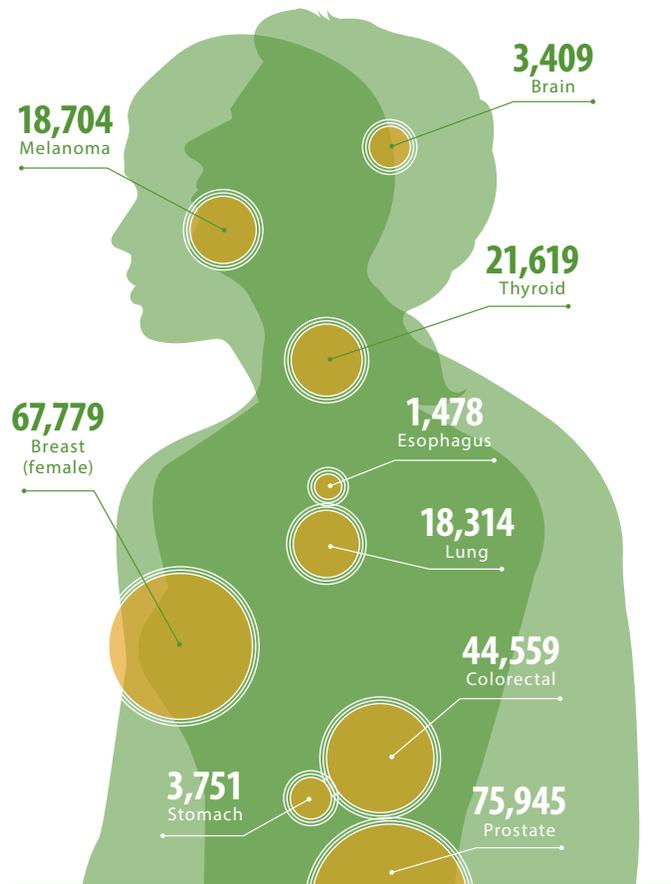
- Prostate cancer (1,147.0 per 100,000) and female breast cancer (988.2 per 100,000) accounted for almost 40% of all 10-year prevalent cancers. The relative contribution of both female breast and prostate cancers decreased with shorter prevalence periods. Prostate cancer made up 16.4% and female breast cancer accounted for 16.2% of two-year prevalent cases.
- Lung cancer, on the other hand, accounted for a greater proportion of prevalent cases as the prevalence duration shortened. At 135.9 per 100,000 lung cancer accounted for 5.1% of 10-year prevalent cases compared to 8.3% of two-year prevalent cases (65.7 per 100,000).
- In comparison, colorectal cancer contributed a fairly equal proportion of prevalent cases regardless of the prevalence duration. It accounted for 12.3%, 12.6% and 12.3% of all prevalent cases in each duration period, respectively.



Together accounted for almost 40% of all 10-year prevalent cancers



Number of 10-year prevalent cases for selected cancers, January 1, 2013



Prevalence over time

The 10-year prevalence proportion of cancer in Ontario has increased over time. For all cancers combined, the prevalence proportion per 100,000 people was 1,677.9 in 1992, 2,161.8 in 2002 and 2,689.5 in 2012. There was an increase of 24.4% between 1992 and 2002 and of 28.8% between 2002 and 2012 (**Table 5.4**). As these rates are not age-standardized, part of this increase is likely due to an aging population and population growth rather than just increased incidence rates or survival.

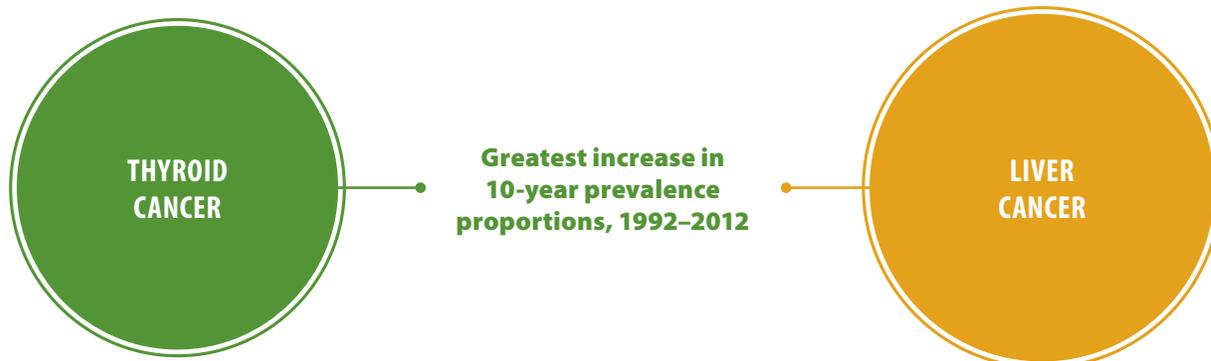
Between 1992 and 2002, males (37.0%) had a greater increase in 10-year cancer prevalence than did females (21.9%). The gap narrowed between 2002 and 2012 to a 26.3% increase for males and a 22.6% increase for females.

Over time, 10-year prevalence proportions increased for most cancers. The greatest increases were for thyroid and liver cancers:

- Thyroid cancer increased by 102.2% between 1992 and 2002 and by 125.5% between 2002 and 2012.
- Liver cancer increased by 143.2% between 1992 and 2002 and by 100.7% between 2002 and 2012.

While the prevalence proportion of most cancers increased between 1992 and 2012, for some cancer types it decreased over the same time period:

- The prevalence proportion for laryngeal cancer for both sexes combined decreased by 17.4% between 1992 and 2002 and by 9.6% between 2002 and 2012. The decrease was greater for females than males.
- The prevalence proportion for cervical cancer decreased by 7.8% between 1992 and 2002 and by 8.0% between 2002 and 2012. This probably reflects the significant decreases in cervical cancer incidence over this time period.
- The prevalence proportion for bladder cancer decreased by 10.3% between 1992 and 2002 and increased by 0.6% between 2002 and 2012. While the prevalence proportion increased for both sexes combined between 2002 and 2012, it decreased by 6.2% among females.
- The prevalence proportion for Hodgkin lymphoma increased by 1.9% between 1992 and 2002 before it decreased by 3.2% between 2002 and 2012.
- The prevalence proportion for oral cavity and pharynx cancer decreased by 3.1% between 1992 and 2002, and then increased by 22.0% between 2002 and 2012. The decrease between 1992 and 2002, however, was only among males and not females.

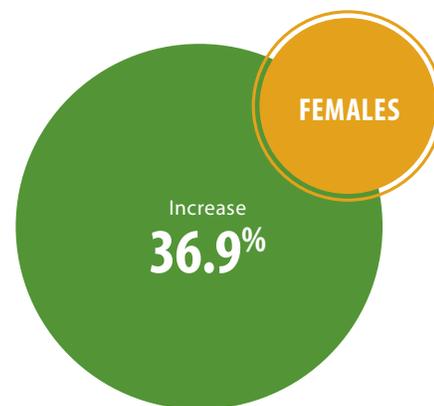
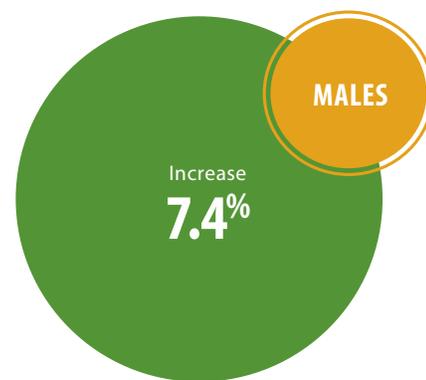


While the prevalence proportions of most cancers increased between 1992 and 2012, some cancer types decreased over the same time period.

There were some notable differences in the prevalence of lung cancer between males and females over time. The male prevalence proportion decreased by 5.2% between 1992 and 2002, and then increased by 7.4% between 2002 and 2012. In comparison, the prevalence proportion among females increased by 30.1% between 1992 and 2002 and by 36.9% between 2002 and 2012. This greater increase among females probably reflects differing historical smoking rates between men and women. The male lung cancer incidence rate has been stable or decreasing since 1981 while the female rate has been increasing over the same time period, resulting in increased prevalence among females.

The prevalence of esophageal cancer also varied by sex. Male prevalence proportions increased by of 29.2% between 1992 and 2002 followed by an increase of 54.2% between 2002 and 2012. Female proportions also increased, but the level of increase was smaller at 4.6% between 1992 and 2002 and 14.3% between 2002 and 2012.

Lung cancer prevalence proportions, 2002–2012



REFERENCES

1. Micheli A, Mugno E, Krogh V, Quinn MJ, Coleman M, Hakulinen T, et al. Cancer prevalence in European registry areas. *Ann Oncol.* 2002; 13(6):840-65.

Table 5.1

Ten-year prevalence proportions (per 100,000), by age group, cancer type and sex, Ontario, January 1, 2013

Cancer type	Males						
	Age group (years)						
	All ages	20–39	40–49	50–59	60–69	70–79	80+
All cancers [†]	2700.7	482.2	1,393.7	3,821.2	8,595.9	11,596.9	7,507.0
Bladder [†]	131.9	5.3	37.7	132.2	377.2	784.9	768.3
Brain	27.4	24.6	31.6	34.5	33.5	29.2	17.8
Colorectal [†]	363.4	30.5	163.4	488.5	1,090.7	1,777.5	1,388.1
Esophagus [†]	16.7	0.7	8.5	26.0	54.1	73.3	49.7
Hodgkin lymphoma [†]	24.0	36.1	28.3	17.3	19.5	17.7	3.9
Kidney [†]	104.4	16.8	106.5	178.7	275.2	328.0	186.7
Larynx [†]	29.4	1.1	12.9	48.5	95.3	129.2	83.4
Leukemia [†]	97.6	22.1	62.5	127.1	231.7	328.0	315.9
Liver [†]	23.3	2.1	14.4	48.6	65.0	80.6	42.0
Lung [†]	127.6	5.4	37.2	136.8	403.3	735.8	515.1
Melanoma [†]	144.6	48.8	126.8	208.7	348.5	510.4	484.2
Myeloma [†]	33.4	2.2	19.7	45.5	96.5	155.8	132.6
Non-Hodgkin lymphoma [†]	137.2	44.0	120.0	198.6	342.1	470.7	368.5
Oral cavity and pharynx [†]	90.6	16.9	98.2	184.2	238.8	239.0	176.5
Pancreas [†]	15.7	2.7	10.1	23.2	46.9	67.1	38.1
Prostate [†]	1147.0	1.3	197.5	1,614.4	4,577.6	5,590.2	2,539.8
Stomach [†]	34.8	3.4	21.8	42.6	100.8	165.2	137.5
Testis [†]	51.6	119.1	73.0	26.0	10.1	7.0	5.3
Thyroid	67.0	52.3	109.6	110.0	114.8	102.5	39.5

[†]Statistically significant increasing trend in prevalence proportions across age groups

[†]Statistically significant decreasing trend in prevalence proportions across age groups

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)

Table 5.1

(Cont'd) Ten-year prevalence proportions (per 100,000), by age group, cancer type and sex, Ontario, January 1, 2013

Cancer type	Females						
	Age group (years)						
	All ages	20–39	40–49	50–59	60–69	70–79	80+
All cancers [†]	2,678.7	898.5	2976.6	4341.6	5970.3	7348.0	4996.7
Bladder [†]	40.7	2.6	10.8	39.0	90.1	183.1	163.7
Brain	23.2	20.7	28.1	26.4	28.5	29.4	17.1
Breast (female)	988.2	19.6	129.2	179.0	232.0	247.6	154.1
Cervix	61.3	7.9	12.4	7.6	6.3	4.7	2.3
Colorectal [†]	298.8	27.0	161.1	369.0	697.6	1276.8	1140.9
Esophagus [†]	5.4	0.4	2.5	8.1	13.9	21.8	17.1
Hodgkin lymphoma [†]	20.2	36.4	17.6	13.6	12.5	15.6	6.8
Kidney [†]	61.9	13.4	55.1	110.0	151.7	208.5	111.5
Larynx [†]	5.5	0.9	2.4	8.9	16.2	19.8	10.3
Leukemia [†]	68.7	18.6	45.1	75.9	132.7	221.2	192.6
Liver [†]	8.8	1.5	6.1	13.5	20.3	30.3	21.5
Lung [†]	143.8	7.3	56.4	186.7	440.7	649.1	345.4
Melanoma [†]	133.1	80.8	168.7	196.1	237.0	289.3	264.9
Myeloma [†]	26.5	1.5	15.5	34.5	65.0	110.7	92.3
Non-Hodgkin lymphoma [†]	118.3	33.5	93.9	170.7	281.3	397.4	260.8
Oral cavity and pharynx [†]	44.6	13.1	43.3	75.5	93.8	133.0	93.2
Ovary	78.6	32.0	106.0	138.5	165.0	171.5	85.0
Pancreas [†]	15.1	2.4	10.3	20.7	43.6	52.6	33.9
Stomach [†]	21.1	4.5	15.1	25.6	48.2	85.1	64.0
Thyroid	250.5	260.2	467.2	397.8	309.4	223.0	65.5
Uterus	217.7	21.3	153.3	472.2	662.7	564.7	259.9

[†]Statistically significant increasing trend in prevalence proportions across age groups[‡]Statistically significant decreasing trend in prevalence proportions across age groups

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)

Table 5.2 Number of prevalent cancer cases by duration, cancer type and sex, Ontario, January 1, 2013

	10-year prevalence			5-year prevalence			2-year prevalence		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
All cancers	362,557	178,825	183,732	221,988	109,701	112,287	106,073	52,599	53,474
Bladder	11,745	8,951	2,794	7,268	5,601	1,667	3,484	2,673	811
Brain	3,409	1,816	1,593	2,242	1,208	1,034	1,261	683	578
Breast (female)	67,779	—	67,779	39,014	—	39,014	17,181	—	17,181
Cervix	4,208	—	4,208	2,390	—	2,390	1,078	—	1,078
Colorectal	44,559	24,065	20,494	27,886	15,193	12,693	13,039	7,138	5,901
Esophagus	1,478	1,106	372	1,145	878	267	768	590	178
Hodgkin lymphoma	2,975	1,587	1,388	1,591	852	739	679	379	300
Kidney	10,954	6,711	4,243	6,812	4,263	2,549	3,200	2,037	1,163
Larynx	2,319	1,945	374	1,367	1,154	213	646	534	112
Leukemia	11,175	6,460	4,715	6,986	4,081	2,905	3,297	1,936	1,361
Liver	2,143	1,540	603	1,591	1,129	462	951	651	300
Lung	18,314	8,450	9,864	13,904	6,480	7,424	8,851	4,225	4,626
Melanoma	18,704	9,572	9,132	11,216	5,929	5,287	5,011	2,691	2,320
Myeloma	4,029	2,214	1,815	2,907	1,612	1,295	1,651	910	741
Non-Hodgkin lymphoma	17,198	9,083	8,115	10,782	5,802	4,980	5,251	2,853	2,398
Oral cavity and pharynx	9,061	5,999	3,062	5,721	3,863	1,858	2,883	1,998	885
Ovary	5,393	—	5,393	3,390	—	3,390	1,659	—	1,659
Pancreas	2,071	1,037	1,034	1,639	836	803	1,138	593	545
Prostate	75,945	75,945	—	41,917	41,917	—	17,420	17,420	—
Stomach	3,751	2,304	1,447	2,599	1,635	964	1,505	972	533
Testis	3,418	3,418	—	1,829	1,829	—	784	784	—
Thyroid	21,619	4,439	17,180	12,997	2,776	10,221	6,113	1,419	4,694
Uterus	14,930	—	14,930	9,212	—	9,212	4,371	—	4,371

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)

Table 5.3 Prevalence proportions (per 100,000), by duration, cancer type and sex, Ontario, January 1, 2013

	10-year prevalence			5-year prevalence			2-year prevalence		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
All cancers	2,689.5	2,700.8	2,678.7	1,646.8	1,656.8	1,637.1	786.9	794.4	779.6
Bladder	87.1	135.2	40.7	53.9	84.6	24.3	25.8	40.4	11.8
Brain	25.3	27.4	23.2	16.6	18.2	15.1	9.4	10.3	8.4
Breast (female)	988.2	—	988.2	568.8	—	568.8	250.5	—	250.5
Cervix	61.3	—	61.3	34.8	—	34.8	15.7	—	15.7
Colorectal	330.5	363.5	298.8	206.9	229.5	185.1	96.7	107.8	86.0
Esophagus	11.0	16.7	5.4	8.5	13.3	3.9	5.7	8.9	2.6
Hodgkin lymphoma	22.1	24.0	20.2	11.8	12.9	10.8	5.0	5.7	4.4
Kidney	81.3	101.4	61.9	50.5	64.4	37.2	23.7	30.8	17.0
Larynx	17.2	29.4	5.5	10.1	17.4	3.1	4.8	8.1	1.6
Leukemia	82.9	97.6	68.7	51.8	61.6	42.4	24.5	29.2	19.8
Liver	15.9	23.3	8.8	11.8	17.1	6.7	7.1	9.8	4.4
Lung	135.9	127.6	143.8	103.1	97.9	108.2	65.7	63.8	67.4
Melanoma	138.8	144.6	133.1	83.2	89.5	77.1	37.2	40.6	33.8
Myeloma	29.9	33.4	26.5	21.6	24.3	18.9	12.2	13.7	10.8
Non-Hodgkin lymphoma	127.6	137.2	118.3	80.0	87.6	72.6	39.0	43.1	35.0
Oral cavity and pharynx	67.2	90.6	44.6	42.4	58.3	27.1	21.4	30.2	12.9
Ovary	78.6	—	78.6	49.4	—	49.4	24.2	—	24.2
Pancreas	15.4	15.7	15.1	12.2	12.6	11.7	8.4	9.0	7.9
Prostate	1,147.0	1,147.0	—	633.1	633.1	—	263.1	263.1	—
Stomach	27.8	34.8	21.1	19.3	24.7	14.1	11.2	14.7	7.8
Testis	51.6	51.6	—	27.6	27.6	—	11.8	11.8	—
Thyroid	51.6	67.0	250.5	96.4	41.9	149.0	45.3	21.4	68.4
Uterus	217.7	—	217.7	134.3	—	134.3	63.7	—	63.7

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)

Table 5.4

Ten-year prevalence proportions (per 100,000), by time period, cancer type and sex, Ontario, January 1, 1993, January 1, 2003, January 1, 2013

	1992			2002			2012		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
All cancers	1,677.9	1,561.0	1,792.1	2,161.8	2,137.8	2,185.4	2,689.5	2,700.8	2,678.7
Bladder	96.5	144.5	49.5	86.6	130.8	43.4	87.1	135.2	40.7
Brain	21.4	22.8	20.0	22.8	24.1	21.6	25.3	27.4	23.2
Breast (female)	671.2	—	671.2	872.9	—	872.9	988.2	—	988.2
Cervix	72.7	—	72.7	67.1	—	67.1	61.3	—	61.3
Colorectal	230.9	234.6	227.3	270.8	288.9	253.2	330.5	363.5	298.8
Esophagus	6.4	8.4	4.5	7.8	10.8	4.7	11.0	16.7	5.4
Hodgkin lymphoma	22.4	24.5	20.2	22.8	24.9	20.7	22.1	24.0	20.2
Kidney	40.6	48.1	33.2	55.6	66.4	45.1	81.3	101.4	61.9
Larynx	23.0	38.5	7.9	19.0	32.1	6.2	17.2	29.4	5.5
Leukemia	48.3	55.5	41.2	58.8	68.1	49.7	82.9	97.6	68.7
Liver	3.3	4.7	1.9	7.9	11.5	4.4	15.9	23.3	8.8
Lung	102.8	125.3	80.8	111.9	118.8	105.1	135.9	127.6	143.8
Melanoma	82.8	78.9	86.5	100.0	101.2	98.8	138.8	144.6	133.1
Myeloma	16.6	16.7	16.5	21.4	22.7	20.1	29.9	33.4	26.5
Non-Hodgkin lymphoma	65.8	69.4	62.3	90.3	92.6	88.0	127.6	137.2	118.3
Oral cavity and pharynx	56.8	76.8	37.3	55.1	73.1	37.5	67.2	90.6	44.6
Ovary	54.9	—	54.9	71.0	—	71.0	78.6	—	78.6
Pancreas	9.2	8.6	9.8	10.8	10.6	10.9	15.4	15.7	15.1
Prostate	426.5	426.5	—	864.6	864.6	—	1,147.0	1,147.0	—
Stomach	21.0	25.5	16.5	22.8	27.8	17.9	27.8	34.8	21.1
Testis	40.2	40.2	—	47.4	47.4	—	51.6	51.6	—
Thyroid	35.2	16.1	53.8	71.1	30.5	110.8	160.4	67.0	250.5
Uterus	150.4	—	150.4	160.2	—	160.2	217.7	—	217.7

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: CCO SEER*Stat Package Release 10—OCR (August 2015)