

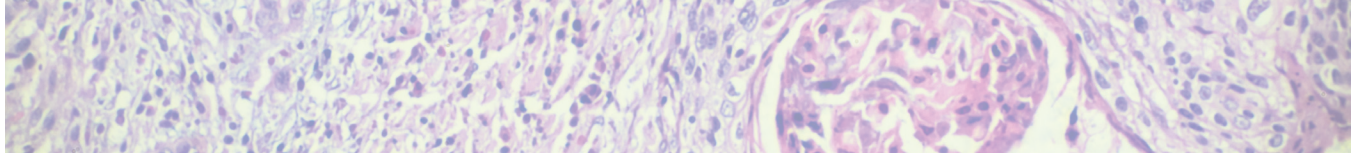
# Ohio Annual Cancer Report 2020

Summary of Cancer Incidence  
and Mortality for 2017 and  
Cancer Trends for 2008-2017



Ohio

Department  
of Health



## Contributors

John Kollman, M.S., Epidemiology Investigator

Holly L. Sobotka, M.S., Manager, Chronic Disease Epidemiology and Evaluation

Lynn K. Giljahn, MPH, Registry Manager, Ohio Cancer Incidence Surveillance System (OCISS)

Bureau of Health Improvement and Wellness

Ohio Department of Health

## Acknowledgment

We would like to express our sincere appreciation to cancer registrars, medical records staff, and other health professionals responsible for capturing and reporting information on cancer patients in Ohio. We would also like to give special thanks to the Ohio Cancer Incidence Surveillance System (OCISS) registry staff and the Bureau of Vital Statistics staff at the Ohio Department of Health for their information and assistance. OCISS is funded by the State of Ohio and the Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion through cooperative agreement number NU58DP006284.

## Suggested Citation

*Ohio Annual Cancer Report 2020*. Ohio Department of Health, Bureau of Health Improvement and Wellness, Columbus, Ohio, March 2020.

## Copyright Information

This report is public information. Reproduction and copying of this report for cancer prevention and control, education, and program planning are greatly encouraged. Citation of source, however, is appreciated. The contents are the sole responsibility of the authors and do not necessarily represent the official views of the CDC.

## To address comments and information requests:

Ohio Cancer Incidence Surveillance System (OCISS)

Ohio Department of Health

246 North High Street

Columbus, OH 43215

Phone: (614) 752-2689

Fax: (614) 644-8028

E-mail: [ociss@odh.ohio.gov](mailto:ociss@odh.ohio.gov)

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

## Table of Contents

|   |    |
|---|----|
| Preface   | 2  |
| Overview  | 3  |
| New Cancer Cases  | 4  |
| Figure 1. Top 10 Cancers by Percent of New Invasive Cancer Cases, Ohio, 2017                    | 4  |
| Table 1. New Invasive Cancer Cases and Incidence Rates by Cancer Site/Type and Sex, Ohio, 2017  | 5  |
| Cancer Deaths   | 6  |
| Figure 2. Top 10 Cancers by Percent of Cancer Deaths, Ohio, 2017                                | 6  |
| Table 2. Cancer Deaths and Mortality Rates by Cancer Site/Type and Sex, Ohio, 2017              | 7  |
| Trends in Ohio Cancer Rates   | 8  |
| Figure 3. Overall Trends in Cancer Incidence Rates, Ohio, 2008-2017                             | 8  |
| Figure 4. Overall Trends in Cancer Mortality Rates, Ohio, 2008-2017                             | 8  |
| Figure 5. Trends in Cancer Incidence Rates by Site/Type, Males, Ohio, 2008-2017                 | 9  |
| Figure 6. Trends in Cancer Incidence Rates by Site/Type, Females, Ohio, 2008-2017               | 10 |
| Figure 7. Trends in Cancer Mortality Rates by Site/Type, Males, Ohio, 2008-2017                 | 11 |
| Figure 8. Trends in Cancer Mortality Rates by Site/Type, Females, Ohio, 2008-2017               | 12 |
| Cancer by Race  | 13 |
| Figure 9. Incidence Rates for the Leading Cancers by Race, Ohio, 2017                           | 13 |
| Table 3. New Invasive Cancer Cases and Incidence Rates by Cancer Site/Type and Race, Ohio, 2017 | 14 |
| Table 4. Cancer Deaths and Mortality Rates by Cancer Site/Type and Race, Ohio, 2017             | 15 |
| Cancer by Age Group   | 16 |
| Figure 10. Percent of New Invasive Cancer Cases by Age Group, Ohio, 2017                        | 16 |
| Figure 11. Percent of Cancer Deaths by Age Group, Ohio, 2017                                    | 16 |
| Stage at Diagnosis and Survival for Selected Cancers  | 17 |
| Figure 12. Breast Cancer (Female) by Stage at Diagnosis, Ohio, 2017                             | 17 |
| Figure 13. Colon and Rectum Cancer by Stage at Diagnosis, Ohio, 2017                            | 17 |
| Figure 14. Lung and Bronchus Cancer by Stage at Diagnosis, Ohio, 2017                           | 18 |
| Figure 15. Prostate Cancer by Stage at Diagnosis, Ohio, 2017                                    | 18 |
| Cancer by County  | 19 |
| Figure 16. Cancer Incidence Rates by County, Ohio, 2017   | 19 |
| Figure 17. Cancer Mortality Rates by County, Ohio, 2017   | 20 |
| Table 5. New Invasive Cancer Cases and Incidence Rates by County, Ohio, 2017                    | 21 |
| Table 6. Cancer Deaths and Mortality Rates by County, Ohio, 2017                                | 24 |
| Data Sources and Methods  | 27 |

## Preface

*Ohio Annual Cancer Report 2020* presents a summary of cancer incidence (new cases) and mortality (deaths) for the state of Ohio, highlighting cancer data by sex, race, age group, stage at diagnosis, and county for 2017, as well as trends in Ohio cancer rates from 2008-2017. The collection and analysis of population-based cancer data help determine the burden of cancer in Ohio's communities, which can be used by public health professionals, policy makers, researchers, and others to develop, implement, and evaluate cancer prevention and control activities, support cancer-related research, and inform Ohioans of the cancer burden in the state.

### Ohio Cancer Incidence Surveillance System

Cancer incidence data for Ohio were provided by the Ohio Cancer Incidence Surveillance System (OCISS) at the Ohio Department of Health (ODH). OCISS, the central cancer registry for Ohio, collects and analyzes cancer incidence data for all Ohio residents. All Ohio medical providers who diagnose or treat patients with cancer are required, by law, to report each case of cancer to OCISS within six months of diagnosis or first contact, with the exception of basal and squamous cell skin cancer and *in situ* (non-invasive) cervical cancer. Due to the complexity of the cancer data collection and quality control process, there is a delay between the time a new cancer is diagnosed and the time the data are ready for analysis. The typical delay is about 24 months after the end of the calendar year of diagnosis. Incidence data presented in this report are for cancer cases diagnosed through Dec. 31, 2017. OCISS data quality, completeness and timeliness are evaluated annually by the CDC's National Program of Cancer Registries (NPCR) and the North American Association of Central Cancer Registries (NAACCR) and routinely meet national data quality standards. However, completeness may be higher or lower for specific cancer types, geographic areas, or demographic subgroups. Also, it is not unusual for the number of cancer cases and incidence rates to vary from year to year, especially for smaller geographic areas and demographic subgroups.

### Ohio Vital Statistics

Cancer mortality data were provided by the Bureau of Vital Statistics at ODH. The Bureau of Vital Statistics receives certificates of death from local vital statistics offices and from other states when an Ohio resident dies outside of Ohio. Cancer death data in this report were categorized by the primary underlying cause of death.

### Ohio Public Health Data Warehouse

In addition to this report, OCISS data are available in the Ohio Public Health Data Warehouse on the ODH website: <http://publicapps.odh.ohio.gov/EDW/DataCatalog>. The warehouse is a self-service online tool where anyone can obtain the most recent public health data available about Ohio. The warehouse currently has reports of OCISS data from the official end of year file for 1996-2017, which contains more than 1.4 million records.

## Overview

Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. Although some forms of cancer are rare, cancer is much more common than most people realize. About one in three Americans will be diagnosed with cancer at some point during their lifetime. Cancer is not one disease but many — there are more than 100 different types of cancer, many of which have different causes and risk factors. Although cancer may strike at any age, most cancer cases occur in adults who are middle-aged or older — 87% of all cancers in the United States are diagnosed in people age 50 and older.

### New Cases

According to the American Cancer Society, more than 1.8 million new invasive cancer cases are expected to occur in the United States in 2020. In Ohio, more than 74,000 cancer cases were diagnosed in 2017 and reported to OCISS. Of these, 67,268 were new invasive cancer cases. Breast cancer was the leading cause of cancer incidence in Ohio in 2017, followed by lung and bronchus cancer, prostate cancer, and colon and rectum cancer, the same as in the United States, based on the number of new cancer cases in 2016. (National data for 2017 were not yet available at the time of this publication.) In Ohio, the age-adjusted cancer incidence rate for all cancer sites/types decreased 6% from 2008 (489.8 per 100,000) to 2017 (458.9 per 100,000).

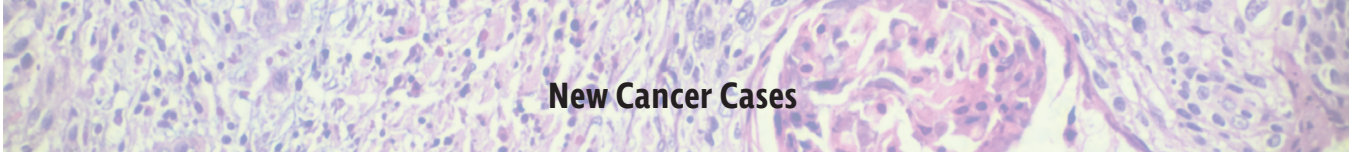
### Deaths

Cancer is the second most common cause of death in Ohio and the United States, accounting for nearly one of every four deaths. More than 600,000 Americans are expected to die of cancer in 2020. Cancer claimed the lives of 25,647 Ohioans in 2017, at a rate (171.1 per 100,000) that was 12% higher than the U.S. rate (152.5 per 100,000) in 2017. Lung and bronchus cancer was the leading cause of cancer death in Ohio and the United States in 2017, followed by colon and rectum cancer, pancreatic cancer, and breast cancer. In 2017, males in Ohio were more likely to die of cancer than females, and blacks were more likely to die of cancer than whites and Asians/Pacific Islanders. The age-adjusted cancer mortality rate in Ohio decreased 11% from 2008 (191.6 per 100,000) to 2017 (171.1 per 100,000).

### Stage at Diagnosis and Survival

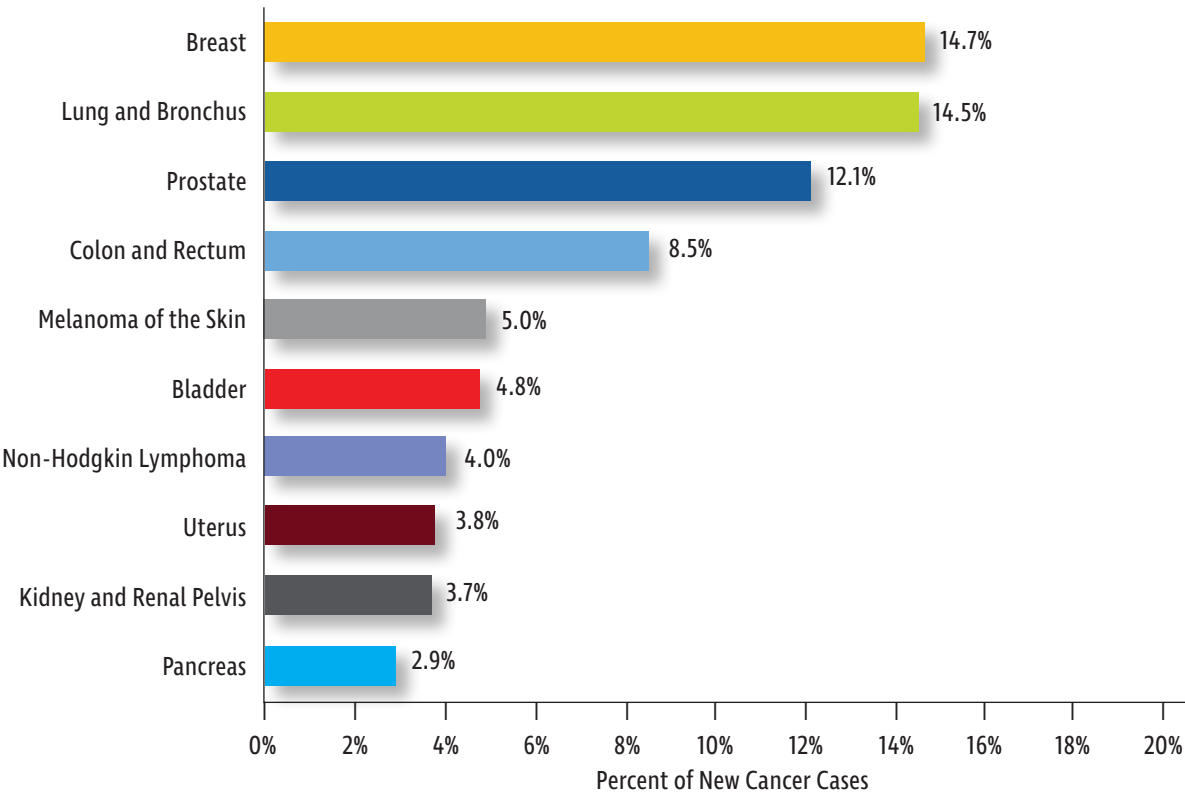
Cancer stage at diagnosis refers to the extent or spread of a cancer in the body and is categorized as *in situ* (cancer that has not spread; noninvasive), local (invasive cancer confined to the site of origin), regional (invasive cancer that has spread to regional lymph nodes and/or adjacent organs or tissues), or distant (invasive cancer that has spread to distant organs or tissues.) Five-year relative survival compares the survival of people diagnosed with cancer with the survival of people who do not have cancer. The earlier a cancer is diagnosed, the better chance a person has of surviving. For example, in 2017, 26% of lung and bronchus cancers in Ohio were diagnosed at the local stage, when the five-year relative survival is 56%; whereas, when diagnosed at the distant stage, the five-year relative survival is only 5%.





## New Cancer Cases

Figure 1. Top 10 Cancers by Percent of New Invasive Cancer Cases, Ohio, 2017



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

- Breast cancer was the leading cause of cancer incidence in Ohio in 2017, representing 14.7% of all new invasive cancer cases, followed by lung and bronchus cancer (14.5%), prostate cancer (12.1%), and colon and rectum cancer (8.5%).
- These four sites/types accounted for half of all new invasive cancer cases in Ohio in 2017.

## New Cancer Cases

Table 1. New Invasive Cancer Cases and Incidence Rates by Cancer Site/Type and Sex, Ohio, 2017<sup>1,2,3</sup>

| Primary Cancer Site/Type         | Male          |              | Female        |              | Both Sexes    |              |
|----------------------------------|---------------|--------------|---------------|--------------|---------------|--------------|
|                                  | Cases         | Rate         | Cases         | Rate         | Cases         | Rate         |
| <b>All Cancer Sites/Types</b>    | <b>33,922</b> | <b>496.3</b> | <b>33,346</b> | <b>435.1</b> | <b>67,268</b> | <b>458.9</b> |
| Bladder                          | 2,457         | 37.1         | 749           | 8.9          | 3,206         | 21.2         |
| Brain and Other CNS              | 525           | 8.3          | 415           | 5.9          | 940           | 7.1          |
| Breast                           | 76            | 1.1          | 9,830         | 130.1        | 9,906         | 69.5         |
| Cervix                           | *             | *            | 491           | 8.1          | 491           | 8.1          |
| Colon and Rectum                 | 2,953         | 44.4         | 2,789         | 35.4         | 5,742         | 39.5         |
| Esophagus                        | 660           | 9.5          | 154           | 1.8          | 814           | 5.3          |
| Hodgkin Lymphoma                 | 165           | 2.8          | 164           | 2.7          | 329           | 2.7          |
| Kidney and Renal Pelvis          | 1,551         | 23.3         | 958           | 12.7         | 2,509         | 17.6         |
| Larynx                           | 443           | 6.2          | 148           | 1.9          | 591           | 3.9          |
| Leukemia                         | 967           | 15.1         | 693           | 9.1          | 1,660         | 11.8         |
| Liver and Intrahepatic Bile Duct | 788           | 10.8         | 334           | 4.1          | 1,122         | 7.2          |
| Lung and Bronchus                | 5,156         | 75.0         | 4,586         | 55.3         | 9,742         | 63.8         |
| Melanoma of the Skin             | 1,969         | 30.3         | 1,373         | 19.4         | 3,342         | 23.9         |
| Multiple Myeloma                 | 486           | 7.3          | 383           | 4.8          | 869           | 5.9          |
| Non-Hodgkin Lymphoma             | 1,520         | 23.2         | 1,204         | 15.4         | 2,724         | 18.9         |
| Oral Cavity and Pharynx          | 1,296         | 18.6         | 536           | 7.0          | 1,832         | 12.4         |
| Ovary                            | *             | *            | 761           | 10.0         | 761           | 10.0         |
| Pancreas                         | 1,048         | 15.5         | 908           | 10.9         | 1,956         | 13.0         |
| Prostate                         | 8,155         | 109.9        | *             | *            | 8,155         | 109.9        |
| Stomach                          | 565           | 8.5          | 309           | 4.0          | 874           | 6.0          |
| Testis                           | 278           | 5.2          | *             | *            | 278           | 5.2          |
| Thyroid                          | 457           | 7.3          | 1,385         | 22.2         | 1,842         | 14.8         |
| Uterus                           | *             | *            | 2,558         | 32.2         | 2,558         | 32.2         |

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

<sup>3</sup> Total excludes three cases with other or unknown sex.

\* Not applicable; sex-specific cancer.

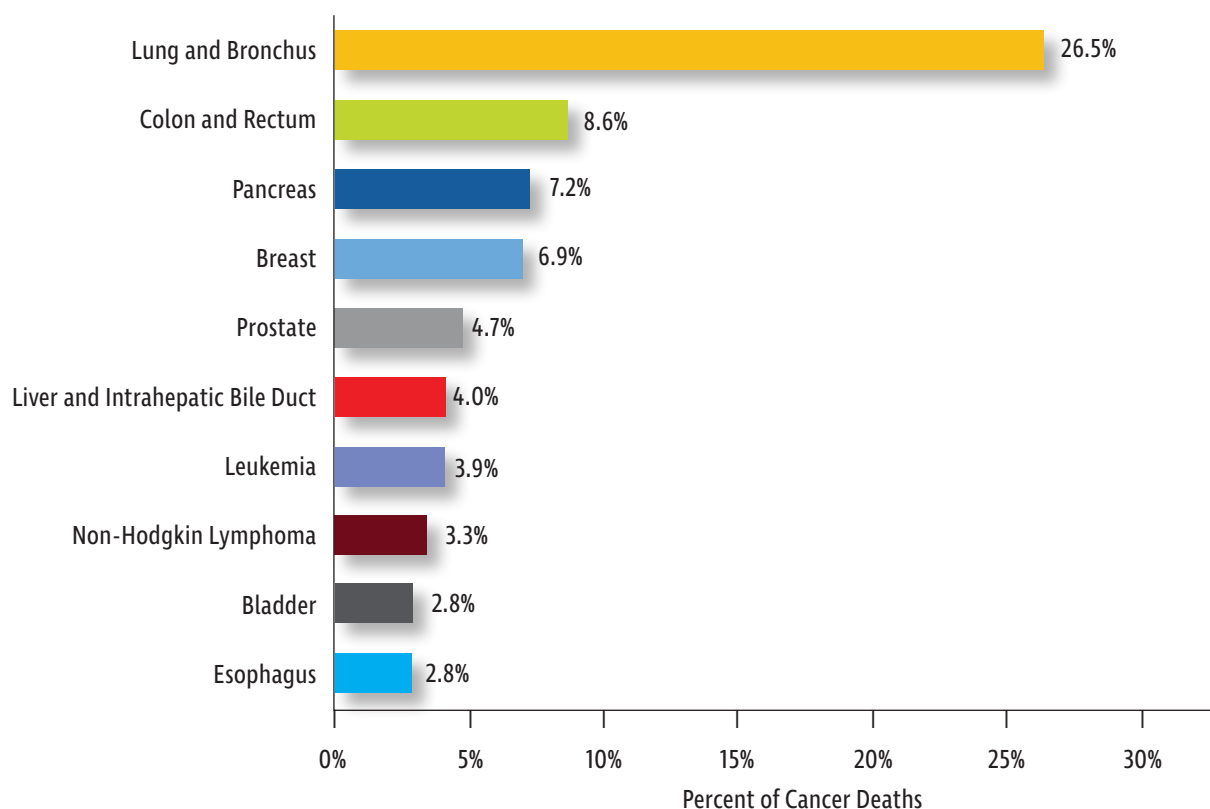
CNS = Central Nervous System.

- In Ohio, 67,268 new invasive cancer cases were diagnosed among males and females in 2017. Ohio's age-adjusted cancer incidence rate (458.9 per 100,000) in 2017 was 5% higher than the U.S. rate (435.6 per 100,000) in 2016, the latest year for which U.S. cancer incidence data were available at the time of this publication.
- In 2017, males had a 14% higher cancer incidence rate (496.3 per 100,000) than females (435.1 per 100,000) in Ohio.



## Cancer Deaths

Figure 2. Top 10 Cancers by Percent of Cancer Deaths, Ohio, 2017



Source: Bureau of Vital Statistics, Ohio Department of Health, 2019.

- Cancer is the second most common cause of death in Ohio and the United States, accounting for nearly one of every four deaths.
- Lung and bronchus cancer was the leading cause of cancer death in Ohio in 2017, representing 26.5% of all cancer deaths, followed by colon and rectum cancer (8.6%), pancreatic cancer (7.2%), and breast cancer (6.9%).
- These four sites/types accounted for almost half (49%) of all cancer deaths in Ohio in 2017.



## Cancer Deaths

Table 2. Cancer Deaths and Mortality Rates by Cancer Site/Type and Sex, Ohio, 2017<sup>1,2</sup>

| Primary Cancer Site/Type         | Male          |              | Female        |              | Both Sexes    |              |
|----------------------------------|---------------|--------------|---------------|--------------|---------------|--------------|
|                                  | Deaths        | Rate         | Deaths        | Rate         | Deaths        | Rate         |
| <b>All Cancer Sites/Types</b>    | <b>13,435</b> | <b>204.2</b> | <b>12,212</b> | <b>147.6</b> | <b>25,647</b> | <b>171.1</b> |
| Bladder                          | 490           | 7.9          | 236           | 2.7          | 726           | 4.8          |
| Brain and Other CNS              | 370           | 5.5          | 324           | 4.3          | 694           | 4.9          |
| Breast                           | 22            | 0.3          | 1,758         | 21.9         | 1,780         | 12.2         |
| Cervix                           | *             | *            | 174           | 2.5          | 174           | 2.5          |
| Colon and Rectum                 | 1,140         | 17.8         | 1,065         | 12.7         | 2,205         | 15.0         |
| Esophagus                        | 582           | 8.4          | 141           | 1.7          | 723           | 4.7          |
| Hodgkin Lymphoma                 | 32            | 0.5          | 12            | 0.1          | 44            | 0.3          |
| Kidney and Renal Pelvis          | 362           | 5.5          | 236           | 2.8          | 598           | 4.0          |
| Larynx                           | 135           | 1.9          | 52            | 0.7          | 187           | 1.2          |
| Leukemia                         | 574           | 9.1          | 420           | 5.1          | 994           | 6.8          |
| Liver and Intrahepatic Bile Duct | 661           | 9.4          | 356           | 4.3          | 1,017         | 6.6          |
| Lung and Bronchus                | 3,769         | 55.8         | 3,026         | 36.2         | 6,795         | 44.6         |
| Melanoma of the Skin             | 253           | 3.9          | 131           | 1.6          | 384           | 2.7          |
| Multiple Myeloma                 | 325           | 5.0          | 209           | 2.5          | 534           | 3.6          |
| Non-Hodgkin Lymphoma             | 479           | 7.7          | 380           | 4.5          | 859           | 5.8          |
| Oral Cavity and Pharynx          | 292           | 4.2          | 131           | 1.6          | 423           | 2.8          |
| Ovary                            | *             | *            | 548           | 6.6          | 548           | 6.6          |
| Pancreas                         | 965           | 14.4         | 890           | 10.4         | 1,855         | 12.2         |
| Prostate                         | 1,211         | 19.5         | *             | *            | 1,211         | 19.5         |
| Stomach                          | 213           | 3.3          | 151           | 1.9          | 364           | 2.5          |
| Testis                           | 16            | 0.3          | *             | *            | 16            | 0.3          |
| Thyroid                          | 21            | 0.3          | 41            | 0.5          | 62            | 0.4          |
| Uterus                           | *             | *            | 471           | 5.6          | 471           | 5.6          |

<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.

\* Not applicable; sex-specific cancer.

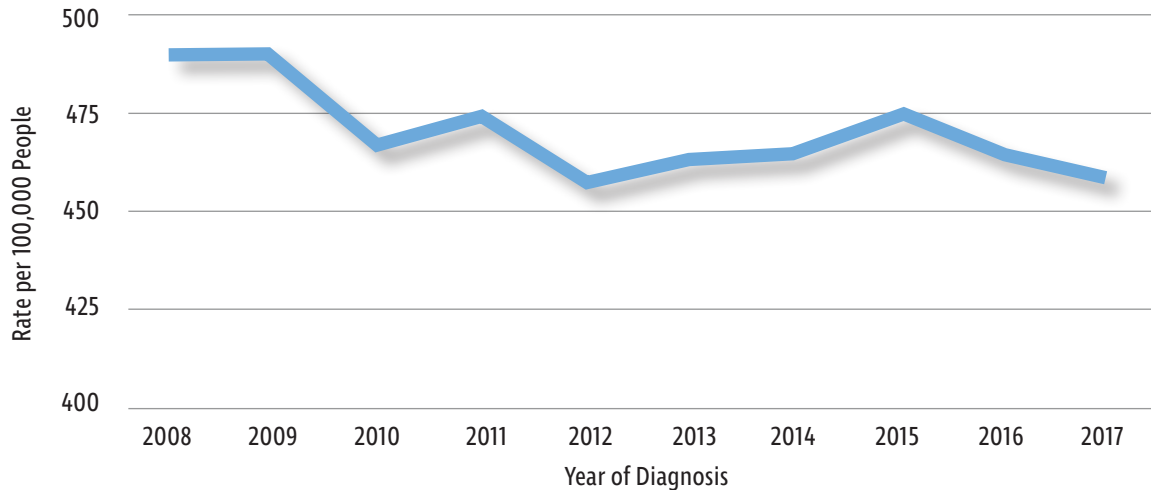
CNS = Central Nervous System.

- Cancer claimed the lives of 25,647 Ohioans in 2017. Ohio's age-adjusted cancer mortality rate (171.1 per 100,000) was 12% higher than the U.S. rate (152.5 per 100,000) in 2017.
- The age-adjusted cancer mortality rate for males (204.2 per 100,000) in Ohio was 1.4 times the rate for females (147.6 per 100,000) in 2017.

## Trends in Ohio Cancer Rates

### Trends in Ohio Cancer Rates

Figure 3. Overall Trends in Cancer Incidence Rates, Ohio, 2008-2017<sup>1,2</sup>

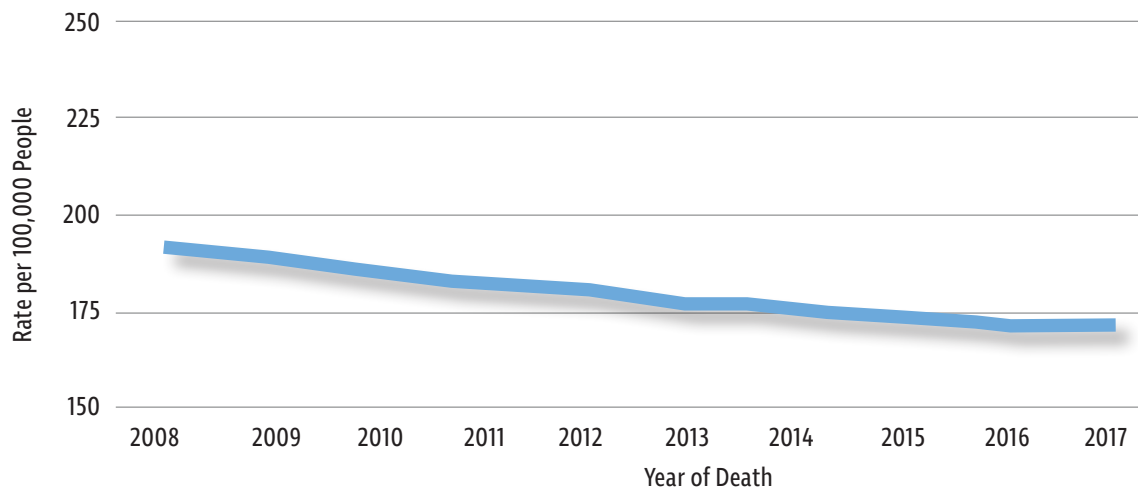


<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

- The age-adjusted cancer incidence rate decreased 6% in Ohio from 2008 (483.6 per 100,000) to 2017 (456.1 per 100,000).

Figure 4. Overall Trends in Cancer Mortality Rates, Ohio, 2008-2017<sup>1,2</sup>



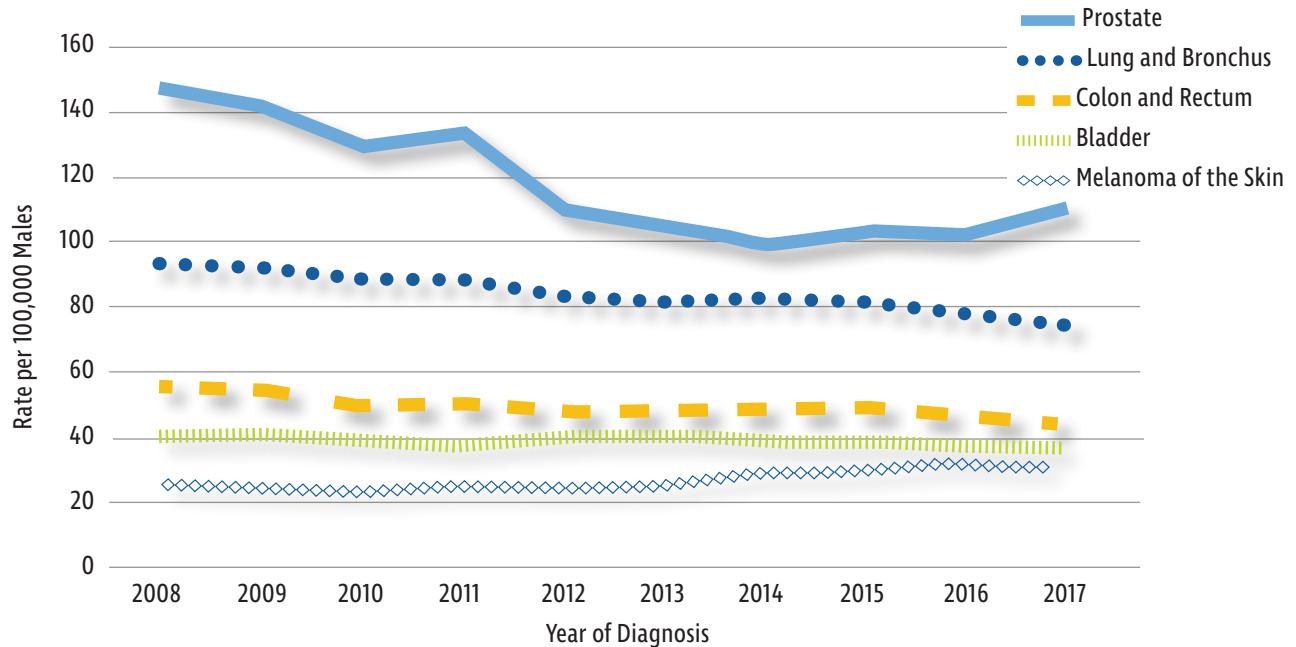
<sup>1</sup> Source: Bureau of Vital Statistics, Ohio Department of Health, 2019.

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

- The age-adjusted cancer mortality rate decreased 11% in Ohio from 2008 (191.6 per 100,000) to 2017 (171.1 per 100,000).

## Trends in Ohio Cancer Rates

Figure 5. Trends in Cancer Incidence Rates by Site/Type, Males, Ohio, 2008-2017<sup>1,2</sup>

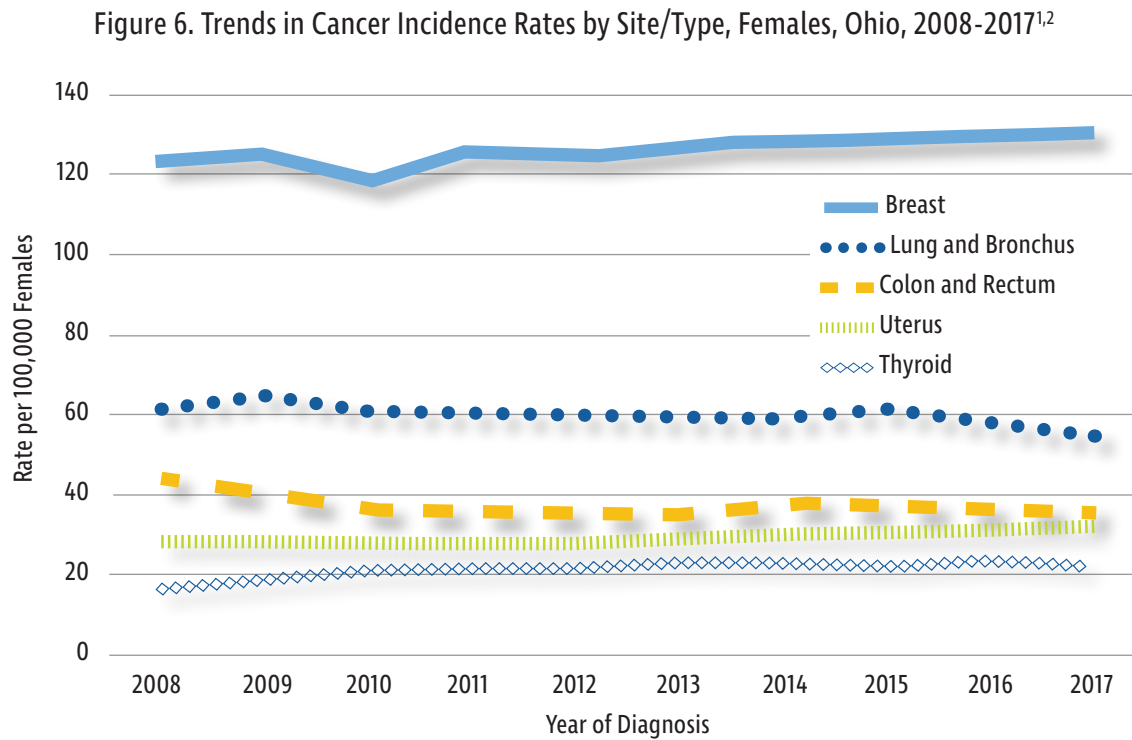


<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

- Prostate cancer is the most frequently diagnosed cancer among males. Incidence rates for prostate cancer have fallen significantly both in the United States and Ohio since the 1990s. In Ohio, prostate cancer incidence rates have decreased 25%, from 147.4 per 100,000 in 2008 to 109.9 per 100,000 in 2017. The decline in prostate cancer diagnoses after 2011 may be partly due to changes in screening guidelines.
- The lung and bronchus cancer incidence rate for Ohio males declined 20% from 2008 (93.3 per 100,000) to 2017 (75.0 per 100,000).
- Colon and rectum cancer incidence rates in Ohio declined 20% from 2008 (55.6 per 100,000) to 2017 (44.4 per 100,000) among males.
- Incidence rates for bladder cancer remained relatively stable from 2008 (40.0 per 100,000) to 2017 (37.1 per 100,000) among Ohio males.
- Among Ohio males, the incidence rate for melanoma of the skin increased 22% from 2008 (24.9 per 100,000) to 2017 (30.3 per 100,000).

## Trends in Ohio Cancer Rates



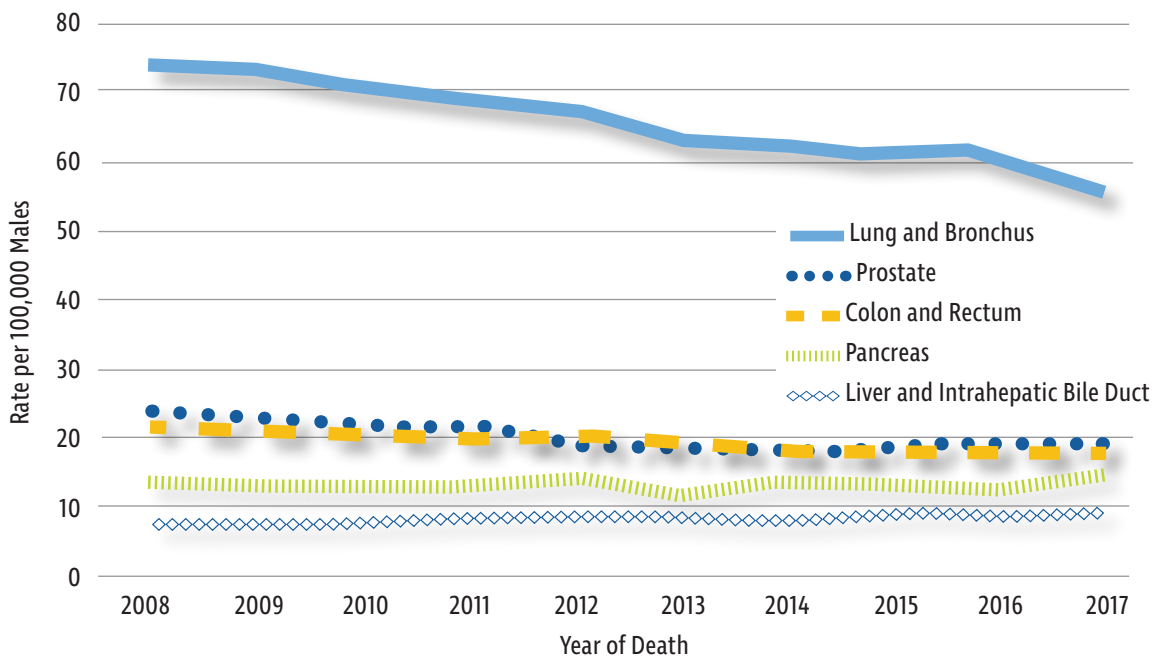
<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

- Breast cancer is the most frequently diagnosed cancer among females. Breast cancer incidence rates in Ohio increased 5% from 2008 (123.4 per 100,000) to 2017 (130.1 per 100,000).
- The lung and bronchus cancer incidence rate among Ohio females decreased 10% from 2008 (61.3 per 100,000) to 2017 (55.3 per 100,000).
- Among females in Ohio, colon and rectum cancer incidence rates declined 17% from 2008 (42.6 per 100,000) to 2017 (35.4 per 100,000).
- Uterine cancer incidence rates increased 17% from 2008 (27.6 per 100,000) to 2017 (32.2 per 100,000) in Ohio.
- Thyroid cancer incidence rates increased 28% in Ohio from 2008 (17.3 per 100,000) to 2017 (22.2 per 100,000) among females. Much of this increase can be explained by improved detection methods.

## Trends in Ohio Cancer Rates

Figure 7. Trends in Cancer Mortality Rates by Site/Type, Males, Ohio, 2008-2017<sup>1,2</sup>



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

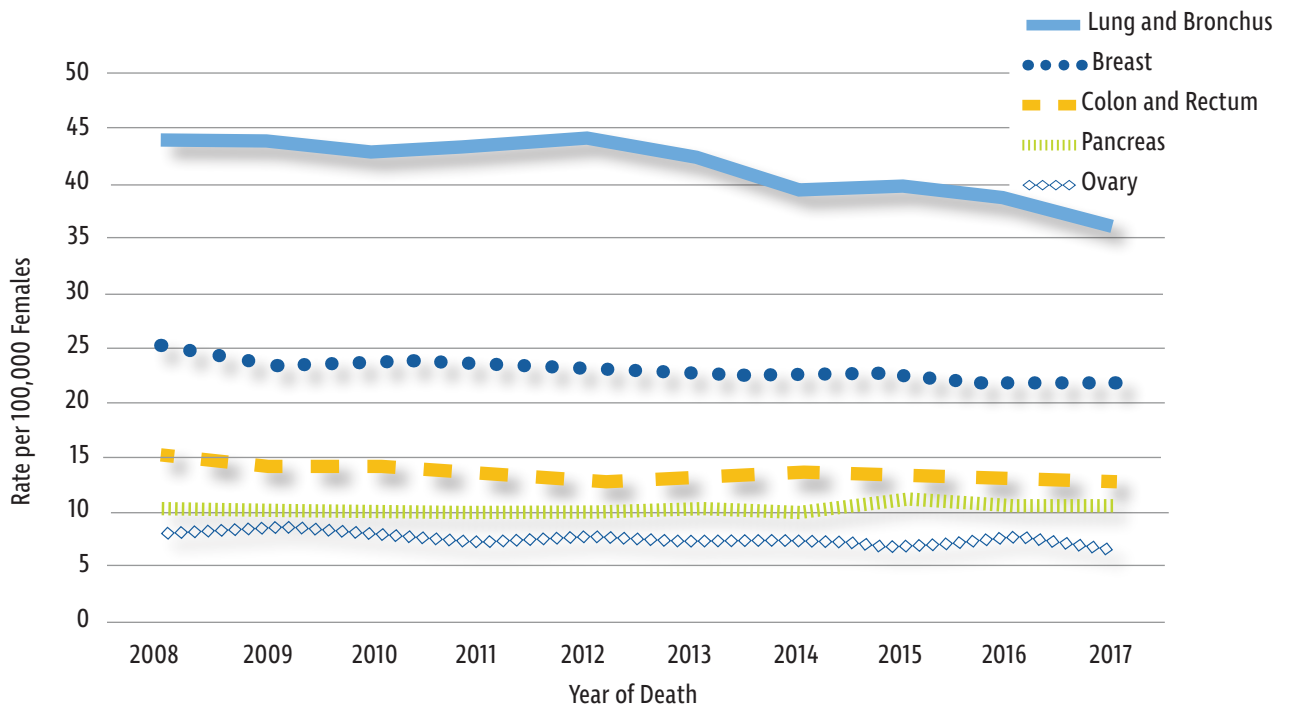
<sup>2</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population.

- Lung and bronchus cancer mortality rates among Ohio males declined 24% from 2008 (73.7 per 100,000) to 2017 (55.8 per 100,000).
- Prostate cancer mortality rates showed an overall decline of 19% among males in Ohio from 2008 (24.0 per 100,000) to 2017 (19.5 per 100,000).
- Colon and rectum cancer mortality rates declined 19% in Ohio from 2008 (22.0 per 100,000) to 2017 (17.8 per 100,000) among males.
- The pancreatic cancer mortality rate was relatively stable among males in Ohio from 2008 (13.3 per 100,000) to 2017 (14.4 per 100,000).
- Liver and intrahepatic bile duct cancer mortality rates increased 24% among males in Ohio from 2008 (7.6 per 100,000) to 2017 (9.4 per 100,000).



## Trends in Ohio Cancer Rates

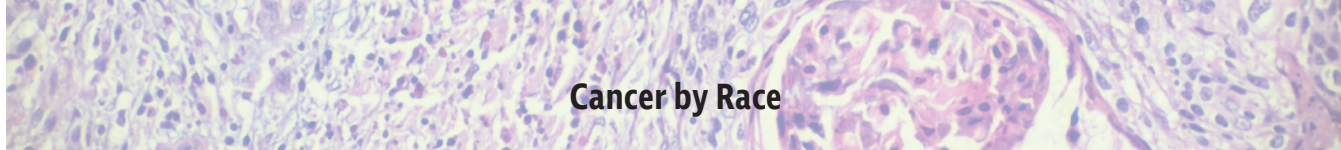
Figure 8. Trends in Cancer Mortality Rates by Site/Type, Females, Ohio, 2008-2017<sup>1,2</sup>



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

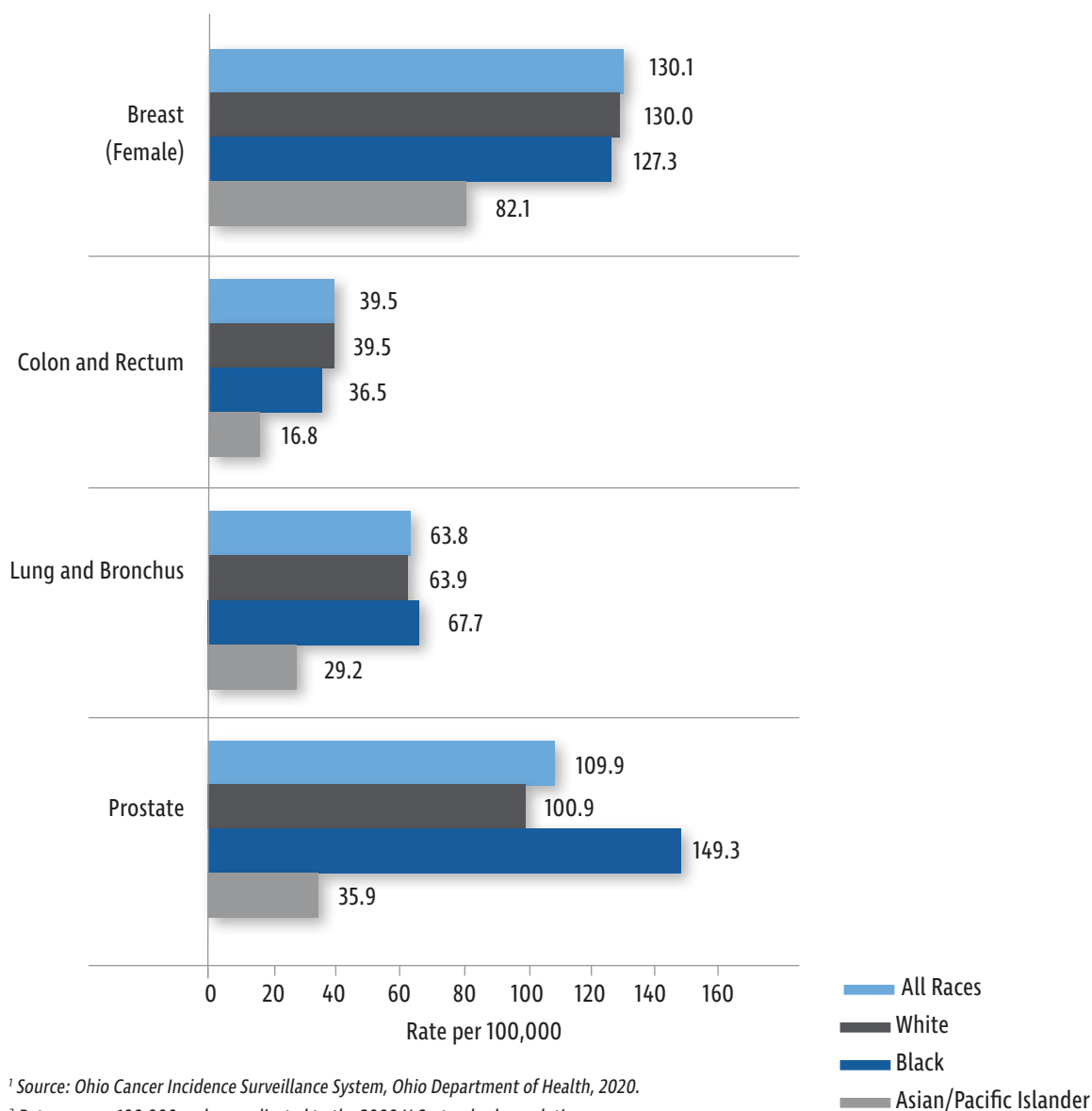
<sup>2</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population.

- Lung and bronchus cancer mortality rates among Ohio females declined 18% from 2008 (43.9 per 100,000) to 2017 (36.2 per 100,000).
- Breast cancer mortality rates among Ohio females decreased 12%, from 25.0 per 100,000 in 2008 to 21.9 per 100,000 in 2017.
- Colon and rectum cancer mortality rates declined 16% in Ohio from 2008 (15.1 per 100,000) to 2017 (12.7 per 100,000) among females.
- No substantial change in pancreatic cancer mortality rates was observed among females in Ohio from 2008 (10.2 per 100,000) to 2017 (10.4 per 100,000).
- Ovarian cancer mortality rates in Ohio decreased 16% from 2008 (7.9 per 100,000) to 2017 (6.6 per 100,000).



## Cancer by Race

Figure 9. Incidence Rates for the Leading Cancers by Race, Ohio, 2017<sup>1,2</sup>



- Asians/Pacific Islanders in Ohio had lower incidence rates than whites and blacks for the leading cancer sites/types in 2017. Rates for Asians/Pacific Islanders are based on small numbers and should be interpreted with caution.
- Incidence rates for cancers of the female breast, colon and rectum, and lung and bronchus were similar among whites and blacks in Ohio in 2017.
- The prostate cancer incidence rate in 2017 was 1.5 times higher among blacks (149.3 per 100,000) than whites (100.9 per 100,000) in Ohio.

## Cancer by Race

Table 3. New Invasive Cancer Cases and Incidence Rates by Cancer Site/Type and Race, Ohio, 2017<sup>1,2</sup>

| Primary Cancer Site/Type         | White         |              | Black        |              | Asian/Pacific Islander |              |
|----------------------------------|---------------|--------------|--------------|--------------|------------------------|--------------|
|                                  | Cases         | Rate         | Cases        | Rate         | Cases                  | Rate         |
| <b>All Cancer Sites/Types</b>    | <b>58,551</b> | <b>456.0</b> | <b>6,730</b> | <b>439.0</b> | <b>543</b>             | <b>226.7</b> |
| Bladder                          | 2,952         | 22.0         | 190          | 12.9         | 19                     | 9.6          |
| Brain and Other CNS              | 847           | 7.5          | 73           | 4.6          | 5                      | 1.9          |
| Breast (Female)                  | 8,564         | 130.0        | 1,062        | 127.3        | 114                    | 82.1         |
| Cervix                           | 407           | 8.1          | 62           | 7.8          | 6                      | 4.3          |
| Colon and Rectum                 | 5,034         | 39.5         | 554          | 36.5         | 42                     | 16.8         |
| Esophagus                        | 750           | 5.5          | 52           | 3.4          | 4                      | *            |
| Hodgkin Lymphoma                 | 286           | 2.8          | 32           | 1.9          | 3                      | *            |
| Kidney and Renal Pelvis          | 2,196         | 17.6         | 276          | 18.5         | 12                     | 5.0          |
| Larynx                           | 511           | 3.8          | 76           | 4.9          | 3                      | *            |
| Leukemia                         | 1,454         | 11.8         | 134          | 9.0          | 17                     | 6.2          |
| Liver and Intrahepatic Bile Duct | 901           | 6.6          | 186          | 11.2         | 22                     | 8.6          |
| Lung and Bronchus                | 8,621         | 63.9         | 1,028        | 67.7         | 61                     | 29.2         |
| Melanoma of the Skin             | 2,965         | 24.3         | 9            | 0.6          | 1                      | *            |
| Multiple Myeloma                 | 654           | 5.0          | 183          | 12.3         | 7                      | 3.6          |
| Non-Hodgkin Lymphoma             | 2,453         | 19.2         | 194          | 13.0         | 29                     | 13.1         |
| Oral Cavity and Pharynx          | 1,647         | 12.8         | 148          | 9.6          | 19                     | 7.9          |
| Ovary                            | 687           | 10.5         | 61           | 7.1          | 7                      | 4.5          |
| Pancreas                         | 1,686         | 12.7         | 242          | 16.3         | 13                     | 6.1          |
| Prostate                         | 6,638         | 100.9        | 1,090        | 149.3        | 39                     | 35.9         |
| Stomach                          | 700           | 5.4          | 139          | 9.9          | 22                     | 9.7          |
| Testis                           | 257           | 5.8          | 8            | 1.2          | 5                      | 2.7          |
| Thyroid                          | 1,620         | 15.5         | 167          | 11.1         | 26                     | 9.5          |
| Uterus                           | 2,270         | 32.9         | 235          | 26.7         | 27                     | 18.4         |

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

<sup>2</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.

\* Rates may be unstable and are not presented when the count is less than five.

CNS = Central Nervous System.

- Blacks had higher incidence rates than whites in Ohio for the following cancers in 2017: kidney and renal pelvis, larynx, liver and intrahepatic bile duct, lung and bronchus, multiple myeloma, pancreas, prostate and stomach.
- In 2017, rates among whites in Ohio were nearly two times higher than blacks for bladder cancer and brain and other central nervous system cancer, 41 times higher for melanoma of the skin and five times higher for testicular cancer.
- Asians/Pacific Islanders in Ohio had lower incidence rates than whites and blacks for most cancer sites/types in 2017. However, rates for Asians/Pacific Islanders are based on small numbers and should be interpreted with caution.

## Cancer by Race

Table 4. Cancer Deaths and Mortality Rates by Cancer Site/Type and Race, Ohio, 2017<sup>1,2</sup>

| Primary Cancer Site/Type         | White         |              | Black        |              | Asian/Pacific Islander |             |
|----------------------------------|---------------|--------------|--------------|--------------|------------------------|-------------|
|                                  | Deaths        | Rate         | Deaths       | Rate         | Deaths                 | Rate        |
| <b>All Cancer Sites/Types</b>    | <b>22,501</b> | <b>169.7</b> | <b>2,885</b> | <b>194.4</b> | <b>169</b>             | <b>85.3</b> |
| Bladder                          | 660           | 4.9          | 59           | 4.1          | 4                      | *           |
| Brain and Other CNS              | 635           | 5.1          | 49           | 3.3          | 7                      | 2.9         |
| Breast (Female)                  | 1,503         | 21.4         | 233          | 27.3         | 13                     | 10.2        |
| Cervix                           | 151           | 2.5          | 20           | 2.2          | 1                      | *           |
| Colon and Rectum                 | 1,915         | 14.7         | 275          | 18.8         | 11                     | 5.2         |
| Esophagus                        | 667           | 4.9          | 50           | 3.1          | 5                      | 2.7         |
| Hodgkin Lymphoma                 | 40            | 0.3          | 4            | *            | 0                      | *           |
| Kidney and Renal Pelvis          | 545           | 4.1          | 51           | 3.4          | 0                      | *           |
| Larynx                           | 154           | 1.1          | 31           | 2.2          | 1                      | *           |
| Leukemia                         | 892           | 6.9          | 85           | 5.8          | 11                     | 4.8         |
| Liver and Intrahepatic Bile Duct | 821           | 6.1          | 176          | 10.6         | 10                     | 5.2         |
| Lung and Bronchus                | 6,008         | 44.7         | 713          | 47.1         | 55                     | 29.4        |
| Melanoma of the Skin             | 379           | 3.0          | 5            | 0.4          | 0                      | *           |
| Multiple Myeloma                 | 435           | 3.3          | 95           | 6.6          | 3                      | *           |
| Non-Hodgkin Lymphoma             | 792           | 6.0          | 58           | 4.3          | 5                      | 3.4         |
| Oral Cavity and Pharynx          | 380           | 2.8          | 40           | 2.8          | 3                      | *           |
| Ovary                            | 496           | 6.8          | 49           | 5.7          | 3                      | *           |
| Pancreas                         | 1,613         | 12.0         | 228          | 15.2         | 7                      | 3.5         |
| Prostate                         | 1,005         | 18.1         | 202          | 37.4         | 2                      | *           |
| Stomach                          | 291           | 2.2          | 60           | 4.2          | 9                      | 4.4         |
| Testis                           | 15            | 0.3          | 1            | *            | 0                      | *           |
| Thyroid                          | 57            | 0.4          | 5            | 0.4          | 0                      | *           |
| Uterus                           | 398           | 5.3          | 68           | 8.2          | 2                      | *           |

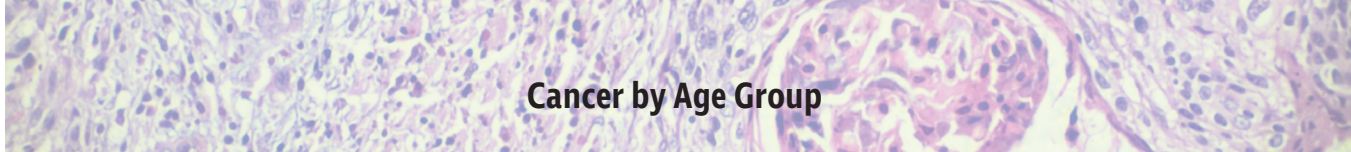
<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2019.

<sup>2</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population. Rates are sex-specific for cancers of the breast, cervix, ovary, prostate, testis and uterus.

\* Rates may be unstable and are not presented when the count is less than five.

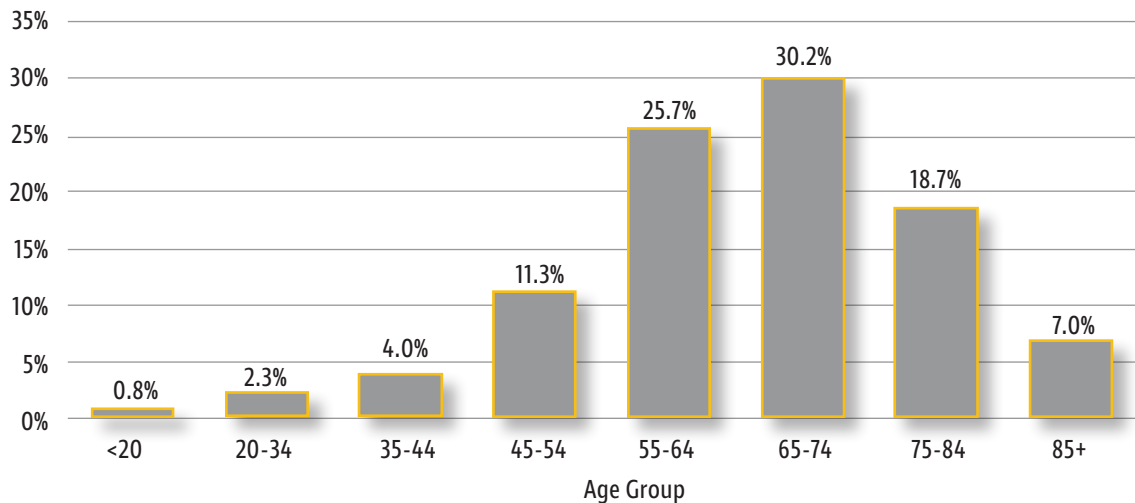
CNS = Central Nervous System.

- In 2017, the overall cancer mortality rate for blacks (194.4 per 100,000) was 15% higher than the rate for whites (169.7 per 100,000) in Ohio.
- Blacks had higher mortality rates than whites for 10 out of 23 cancer sites/types in 2017, including liver and intrahepatic bile duct cancer (1.7 times higher), multiple myeloma (2.0 times higher), prostate cancer (2.1 times higher) and stomach cancer (1.9 times higher).
- In Ohio in 2017, Asians/Pacific Islanders had the lowest mortality rate for all cancer sites/types combined (85.3 per 100,000). However, rates for Asians/Pacific Islanders are based on small numbers and should be interpreted with caution.



## Cancer by Age Group

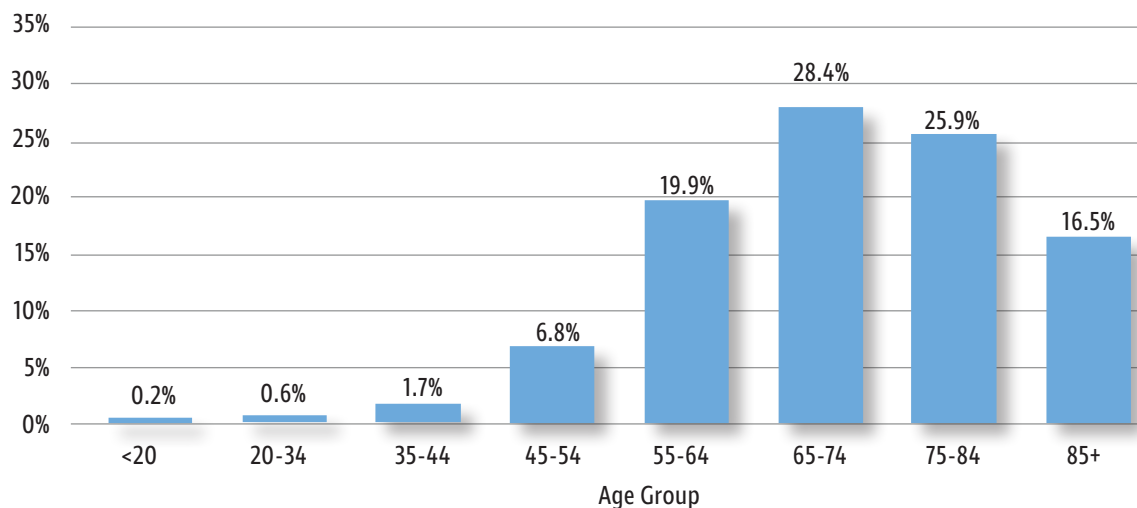
Figure 10. Percent of New Invasive Cancer Cases by Age Group, Ohio, 2017



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

- Cancer (all sites combined) was most frequently diagnosed among people aged 65-74 (30.2%), followed by those aged 55-64 (25.7%) in Ohio in 2017. Less than 1% of cases were diagnosed among Ohioans less than 20 years of age.

Figure 11. Percent of Cancer Deaths by Age Group, Ohio, 2017



Source: Bureau of Vital Statistics, Ohio Department of Health, 2019.

- The percent of cancer deaths was highest among people aged 65-74 (28.4%), followed by those aged 75-84 (25.9%) in Ohio in 2017.

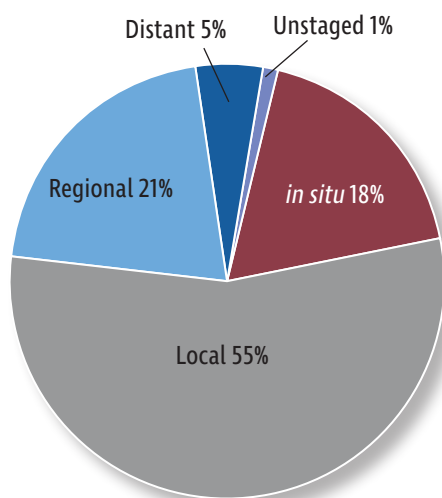


## Stage at Diagnosis and Survival for Selected Cancers

### Stage at Diagnosis and Survival for Selected Cancers

Cancer stage at diagnosis refers to the extent or spread of a cancer in the body. If cancer cells are present only in the layer of cells where they developed and have not spread, the stage is *in situ*. If cancer cells have penetrated beyond the original layer of tissue, the cancer has become invasive and is categorized as local (confined to the site of origin), regional (spread to adjacent lymph nodes, organs, or tissues) or distant (spread to distant organs or tissues). The earlier a cancer is diagnosed, the better chance a person has of surviving. Five-year relative survival compares the survival of people diagnosed with cancer with the survival of people who do not have cancer.

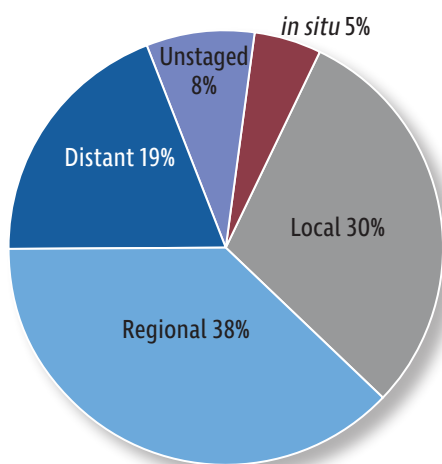
Figure 12. Breast Cancer (Female) by Stage at Diagnosis, Ohio, 2017



- In Ohio in 2017, 73% of breast cancers among females were diagnosed early (*in situ* or at a local stage), for which the five-year relative survival is 100%.
- For regional cancers, the five-year relative survival is 86%.
- For the 5% of Ohio women who were diagnosed with breast cancer at the distant stage, the five-year relative survival is 28%, based on 2009-2015 Ohio survival data.

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

Figure 13. Colon and Rectum Cancer by Stage at Diagnosis, Ohio, 2017

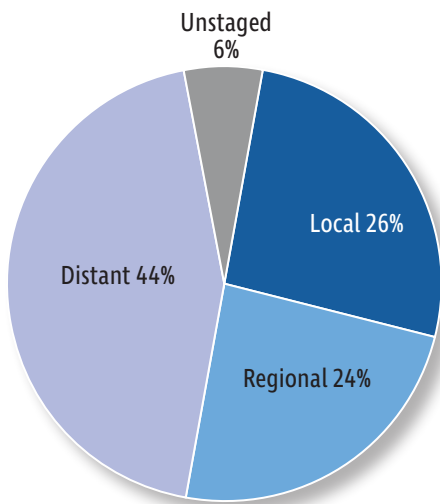


- In Ohio in 2017, 30% of colon and rectum cancers were diagnosed at a local stage, and 38% were diagnosed at a regional stage.
- When colon and rectum cancers are diagnosed at a local stage, the five-year relative survival is 90%.
- If the cancer has spread regionally to involve nearby organs or lymph nodes at the time of diagnosis, the five-year relative survival is 71%.
- About 15% of people diagnosed with distant stage colon and rectum cancer that has spread to other parts of the body survive five years.

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

## Stage at Diagnosis and Survival for Selected Cancers

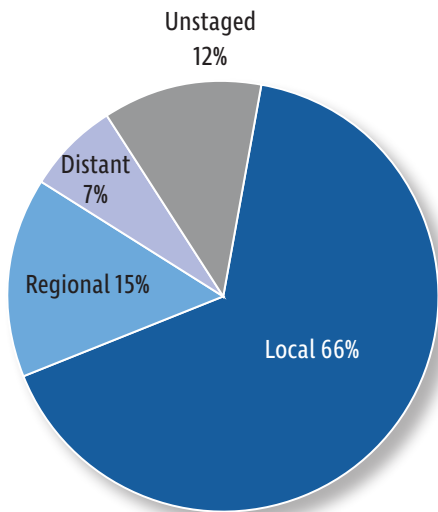
Figure 14. Lung and Bronchus Cancer by Stage at Diagnosis, Ohio, 2017



- In Ohio in 2017, 26% of lung and bronchus cancers were diagnosed at the local stage, for which the five-year relative survival is 56%.
- About 44% of lung and bronchus cancer cases in Ohio were diagnosed at a distant stage in 2017, where the five-year relative survival is only 5%.

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

Figure 15. Prostate Cancer by Stage at Diagnosis, Ohio, 2017



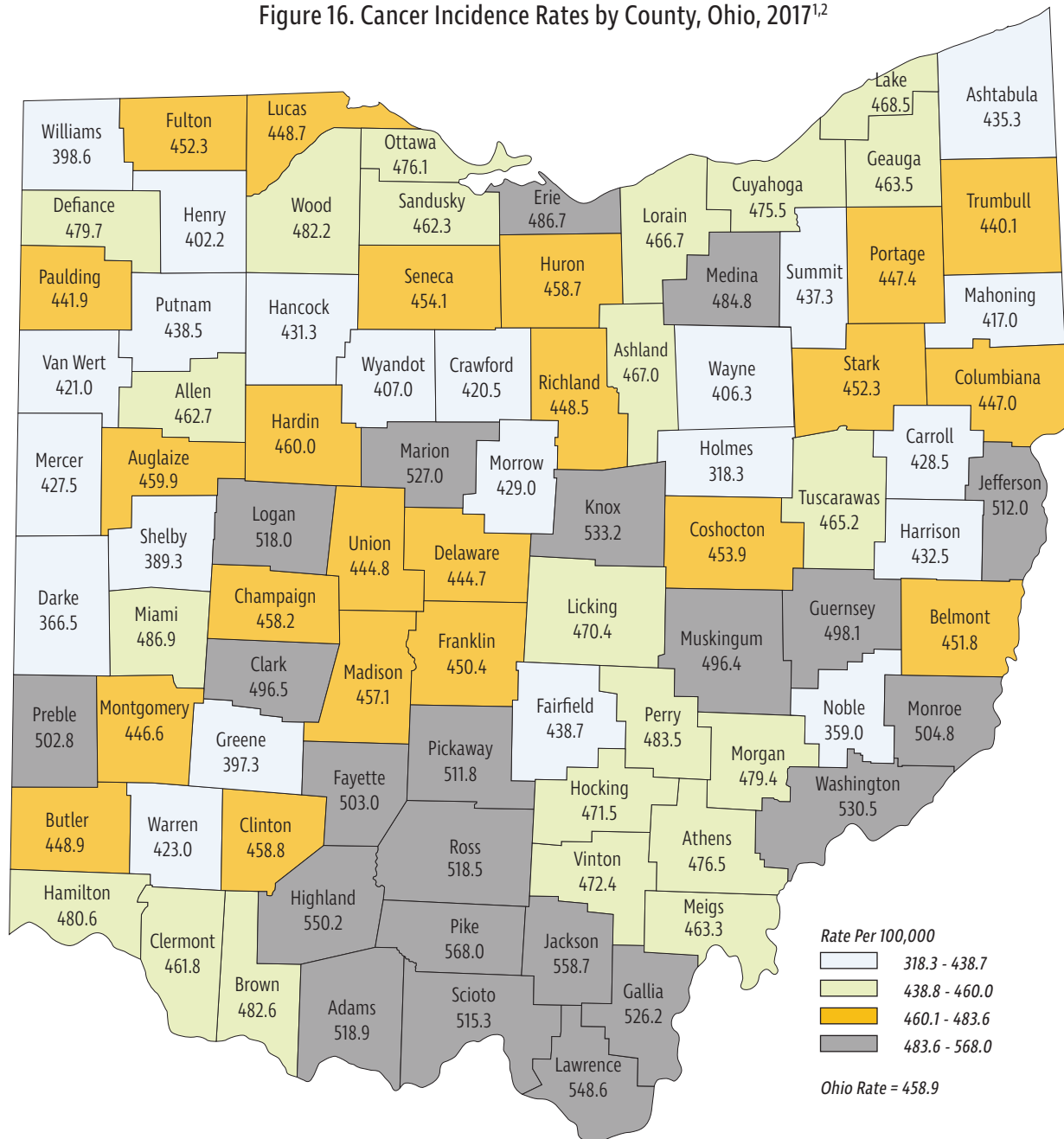
- Most prostate cancers in Ohio in 2017 were diagnosed at a local (66%) or regional (15%) stage, for which the five-year relative survival is 100%.
- For men in Ohio whose prostate cancer has spread to distant parts of the body, the five-year relative survival is only 29%.

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.



## Cancer by County

Figure 16. Cancer Incidence Rates by County, Ohio, 2017<sup>1,2</sup>



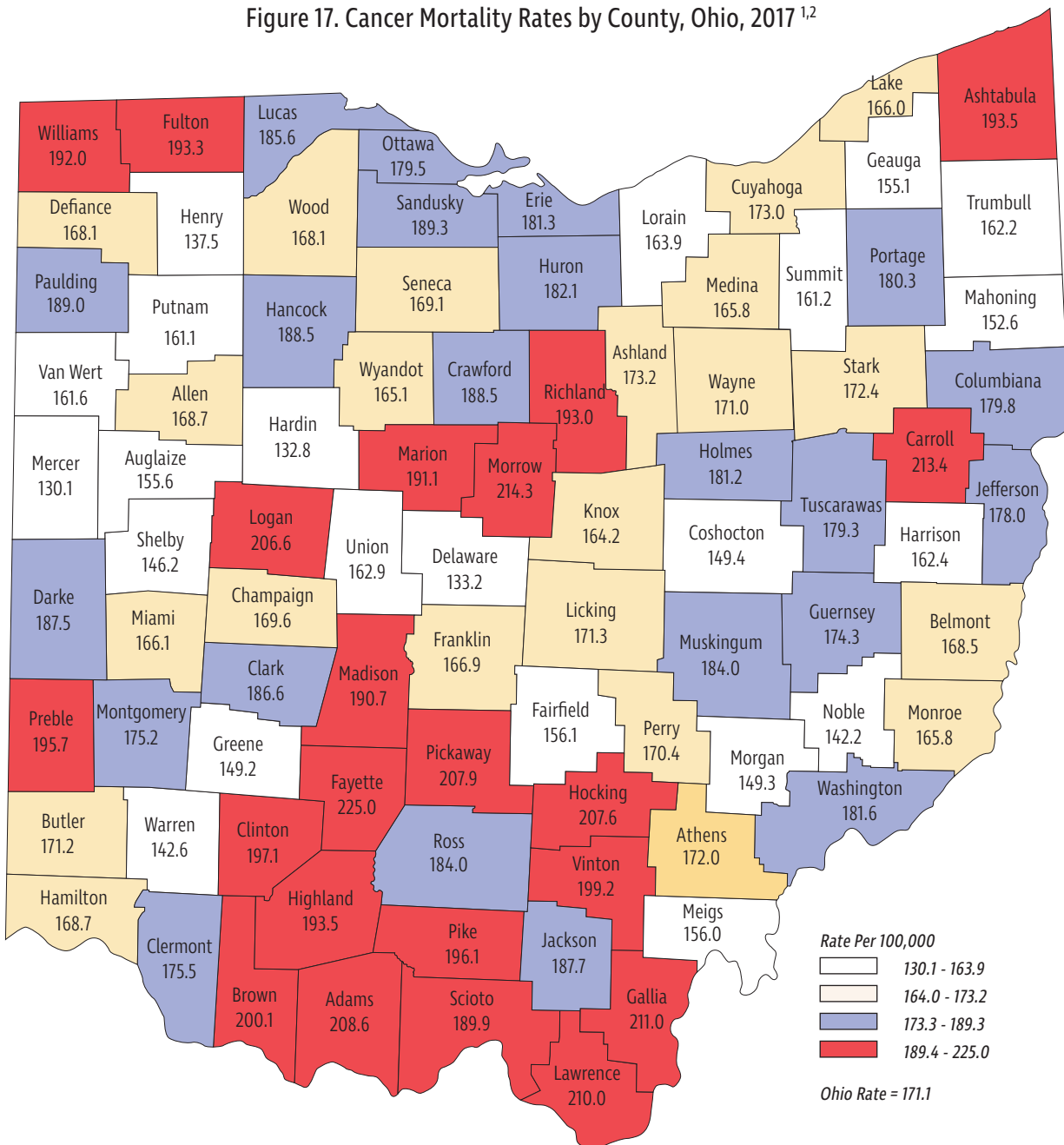
<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

- Cancer incidence rates in Ohio varied by county in 2017. The county with the highest age-adjusted cancer incidence rate (Pike County, 568.0 per 100,000) had a rate 1.8 times higher than the county with the lowest rate (Holmes County, 318.3 per 100,000).
- Counties in southern and southeastern Ohio had higher age-adjusted incidence rates for all cancers combined in 2017.

## Cancer by County

Figure 17. Cancer Mortality Rates by County, Ohio, 2017 <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 in Ohio varied by county in 2017. The county with the highest age-adjusted cancer mortality rate (Fayette County, 225.0 per 100,000) had a rate 1.7 times higher than the county with the lowest rate (Mercer County, 130.1 per 100,000).
- Counties in the southern region of Ohio tended to have higher age-adjusted mortality rates for all cancers combined in 2017.

## Cancer by County

Table 5. New Invasive Cancer Cases and Incidence Rates by County, Ohio, 2017<sup>1,2</sup>

| County      | All Sites/Types |              | Breast (Female) |              | Lung & Bronchus |             | Colon & Rectum |             | Prostate     |              |
|-------------|-----------------|--------------|-----------------|--------------|-----------------|-------------|----------------|-------------|--------------|--------------|
|             | Cases           | Rate         | Cases           | Rate         | Cases           | Rate        | Cases          | Rate        | Cases        | Rate         |
| <b>Ohio</b> | <b>67,268</b>   | <b>458.9</b> | <b>9,830</b>    | <b>130.1</b> | <b>9,742</b>    | <b>63.8</b> | <b>5,743</b>   | <b>39.5</b> | <b>8,155</b> | <b>109.9</b> |
| Adams       | 196             | 518.9        | 21              | 105.6        | 32              | 76.9        | 20             | 53.6        | 24           | 116.5        |
| Allen       | 603             | 462.7        | 76              | 116.0        | 81              | 59.8        | 57             | 47.5        | 110          | 165.7        |
| Ashland     | 325             | 467.0        | 51              | 143.6        | 40              | 51.9        | 38             | 52.2        | 38           | 99.9         |
| Ashtabula   | 587             | 435.3        | 77              | 116.9        | 117             | 80.1        | 46             | 33.7        | 50           | 70.2         |
| Athens      | 303             | 476.5        | 31              | 97.0         | 47              | 71.5        | 28             | 43.1        | 40           | 118.6        |
| Auglaize    | 282             | 459.9        | 36              | 121.0        | 32              | 49.0        | 29             | 46.2        | 45           | 137.8        |
| Belmont     | 440             | 451.8        | 57              | 125.4        | 74              | 72.1        | 53             | 54.0        | 45           | 90.6         |
| Brown       | 276             | 482.6        | 31              | 109.4        | 46              | 75.2        | 30             | 53.2        | 28           | 93.4         |
| Butler      | 1,929           | 448.9        | 316             | 140.5        | 312             | 71.3        | 155            | 37.6        | 193          | 89.6         |
| Carroll     | 178             | 428.5        | 22              | 102.0        | 29              | 68.7        | 9              | 21.8        | 31           | 136.5        |
| Champaign   | 237             | 458.2        | 29              | 110.7        | 40              | 71.4        | 21             | 43.8        | 31           | 121.4        |
| Clark       | 898             | 496.5        | 144             | 152.2        | 166             | 86.1        | 70             | 38.0        | 78           | 87.3         |
| Clermont    | 1,164           | 461.8        | 165             | 128.7        | 162             | 61.6        | 109            | 44.3        | 101          | 76.5         |
| Clinton     | 245             | 458.8        | 28              | 110.5        | 33              | 57.7        | 21             | 38.4        | 32           | 121.5        |
| Columbiana  | 650             | 447.0        | 84              | 121.8        | 94              | 58.8        | 65             | 49.3        | 59           | 74.9         |
| Coshocton   | 229             | 453.9        | 28              | 109.1        | 37              | 67.9        | 21             | 42.1        | 27           | 99.3         |
| Crawford    | 249             | 420.5        | 27              | 86.6         | 49              | 77.4        | 20             | 30.1        | 17           | 54.4         |
| Cuyahoga    | 7,842           | 475.5        | 1,179           | 134.8        | 1,053           | 61.4        | 712            | 43.6        | 1,052        | 132.0        |
| Darke       | 261             | 366.5        | 38              | 109.1        | 42              | 56.6        | 35             | 47.7        | 18           | 51.0         |
| Defiance    | 240             | 479.7        | 27              | 111.5        | 42              | 79.9        | 32             | 64.9        | 30           | 121.1        |
| Delaware    | 977             | 444.7        | 178             | 148.5        | 99              | 47.9        | 79             | 37.2        | 164          | 142.1        |
| Erie        | 557             | 486.7        | 63              | 111.6        | 86              | 70.7        | 47             | 39.1        | 65           | 106.2        |
| Fairfield   | 822             | 438.7        | 122             | 126.4        | 105             | 54.5        | 51             | 27.9        | 115          | 121.5        |
| Fayette     | 184             | 503.0        | 30              | 155.2        | 33              | 85.7        | 23             | 66.7        | 13           | 72.7         |
| Franklin    | 5,776           | 450.4        | 946             | 137.0        | 763             | 60.7        | 418            | 32.8        | 823          | 134.4        |
| Fulton      | 240             | 452.3        | 41              | 158.9        | 28              | 50.9        | 16             | 28.9        | 31           | 115.1        |
| Gallia      | 214             | 526.2        | 31              | 136.2        | 38              | 91.9        | 17             | 43.4        | 14           | 70.1         |
| Geauga      | 615             | 463.5        | 107             | 165.7        | 73              | 51.1        | 49             | 36.6        | 66           | 87.9         |
| Greene      | 818             | 397.3        | 136             | 120.1        | 120             | 56.2        | 61             | 32.1        | 83           | 75.4         |
| Guernsey    | 260             | 498.1        | 34              | 140.0        | 58              | 103.8       | 27             | 49.2        | 21           | 75.3         |
| Hamilton    | 4,587           | 480.6        | 715             | 142.5        | 668             | 69.3        | 372            | 40.2        | 647          | 137.1        |
| Hancock     | 421             | 431.3        | 66              | 141.8        | 50              | 49.2        | 43             | 40.8        | 40           | 83.6         |
| Hardin      | 176             | 460.0        | 24              | 116.5        | 22              | 57.6        | 17             | 47.5        | 20           | 104.3        |
| Harrison    | 97              | 432.5        | 16              | 131.6        | 14              | 64.1        | 7              | 31.8        | 11           | 87.9         |
| Henry       | 148             | 402.2        | 23              | 123.4        | 32              | 81.8        | 13             | 39.5        | 13           | 70.8         |
| Highland    | 310             | 550.2        | 33              | 122.4        | 45              | 74.8        | 28             | 47.7        | 42           | 145.7        |

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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



## Cancer by County

Table 5. Continued<sup>1,2</sup>

| County     | All Sites/Types |       | Breast (Female) |       | Lung & Bronchus |       | Colon & Rectum |      | Prostate |       |
|------------|-----------------|-------|-----------------|-------|-----------------|-------|----------------|------|----------|-------|
|            | Cases           | Rate  | Cases           | Rate  | Cases           | Rate  | Cases          | Rate | Cases    | Rate  |
| Hocking    | 181             | 471.5 | 24              | 137.5 | 31              | 71.3  | 14             | 37.7 | 13       | 59.3  |
| Holmes     | 146             | 318.3 | 19              | 83.7  | 23              | 45.1  | 13             | 30.8 | 8        | 37.9  |
| Huron      | 344             | 458.7 | 59              | 156.3 | 47              | 60.8  | 23             | 32.0 | 37       | 97.6  |
| Jackson    | 234             | 558.7 | 31              | 145.9 | 41              | 93.7  | 21             | 47.1 | 20       | 95.4  |
| Jefferson  | 487             | 512.0 | 55              | 108.2 | 61              | 53.8  | 46             | 48.9 | 54       | 108.8 |
| Knox       | 426             | 533.2 | 71              | 168.1 | 53              | 61.2  | 36             | 44.2 | 53       | 125.4 |
| Lake       | 1,506           | 468.5 | 242             | 147.0 | 238             | 69.4  | 106            | 34.6 | 136      | 82.3  |
| Lawrence   | 445             | 548.6 | 57              | 128.4 | 87              | 101.6 | 34             | 44.1 | 36       | 88.1  |
| Licking    | 1,023           | 470.4 | 125             | 108.9 | 161             | 71.8  | 88             | 42.7 | 133      | 118.7 |
| Logan      | 311             | 518.0 | 29              | 99.6  | 53              | 84.1  | 26             | 43.0 | 34       | 110.7 |
| Lorain     | 1,887           | 466.7 | 295             | 142.5 | 246             | 58.4  | 152            | 37.7 | 247      | 118.3 |
| Lucas      | 2,360           | 448.7 | 332             | 123.4 | 334             | 62.0  | 194            | 37.7 | 317      | 118.7 |
| Madison    | 244             | 457.1 | 34              | 135.0 | 33              | 61.8  | 29             | 53.9 | 32       | 121.2 |
| Mahoning   | 1,396           | 417.0 | 199             | 121.8 | 178             | 49.4  | 121            | 34.4 | 187      | 111.5 |
| Marion     | 446             | 527.0 | 63              | 156.2 | 89              | 103.0 | 45             | 52.5 | 38       | 79.4  |
| Medina     | 1,123           | 484.8 | 147             | 121.7 | 126             | 51.4  | 88             | 37.6 | 185      | 153.1 |
| Meigs      | 152             | 463.3 | 19              | 115.9 | 28              | 78.3  | 12             | 35.9 | 22       | 131.3 |
| Mercer     | 222             | 427.5 | 32              | 115.6 | 25              | 49.6  | 17             | 36.0 | 34       | 124.5 |
| Miami      | 643             | 466.9 | 115             | 161.5 | 90              | 61.3  | 55             | 40.7 | 65       | 89.3  |
| Monroe     | 106             | 504.8 | 13              | 126.2 | 15              | 65.5  | 9              | 42.9 | 14       | 108.8 |
| Montgomery | 3,029           | 446.6 | 464             | 128.9 | 485             | 68.5  | 247            | 37.2 | 302      | 90.3  |
| Morgan     | 103             | 479.4 | 18              | 187.5 | 22              | 95.3  | 5              | 19.4 | 7        | 51.4  |
| Morrow     | 201             | 429.0 | 22              | 95.1  | 34              | 74.3  | 20             | 42.0 | 35       | 137.8 |
| Muskingum  | 555             | 496.4 | 68              | 121.5 | 96              | 79.2  | 40             | 34.8 | 79       | 139.9 |
| Noble      | 80              | 359.0 | 10              | 127.1 | 13              | 54.3  | 11             | 39.1 | 12       | 69.3  |
| Ottawa     | 310             | 476.1 | 45              | 136.1 | 36              | 49.9  | 32             | 49.6 | 45       | 118.1 |
| Paulding   | 113             | 441.9 | 11              | 76.8  | 20              | 74.0  | 13             | 50.7 | 14       | 108.3 |
| Perry      | 219             | 483.5 | 26              | 120.2 | 42              | 86.8  | 17             | 37.6 | 28       | 107.5 |
| Pickaway   | 356             | 511.8 | 43              | 122.0 | 68              | 93.6  | 40             | 56.4 | 32       | 90.3  |
| Pike       | 208             | 568.0 | 21              | 110.2 | 41              | 103.2 | 20             | 55.5 | 15       | 84.5  |
| Portage    | 899             | 447.4 | 135             | 129.6 | 120             | 57.3  | 80             | 39.4 | 98       | 92.1  |
| Preble     | 279             | 502.8 | 43              | 155.1 | 53              | 94.1  | 22             | 38.3 | 26       | 89.6  |
| Putnam     | 200             | 438.5 | 34              | 145.2 | 28              | 60.9  | 18             | 38.2 | 31       | 141.0 |
| Richland   | 739             | 448.5 | 74              | 95.6  | 119             | 68.0  | 63             | 40.1 | 89       | 108.9 |
| Ross       | 513             | 518.5 | 50              | 102.7 | 94              | 88.7  | 44             | 45.5 | 54       | 109.9 |
| Sandusky   | 372             | 462.3 | 53              | 133.8 | 49              | 61.0  | 40             | 47.0 | 51       | 116.8 |
| Scioto     | 507             | 515.3 | 52              | 104.4 | 107             | 102.1 | 37             | 36.6 | 43       | 85.7  |

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

## Cancer by County

Table 5. Continued<sup>1,2</sup>

| County     | All Sites/Types |       | Breast (Female) |       | Lung & Bronchus |      | Colon & Rectum |      | Prostate |       |
|------------|-----------------|-------|-----------------|-------|-----------------|------|----------------|------|----------|-------|
|            | Cases           | Rate  | Cases           | Rate  | Cases           | Rate | Cases          | Rate | Cases    | Rate  |
| Seneca     | 328             | 454.1 | 56              | 169.6 | 42              | 56.9 | 36             | 45.5 | 33       | 86.6  |
| Shelby     | 234             | 389.3 | 29              | 98.6  | 28              | 43.6 | 28             | 45.6 | 20       | 58.6  |
| Stark      | 2,325           | 452.3 | 340             | 128.3 | 326             | 59.0 | 194            | 37.0 | 282      | 108.2 |
| Summit     | 3,062           | 437.3 | 483             | 134.9 | 424             | 57.4 | 269            | 38.2 | 301      | 82.6  |
| Trumbull   | 1,288           | 440.1 | 168             | 109.5 | 196             | 61.4 | 119            | 39.4 | 139      | 91.4  |
| Tuscarawas | 588             | 465.2 | 70              | 100.8 | 86              | 63.3 | 61             | 49.7 | 81       | 120.1 |
| Union      | 266             | 444.8 | 27              | 83.1  | 35              | 55.8 | 20             | 34.7 | 25       | 70.6  |
| Van Wert   | 167             | 421.0 | 15              | 67.3  | 25              | 58.3 | 13             | 35.7 | 39       | 210.1 |
| Vinton     | 80              | 472.4 | 9               | 97.1  | 16              | 98.0 | 9              | 59.0 | 9        | 96.3  |
| Warren     | 1,124           | 423.0 | 193             | 135.0 | 134             | 49.0 | 74             | 28.5 | 147      | 108.6 |
| Washington | 465             | 530.5 | 55              | 119.5 | 77              | 80.0 | 45             | 53.9 | 40       | 87.3  |
| Wayne      | 606             | 406.3 | 90              | 118.0 | 82              | 52.7 | 43             | 28.9 | 83       | 106.4 |
| Williams   | 198             | 398.6 | 32              | 124.0 | 30              | 58.9 | 21             | 40.9 | 23       | 95.6  |
| Wood       | 716             | 482.2 | 87              | 115.7 | 80              | 52.9 | 81             | 54.4 | 76       | 103.1 |
| Wyandot    | 120             | 407.0 | 14              | 98.6  | 13              | 37.1 | 13             | 44.5 | 14       | 89.2  |

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2020.

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

## Cancer by County

Table 6. Cancer Deaths and Mortality Rates by County, Ohio, 2017<sup>1,2</sup>

| County      | All Sites/Types |              | Breast (Female) |             | Lung & Bronchus |             | Colon & Rectum |             | Prostate     |             |
|-------------|-----------------|--------------|-----------------|-------------|-----------------|-------------|----------------|-------------|--------------|-------------|
|             | Deaths          | Rate         | Deaths          | Rate        | Deaths          | Rate        | Deaths         | Rate        | Deaths       | Rate        |
| <b>Ohio</b> | <b>25,647</b>   | <b>171.1</b> | <b>1,758</b>    | <b>21.9</b> | <b>6,795</b>    | <b>44.6</b> | <b>2,205</b>   | <b>15.0</b> | <b>1,211</b> | <b>19.5</b> |
| Adams       | 77              | 208.6        | 3               | *           | 29              | 70.5        | 6              | 16.7        | 5            | 32.0        |
| Allen       | 226             | 168.7        | 8               | 13.7        | 54              | 39.5        | 25             | 18.7        | 9            | 15.9        |
| Ashland     | 129             | 173.2        | 5               | 10.7        | 30              | 37.7        | 18             | 23.5        | 5            | 13.2        |
| Ashtabula   | 266             | 193.5        | 21              | 27.6        | 88              | 62.9        | 16             | 11.8        | 11           | 19.0        |
| Athens      | 110             | 172.0        | 6               | 22.8        | 37              | 55.0        | 15             | 23.9        | 3            | *           |
| Auglaize    | 97              | 155.6        | 10              | 38.1        | 21              | 32.7        | 13             | 18.8        | 3            | *           |
| Belmont     | 176             | 168.5        | 14              | 24.9        | 51              | 50.8        | 18             | 15.7        | 10           | 24.2        |
| Brown       | 120             | 200.1        | 7               | 21.6        | 39              | 65.4        | 14             | 25.3        | 6            | 24.7        |
| Butler      | 724             | 171.2        | 49              | 22.4        | 196             | 45.5        | 58             | 13.7        | 34           | 19.2        |
| Carroll     | 88              | 213.4        | 4               | *           | 28              | 64.4        | 7              | 17.4        | 3            | *           |
| Champaign   | 86              | 169.6        | 5               | 19.2        | 22              | 42.7        | 11             | 24.3        | 3            | *           |
| Clark       | 354             | 186.6        | 26              | 27.7        | 121             | 62.0        | 24             | 13.9        | 15           | 17.5        |
| Clermont    | 440             | 175.5        | 27              | 20.2        | 113             | 44.6        | 27             | 10.4        | 15           | 14.6        |
| Clinton     | 109             | 197.1        | 9               | 28.4        | 36              | 65.0        | 10             | 18.0        | 1            | *           |
| Columbiana  | 276             | 179.8        | 13              | 18.1        | 63              | 39.8        | 32             | 20.6        | 5            | 7.5         |
| Coshocton   | 78              | 149.4        | 2               | *           | 22              | 41.1        | 8              | 15.9        | 3            | *           |
| Crawford    | 121             | 188.5        | 4               | *           | 34              | 54.6        | 10             | 15.4        | 4            | *           |
| Cuyahoga    | 2,978           | 173.0        | 238             | 25.3        | 749             | 43.6        | 255            | 15.2        | 173          | 24.0        |
| Darke       | 139             | 187.5        | 8               | 21.5        | 34              | 46.0        | 18             | 25.0        | 4            | *           |
| Defiance    | 90              | 168.1        | 4               | *           | 25              | 48.5        | 6              | 11.6        | 5            | 19.3        |
| Delaware    | 275             | 133.2        | 21              | 18.9        | 57              | 27.9        | 24             | 11.6        | 12           | 16.5        |
| Erie        | 211             | 181.3        | 18              | 32.0        | 53              | 45.0        | 22             | 18.3        | 9            | 16.2        |
| Fairfield   | 288             | 156.1        | 20              | 20.4        | 82              | 43.2        | 19             | 10.4        | 12           | 15.1        |
| Fayette     | 84              | 225.0        | 6               | 24.5        | 22              | 54.8        | 6              | 17.7        | 5            | 34.2        |
| Franklin    | 2,055           | 166.9        | 167             | 23.3        | 517             | 41.7        | 166            | 13.7        | 97           | 21.3        |
| Fulton      | 106             | 193.3        | 5               | 23.9        | 25              | 44.8        | 17             | 29.7        | 4            | *           |
| Gallia      | 89              | 211.0        | 3               | *           | 23              | 51.8        | 3              | *           | 5            | 30.7        |
| Geauga      | 215             | 155.1        | 18              | 22.5        | 53              | 36.6        | 8              | 5.7         | 14           | 22.5        |
| Greene      | 317             | 149.2        | 25              | 22.2        | 86              | 39.2        | 23             | 10.8        | 10           | 10.6        |
| Guernsey    | 97              | 174.3        | 2               | *           | 35              | 60.5        | 11             | 19.3        | 3            | *           |
| Hamilton    | 1,631           | 168.7        | 107             | 19.8        | 413             | 41.5        | 136            | 14.6        | 89           | 22.4        |
| Hancock     | 184             | 188.5        | 9               | 17.8        | 42              | 41.2        | 22             | 22.2        | 9            | 23.5        |
| Hardin      | 51              | 132.8        | 0               | *           | 17              | 43.7        | 6              | 14.7        | 0            | *           |
| Harrison    | 37              | 162.4        | 2               | *           | 12              | 50.8        | 4              | *           | 1            | *           |
| Henry       | 54              | 137.5        | 5               | 24.5        | 14              | 36.8        | 4              | *           | 4            | *           |
| Highland    | 109             | 193.5        | 6               | 22.2        | 24              | 45.4        | 13             | 24.0        | 3            | *           |

<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.

\* Rates may be unstable and are not presented when the count is less than five.

## Cancer by County

Table 6. Continued<sup>1,2</sup>

| County     | All Sites/Types |       | Breast (Female) |      | Lung & Bronchus |      | Colon & Rectum |      | Prostate |      |
|------------|-----------------|-------|-----------------|------|-----------------|------|----------------|------|----------|------|
|            | Deaths          | Rate  | Deaths          | Rate | Deaths          | Rate | Deaths         | Rate | Deaths   | Rate |
| Hocking    | 81              | 207.6 | 5               | 29.0 | 24              | 57.2 | 7              | 18.1 | 2        | *    |
| Holmes     | 83              | 181.2 | 5               | 20.8 | 17              | 36.6 | 9              | 18.8 | 9        | 44.4 |
| Huron      | 130             | 182.1 | 3               | *    | 32              | 40.9 | 12             | 17.1 | 10       | 36.3 |
| Jackson    | 79              | 187.7 | 3               | *    | 23              | 54.6 | 6              | 14.3 | 2        | *    |
| Jefferson  | 188             | 178.0 | 9               | 16.8 | 52              | 47.5 | 24             | 21.7 | 10       | 23.9 |
| Knox       | 136             | 164.2 | 12              | 28.1 | 29              | 33.1 | 8              | 11.1 | 8        | 21.4 |
| Lake       | 567             | 166.0 | 46              | 26.1 | 153             | 44.3 | 39             | 11.7 | 33       | 23.9 |
| Lawrence   | 172             | 210.0 | 13              | 28.9 | 44              | 51.8 | 11             | 13.5 | 8        | 23.1 |
| Licking    | 376             | 171.3 | 23              | 18.3 | 119             | 53.6 | 37             | 17.5 | 12       | 14.0 |
| Logan      | 128             | 206.6 | 8               | 26.6 | 40              | 63.4 | 10             | 16.8 | 6        | 23.3 |
| Lorain     | 681             | 163.9 | 49              | 23.1 | 191             | 44.9 | 63             | 14.9 | 35       | 19.7 |
| Lucas      | 980             | 185.6 | 61              | 22.0 | 279             | 53.1 | 76             | 14.1 | 45       | 21.6 |
| Madison    | 99              | 190.7 | 10              | 37.5 | 21              | 38.1 | 8              | 16.8 | 6        | 27.7 |
| Mahoning   | 544             | 152.6 | 43              | 20.4 | 137             | 37.5 | 54             | 15.8 | 26       | 18.1 |
| Marion     | 165             | 191.1 | 6               | 13.9 | 47              | 56.1 | 22             | 24.4 | 5        | 11.8 |
| Medina     | 382             | 165.8 | 32              | 23.9 | 94              | 39.8 | 25             | 11.3 | 16       | 16.3 |
| Meigs      | 53              | 156.0 | 1               | *    | 17              | 47.3 | 7              | 21.3 | 2        | *    |
| Mercer     | 71              | 130.1 | 4               | *    | 19              | 36.4 | 5              | 8.6  | 2        | *    |
| Miami      | 241             | 166.1 | 16              | 19.8 | 68              | 45.5 | 16             | 11.3 | 8        | 13.9 |
| Monroe     | 40              | 165.8 | 2               | *    | 11              | 44.8 | 0              | *    | 2        | *    |
| Montgomery | 1,244           | 175.2 | 94              | 24.5 | 320             | 44.1 | 101            | 14.8 | 63       | 20.9 |
| Morgan     | 34              | 149.3 | 0               | *    | 12              | 55.1 | 4              | *    | 2        | *    |
| Morrow     | 97              | 214.3 | 5               | 20.4 | 27              | 60.9 | 9              | 20.1 | 6        | 27.7 |
| Muskingum  | 207             | 184.0 | 8               | 15.2 | 50              | 42.3 | 14             | 12.6 | 9        | 20.3 |
| Noble      | 39              | 142.2 | 2               | *    | 9               | 30.1 | 7              | 29.0 | 2        | *    |
| Ottawa     | 122             | 179.5 | 10              | 26.8 | 30              | 42.8 | 7              | 11.5 | 8        | 23.2 |
| Paulding   | 47              | 189.0 | 4               | *    | 12              | 47.2 | 6              | 26.6 | 2        | *    |
| Perry      | 73              | 170.4 | 6               | 27.0 | 30              | 69.1 | 6              | 12.2 | 3        | *    |
| Pickaway   | 144             | 207.9 | 5               | 16.3 | 46              | 67.3 | 15             | 21.3 | 2        | *    |
| Pike       | 76              | 196.1 | 5               | 22.0 | 26              | 67.4 | 9              | 21.8 | 0        | *    |
| Portage    | 361             | 180.3 | 22              | 20.7 | 95              | 46.0 | 39             | 20.0 | 16       | 19.7 |
| Preble     | 111             | 195.7 | 9               | 28.7 | 33              | 57.7 | 9              | 15.7 | 3        | *    |
| Putnam     | 73              | 161.1 | 4               | *    | 16              | 36.4 | 5              | 12.6 | 4        | *    |
| Richland   | 341             | 193.0 | 24              | 25.9 | 81              | 45.1 | 33             | 19.4 | 22       | 28.9 |
| Ross       | 179             | 184.0 | 9               | 16.3 | 61              | 59.8 | 20             | 22.3 | 7        | 17.2 |
| Sandusky   | 156             | 189.3 | 9               | 17.4 | 40              | 49.8 | 14             | 17.5 | 6        | 18.1 |
| Scioto     | 198             | 189.9 | 11              | 18.1 | 54              | 51.5 | 20             | 21.0 | 9        | 19.2 |

<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.

\* Rates may be unstable and are not presented when the count is less than five.

## Cancer by County

Table 6. Continued<sup>1,2</sup>

| County     | All Sites/Types |       | Breast (Female) |      | Lung & Bronchus |      | Colon & Rectum |      | Prostate |      |
|------------|-----------------|-------|-----------------|------|-----------------|------|----------------|------|----------|------|
|            | Deaths          | Rate  | Deaths          | Rate | Deaths          | Rate | Deaths         | Rate | Deaths   | Rate |
| Seneca     | 126             | 169.1 | 3               | *    | 31              | 41.4 | 14             | 19.4 | 7        | 19.6 |
| Shelby     | 92              | 146.2 | 3               | *    | 21              | 32.0 | 11             | 17.2 | 7        | 24.9 |
| Stark      | 932             | 172.4 | 71              | 24.7 | 266             | 47.6 | 72             | 13.4 | 49       | 21.7 |
| Summit     | 1,190           | 161.2 | 82              | 21.1 | 300             | 40.5 | 91             | 12.1 | 59       | 19.1 |
| Trumbull   | 490             | 162.2 | 34              | 20.7 | 135             | 44.7 | 43             | 14.6 | 16       | 12.4 |
| Tuscarawas | 245             | 179.3 | 14              | 18.5 | 65              | 47.7 | 25             | 18.4 | 5        | 9.6  |
| Union      | 92              | 162.9 | 3               | *    | 20              | 33.6 | 7              | 11.7 | 2        | *    |
| Van Wert   | 64              | 161.6 | 3               | *    | 15              | 37.9 | 7              | 18.6 | 3        | *    |
| Vinton     | 33              | 199.2 | 1               | *    | 13              | 83.7 | 2              | *    | 2        | *    |
| Warren     | 363             | 142.6 | 28              | 20.9 | 97              | 36.2 | 31             | 12.3 | 7        | 7.4  |
| Washington | 169             | 181.6 | 15              | 26.2 | 46              | 48.2 | 10             | 12.5 | 8        | 20.4 |
| Wayne      | 256             | 171.0 | 25              | 33.1 | 56              | 36.3 | 13             | 8.7  | 21       | 30.9 |
| Williams   | 104             | 192.0 | 5               | 17.7 | 24              | 41.7 | 9              | 16.8 | 5        | 22.6 |
| Wood       | 252             | 168.1 | 13              | 16.4 | 59              | 38.5 | 32             | 22.0 | 14       | 22.5 |
| Wyandot    | 51              | 165.1 | 3               | *    | 20              | 64.1 | 5              | 17.9 | 1        | *    |

<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.

\* Rates may be unstable and are not presented when the count is less than five.



## Data Sources and Methods

### Ohio Incidence Data

Incidence rates in this publication are per 100,000 and age-adjusted to the 2000 U.S. standard population using the direct method. Under the direct method, the population was first divided into 19 five-year age groups, i.e., <1, 1-4, 5-9, 10-14, 15-19 ... 85+, and the age-specific rate was calculated for each age group. Each age-specific rate was then multiplied by the U.S. standard population proportion for the respective age group. Cancer cases were coded using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3). OCIS data are presented for 23 primary site/type groupings following the conventions of the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) Program. Incidence data include invasive cancer cases only with the addition of *in situ* bladder cancer cases. Staged data include both invasive and all *in situ* cancer cases.

### Ohio Mortality Data

Mortality rates in this publication are per 100,000 population and directly age-adjusted to the 2000 U.S. standard population using 19 age groups, i.e., <1, 1-4, 5-9, 10-14, 15-19...85+. Mortality data were coded using the International Classification of Diseases, version 10 (ICD-10).

### U.S. Incidence Data

Cancer statistics for the United States were obtained from the U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2018 submission data (1999-2016): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; [www.cdc.gov/cancer/dataviz](http://www.cdc.gov/cancer/dataviz), June 2019.

### U.S. Mortality Data

Cancer mortality statistics for the United States were obtained from *Deaths: Final Data for 2017*. National Vital Statistics Reports, Vol. 68, No. 9. National Center for Health Statistics (NCHS), CDC, June 24, 2019; [https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68\\_09-508.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_09-508.pdf).

### Survival Data

Five-year relative survival data are from Ohio cancer cases diagnosed in 2009-2015, based on follow-up of patients through December 2016. Relative survival data in this report were calculated using SEER\*Stat software version 8.3.5.

### Other Sources of Information

Ohio Public Health Data Warehouse: <http://publicapps.odh.ohio.gov/EDW/DataCatalog>

American Cancer Society: <http://www.cancer.org>

National Cancer Institute: <http://www.cancer.gov>



Ohio

Department  
of Health