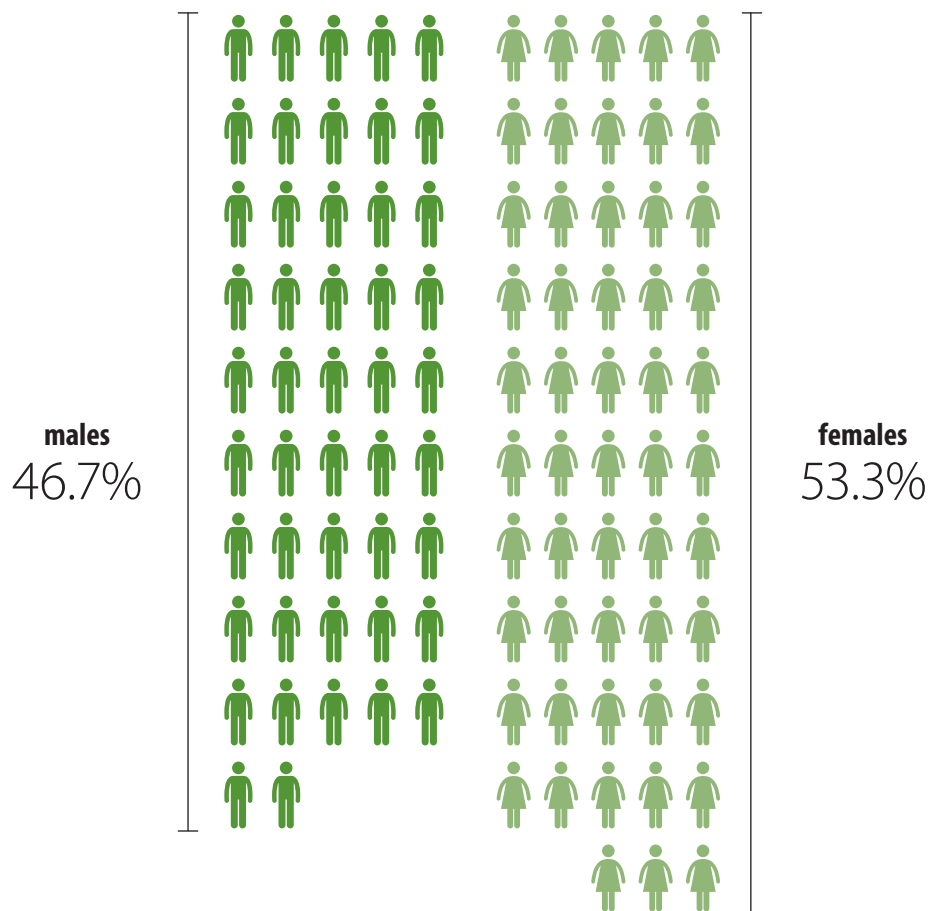

Cancer prevalence

Prevalence measures the number of people diagnosed with cancer who are still alive. This chapter presents current and historical statistics on cancer prevalence in Ontario.



Living with cancer

“In Ontario, 585,016 people are living with a diagnosis of cancer in the past 30 years, 311,759 females and 273,257 males.”



There are currently more people living with a diagnosis of cancer in Ontario than there were 20 years ago. Cancer prevalence—the number of people previously diagnosed with a malignant cancer who are alive at a given point in time—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 incidence and mortality 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 counts. Limited-duration cancer prevalence describes the number of people alive on a certain date (i.e., the index date) who were diagnosed with cancer within a specified previous number of years (e.g., two years, five years, 10 years, 30 years). This report uses an index date of January 1, 2014.

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, they would include close clinical assessment for recurrence; and in the next five years, they would consist mainly of follow-up.

Prevalence by cancer type and sex

At the index date of January 1, 2014, an estimated 370,713 people living in Ontario had been diagnosed with cancer in the previous 10 years (i.e., since 2003) (Table 7.1). Of those diagnosed during the past 30 years, it is estimated that more than half a million people (585,016) were still alive at the end of 2013. Of these Ontarians, 51.0% of 10-year prevalent cases and 53.3% of 30-year prevalent cases were female even though cancer incidence rates were higher among males (see *Chapter 1: Estimated current cancer incidence in Ontario* and *Chapter 4: Cancer incidence rates and trends*). This largely reflects the higher prevalence of thyroid and lung cancers in female survivors due to greater incidence (for thyroid) and survival (for lung) of these cancers in females compared to males.

Prostate cancer was the largest contributor to 10-year prevalence, accounting for 75,610 prevalent cases (Figure 7.1). This reflects the high incidence and survival of prostate cancer. Female breast (69,412) and colorectal (45,346) cancers were the next most prevalent types. Lung cancer, despite being the third most commonly diagnosed cancer, only ranked sixth in prevalence; it was superseded by higher-survival thyroid cancer and melanoma.

Slightly different patterns were observed in 30-year prevalence. Breast cancer was the leading contributor to 30-year prevalence, accounting for 121,658 cases, followed by prostate (111,759) and colorectal (69,966) cancers. In the context of 30-year prevalence, lung cancer fell even further down the rankings, with other cancers (non-Hodgkin lymphoma and uterine cancer) being more prevalent despite the higher incidence of lung cancer.

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

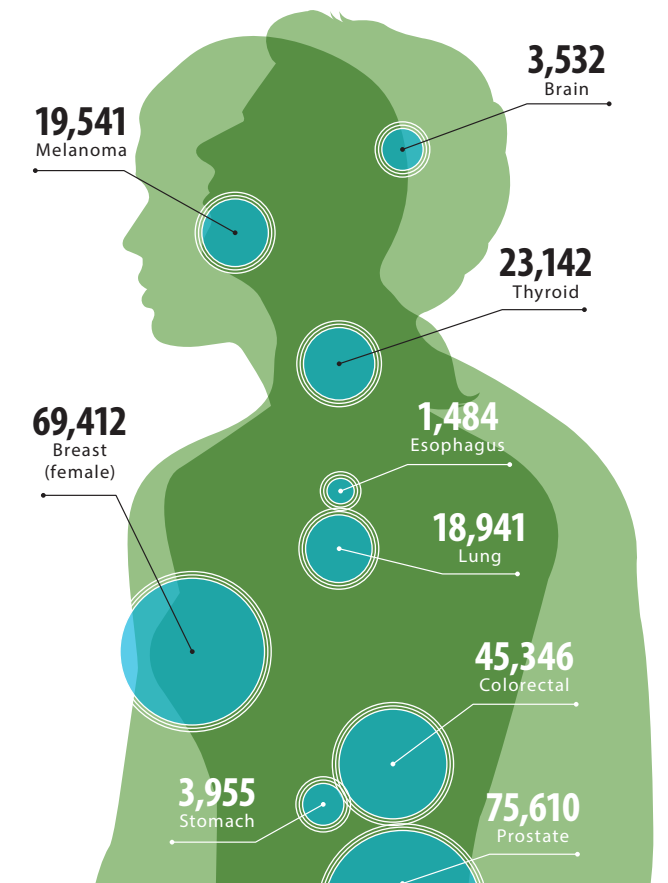
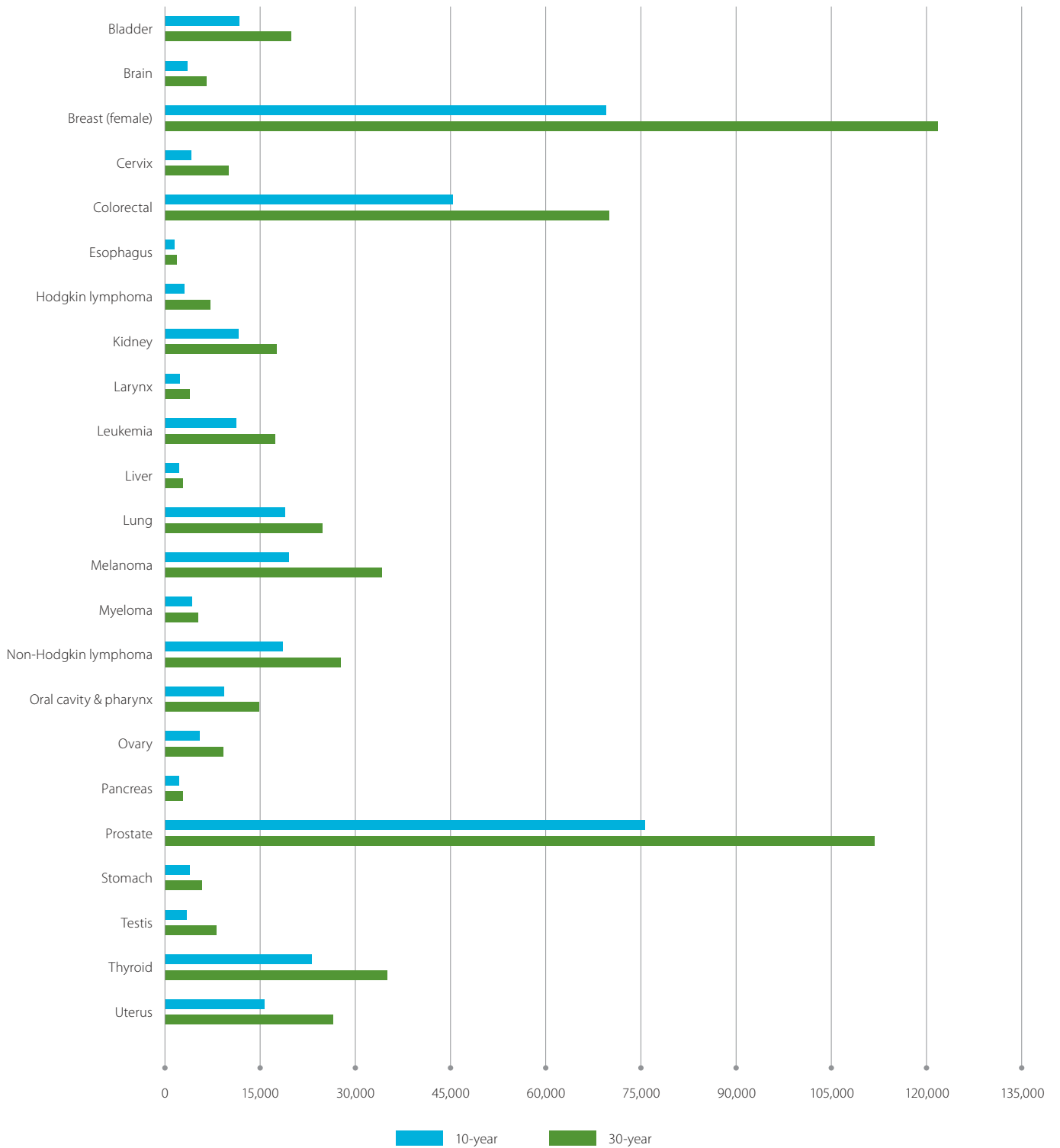


Figure 7.1 Limited duration prevalence by cancer type, Ontario, 2013



Note: Prevalence counts are based on IARC/IACR rules for counting multiple primaries.

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: Ontario Cancer Registry (November 2016), CCO

The leading 10-year prevalent cancers among males were prostate (75,610) and colorectal (24,594) cancers and melanoma (9,945). For females, the leading prevalent cancers were breast (69,412), colorectal (20,752) and thyroid (18,302) cancers (Table 7.1). Other notable differences in 10-year prevalence between the sexes include the following:

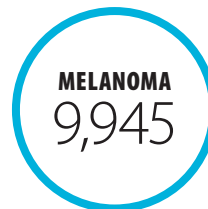
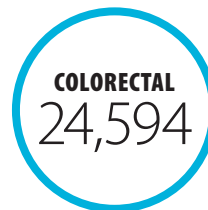
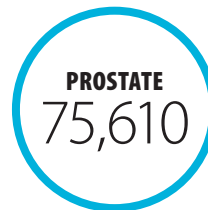
- Bladder cancer accounted for 8,996 prevalent cases among males but only 2,735 cases among females. The higher prevalence of this type of cancer in males is partly due to the higher incidence rate in males. Bladder cancer survival is also higher in males compared to females.
- The prevalence of head and neck cancers was higher among males than females. Oral cavity & pharynx cancer accounted for 6,229 prevalent cases among males compared to 3,124 among females, while there were 1,963 prevalent cases of laryngeal cancer among males and just 366 among females. Like bladder cancer, the incidence of oral cavity and laryngeal cancers was higher among males.
- Conversely, thyroid cancer was more prevalent among females (18,302) than males (4,840) due to higher incidence and survival among females.
- Lung cancer was the only other cancer more prevalent among females. This reflects higher survival from lung cancer in females and the decreasing incidence rate among males over the past decade.

Similar differences between the sexes were seen in 30-year prevalence, with the exception that pancreatic cancer and melanoma were also higher in females than males.

Cervical cancer, Hodgkin lymphoma and testicular cancer had the greatest relative increases in prevalence between 10-year and 30-year durations (Figure 7.1). Myeloma, liver and esophageal cancers showed the smallest relative increases. Further:

- Among males, Hodgkin lymphoma, testicular and brain cancers showed the greatest increases.
- Among females, Hodgkin lymphoma, cervical and brain cancers showed the greatest increases.

The leading 10-year prevalent cancers among males were:



The leading 10-year prevalent cancers among females were:

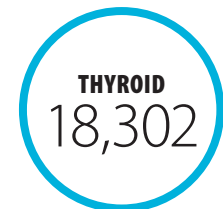
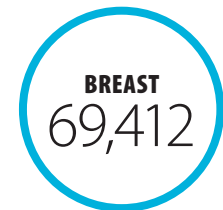


Table 7.1 Limited duration prevalence by cancer type and sex, Ontario, 2013

Cancer type	Both Sexes		Males		Females	
	10-year	30-year	10-year	30-year	10-year	30-year
All cancers	370,713	585,016	181,515	273,257	189,198	311,759
Bladder	11,731	19,843	8,996	14,869	2,735	4,974
Brain	3,532	6,540	1,881	3,402	1,651	3,138
Breast (female)	69,412	121,658	—	—	69,412	121,658
Cervix	4,114	9,990	—	—	4,114	9,900
Colorectal	45,346	69,966	24,594	36,780	20,752	33,186
Esophagus	1,484	1,901	1,115	1,380	369	521
Hodgkin lymphoma	3,013	7,198	1,588	3,768	1,425	3,430
Kidney	11,530	17,635	7,116	10,506	4,414	7,129
Larynx	2,329	3,930	1,963	3,283	366	647
Leukemia	11,194	17,299	6,444	9,836	4,750	7,463
Liver	2,273	2,865	1,659	2,083	614	782
Lung	18,941	24,839	8,649	11,611	10,292	13,228
Melanoma	19,541	34,165	9,945	16,540	9,596	17,625
Myeloma	4,257	5,264	2,370	2,877	1,887	2,387
Non-Hodgkin lymphoma	18,592	27,709	9,841	14,450	8,751	13,259
Oral cavity & pharynx	9,353	14,822	6,229	9,682	3,124	5,140
Ovary	5,462	9,166	—	—	5,462	9,166
Pancreas	2,172	2,802	1,094	1,370	1,078	1,432
Prostate	75,610	111,759	75,610	111,759	—	—
Stomach	3,955	5,839	2,420	3,502	1,535	2,337
Testis	3,450	8,095	3,450	8,095	—	—
Thyroid	23,142	34,994	4,840	7,138	18,302	27,856
Uterus	15,630	26,437	—	—	15,630	26,437

Note: Prevalence counts are based on IARC/IACR rules for counting multiple primaries.

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: Ontario Cancer Registry (November 2016), CCO

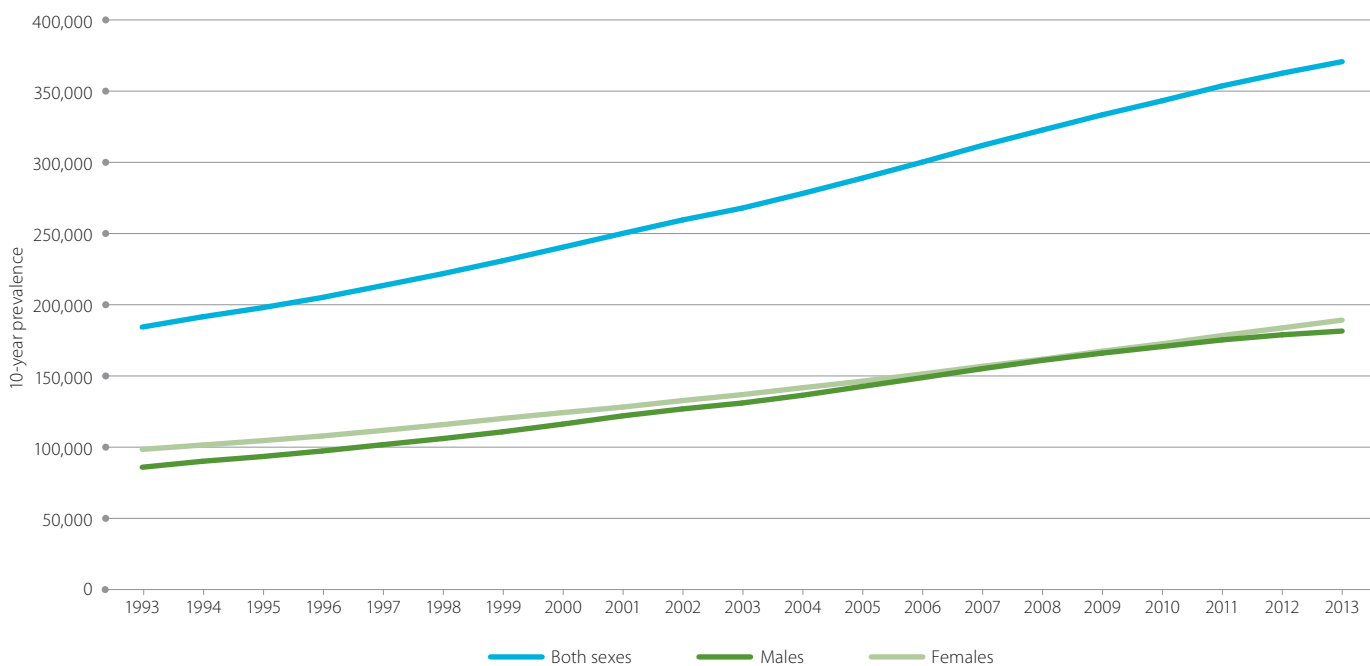
Prevalence over time

The 10-year prevalence of cancer has been increasing over time. At the end of 1993, there were 184,309 people alive who had been diagnosed with cancer in the previous 10 years. By the end of 2013 this number had more than doubled to 370,713 (Table 7.2). The increase was greater for males (111.4%) than females (92.2%). While prevalence was higher in females than males during every year from 1993 to 2013, the difference between the sexes narrowed from 2007 to 2009 and then expanded again (Figure 7.2).

At the end of 1993, there were 184,309 people alive who had been diagnosed with cancer in the previous 10 years. By the end of 2013 this number had more than doubled to 370,713.

Figure 7.2

10-year prevalence by sex for all cancers combined, Ontario, 1993–2013



Note: Prevalence counts are based on IARC/IACR rules for counting multiple primaries.

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: Ontario Cancer Registry (November 2016), CCO

With the exception of laryngeal cancer, the prevalence of all cancer types increased each decade between 1993, 2003 and 2013 (Table 7.2). Laryngeal cancer prevalence decreased from 1993 to 2003 from 2,427 cases to 2,272 cases but increased to 2,329 cases in 2013. Among females, however, the number

of prevalent cases of laryngeal cancer decreased from 2003 to 2013 as well. This decrease in laryngeal cancer prevalence may be a reflection of decreasing incidence rates (as a result of declines in tobacco use²) and decreasing survival.³

The greatest relative increases in prevalence from 1993 to 2003 were in:

- liver cancer, which increased from 363 to 1,026 people;
- thyroid cancer, which increased from 4,054 to 9,405 people; and
- prostate cancer, which increased from 25,213 to 53,371 people.

The greatest relative increases in prevalence from 2003 to 2013 were in:

- thyroid cancer, which increased from 9,405 to 23,142 people;
- liver cancer, which increased from 1,026 to 2,273 people; and
- kidney cancer, which increased from 6,890 to 11,530 people.

The smallest relative increases in prevalence over time were in cervical and bladder cancers.

Table 7.2 10-year prevalence by cancer type, time period and sex, Ontario, 1993, 2003 and 2013

Cancer type	Both Sexes			Males			Females		
	1993	2003	2013	1993	2003	2013	1993	2003	2013
All cancers	184,309	267,842	370,713	85,880	130,984	181,515	98,429	136,858	189,198
Bladder	10,146	10,663	11,731	7,545	7,947	8,996	2,601	2,716	2,735
Brain	2,348	3,125	3,532	1,238	1,650	1,881	1,110	1,475	1,651
Breast (female)	37,384	54,354	69,412	—	—	—	37,384	54,354	69,412
Cervix	3,908	4,066	4,114	—	—	—	3,908	4,066	4,114
Colorectal	24,999	33,430	45,346	12,664	17,532	24,594	12,335	15,898	20,752
Esophagus	689	1,019	1,484	446	713	1,115	243	306	369
Hodgkin lymphoma	2,385	2,785	3,013	1,280	1,514	1,588	1,105	1,271	1,425
Kidney	4,581	6,890	11,530	2,702	4,050	7,116	1,879	2,840	4,414
Larynx	2,427	2,272	2,329	2,002	1,888	1,963	425	384	366
Leukemia	5,272	7,419	11,194	2,991	4,286	6,444	2,281	3,133	4,750
Liver	363	1,026	2,273	251	744	1,659	112	282	614
Lung	11,058	13,454	18,941	6,626	6,918	8,649	4,432	6,536	10,292
Melanoma	8,989	12,525	19,541	4,286	6,284	9,945	4,703	6,241	9,596
Myeloma	1,840	2,653	4,257	935	1,400	2,370	905	1,253	1,887
Non-Hodgkin lymphoma	7,218	11,287	18,592	3,755	5,755	9,841	3,463	5,532	8,751
Oral cavity & pharynx	5,996	6,696	9,353	3,986	4,368	6,229	2,010	2,328	3,124
Ovary	3,029	4,416	5,462	—	—	—	3,029	4,416	5,462
Pancreas	959	1,301	2,172	456	648	1,094	503	653	1,078
Prostate	25,213	53,371	75,610	25,213	53,371	75,610	—	—	—
Stomach	2,262	2,797	3,955	1,386	1,670	2,420	876	1,127	1,535
Testis	2,212	2,858	3,450	2,212	2,858	3,450	—	—	—
Thyroid	4,054	9,405	23,142	906	1,943	4,840	3,148	7,462	18,302
Uterus	8,049	10,017	15,630	—	—	—	8,049	10,017	15,630

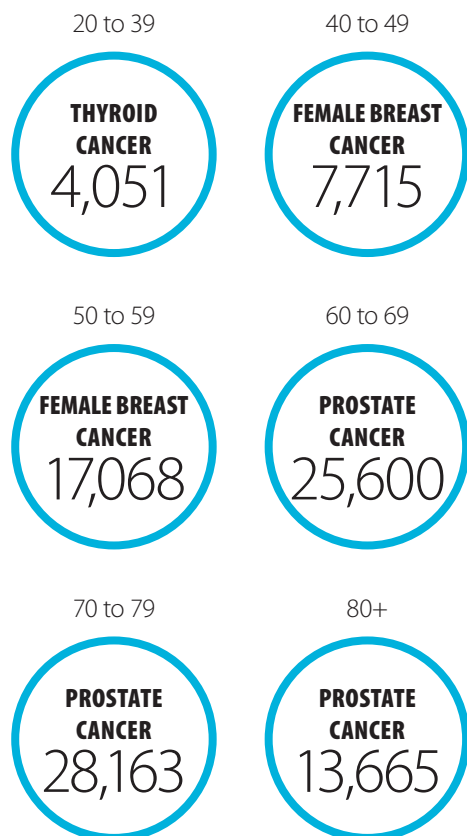
Note: Prevalence counts are based on IARC/IACR rules for counting multiple primaries.

Analysis by: Surveillance, Analytics and Informatics, CCO

Data source: Ontario Cancer Registry (November 2016), CCO

Over time, disparities in prevalence between the sexes have also changed by cancer type. The disparity between male and female prevalence increased over time for bladder, brain, colorectal, esophageal, kidney, liver, oral cavity & pharynx and stomach cancers as well as for leukemia and myeloma. Similarly, while the prevalence of thyroid cancer was higher in females, the disparity also increased over time.

Most prevalent cancer in each age group



Prevalence by age group

The majority (68.6%) of prevalent cancers in 2013 were in people ages 60 or older. The age group with the highest prevalence count was the 60 to 69 age group (Table 7.3). This pattern was also true for females; among males, the 70 to 79 age group had the highest prevalence.

Prevalence among younger people was more common in females than males. While 6,661 cases were in males ages 20 to 39, 10,681 cases were in females of the same age. This is likely the result of the higher incidence in females of cancers more common at younger ages (e.g., thyroid and breast cancers, melanoma).

The most prevalent cancers varied by age group:

- For the 20 to 39 age group, the most prevalent cancer was thyroid cancer (4,051) followed by testicular (1,781) and breast (1,608) cancers.
- For the 40 to 49 age group, the most prevalent cancer was breast cancer (7,715), followed by thyroid cancer (5,455) and melanoma (2,207).
- For the 50 to 59 age group, the most prevalent cancer was breast cancer (17,068) followed by prostate (7,671) and colorectal (6,282) cancers.
- For the 60 to 69 age group, the most prevalent cancer was prostate cancer (25,600) followed by breast (18,860) and colorectal (11,206) cancers.
- For the 70 to 79 age group, the most prevalent cancer was prostate cancer (28,163) followed by breast (14,396) and colorectal (13,113) cancers.
- For those 80 or older, the most prevalent cancer was prostate cancer (13,665) followed by colorectal (12,083) and breast (9,759) cancers.

Table 7.3 10-year prevalence by cancer type and age group, Ontario, 2013

Both sexes							
Age group (years)							
Cancer type	All ages	20–39	40–49	50–59	60–69	70–79	80+
All cancers	370,713	17,342	29,656	66,114	99,735	92,668	61,832
Bladder	11,731	67	246	1,053	2,636	3,849	3,871
Brain	3,532	758	552	658	535	290	131
Breast (female)	69,412	1,608	7,715	17,068	18,860	14,396	9,759
Cervix	4,114	835	1,265	963	600	300	149
Colorectal	45,346	670	1,958	6,282	11,206	13,113	12,083
Esophagus	1,484	10	53	280	456	415	269
Hodgkin lymphoma	3,013	1,375	497	390	264	189	84
Kidney	11,530	307	1,003	2,504	3,357	2,667	1,537
Larynx	2,329	20	68	371	714	714	442
Leukemia	11,194	689	734	1,608	2,521	2,475	2,061
Liver	2,273	49	103	512	729	574	258
Lung	18,941	148	458	2,470	5,377	6,493	3,975
Melanoma	19,541	1,564	2,207	3,872	4,508	3,905	3,448
Myeloma	4,257	28	207	630	1,161	1,298	932
Non-Hodgkin lymphoma	18,592	1,057	1,526	3,280	4,678	4,491	3,329
Oral cavity & pharynx	9,353	363	803	2,279	2,822	1,843	1,215
Ovary	5,462	414	724	1,410	1,358	998	515
Pancreas	2,172	71	144	413	671	561	307
Prostate	75,610	7	498	7,671	25,600	28,163	13,665
Stomach	3,955	78	245	623	960	1,139	908
Testis	3,450	1,781	947	475	128	34	23
Thyroid	23,142	4,051	5,455	6,122	4,405	2,228	777
Uterus	15,630	181	905	3,338	5,760	3,624	1,818

Table 7.3 (Cont'd) 10-year prevalence by cancer type and age group, Ontario, 2013

Males							
Age group (years)							
Cancer type	All ages	20–39	40–49	50–59	60–69	70–79	80+
All cancers	181,515	6,661	9,011	25,803	52,337	53,804	32,095
Bladder	8,996	47	175	834	2,031	3,008	2,896
Brain	1,881	410	322	336	287	145	56
Colorectal	24,594	339	1,007	3,363	6,642	7,587	5,643
Esophagus	1,115	**	**	217	359	306	185
Hodgkin lymphoma	1,588	671	259	254	142	99	29
Kidney	7,116	156	645	1,615	2,139	1,655	841
Larynx	1,963	7	55	315	618	600	368
Leukemia	6,444	383	408	961	1,550	1,476	1,054
Liver	1,659	27	62	396	557	411	172
Lung	8,649	69	188	968	2,403	3,119	1,892
Melanoma	9,945	550	905	1,771	2,442	2,357	1,902
Myeloma	2,370	14	119	356	665	738	478
Non-Hodgkin lymphoma	9,841	584	877	1,821	2,486	2,335	1,577
Oral cavity & pharynx	6,229	201	519	1,615	1,998	1,196	690
Pancreas	1,094	33	72	212	355	280	141
Prostate	75,610	7	498	7,671	25,600	28,163	13,665
Stomach	2,420	31	141	368	609	724	547
Testis	3,450	1,781	947	475	128	34	23
Thyroid	4,840	713	1,003	1,191	1,091	606	206

Table 7.3

(Cont'd) 10-year prevalence by cancer type and age group, Ontario, 2013

Females							
Age group (years)							
Cancer type	All ages	20–39	40–49	50–59	60–69	70–79	80+
All cancers	189,198	10,681	20,645	40,311	47,398	38,864	29,737
Bladder	2,735	20	71	219	605	841	975
Brain	1,651	348	230	322	248	145	75
Breast (female)	69,412	1,608	7,715	17,068	18,860	14,396	9,759
Cervix	4,114	835	1,265	963	600	300	149
Colorectal	20,752	331	951	2,919	4,564	5,526	6,440
Esophagus	369	**	**	63	97	109	84
Hodgkin lymphoma	1,425	704	238	136	122	90	55
Kidney	4,414	151	358	889	1,218	1,012	696
Larynx	366	13	13	56	96	114	74
Leukemia	4,750	306	326	647	971	999	1,007
Liver	614	22	41	116	172	163	86
Lung	10,292	79	270	1,502	2,974	3,374	2,083
Melanoma	9,596	1,014	1,302	2,101	2,066	1,548	1,546
Myeloma	1,887	14	88	274	496	560	454
Non-Hodgkin lymphoma	8,751	473	649	1,459	2,192	2,156	1,752
Oral cavity & pharynx	3,124	162	284	664	824	647	525
Ovary	5,462	414	724	1,410	1,358	998	515
Pancreas	1,078	38	72	201	316	281	166
Stomach	1,535	47	104	255	351	415	361
Thyroid	18,302	3,338	4,452	4,931	3,314	1,622	571
Uterus	15,630	181	905	3,338	5,760	3,624	1,818

**Suppressed due to small cell count (n<6)

Notes: 1. Prevalence counts are based on IARC/IACR rules for counting multiple primaries.

2. "All ages" includes cases with unknown age.

Analysis by: Surveillance, Analytics and Informatics, CCO**Data source:** Ontario Cancer Registry (November 2016), CCO**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.
2. Holowaty E, Chin Cheong S, Di Cori S, Garcia J, Luk R, Lyons C, et al. Tobacco or health in Ontario: tobacco-attributed cancers and deaths over the past 50 years...and the next 50. Toronto: Cancer Care Ontario; 2002.
3. Cancer Care Ontario. Ontario Cancer Statistics 2016. Toronto: Cancer Care Ontario; 2016.