

# Ohio Cancer Profile

Ohio Department of Health

2019



## Introduction

Approximately four out of 10 Ohioans will be diagnosed with cancer at some point during their lifetime. Cancer is the second leading cause of death, accounting for nearly one in every four deaths in Ohio and the United States. This report provides an overview of cancer in Ohio, including data on cancer incidence (new cases) and mortality (deaths), Ohio and U.S. comparisons, trends, stage at diagnosis and risk factors. Disparities in rates may be associated with lifestyle factors, lack of access to health care, later stage at diagnosis, inadequate treatment or other risk factors. This information can be used to increase awareness about the burden of cancer in Ohio and to develop targeted programs for cancer prevention, early detection and control.

## Overview

- An average of 64,858 new invasive cancer cases and 25,272 deaths occurred each year among Ohio residents from 2012-2016.
- In 2012-2016, the cancer incidence rate for all sites/types combined in Ohio was 461.9 per 100,000, compared with the U.S. rate of 442.0 per 100,000.
- The 2012-2016 cancer mortality rate in Ohio was 176.8 per 100,000, compared with the U.S. rate of 161.0 per 100,000.
- Cancer incidence and mortality rates among males were higher than the rates for females in Ohio and the United States in 2012-2016. Whites had higher cancer incidence rates than blacks and Asians/Pacific Islanders, while blacks had higher cancer mortality rates than whites and Asians/Pacific Islanders in both Ohio and the United States.

**Table 1.** Average Annual Number and Age-adjusted Rates of Invasive Cancer Cases and Cancer Deaths by Sex and Race in Ohio and the United States, 2012-2016<sup>1,2,3</sup>

| Demographics |                        | Incidence     |              |              | Mortality     |              |              |
|--------------|------------------------|---------------|--------------|--------------|---------------|--------------|--------------|
|              |                        | Ohio          |              | U.S.         | Ohio          |              | U.S.         |
|              |                        | Cases         | Rate         | Rate         | Deaths        | Rate         | Rate         |
| <b>Total</b> |                        | <b>64,858</b> | <b>461.9</b> | <b>442.0</b> | <b>25,272</b> | <b>176.8</b> | <b>161.0</b> |
| Sex          | Male                   | 32,328        | 500.7        | 481.0        | 13,182        | 212.6        | 193.1        |
|              | Female                 | 32,530        | 437.5        | 417.1        | 12,090        | 151.5        | 137.7        |
| Race         | White                  | 56,622        | 458.1        | 451.7        | 22,337        | 175.6        | 161.5        |
|              | Black                  | 6,523         | 452.7        | 442.9        | 2,716         | 197.8        | 185.6        |
|              | Asian/Pacific Islander | 465           | 236.8        | 297.9        | 144           | 86.3         | 100.0        |

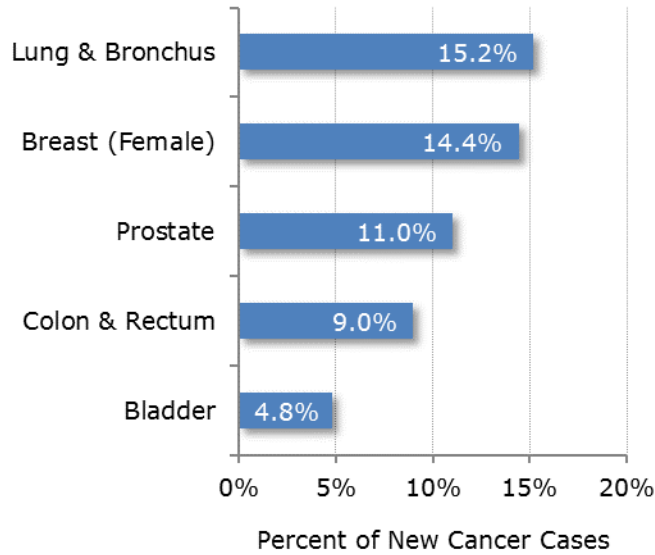
<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics, Ohio Department of Health, 2019.

<sup>2</sup> Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute and the National Center for Health Statistics, 2019.

<sup>3</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population.

## Leading Cancers

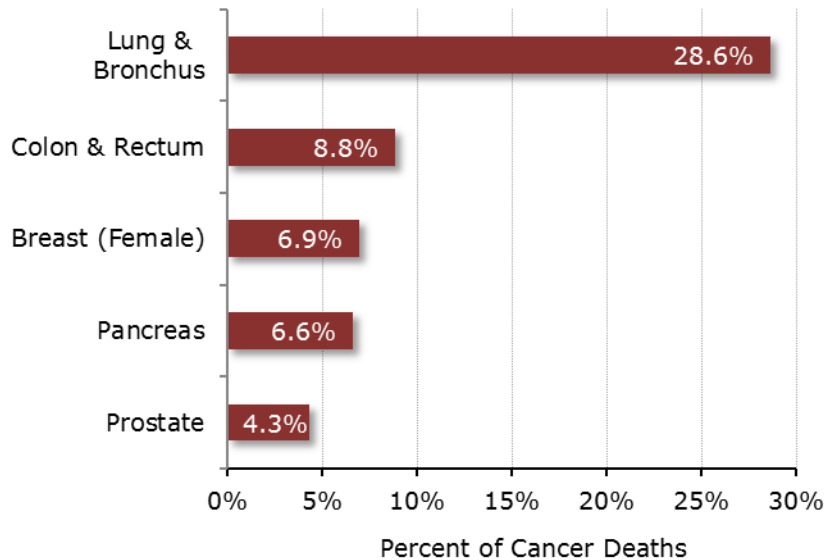
**Figure 1.** Percentage of Cancer Cases by Site/Type for the Top Five Cancers in Ohio, 2012-2016<sup>1</sup>



The leading sites/types of cancer incidence in Ohio in 2012-2016 were lung and bronchus, female breast, prostate, colon and rectum, and bladder, representing 54 percent of all invasive cancer cases.

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2019.

**Figure 2.** Percentage of Cancer Deaths by Site/Type for the Top Five Cancers in Ohio, 2012-2016<sup>1</sup>



The leading sites/types of cancer mortality in Ohio in 2012-2016 were lung and bronchus, colon and rectum, female breast, pancreas and prostate, representing 55 percent of all cancer deaths.

<sup>1</sup> Source: Bureau of Vital Statistics, Ohio Department of Health, 2019.

Lung and bronchus cancer was the leading cause of cancer incidence and mortality in Ohio in 2012-2016, accounting for 15.2 percent of cancer cases and 28.6 percent of cancer deaths.

## Cancer Sites/Types

**Table 2.** Average Annual Number and Age-adjusted Rates of Invasive Cancer Cases and Cancer Deaths by Site/Type in Ohio and the United States, 2012-2016<sup>1,2,3</sup>

| Cancer Site/Type               | Incidence     |              |              | Mortality     |              |              |
|--------------------------------|---------------|--------------|--------------|---------------|--------------|--------------|
|                                | Ohio          |              | U.S.         | Ohio          |              | U.S.         |
|                                | Cases         | Rate         | Rate         | Deaths        | Rate         | Rate         |
| <b>All Sites/Types</b>         | <b>64,858</b> | <b>461.9</b> | <b>442.0</b> | <b>25,272</b> | <b>176.8</b> | <b>161.0</b> |
| Bladder                        | 3,141         | 22.0         | 20.1         | 722           | 5.0          | 4.4          |
| Brain & Other CNS              | 913           | 7.1          | 6.4          | 634           | 4.6          | 4.4          |
| Breast (Female)                | 9,359         | 127.4        | 127.5        | 1,755         | 22.4         | 20.6         |
| Cervix                         | 467           | 7.6          | 7.3          | 158           | 2.3          | 2.3          |
| Colon & Rectum                 | 5,820         | 41.5         | 38.6         | 2,234         | 15.7         | 14.2         |
| Esophagus                      | 762           | 5.2          | 4.3          | 729           | 5.0          | 4.0          |
| Hodgkin Lymphoma               | 324           | 2.8          | 2.7          | 43            | 0.3          | 0.3          |
| Kidney & Renal Pelvis          | 2,387         | 17.1         | 16.1         | 563           | 3.9          | 3.8          |
| Larynx                         | 592           | 4.0          | 3.0          | 184           | 1.3          | 1.0          |
| Leukemia                       | 1,655         | 12.2         | 14.1         | 961           | 6.9          | 6.5          |
| Liver & Intrahepatic Bile Duct | 1,038         | 7.0          | 8.8          | 868           | 5.9          | 6.5          |
| Lung & Bronchus                | 9,858         | 68.5         | 54.9         | 7,234         | 50.3         | 41.9         |
| Melanoma of the Skin           | 3,068         | 22.9         | 22.2         | 387           | 2.8          | 2.5          |
| Multiple Myeloma               | 859           | 6.0          | 6.9          | 508           | 3.6          | 3.3          |
| Non-Hodgkin Lymphoma           | 2,643         | 19.1         | 19.6         | 868           | 6.2          | 5.6          |
| Oral Cavity & Pharynx          | 1,696         | 11.8         | 11.3         | 389           | 2.7          | 2.5          |
| Ovary                          | 815           | 11.0         | 11.4         | 584           | 7.4          | 7.0          |
| Pancreas                       | 1,849         | 12.8         | 12.9         | 1,675         | 11.6         | 11.0         |
| Prostate                       | 7,158         | 103.0        | 109.5        | 1,094         | 19.0         | 19.2         |
| Stomach                        | 900           | 6.4          | 7.4          | 376           | 2.7          | 3.1          |
| Testis                         | 308           | 5.8          | 5.9          | 17            | 0.3          | 0.3          |
| Thyroid                        | 1,844         | 15.1         | 15.8         | 66            | 0.5          | 0.5          |
| Uterus                         | 2,297         | 29.7         | 27.5         | 407           | 5.0          | 4.7          |

<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics, Ohio Department of Health, 2019.

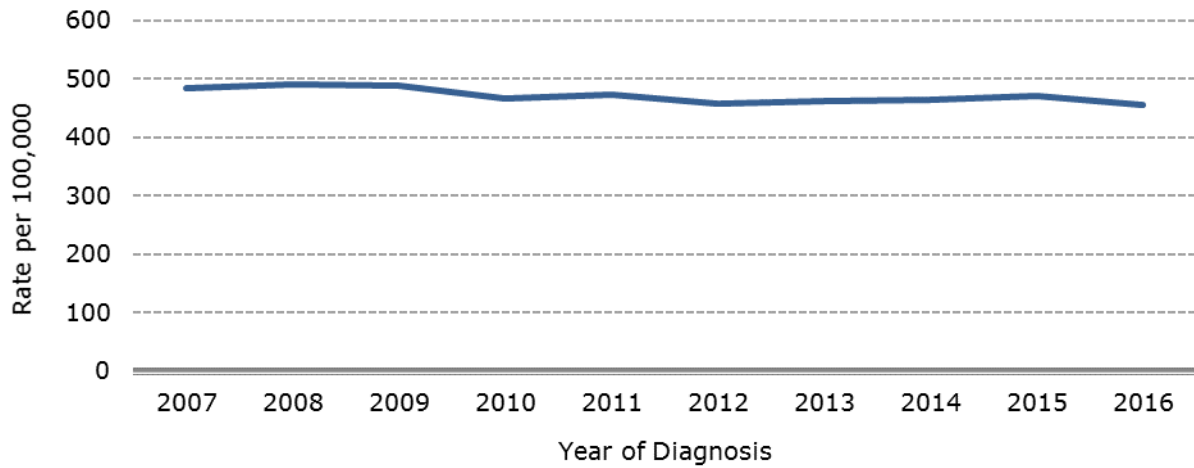
<sup>2</sup> Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute and the National Center for Health Statistics, 2019.

<sup>3</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population. Rates are sex specific for cancers of the breast, cervix, ovary, prostate, testis and uterus.

CNS = Central Nervous System

## Trends

**Figure 3.** Age-adjusted Cancer Incidence Rates in Ohio by Year, 2007-2016<sup>1,2</sup>

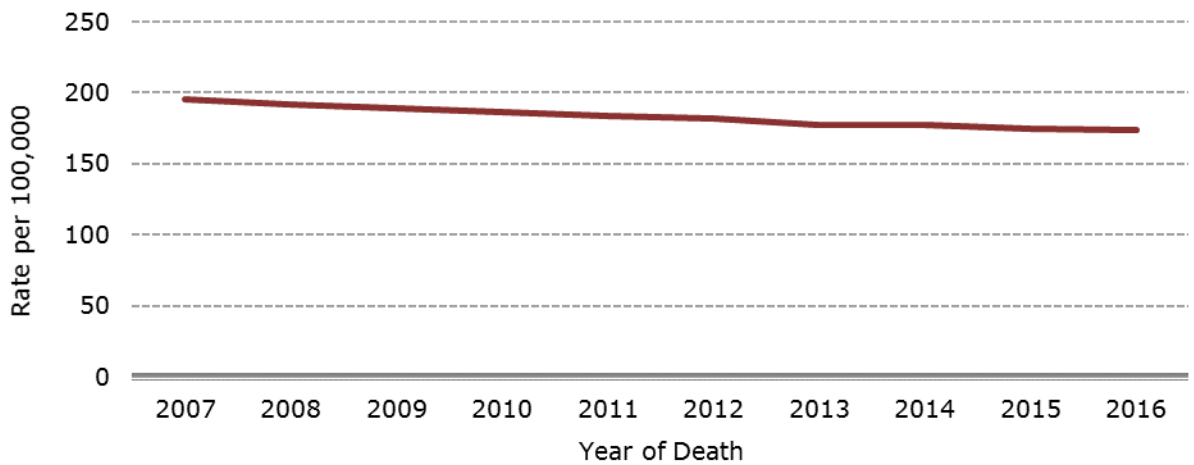


<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2019.

<sup>2</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.

Cancer incidence rates decreased 6 percent in Ohio from 2007-2016.

**Figure 4.** Age-adjusted Cancer Mortality Rates in Ohio by Year, 2007-2016<sup>1,2</sup>



<sup>1</sup> Source: Bureau of Vital Statistics, Ohio Department of Health, 2019.

<sup>2</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.

Cancer mortality rates decreased 11 percent in Ohio from 2007-2016.

## Stage at Diagnosis

**Table 3.** Percent of Cancer Cases by Stage at Diagnosis for Select Cancer Sites/Types in Ohio and the United States, 2012-2016<sup>1,2,3</sup>

| Cancer Site/Type      | Ohio        |            | U.S.        |            |
|-----------------------|-------------|------------|-------------|------------|
|                       | Early Stage | Late Stage | Early Stage | Late Stage |
| Breast (Female)       | 70.2        | 27.9       | 72.1        | 26.3       |
| Cervix                | 43.8        | 51.2       | 43.1        | 51.6       |
| Colon & Rectum        | 37.3        | 53.1       | 41.0        | 52.8       |
| Lung & Bronchus       | 20.1        | 70.8       | 21.7        | 72.2       |
| Melanoma of the Skin  | 82.2        | 8.6        | 89.6        | 6.8        |
| Oral Cavity & Pharynx | 30.1        | 65.0       | 33.1        | 61.5       |
| Prostate              | 70.7        | 19.5       | 72.1        | 19.7       |

<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2019.

<sup>2</sup> Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute, 2019.

<sup>3</sup> Early and late stage values do not add up to 100 percent because unstaged/missing stage cancers are not included.

Cancer stage at diagnosis is the extent or spread of the tumor from the site of origin. The stages, in order of increasing spread, are *in situ*, local, regional and distant. Early stage cancers are those diagnosed at the *in situ* or local stage, and late stage cancers are those diagnosed at the regional or distant stage. Cancers may also be reported as unstaged or with a missing stage (not shown). Regular screening can result in the detection of these cancers at earlier stages, when treatment is more likely to be successful.

- Among the cancers selected, those with the highest proportions of late-stage tumors in Ohio were lung and bronchus cancer (70.8 percent), and oral cavity and pharynx cancer (65.0 percent).
- Oral cavity and pharynx cancer had a higher proportion of late-stage tumors in Ohio (65.0 percent) compared to the United States (61.5 percent). Melanoma of the skin and female breast cancer also had higher proportions of late-stage tumors in Ohio compared to the United States. Please note that the percentage of unstaged/missing stage cases varies by cancer site/type and region; therefore, comparisons between Ohio and the United States should be interpreted with caution.

## Risk Factors

**Table 4.** Percent of Adults who are Current Smokers, Obese or Physically Inactive in Ohio with Comparison to the United States, 2013, 2015<sup>1</sup>

| Risk Factor         | Ohio | U.S. |
|---------------------|------|------|
| Current Smoker      | 22.5 | 17   |
| Obese               | 31.8 | 29   |
| Physically Inactive | 24.6 | 22   |

<sup>1</sup> Source: County Health Rankings, [www.countyhealthrankings.org](http://www.countyhealthrankings.org), 2019. Current smoker data are from 2016, and obesity and physical inactivity data are from 2015.

Current Smoker = Percentage of adults who are current smokers

Obese = Percentage of adults with a body mass index (BMI)  $\geq 30$

Physically Inactive = Percentage of adults that reported no leisure-time physical activity in the past 30 days

A cancer risk factor is anything that increases a person's risk of developing cancer. Modifiable cancer risk factors include health behaviors and lifestyle factors (e.g., tobacco use, obesity and physical inactivity). It is often not just one factor that increases a person's risk of developing cancer; rather, cancer most often results from a complex interaction of multiple factors.

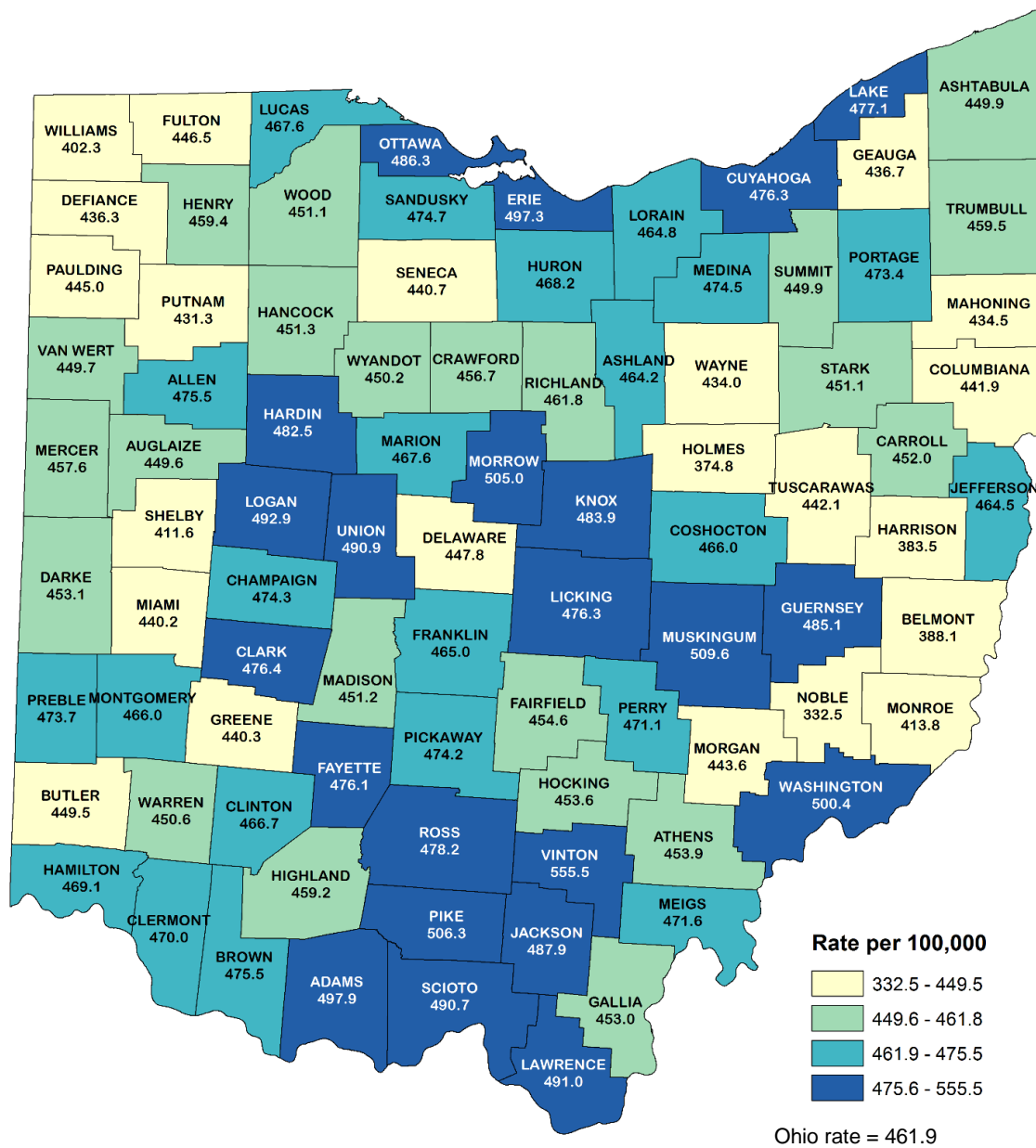
- The percentage of adults in Ohio who are current smokers is 22.5 percent, compared to 17 percent in the United States.
- The percentage of adults who are obese in Ohio is 31.8 percent, compared to 29 percent in the United States.
- The percentage of adults that report no leisure-time physical activity in Ohio is 24.6 percent, compared to 22 percent in the United States.

### Did You Know?

- Tobacco use is associated with 12 types of cancer. Nearly one-third of all cancer deaths could be prevented by eliminating tobacco use.
- Overweight and obesity are associated with at least 13 types of cancer. Nearly one-fifth of cancer deaths could be prevented by adopting healthy diet and exercise practices.

## County Maps

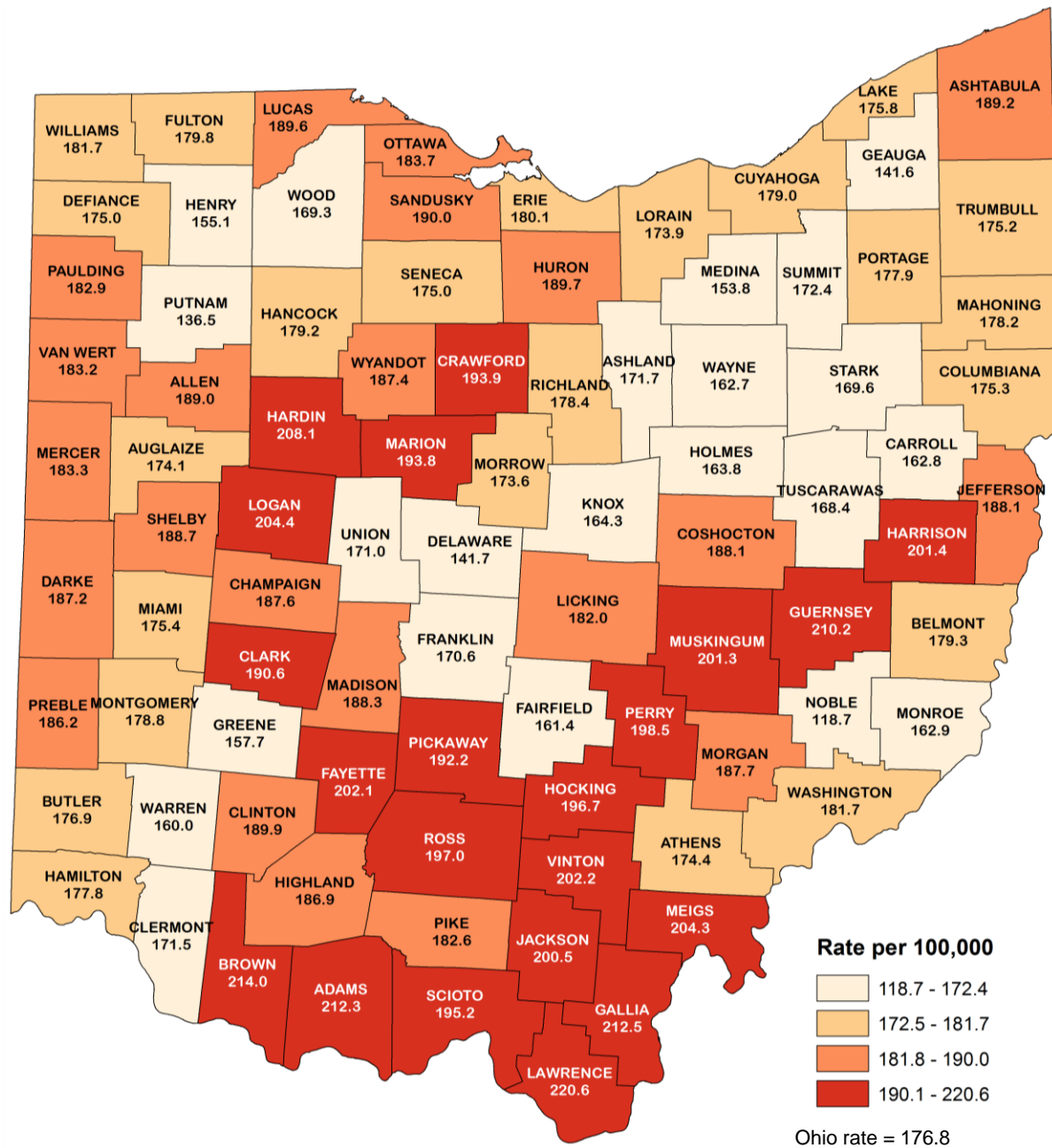
**Figure 5.** Average Annual Age-adjusted Incidence Rates for All Cancer Sites/Types Combined in Ohio by County, 2012-2016<sup>1</sup>



<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2019.

The cancer incidence rate in Ohio varied by county in 2012-2016. The county with the highest age-adjusted cancer incidence rate (Vinton County, 555.5 per 100,000) had a rate 1.7 times higher than the county with the lowest rate (Noble County, 332.5 per 100,000).

**Figure 6.** Average Annual Age-adjusted Mortality Rates for All Cancer Sites/Types Combined in Ohio by County, 2012-2016<sup>1</sup>



<sup>1</sup> Source: Bureau of Vital Statistics, Ohio Department of Health, 2019.

The cancer mortality rate in Ohio varied by county in 2012-2016. The county with the highest age-adjusted cancer mortality rate (Lawrence County, 220.6 per 100,000) had a rate 1.9 times higher than the county with the lowest rate (Noble County, 118.7 per 100,000).



## Sources of Data and Additional Information

### Ohio Cancer Incidence Surveillance System (OCISS)

Cancer incidence data were provided by OCISS, the central cancer registry for Ohio. OCISS data can be accessed through the **Ohio Public Health Data Warehouse**, <http://publicapps.odh.ohio.gov/EDW/DataCatalog>.

### Ohio Vital Statistics

Cancer mortality data were provided by the Bureau of Vital Statistics and analyzed by the Chronic Disease Epidemiology and Evaluation Section at the Ohio Department of Health. Cancer mortality data can also be accessed through the Ohio Public Health Data Warehouse.

### County Health Rankings

Risk factor data were obtained from *County Health Rankings Key Findings 2019*, University of Wisconsin Population Health Institute, available at [www.countyhealthrankings.org](http://www.countyhealthrankings.org).

### U.S. Statistics

Cancer statistics for the United States were obtained from the Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute, and the National Center for Health Statistics, available at: <http://seer.cancer.gov>. Data sources include the *SEER Cancer Statistics Review, 1975-2016* and the SEER\*Stat Database, SEER 21 Registries Research Data, released April 2019, based on the November 2018 submission. Stage distributions were calculated using SEER\*Stat software version 8.3.5.

### Other Sources of Information

Ohio Department of Health, Cancer Data and Statistics:

<https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/ohio-cancer-incidence-surveillance-system/data-statistics/data-statistics>

American Cancer Society:

<http://www.cancer.org>

National Cancer Institute:

<http://www.cancer.gov>

## To address comments and information requests:

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OCISS website: <https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/ohio-cancer-incidence-surveillance-system/welcome-to>

## Acknowledgements

The following individuals contributed to this report:

John Kollman, M.S.; Emily Bunt, M.A.; Holly L. Sobotka, M.S.  
Ohio Department of Health

Sincere appreciation to the OCISS, cancer registrars, medical records technicians and other health professionals who improve the collection and quality of cancer data in Ohio.

## Suggested Citation

*Ohio Cancer Profile 2019*, Ohio Cancer Incidence Surveillance System, Ohio Department of Health, July 2019.

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OCISS is supported in part by the State of Ohio and the CDC, National Program of Cancer Registries, cooperative agreement number NU58DP006284. The contents of this report are the sole responsibility of ODH and do not necessarily represent the official views of the CDC.