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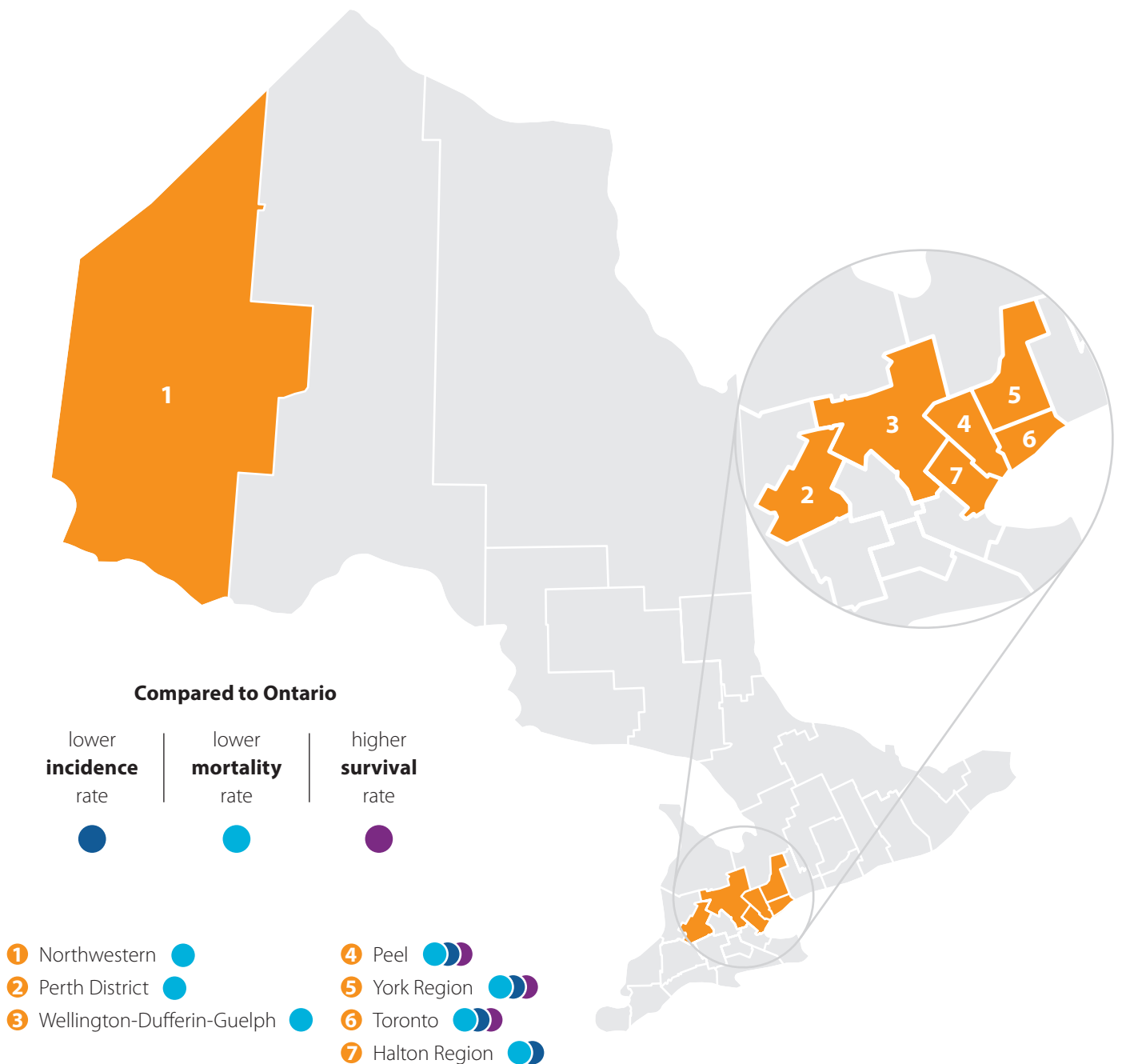
# Cancer statistics by public health unit

Cancer statistics can vary across geography due to variations in risk factors, demographics and medical services. This chapter presents statistics on cancer incidence, mortality and survival by public health unit.



## Indicators across the province

“Cancer incidence, mortality and survival vary by public health unit (PHU) in Ontario.”



The provision of health services in Ontario is delivered through different geographic regions including public health units (PHUs). A PHU is an official health agency established to administer health promotion and disease prevention programs. Ontario is currently divided into 36 PHUs.

Examining cancer statistics by geographic variation can be helpful for identifying health equity issues and healthcare needs. Geographic factors that can affect incidence, mortality and survival include:

- variation in risk factors;
- variation in demographic makeup; and
- regional differences in diagnostics, treatment practices and access to diagnosis and treatment facilities.

Examining cancer statistics by geographic variation can be helpful for identifying health equity issues and healthcare needs.

## Incidence by public health unit and sex

Cancer incidence varied considerably by PHU. This section presents incidence rates by PHU and sex for all cancers combined.

The highest age-standardized incidence rates (ASIR) in 2013 were found in the Algoma Health Unit (842.2 per 100,000 for males, 680.5 per 100,000 for females). The lowest rates tended to be found in Toronto and the surrounding areas.

There was an increasing west-to-east gradient in male ASIR across northern Ontario (Figure 8.1 and Table DA.1 in the Data appendix). For southern Ontario, no significant ASIR pattern was observed. Lower incidence rates in the western part of Ontario may be caused by people in these areas traveling to Manitoba for healthcare due to geographical convenience, and therefore not being captured in the Ontario registry.

The same west-to-east gradient in northern Ontario that was seen in the male rates was also present in the female rates (Figure 8.2 and Table DA.2 in the *Data appendix*).



**Males**

**PHUs with an ASIR significantly higher than Ontario**

- Algoma
- Durham Region
- Hamilton
- Hastings and Prince Edward Counties
- Haldimand-Norfolk
- Huron County
- Niagara Region
- Simcoe Muskoka District
- Sudbury and District
- Timiskaming
- Windsor-Essex County

**PHUs with an ASIR significantly lower than Ontario**

- Halton Region
- Northwestern
- Perth District
- Peel
- Toronto
- Wellington-Dufferin-Guelph
- York Region



**Females**

**PHUs with an ASIR significantly higher than Ontario**

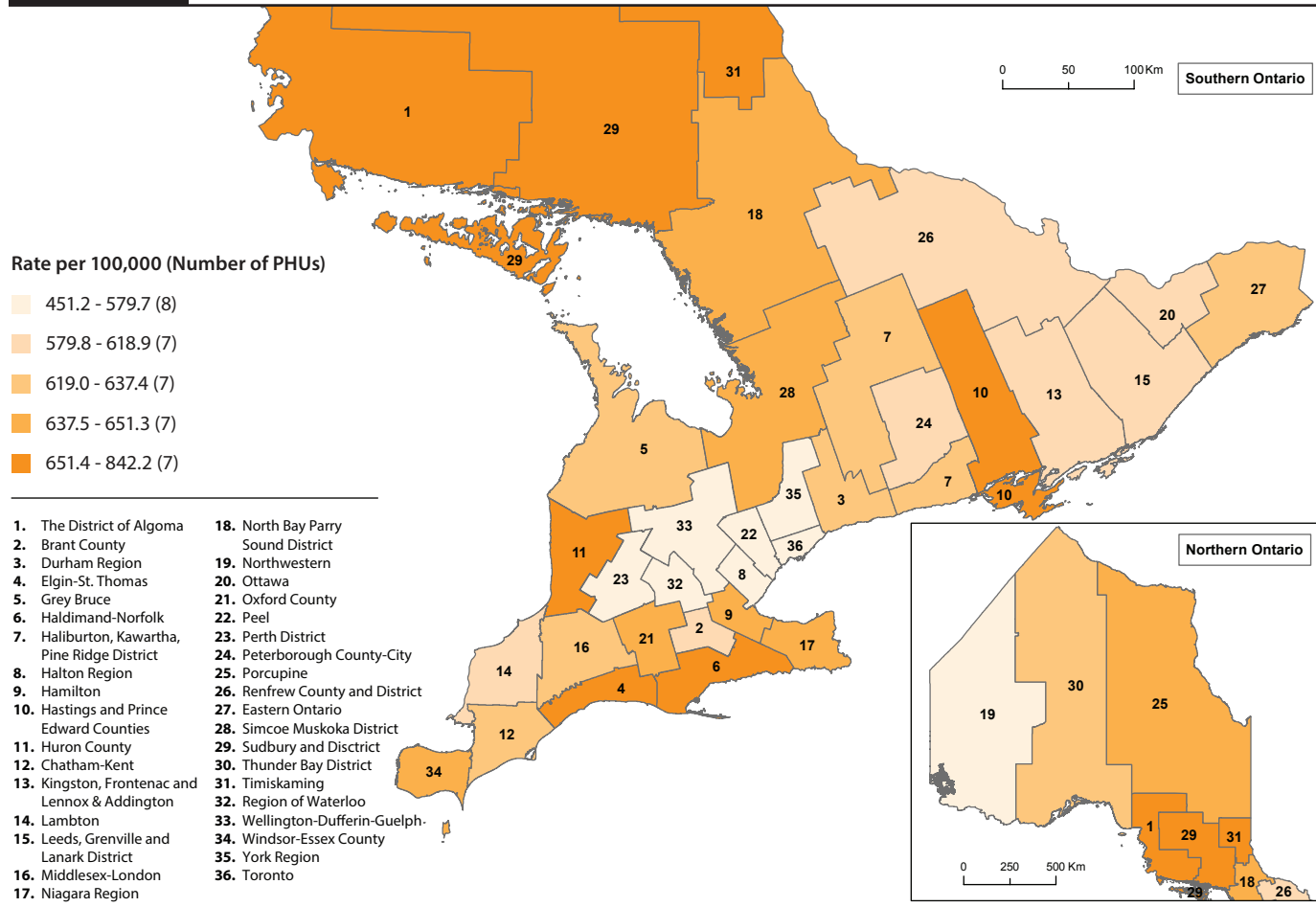
- Algoma
- Eastern Ontario
- Leeds, Grenville and Lanark District
- Simcoe Muskoka District
- Sudbury and District

**PHUs with an ASIR significantly lower than Ontario**

- Northwestern
- Peel
- York Region

The same west-to-east gradient in northern Ontario that was seen in the male rates was also present in the female rates.

**Figure 8.1** Age-standardized incidence rates by public health unit for males and all cancers combined, Ontario, 2013



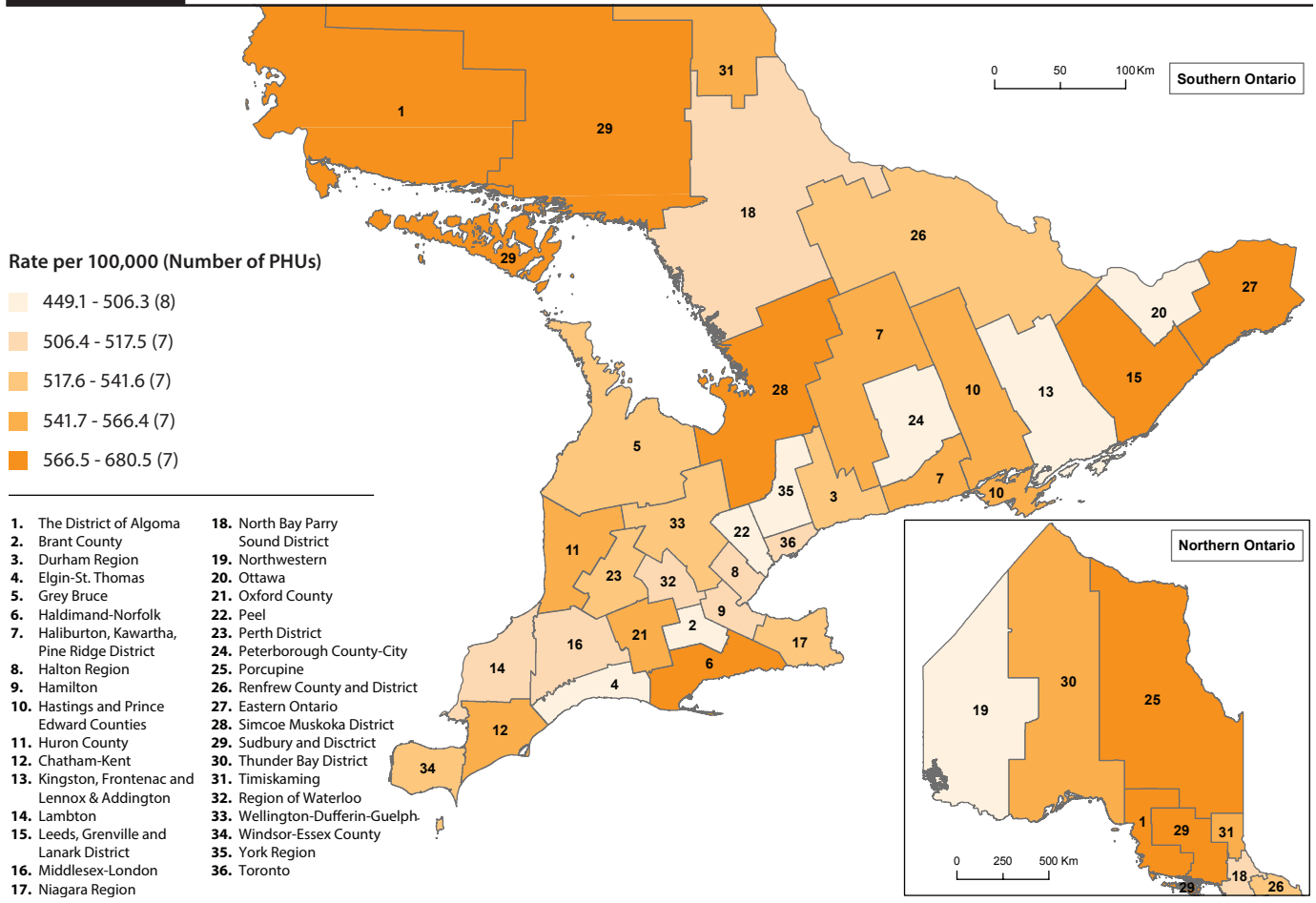
PHU=Public health unit

**Note:** Rates are per 100,000 and age-standardized to the 2011 Canadian population.

**Analysis by:** Surveillance, Analytics and Informatics, CCO

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

**Figure 8.2** Age-standardized incidence rates by public health unit for females and all cancers combined, Ontario, 2013



PHU=Public health unit

**Note:** Rates are per 100,000 and age-standardized to the 2011 Canadian population.

**Analysis by:** Surveillance, Analytics and Informatics, CCO

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

## Incidence by public health unit and cancer type

This section presents incidence rates for the years 2011–2013, by sex and PHU, for the four most commonly diagnosed cancers.

Among males (Table 8.1) the following was observed for colorectal, lung and prostate incidence rates:



### Males - Colorectal Cancer

**PHUs with a colorectal cancer ASIR significantly higher than Ontario**

**PHUs with a colorectal cancer ASIR significantly lower than Ontario**

- Eastern Ontario
- Elgin-St.Thomas
- Grey Bruce
- Halimand-Norfolk
- Hamilton
- Huron County
- Lambton
- Niagara Region
- North Bay Parry Sound District
- Porcupine
- Timiskaming

- Peel
- Toronto
- York Region



### Males - Lung Cancer

**PHUs with a lung cancer ASIR significantly higher than Ontario**

**PHUs with a lung cancer ASIR significantly lower than Ontario**

- Algoma
- Elgin-St.Thomas
- Grey Bruce
- Haldimand-Norfolk
- Halton Region
- Hamilton
- Huron County
- Lambton
- Middlesex-London
- Niagara Region
- Perth District
- Peterborough County-City
- Porcupine
- Region of Waterloo
- Renfrew County and District
- Simcoe and Muskoka District
- Sudbury and District
- Thunder Bay District

- Haliburton, Kawartha, Pine Ridge District
- Oxford County
- Windsor-Essex County
- York Region



**Males - Prostate Cancer**

**PHUs with a prostate cancer ASIR significantly higher than Ontario**

- Algoma
- Durham Region
- Hastings and Prince Edward Counties
- Lambton
- Niagara Region
- Simcoe Muskoka District
- Timiskaming

**PHUs with a prostate cancer ASIR significantly lower than Ontario**

- Hamilton
- Kingston, Frontenac and Lennox & Addington
- Northwestern
- Peterborough County-City
- Region of Waterloo
- Renfrew County and District
- Wellington-Dufferin-Guelph
- York Region



**Table 8.1** Incidence counts and age-standardized rates by cancer type and public health unit for males, Ontario, 2011–2013

PHU	Colorectal			Lung			Prostate		
	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI
<b>Ontario</b>	<b>13,905</b>	<b>76.1</b>	<b>74.9–77.4</b>	<b>14,984</b>	<b>82.2</b>	<b>80.9–83.6</b>	<b>26,066</b>	<b>139.3</b>	<b>137.6–141.0</b>
Algoma	189	86.7	74.6–100.4	263	116.3*	102.5–131.6	460	201.1*	183.0–220.7
Brant County	133	65.6	54.9–77.8	167	84.6	72.2–98.5	295	145.0	128.8–162.5
Chatham-Kent	146	84.7	71.4–99.8	166	96.0	81.9–112	229	129.5	113.2–147.5
Durham Region	552	72.0	66.0–78.4	614	82.8	76.2–89.7	1,202	152.6*	144.0–161.6
Eastern Ontario	287	88.6*	78.5–99.7	328	91.1	89.0–111.1	478	140.1	127.7–153.4
Elgin-St. Thomas	129	99.4*	82.7–118.4	121	92.9*	75.4–109.2	198	146.2	126.3–168.3
Grey Bruce	280	92.5*	81.8–104.3	293	106.0*	82.4–104.4	470	146.4	133.4–160.6
Haldimand-Norfolk	174	93.8*	80.2–109.1	202	96.3*	91.8–122.0	284	145.4	128.9–163.6
Haliburton, Kawartha, Pine Ridge District	288	79.1	70.0–89.1	358	65.0*	86.4–107.1	561	150.5	138.1–163.8
Halton Region	486	74.0	67.5–81.0	418	95.7*	58.9–71.6	941	142.1	133.1–151.5
Hamilton	655	84.9*	78.5–91.6	736	101.2*	88.9–102.8	1,004	129.6*	121.7–137.8
Hastings and Prince Edward Counties	233	82.0	71.7–93.5	298	98.0	90.0–113.6	486	162.8*	148.5–178.2
Huron County	106	97.6*	79.7–118.5	110	98.9*	80.4–118.6	167	150.3	128.2–175.4
Kingston, Frontenac and Lennox & Addington	247	81.7	71.7–92.6	303	89.9	87.9–110.8	317	101.2*	90.3–113.1
Lambton	192	88.8*	76.5–102.5	202	107.4*	77.8–103.4	357	155.7*	139.9–173.0
Leeds, Grenville and Lanark District	245	80.4	70.5–91.4	323	83.5	95.8–120.0	435	137.1	124.4–150.8
Middlesex-London	488	79.1	72.3–86.5	514	91.4*	76.4–91.1	871	138.3	129.2–147.8

Table 8.1

(Cont'd) Incidence counts and age-standardized rates by cancer type and public health unit for males, Ontario, 2011–2013

PHU	Colorectal			Lung			Prostate		
	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI
Niagara Region	611	82.9*	76.4–89.8	685	110.4*	84.6–98.5	1,181	157.9*	148.9–167.2
North Bay Parry Sound District	206	92.2*	79.8–106.1	251	84.3	96.9–125.4	338	144.3	129.2–160.9
Northwestern	99	85.4	69.3–104.2	93	79.8	67.9–103.5	52	44.7*	33.3–58.7
Ottawa	886	77.8	72.7–83.1	906	73.5	74.7–85.2	1,683	141.8	135.1–148.8
Oxford County	137	83.4	70.0–98.7	122	62.4*	61.0–87.8	226	135.3	118.2–154.2
Peel	1,002	67.2*	62.9–71.6	885	67.7	58.2–66.7	2,117	136.3	130.4–142.4
Perth District	88	76.8	61.6–94.7	78	101.8*	53.5–84.6	152	131.2	111.2–153.9
Peterborough County-City	177	72.4	62.0–84.1	252	103.8*	89.5–115.4	301	122.7*	109.1–137.5
Porcupine	129	99.9*	83.1–119.1	131	101.9*	86.3–123.7	173	133.9	114.3–156.0
Region of Waterloo	496	77.5	70.7–84.7	512	99.6*	73.9–88.1	803	125.7*	117.1–134.8
Renfrew County and District	135	76.6	64.1–90.9	181	90.4*	87.5–118.0	189	106.3*	91.6–122.7
Simcoe Muskoka District	647	81.0	74.8–87.6	735	99.0*	83.9–97.2	1,258	152.0*	143.7–160.7
Sudbury and District	226	73.4	64.0–83.8	307	99.3*	88.1–111.0	458	143.3	130.4–157.3
Thunder Bay District	186	77.5	66.7–89.6	240	124.7*	87.1–112.8	323	129.2	115.4–144.2
Timiskaming	66	107.5*	82.6–138	78	80.8	98.0–156.8	117	174.3*	143.9–209.7
Toronto	2,418	68.1*	65.5–70.9	2,529	81.0	69.6–75.3	4,834	138.1	134.2–142.1
Wellington-Dufferin-Guelph	256	71.4	62.8–80.8	289	85.5	78.0–93.4	442	121.3*	110.1–133.2
Windsor-Essex County	427	75.7	68.6–83.3	492	61.5*	57.2–66.1	865	148.6	138.8–158.8
York Region	854	64.6*	60.2–69.2	780	72.4*	69.6–75.3	1,770	129.2*	123.2–135.4

ASIR=Age-standardized incidence rate

CI=Confidence interval

PHU=Public health unit

\*Significantly different compared to the rate for Ontario

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

Among females (Table 8.2) there was less variation in breast cancer ASIR across the PHUs compared to the other cancer types. Of note, the only PHU with a breast cancer ASIR significantly higher than the Ontario rate was the Ottawa PHU.

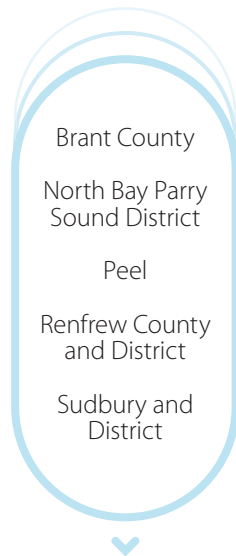
Additionally, the following was observed for colorectal and lung cancer incidence rates among females:



**Females - Breast Cancer**

**PHUs with a breast cancer ASIR significantly higher than Ontario**

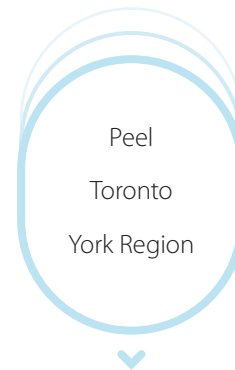
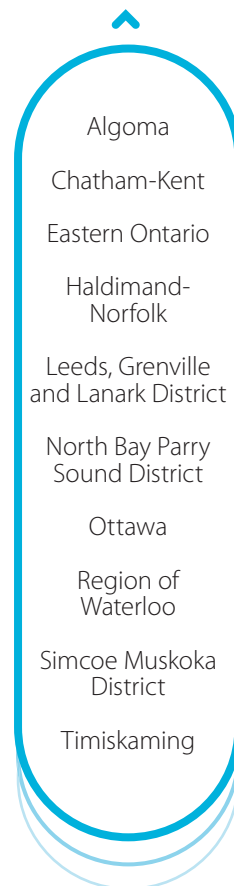
**PHUs with a breast cancer ASIR significantly lower than Ontario**



**Females - Colorectal Cancer**

**PHUs with a colorectal cancer ASIR significantly higher than Ontario**

**PHUs with a colorectal cancer ASIR significantly lower than Ontario**





**Females - Lung Cancer**

**PHUs with a lung cancer ASIR significantly higher than Ontario**

- Algoma
- Chatham-Kent
- Durham Region
- Eastern Ontario
- Haldimand-Norfolk
- Haliburton, Kawartha, Pine Ridge District
- Hamilton
- Hastings and Prince Edward Counties
- Kingston, Frontenac and Lennox & Addington
- Lambton
- Leeds, Grenville and Lanark District
- Niagara Region
- North Bay Parry Sound District
- Peterborough County-City
- Porcupine
- Renfrew County and District
- Simcoe Muskoka District
- Sudbury and District
- Thunder Bay District
- Timiskaming

**PHUs with a lung cancer ASIR significantly lower than Ontario**

- Halton Region
- Peel
- Toronto

There was less variation in female breast cancer incidence rates across the PHUs compared to the other cancer types.

**Table 8.2** Incidence counts and age-standardized rates by cancer type and public health unit for females, Ontario, 2011–2013

PHU	Breast			Colorectal			Lung		
	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI
<b>Ontario</b>	<b>30,503</b>	<b>143.4</b>	<b>141.8–145.0</b>	<b>11,712</b>	<b>52.6</b>	<b>51.6–53.5</b>	<b>14,184</b>	<b>64.6</b>	<b>63.5–65.6</b>
Algoma	336	145.9	130.3–162.9	156	62.4*	52.8–73.3	222	86.8*	75.6–99.3
Brant County	287	124.4*	110.3–139.7	112	46.9	38.6–56.6	173	72.0	61.6–83.7
Chatham-Kent	280	147.3	130.2–166.0	137	63.7*	53.2–75.7	167	82.0*	69.9–95.8
Durham Region	1,332	141.2	133.7–149.0	473	50.2	45.7–54.9	690	74.7*	69.2–80.5
Eastern Ontario	529	149.4	136.9–162.9	258	69.4*	61.1–78.5	367	99.0*	89.1–109.8
Elgin-St. Thomas	203	137.3	118.9–157.7	83	53.9	42.8–66.9	108	70.3	57.6–85.0
Grey Bruce	463	147.3	133.7–161.9	204	58.3	50.4–67.2	239	67.9	59.5–77.4
Haldimand-Norfolk	287	145.9	129.2–164.2	134	63.5*	53.1–75.5	183	86.2*	74.1–99.9
Haliburton, Kawartha, Pine Ridge District	501	138.0	125.7–151.2	233	58.2	50.7–66.6	376	91.7*	82.5–101.7
Halton Region	1,188	149.3	140.9–158.0	432	53.0	48.1–58.3	443	55.0*	49.9–60.3
Hamilton	1,217	137.5	129.8–145.6	504	52.8	48.2–57.7	659	70.9*	65.5–76.6
Hastings and Prince Edward Counties	447	143.1	129.8–157.3	167	48.9	41.6–57.2	317	94.8*	84.5–106.1
Huron County	158	138.3	117.0–162.5	68	53.0	41.0–67.9	85	68.1	54.3–84.8
Kingston, Frontenac and Lennox & Addington	489	143.3	130.7–156.7	186	50.5	43.5–58.5	281	77.4*	68.6–87.2
Lambton	344	141.4	126.6–157.6	145	55.4	46.6–65.5	204	78.2*	67.7–90.0
Leeds, Grenville and Lanark District	511	154.4	141.1–168.7	228	64.3*	56.1–73.5	282	80.6*	71.4–90.8
Middlesex-London	1,122	152.2	143.3–161.4	424	53.9	48.9–59.4	482	62.6	57.1–68.5

Table 8.2

(Cont'd) Incidence counts and age-standardized rates by cancer type and public health unit for females, Ontario, 2011–2013

PHU	Breast			Colorectal			Lung		
	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI	Count	ASIR	ASIR 95% CI
Niagara Region	1,196	147.6	139.2–156.4	509	56.7	51.8–62.0	648	73.7*	68.1–79.7
North Bay Parry Sound District	296	123.1*	109.2–138.3	183	71.6*	61.5–83.1	214	81.4*	70.8–93.3
Northwestern	154	125.8	106.6–147.4	78	62.3	49.2–77.8	75	60.4	47.5–75.7
Ottawa	2,124	151.2*	144.8–157.7	831	57.5*	53.6–61.6	953	67.6	63.3–72.0
Oxford County	254	139.1	122.3–157.6	111	56.1	46.0–67.9	125	63.6	52.8–76.0
Peel	2,486	133.9*	128.7–139.3	748	42.8*	39.7–46.0	782	45.6*	42.4–48.9
Perth District	182	140.2	120.3–162.5	89	61.3	49.0–75.9	89	63.8	51.1–78.8
Peterborough County-City	367	141.7	127.2–157.5	144	46.5	39.1–55.1	253	86.7*	76.1–98.4
Porcupine	201	143.6	124.4–165.0	67	47.1	36.5–60.0	127	88.8*	74.0–105.8
Region of Waterloo	1,100	144.3	135.9–153.1	496	63.5*	58.0–69.4	465	61.1	55.7–66.9
Renfrew County and District	227	124.0*	108.1–141.7	119	55.4	45.7–66.7	191	94.2*	81.2–108.9
Simcoe Muskoka District	1,307	146.4	138.5–154.6	553	58.9*	54.0–64.1	784	84.1*	78.3–90.3
Sudbury and District	432	125.4*	113.8–137.9	214	59.9	52.1–68.5	345	95.2*	85.4–105.9
Thunder Bay District	365	138.3	124.4–153.5	166	59.3	50.5–69.2	244	87.9*	77.1–99.8
Timiskaming	90	136.1	109.0–168.3	52	71.2*	53.0–94.3	76	104.5*	82.1–131.7
Toronto	6,161	144.8	141.1–148.4	2,090	45.8*	43.8–47.8	2,119	47.1*	45.1–49.2
Wellington-Dufferin-Guelph	562	133.5	122.7–145.1	234	53.9	47.2–61.3	275	64.3	56.9–72.3
Windsor-Essex County	971	150.1	140.7–159.9	339	49.5	44.3–55.1	464	68.6	62.5–75.2
York Region	2,263	141.1	135.3–147.1	719	46.6*	43.2–50.1	658	43.3*	40.0–46.7

ASIR=Age-standardized incidence rate

CI=Confidence interval

PHU=Public health unit

\*Significantly different compared to the rate for Ontario

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

## Mortality by public health unit and sex

As with cancer incidence, cancer mortality also varied considerably by PHU. This section presents mortality rates by PHU and sex for all cancers combined. Cancer mortality rates were lowest in PHUs in Toronto and the surrounding area, while the highest rates were found throughout the province.

For males and females (Figures 8.3 and 8.4 and Tables DA.3 and DA.4 in the Data appendix) the same west-to-east gradient in northern Ontario that was seen in the incidence rates was also observed in the mortality rates. The following patterns in age-standardized mortality rates (ASMR) among males and females were also observed:



**Males**

**PHUs with an ASMR significantly higher than Ontario**

- Eastern Ontario
- Grey Bruce
- Haldimand-Norfolk
- Hamilton
- Hastings and Prince Edward Counties
- Kingston, Frontenac and Lennox & Addington
- Leeds, Grenville and Lanark District
- Niagara Region
- North Bay Parry Sound District
- Oxford County
- Peterborough County-City
- Porcupine
- Renfrew County and District
- Sudbury and District
- Timiskaming

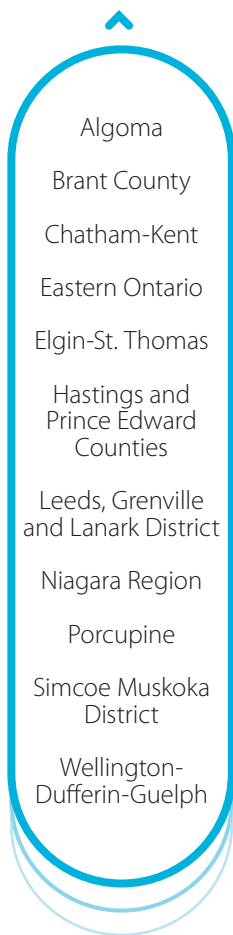
**PHUs with an ASMR significantly lower than Ontario**

- Peel
- Toronto
- York Region



## Females

### PHUs with an ASMR significantly higher than Ontario



### PHUs with an ASMR significantly lower than Ontario

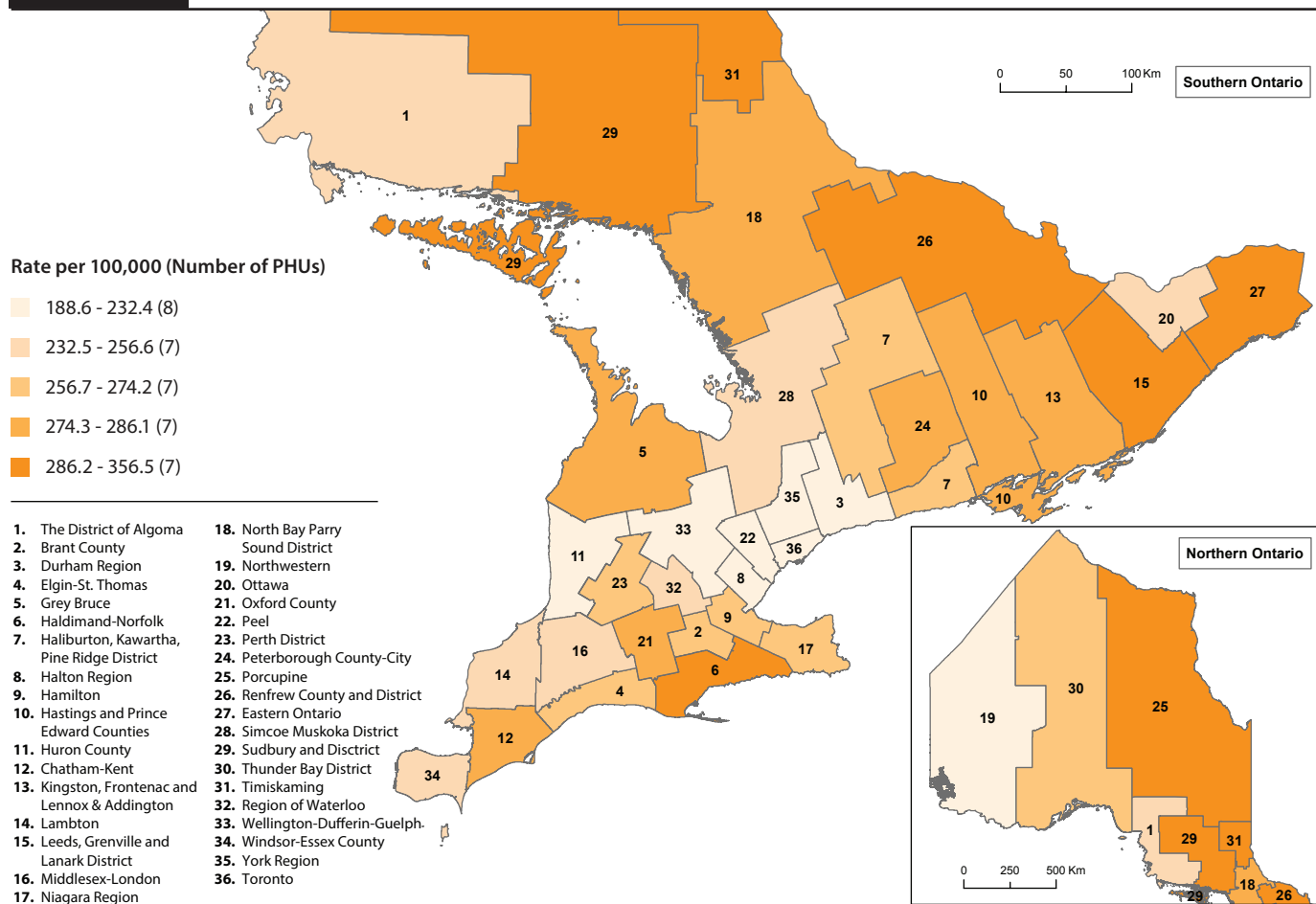


Cancer mortality rates were lowest in PHUs in Toronto and the surrounding area, while the highest rates were found throughout the province.



The same west-to-east gradient in northern Ontario that was seen in the incidence rates was also present in the mortality rates for both males and females.

**Figure 8.3** Age-standardized mortality rates by public health unit for males and all cancers combined, Ontario, 2013



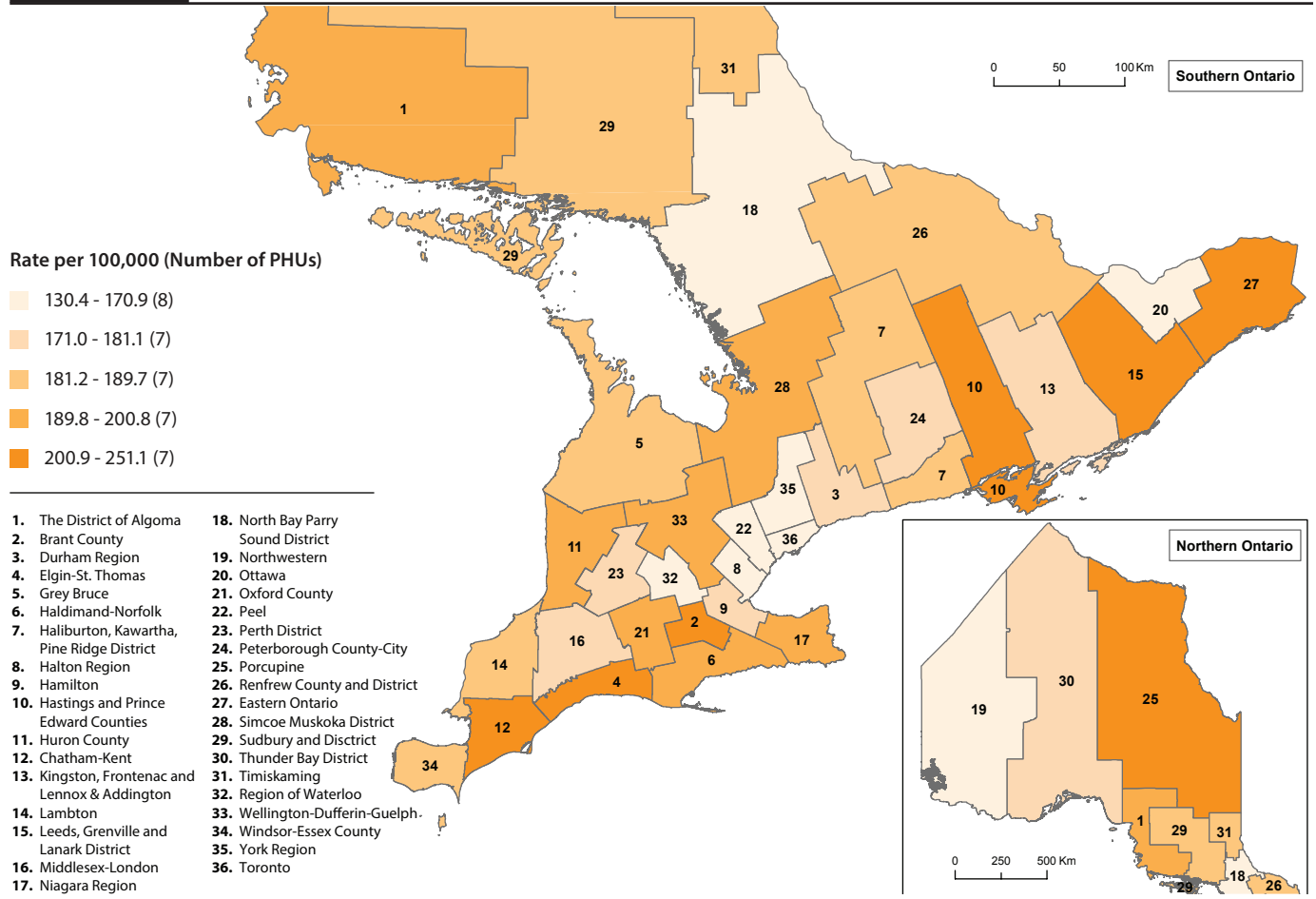
PHU=Public health unit

**Note:** Rates are per 100,000 and age-standardized to the 2011 Canadian population

**Analysis by:** Surveillance, Analytics and Informatics, CCO

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

**Figure 8.4** Age-standardized mortality rates by public health unit for females and all cancers combined, Ontario, 2013



PHU=Public health unit

**Note:** Rates are per 100,000 and age-standardized to the 2011 Canadian population.

**Analysis by:** Surveillance, Analytics and Informatics, CCO

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

## Mortality by public health unit and cancer type

This section presents mortality rates for the years 2011–2013, by sex and PHU, for the four most commonly diagnosed cancers.

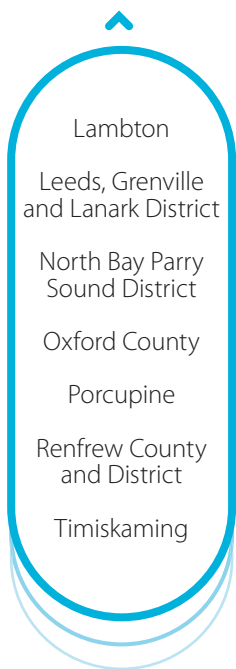
Among males (Table 8.3) the following was observed for colorectal, lung and prostate mortality rates:



### Males - Colorectal Cancer

**PHUs with a colorectal cancer ASMR significantly higher than Ontario**

**PHUs with a colorectal cancer ASMR significantly lower than Ontario**



### Males - Lung Cancer

**PHUs with a lung cancer ASMR significantly higher than Ontario**

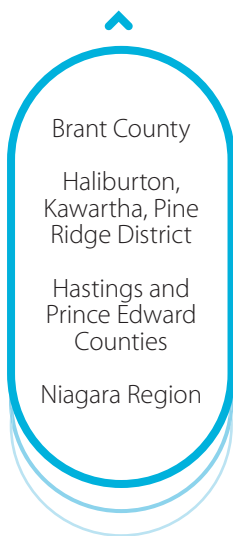
**PHUs with a lung cancer ASMR significantly lower than Ontario**





**Males - Prostate Cancer**

**PHUs with a prostate cancer ASMR significantly higher than Ontario**



**PHUs with a prostate cancer ASMR significantly lower than Ontario**



The same PHUs that had male colorectal incidence rates lower than Ontario had male colorectal mortality rates lower than Ontario. However, the PHUs with the lowest male colorectal incidence and mortality rates did not line up in the same way.

Male lung cancer mortality rates did not always correspond with male lung cancer incidence rates. For example, while the PHUs with significantly lower mortality rates were located in Toronto and the surrounding areas, significantly lower incidence rates were also found in PHUs in southwestern Ontario.

Prostate cancer mortality rates differed from prostate cancer incidence rates. While seven PHUs had prostate incidence rates significantly higher than the Ontario rate, only two had mortality rates significantly higher. Only two PHUs—Hastings and Prince Edward Counties, and Niagara Region—had both prostate incidence and mortality rates significantly higher than Ontario.

**Table 8.3** Mortality counts and age-standardized rates by cancer type and public health unit for males, Ontario, 2011–2013

PHU	Colorectal			Lung			Prostate		
	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI
<b>Ontario</b>	<b>4,976</b>	<b>28.4</b>	<b>27.6–29.2</b>	<b>10,833</b>	<b>60.2</b>	<b>59.1–61.3</b>	<b>4,356</b>	<b>26.7</b>	<b>25.9–27.5</b>
Algoma	70	32.4	25.1–41.3	182	81.0*	69.5–94.0	54	26.9	20.1–35.4
Brant County	55	27.8	20.9–36.2	142	72.6*	61.1–85.6	66	36.7*	28.3–46.7
Chatham-Kent	61	36.4	27.7–46.9	147	85.1*	71.8–100.2	51	31.3	23.3–41.3
Durham Region	183	25.2	21.6–29.1	457	63.1	57.3–69.2	145	22.9	19.2–26.9
Eastern Ontario	101	33.4	27.1–40.7	263	79.9*	70.4–90.3	83	29.2	23.2–36.3
Elgin-St. Thomas	43	33.9	24.3–45.8	94	72.4	58.3–88.8	31	27.9	18.7–39.7
Grey Bruce	99	34.3	27.7–42.0	217	70.0*	60.9–80.2	81	29.7	23.4–37.1
Haldimand-Norfolk	65	35.9	27.6–45.9	136	72.4*	60.6–85.8	53	30.5	22.7–40.1
Haliburton, Kawartha, Pine Ridge District	122	34.4	28.5–41.3	249	67.7	59.4–77.0	117	34.4*	28.4–41.5
Halton Region	159	25.7	21.8–30.0	299	47.4*	42.2–53.2	176	31.2	26.7–36.2
Hamilton	227	30.2	26.4–34.4	525	68.6*	62.8–74.7	209	28.7	24.9–32.8
Hastings and Prince Edward Counties	93	33.0	26.5–40.6	224	77.0*	67.1–88.0	97	37.0*	29.9–45.4
Huron County	27	26.0	17.1–38.3	70	63.0	49.0–80.0	25	24.3	15.6–36.2
Kingston, Frontenac and Lennox & Addington	94	32.8	26.4–40.2	221	73.0*	63.6–83.3	90	32.5	26.0–40.0
Lambton	79	37.6*	29.7–47.1	161	73.5*	62.4–86.0	57	27.9	21.0–36.3
Leeds, Grenville and Lanark District	104	36.7*	29.9–44.7	232	78.9*	68.9–90.0	89	32.5	26.0–40.2
Middlesex-London	193	32.3	27.8–37.1	379	62.2	56.1–68.8	176	30.7	26.3–35.5

Table 8.3

(Cont'd) Mortality counts and age-standardized rates by cancer type and public health unit for males, Ontario, 2011–2013

PHU	Colorectal			Lung			Prostate		
	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI
Niagara Region	236	32.1	28.1–36.5	502	67.0*	61.3–73.2	225	31.7*	27.7–36.2
North Bay Parry Sound District	84	38.9*	30.8–48.5	180	78.6*	67.4–91.4	50	25.2	18.5–33.5
Northwestern	33	29.3	20.1–41.3	83	75.6	60.1–93.9	33	34.1	23.3–47.8
Ottawa	332	30.5	27.3–34.0	633	56.6	52.3–61.2	252	25.2	22.2–28.5
Oxford County	66	41.4*	32.0–52.7	106	64.8	53.0–78.4	47	30.1	22.1–40.1
Peel	285	21.2*	18.7–23.9	656	49.1*	45.3–53.2	271	24.2	21.3–27.4
Perth District	42	37.0	26.7–50.1	57	49.8	37.7–64.5	40	36.1	25.8–49.1
Peterborough County-City	61	24.6	18.8–31.8	171	68.8	58.8–80.1	70	28.6	22.2–36.2
Porcupine	53	43.9*	32.5–57.9	110	87.6*	71.6–106.1	32	30.3	20.3–43.1
Region of Waterloo	173	29.0	24.8–33.7	361	57.8	52.0–64.1	133	24.6	20.5–29.1
Renfrew County and District	67	40.0*	31.0–51.0	119	68.0	56.2–81.5	49	31.8	23.4–42.1
Simcoe Muskoka District	234	30.5	26.7–34.8	529	65.6	60.1–71.6	216	30.6	26.6–35.1
Sudbury and District	94	31.2	25.1–38.3	252	80.9*	71.1–91.8	79	29.4	23.1–36.8
Thunder Bay District	68	29.3	22.7–37.2	188	78.3*	67.4–90.4	60	27.1	20.6–34.9
Timiskaming	36	57.9*	40.2–81.2	72	116.1*	90.3–147.4	21	37.2	22.6–57.7
Toronto	820	23.6*	22.0–25.3	1,713	49.1*	46.8–51.5	747	22.0*	20.4–23.6
Wellington-Dufferin-Guelph	92	27.4	22.0–33.6	222	63.7	55.5–72.8	87	28.8	23.0–35.6
Windsor-Essex County	173	31.5	26.9–36.6	370	65.2	58.7–72.2	137	25.8	21.6–30.5
York Region	244	20.5*	17.9–23.3	486	39.6*	36.1–43.4	204	19.7*	17.0–22.7

ASMR=Age-standardized mortality rate

CI=Confidence interval

PHU=Public health unit

\*Significantly different compared to the rate for Ontario

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

While there was little variation in female breast cancer incidence rates, there was greater variation in mortality rates—especially in regard to PHUs with rates significantly higher than Ontario (Table 8.4). However, while the Ottawa PHU was the only PHU to have a breast cancer ASIR higher than Ontario, its mortality rate was not significantly different from the Ontario rate. Meanwhile, seven other PHUs did have ASMR significantly higher than Ontario. Only the Peel and Sudbury and District PHUs had both incidence and mortality rates for breast cancer that were significantly lower than Ontario.

Additionally, the following was observed for colorectal and lung cancer mortality rates among females:



**Females - Breast Cancer**

**PHUs with a breast cancer ASMR significantly higher than Ontario**

**PHUs with a breast cancer ASMR significantly lower than Ontario**

- Brant County
- Halton Region
- Leeds, Grenville and Lanark District
- Niagara Region
- Porcupine
- Thunder Bay District
- Timiskaming

- Peel
- Peterborough County-City
- Sudbury and District
- Toronto
- York Region



**Females - Colorectal Cancer**

**PHUs with a colorectal cancer ASMR significantly higher than Ontario**

**PHUs with a colorectal cancer ASMR significantly lower than Ontario**

- Eastern Ontario
- Elgin-St. Thomas
- Kingston, Frontenac and Lennox & Addington
- Leeds Grenville and Lanark District
- Region of Waterloo
- Simcoe Muskoka District

- Peel
- Toronto
- York Region



**Females - Lung Cancer**

**PHUs with a lung cancer ASMR significantly higher than Ontario**

- Algoma
- Brant County
- Chatham-Kent
- Durham Region
- Eastern Ontario
- Elgin-St. Thomas
- Haldimand-Norfolk
- Haliburton, Kawartha, Pine Ridge District
- Hamilton
- Hastings and Prince Edward Counties
- Kingston, Frontenac and Lennox & Addington
- Lambton
- Leeds, Grenville and Lanark District
- Niagara Region
- North Bay Parry Sound District
- Peterborough County-City
- Porcupine
- Renfrew County and District
- Simcoe Muskoka District
- Sudbury and District
- Thunder Bay District
- Timiskaming
- Windsor-Essex County

**PHUs with a lung cancer ASMR significantly lower than Ontario**

- Halton Region
- Peel
- Region of Waterloo
- Toronto
- York Region

As with male colorectal cancer rates, among females the same PHUs had both incidence and mortality rates significantly lower than Ontario.

With the exception of the Region of Waterloo, the same PHUs with a significantly lower female lung cancer mortality rate than Ontario also had a female lung cancer incidence rate lower than Ontario.

While there was little variation in female breast cancer incidence rates, there was greater variation in mortality rates— especially in regard to PHUs with rates significantly higher than Ontario.



**Table 8.4** Mortality counts and age-standardized rates by cancer type and public health unit for females, Ontario, 2011–2013

PHU	Breast			Colorectal			Lung		
	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI
<b>Ontario</b>	<b>5,718</b>	<b>25.6</b>	<b>25.0–26.3</b>	<b>4,361</b>	<b>18.7</b>	<b>18.1–19.3</b>	<b>9,248</b>	<b>41.4</b>	<b>40.6–42.3</b>
Algoma	67	26.4	17.7–41.7	47	17.8	13.0–24.0	136	52.8*	44.2–62.8
Brant County	89	36.4*	21.5–47.8	54	20.5	15.4–26.9	129	53.6*	44.7–63.8
Chatham-Kent	55	25.9	18.5–46.4	55	23.3	17.5–30.7	133	63.2*	52.8–75.3
Durham Region	249	26.3	20.4–31.6	179	18.9	16.2–21.9	495	53.7*	49.0–58.6
Eastern Ontario	105	27.9	20.6–41.2	94	24.2*	19.6–29.8	259	69.1*	60.9–78.2
Elgin-St. Thomas	51	34.1	15.5–46.5	47	28.3*	20.7–37.9	81	52.7*	41.8–65.6
Grey Bruce	94	27.2	15.6–35.2	87	23.3	18.6–29.1	155	43.6	36.9–51.3
Haldimand-Norfolk	59	28.9	14.9–42.3	40	18.0	12.8–24.8	115	54.1*	44.6–65.2
Haliburton, Kawartha, Pine Ridge District	114	28.7	14.4–32.6	98	22.5	18.2–27.7	218	51.1*	44.5–58.6
Halton Region	247	30.1*	23.1–35.9	148	17.6	14.9–20.7	291	35.7*	31.7–40.1
Hamilton	251	25.6	17.7–28.4	185	18.4	15.8–21.3	456	48.0*	43.6–52.7
Hastings and Prince Edward Counties	101	30.7	21.3–43.7	75	21.0	16.4–26.5	223	65.3*	56.9–74.7
Huron County	40	32.1	20.1–62.8	19	14.5	8.6–23.5	56	45.1	33.9–59.2
Kingston, Frontenac and Lennox & Addington	91	24.9	19.4–39.5	99	26.1*	21.2–31.9	183	49.6*	42.6–57.4
Lambton	66	25.0	15.7–39.3	55	19.6	14.7–25.8	136	50.3*	42.1–59.7
Leeds, Grenville and Lanark District	120	33.5*	26.1–49.1	100	26.5*	21.5–32.5	193	54.3*	46.9–62.8
Middlesex-London	206	26.6	20.5–33.7	140	16.7	14.0–19.8	327	41.6	37.1–46.4

Table 8.4

(Cont'd) Mortality counts and age-standardized rates by cancer type and public health unit for females, Ontario, 2011–2013

PHU	Breast			Colorectal			Lung		
	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI	Count	ASMR	ASMR 95% CI
Niagara Region	289	32.4*	27.2–41.1	193	19.4	16.7–22.4	424	46.1*	41.7–50.8
North Bay Parry Sound District	64	24.6	10.2–30.3	67	24.0	18.6–30.7	143	53.5*	45.1–63.2
Northwestern	43	34.4	9.2–39.0	28	21.7	14.4–31.4	60	47.4	36.1–61.1
Ottawa	405	27.7	23.7–33.3	312	20.7	18.5–23.2	589	41.2	37.9–44.7
Oxford County	42	20.5	8.1–30.3	43	20.5	14.8–27.9	85	42.9	34.1–53.3
Peel	390	21.8*	16.5–23.7	260	15.6*	13.7–17.6	469	27.8*	25.3–30.4
Perth District	34	23.5	9.7–39.3	34	20.7	14.2–29.4	66	44.9	34.6–57.6
Peterborough County-City	51	17.1*	8.9–25.8	57	18.1	13.6–23.8	157	50.9*	43.1–60.0
Porcupine	50	35.2*	20.5–56.8	29	19.6	13.1–28.3	83	57.2*	45.5–71.0
Region of Waterloo	223	28.6	21.1–34.1	184	22.6*	19.4–26.1	277	36.0*	31.9–40.5
Renfrew County and District	41	19.6	5.6–24.6	37	17.1	11.9–23.9	116	54.7*	45.1–65.9
Simcoe Muskoka District	246	26.1	22.9–35.1	238	24.2*	21.2–27.5	507	53.7*	49.1–58.6
Sudbury and District	68	19.0*	7.4–21.5	69	18.5	14.4–23.6	226	61.8*	54.0–70.5
Thunder Bay District	94	33.2*	19.6–43.5	47	15.9	11.6–21.4	155	55.5*	47.0–65.1
Timiskaming	35	47.4*	13.7–66.6	17	22.9	13.2–37.7	48	65.6*	48.3–87.9
Toronto	1,038	23.1*	19.1–23.8	760	15.5*	14.4–16.7	1,312	28.3*	26.8–29.9
Wellington-Dufferin-Guelph	126	28.6	21.8–40.1	88	19.7	15.8–24.3	191	44.1	38.0–50.8
Windsor-Essex County	180	26.8	20.4–34.6	134	18.4	15.4–21.9	335	48.7*	43.6–54.3
York Region	287	18.4*	15.1–22.5	234	15.6*	13.6–17.7	123	26.3*	23.7–29.0

ASMR=Age-standardized mortality rate

CI=Confidence interval

PHU=Public health unit

\*Significantly different compared to the rate for Ontario

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

## Survival by public health unit

Five-year relative survival also varied by PHU. The majority of PHUs had five-year relative survival ratios (RSRs) significantly lower than the age-standardized Ontario RSR of 63.9% (Table 8.5).

The RSRs varied from a low of 52.8% in the Northwestern PHU to a high of 70.5% in the York Region PHU. The PHUs with the highest survival tended to be located in the greater Toronto area.

**Table 8.5** Age-standardized five-year relative survival ratios by public health unit for all cancers combined, Ontario, 2009–2013

PHU	RSR (%)	95% CI	PHU	RSR (%)	95% CI
Ontario	63.9	63.7–64.2	Peel	66.6*	65.5–67.6
Algoma	62.0	59.7–64.3	Perth District	63.1	59.8–66.2
Brant County	59.7*	57.1–62.3	Peterborough County-City	60.9*	58.6–63.1
Chatham-Kent	59.3*	56.6–61.9	Porcupine	55.8*	52.5–58.9
Durham Region	64.6	63.3–65.8	Region of Waterloo	63.3	61.8–64.7
Eastern Ontario	57.3*	55.3–59.3	Renfrew County and District	59.6*	56.8–62.3
Elgin-St. Thomas	60.6*	57.4–63.7	Simcoe Muskoka District	63.7	62.4–65.0
Grey Bruce	65.7	63.6–67.7	Sudbury and District	58.8*	56.7–60.9
Haldimand-Norfolk	62.3	59.7–64.7	Thunder Bay District	59.8*	57.5–61.9
Haliburton, Kawartha, Pine Ridge District	59.7*	57.9–61.5	Timiskaming	56.8*	52.3–61.1
Halton Region	67.5*	66.1–68.9	Toronto	67.2*	66.6–67.8
Hamilton	60.3*	59.0–61.5	Wellington-Dufferin-Guelph	63.2	61.2–65.1
Hastings and Prince Edward Counties	57.7*	55.6–59.8	Windsor-Essex County	60.7*	59.2–62.1
Huron County	64.8	61.5–67.9	York Region	70.5*	69.4–71.5
Kingston, Frontenac and Lennox & Addington	58.4*	56.3–60.5			
Lambton	62.5	60.1–64.8			
Leeds, Grenville and Lanark District	56.7*	54.7–58.7			
Middlesex-London	62.3*	60.8–63.7			
Niagara Region	61.3*	60.0–62.6			
North Bay Parry Sound District	61.1*	58.7–63.4			
Northwestern	52.8*	49.3–56.2			
Ottawa	64.3	63.2–65.3			
Oxford County	59.6*	56.8–62.3			

CI=Confidence interval  
PHU=Public health unit  
RSR=Relative survival ratio

\*Significantly different compared to the Ontario RSR

**Note:** Analysis was restricted to people ages 15 to 99.

**Analysis by:** Surveillance, Analytics and Informatics, CCO

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

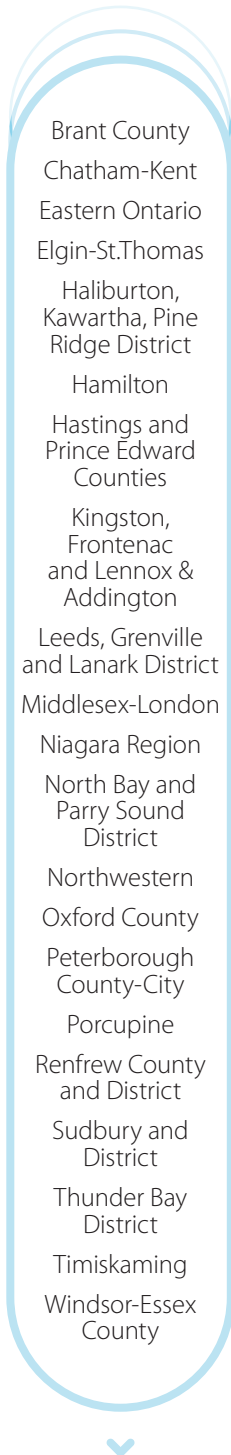


### Both sexes

**PHUs with a 5-year  
RSR significantly  
higher than Ontario**



**PHUs with a 5-year  
RSR significantly  
lower than Ontario**



This chapter presented cancer statistics by public health unit. Incidence and mortality statistics by Local Health Integration Network (LHIN) are available through the Ontario Cancer Profiles tool available at:

[https://www.cancercare.on.ca/ontariocancerprofiles.](https://www.cancercare.on.ca/ontariocancerprofiles)