

# Ohio Cancer Profile

Ohio Department of Health

2015



## Introduction

This report provides an overview of cancer in Ohio during 2008-2012, including data on cancer incidence (new cases) and mortality (deaths), U.S. comparisons, trends, stage at diagnosis, cancer screening, risk factors and county comparisons. This information can be used to increase awareness about the impact of cancer on Ohio residents and to develop targeted programs for cancer prevention, early detection and control.

## Overview

- An average of 61,676 new invasive cancer cases and 25,084 deaths occurred each year among Ohio residents from 2008-2012.
- In 2008-2012, the cancer incidence rate for all sites/types combined in Ohio was 463.9 per 100,000, compared with the U.S. rate of 454.8 per 100,000.
- The 2008-2012 cancer mortality rate in Ohio was 186.6 per 100,000, compared with the U.S. rate of 171.2 per 100,000.
- Cancer sites/types and demographic subgroups with high numbers of cancer cases and/or high incidence rates should be prioritized in cancer prevention and early detections programs. High mortality rates may be associated with a later stage at diagnosis, lack of access to health care, inadequate treatment or other risk factors that should be addressed in cancer control initiatives.

**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, 2008-2012<sup>1,2,3</sup>

Demographics	Incidence			Mortality			
	Ohio		U.S.	Ohio		U.S.	
	Cases	Rate	Rate	Deaths	Rate	Rate	
<b>Total</b>	<b>61,676</b>	<b>463.9</b>	<b>454.8</b>	<b>25,084</b>	<b>186.6</b>	<b>171.2</b>	
Sex	Male	31,367	524.2	516.6	13,043	227.5	207.9
	Female	30,309	423.1	411.2	12,008	158.0	145.4
Race	White	53,794	456.1	463.3	22,189	184.3	170.9
	Black	6,164	470.8	478.0	2,705	217.2	202.0

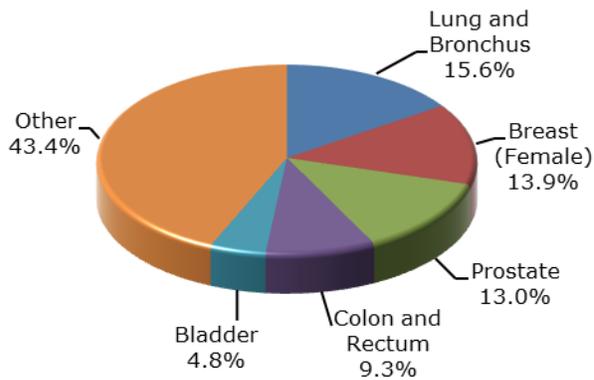
<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System, Chronic Disease Epidemiology and Evaluation Section and the Bureau of Vital Statistics, Ohio Department of Health, 2015.

<sup>2</sup> Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute and the National Center for Health Statistics, 2015.

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

## Leading Cancers in Ohio

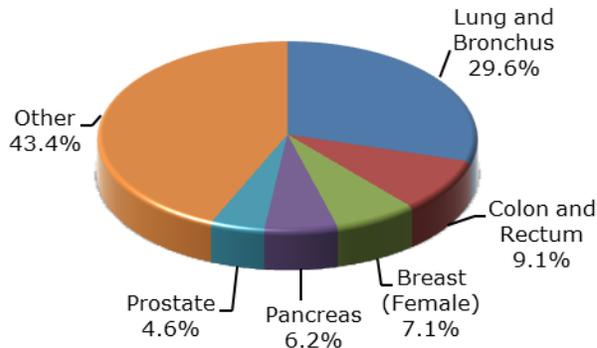
**Figure 1.** Percentage of Cancer Cases by Site/Type for the Leading Cancers in Ohio, 2008-2012<sup>1</sup>



- The leading sites/types of cancer incidence in Ohio in 2008-2012 were lung and bronchus, female breast, prostate, colon and rectum, and bladder, representing 56.6 percent of all invasive cancer cases.

<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2015.

**Figure 2.** Percentage of Cancer Deaths by Site/Type for the Leading Cancers in Ohio, 2008-2012<sup>1</sup>



- The leading sites/types of cancer mortality in Ohio in 2008-2012 were lung and bronchus, colon and rectum, female breast, pancreas and prostate, representing 56.6 percent of all cancer deaths.

<sup>1</sup> Source: Chronic Disease Epidemiology and Evaluation Section and the Bureau of Vital Statistics, Ohio Department of Health, 2015.

- Lung and bronchus cancer was the leading cause of cancer incidence and mortality in 2008-2012, accounting for 15.6 percent of cancer cases and 29.6 percent of cancer deaths in Ohio.

## 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, 2008-2012<sup>1,2,3</sup>

Cancer Site/Type	Incidence			Mortality		
	Ohio Cases	Ohio Rate	U.S. Rate	Ohio Deaths	Ohio Rate	U.S. Rate
<b>All Sites/Types</b>	<b>61,676</b>	<b>463.9</b>	<b>454.8</b>	<b>25,084</b>	<b>186.6</b>	<b>171.2</b>
Bladder	2,937	21.9	20.3	684	5.0	4.4
Brain and Other CNS	870	6.9	6.4	585	4.5	4.3
Breast (Female)	8,570	120.9	124.8	1,775	23.6	21.9
Cervix	460	7.5	7.7	170	2.6	2.3
Colon and Rectum	5,750	43.1	42.4	2,288	17.0	15.5
Esophagus	721	5.3	4.4	683	5.0	4.2
Hodgkin Lymphoma	314	2.7	2.7	48	0.4	0.4
Kidney and Renal Pelvis	2,164	16.4	15.6	578	4.3	3.9
Larynx	566	4.1	3.2	183	1.3	1.1
Leukemia	1,519	11.8	13.3	961	7.3	7.0
Liver and Intrahepatic Bile Duct	845	6.1	8.2	726	5.3	6.0
Lung and Bronchus	9,623	71.7	58.7	7,414	55.3	47.2
Melanoma of Skin	2,513	19.7	21.6	391	3.0	2.7
Multiple Myeloma	762	5.7	6.3	478	3.5	3.3
Non-Hodgkin Lymphoma	2,482	18.9	19.7	915	6.9	6.2
Oral Cavity and Pharynx	1,452	10.7	11.0	346	2.5	2.5
Ovary	851	11.9	12.1	597	7.9	7.7
Pancreas	1,677	12.4	12.4	1,555	11.5	10.9
Prostate	7,999	127.8	137.9	1,154	22.0	21.4
Stomach	816	6.1	7.4	384	2.9	3.4
Testis	288	5.4	5.6	14	0.3	0.3
Thyroid	1,573	13.0	13.5	69	0.5	0.5
Uterus	2,029	27.7	25.1	375	4.9	4.4

<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System, Chronic Disease Epidemiology and Evaluation Section and the Bureau of Vital Statistics, Ohio Department of Health, 2015.

<sup>2</sup> Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute and the National Center for Health Statistics, 2015.

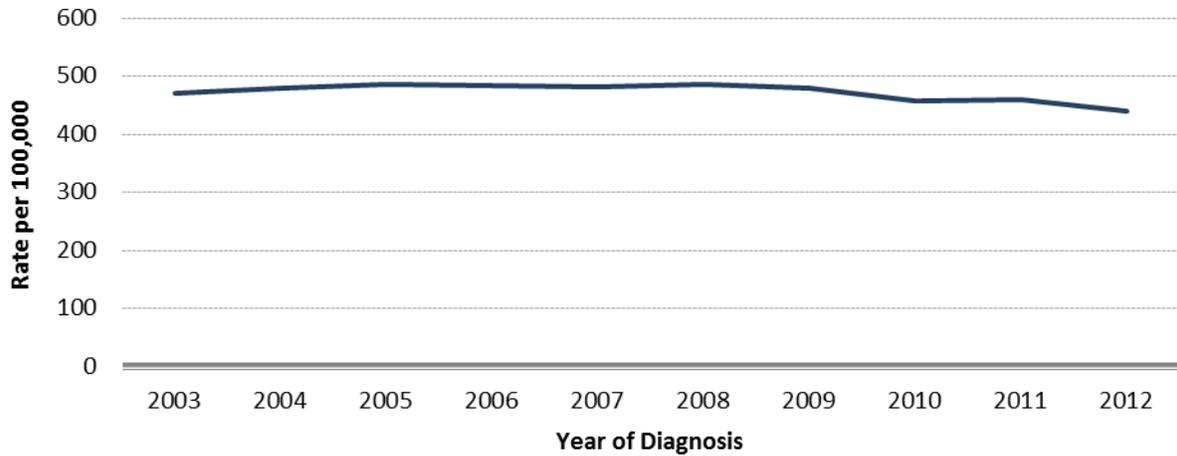
<sup>3</sup> Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population. Rates are sex specific for cancers of the breast, cervix, ovary, prostate, testis and uterus.

NA = Not Applicable

CNS = Central Nervous System

## Trends

**Figure 3.** Age-adjusted Cancer Incidence Rates in Ohio by Year, 2003-2012<sup>1,2</sup>

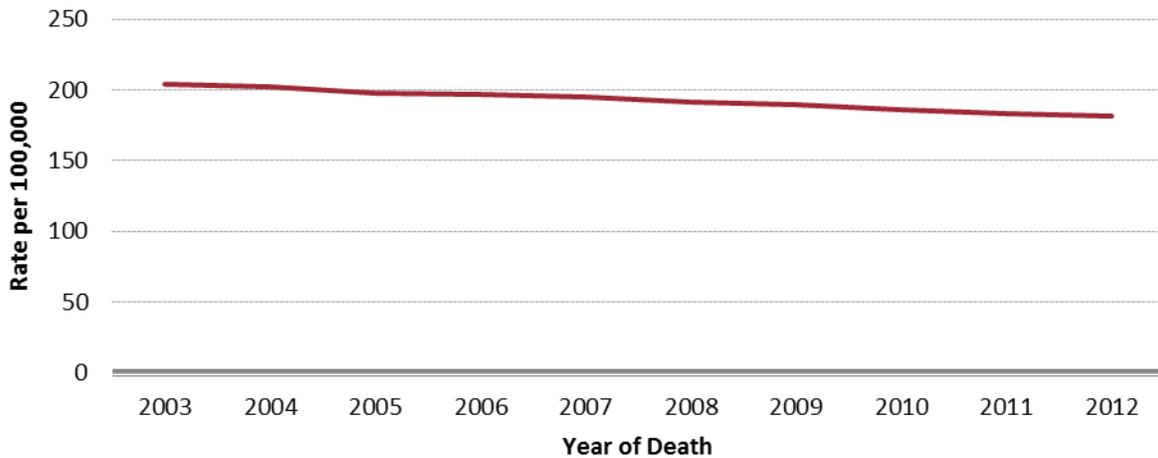


<sup>1</sup> Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2015.

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

Cancer incidence rates decreased 7 percent in Ohio from 2003-2012.

**Figure 4.** Age-adjusted Cancer Mortality Rates in Ohio by Year, 2003-2012<sup>1,2</sup>



<sup>1</sup> Source: Chronic Disease Epidemiology and Evaluation Section and the Bureau of Vital Statistics, Ohio Department of Health, 2015.

<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 2003-2012.

## Stage at Diagnosis

**Table 3.** Percent of Cancer Cases by Stage at Diagnosis for the Leading and Screenable Cancers in Ohio and the United States, 2008-2012<sup>1,2,3</sup>

Cancer Site/Type	Ohio		U.S.	
	Early Stage	Late Stage	Early Stage	Late Stage
Breast (Female)	67.4	29.3	70.5	27.9
Cervix	41.4	52.0	45.2	49.7
Colon and Rectum	39.9	49.7	42.5	52.1
Lung and Bronchus	16.9	69.8	18.4	75.3
Melanoma of Skin	86.1	8.6	90.6	7.2
Oral Cavity and Pharynx	29.8	64.0	45.5	50.1
Pancreas	7.5	69.4	10.5	78.4
Prostate	79.0	13.0	78.8	16.3
Testis	67.7	29.5	68.0	30.6

<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2015.

<sup>2</sup> Source of U.S. data: Surveillance, Epidemiology and End Results Program, National Cancer Institute, 2015.

<sup>3</sup> 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. 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.
- Screening programs should target cancers with high proportions of late- (regional and distant) stage tumors to increase the probability of survival.
- Cancers may be reported as unstaged or with a missing stage. High proportions of unstaged/missing stage cancers may indicate incomplete reporting and should be accounted for when comparing proportions by stage.
- Lung and bronchus cancer and pancreatic cancer had the highest proportions of late-stage tumors in Ohio among the leading and screenable cancers.

# Screening

**Table 4.** Percent of Adults Meeting Screening Guidelines for Female Breast, Cervical and Colon and Rectum Cancer by County Type with Comparison to Ohio, 2014<sup>1,2</sup>

County Type	Female Breast*	Cervix**	Colon and Rectum***
Appalachian	72.2	76.7	61.7
Metropolitan	77.0	83.3	67.8
Rural	76.7	80.0	59.6
Suburban	72.5	81.8	65.1
<b>Ohio</b>	<b>75.8</b>	<b>81.5</b>	<b>65.1</b>

<sup>1</sup> Source: 2014 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2015.

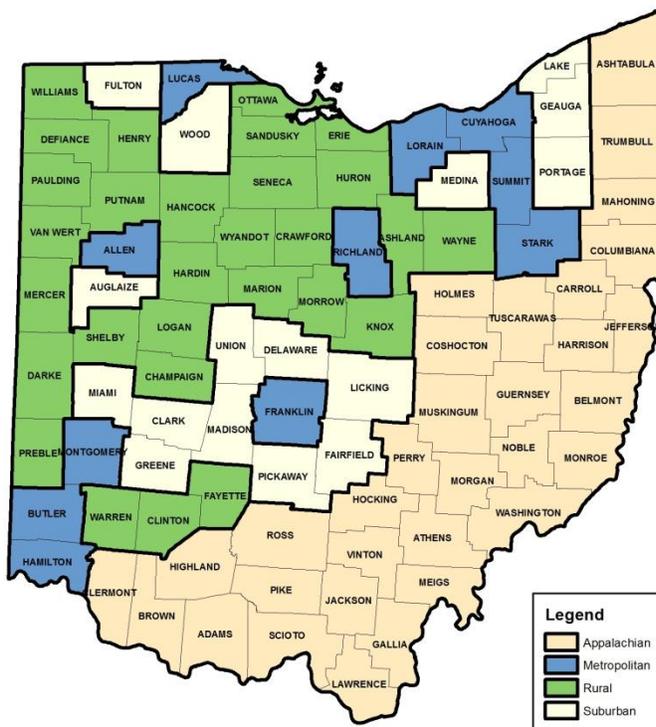
<sup>2</sup> Cancer screening guidelines are based on U.S. Preventative Services Task Force recommendations.

\*Female breast cancer recommendations are a mammogram every two years for women ages 50-74.

\*\*Cervical cancer recommendations are a Pap test every three years, or a combination of Pap and HPV testing every five years, for women ages 21-65. Data shown do not include HPV co-testing and only represent women ages 21-65 who have had a Pap test in the last three years.

\*\*\*Colon and rectum cancer recommendations are a screening colonoscopy every 10 years; or sigmoidoscopy every five years, with high-sensitivity fecal occult blood test (FOBT) every three years; or screening with high-sensitivity FOBT every year, for persons ages 50-74.

**Figure 5.** Ohio Counties by County Type, 2015<sup>1</sup>



- There were no significant differences between county types in the percent of women meeting breast cancer screening guidelines.
- Women in metropolitan counties were most likely to meet cervical cancer screening guidelines, while women in Appalachian counties were least likely to meet the guidelines.
- Metropolitan counties had a higher percent of persons meeting colon and rectum cancer screening guidelines compared with persons residing in Appalachian and rural counties.

<sup>1</sup> County designations as defined by the Ohio Medicaid Assessment survey (OMAS), with the exception of Mahoning County which OMAS defines as metropolitan.

## Risk Factors

**Table 5.** Percent of Adults ages 18+ who are Current Smokers, Do Not Meet Physical Activity Guidelines and are Overweight/Obese by County Type with Comparison to Ohio, 2013 and 2014<sup>1</sup>

County Type	Current Smoker*	Does Not Meet Physical Activity Guidelines**	Overweight/Obese***
Appalachian	23.7	81.6	70.3
Metropolitan	21.7	80.7	67.4
Rural	21.0	82.1	65.6
Suburban	16.9	79.8	66.5
<b>Ohio</b>	21.0	81.0	66.7

<sup>1</sup> Source: 2013 and 2014 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2015. Physical activity data are from 2013, and current smoker and overweight/obesity data are from 2014.

\*Current smoker is defined as persons who reported smoking at least 100 cigarettes in their lifetime and currently smoke every day or some days.

\*\*Physical activity guidelines for adults are defined as at least 150 minutes of moderate-intensity physical activity per week and muscle-strengthening activities two or more days per week.

\*\*\*Overweight classification is defined as a Body Mass Index (BMI) of 25.0-29.9 and obese classification is defined as a BMI of 30.0+.

- Adults located in suburban counties were less likely to smoke compared with those located in Appalachian and metropolitan counties.
- There were no significant differences by county type for percent of adults not meeting physical activity guidelines.
- Adults located in Appalachian counties were more likely to be overweight/obese compared with those located in rural counties.

### Did You Know?

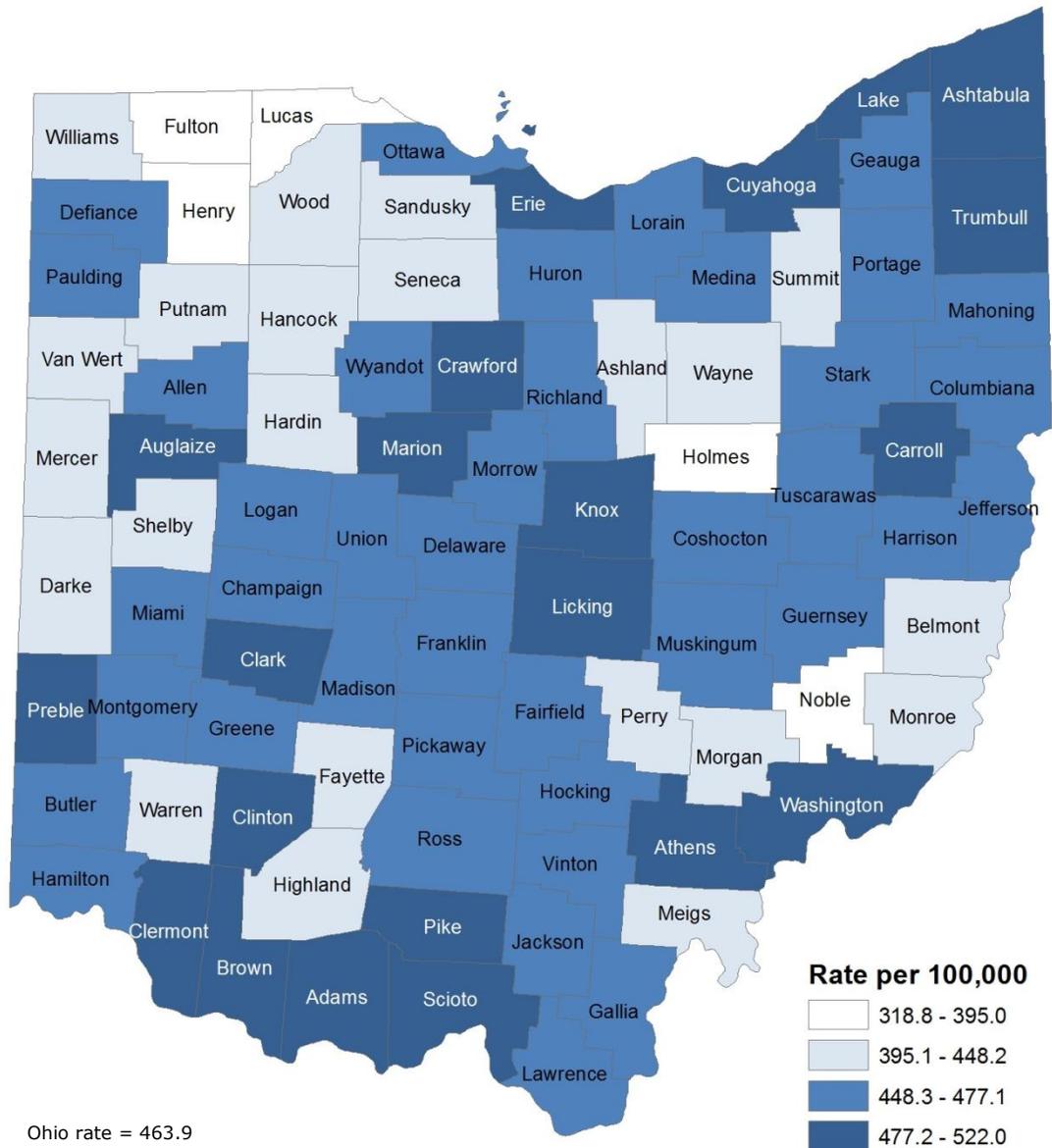
Tobacco use causes many types of cancer, including cancer of the lung, larynx (voice box), mouth, esophagus, throat, bladder, kidney, liver, stomach, pancreas, cervix, colon and rectum as well as acute myeloid leukemia.

Physical activity may reduce the risk of several types of cancer including cancer of the breast, colon and rectum, and endometrium as well as advanced prostate cancer.

If Ohioans reduce their BMI by just five percent, 23,000 cases of cancer will be prevented in Ohio by 2030, saving \$1 billion.

## County Maps

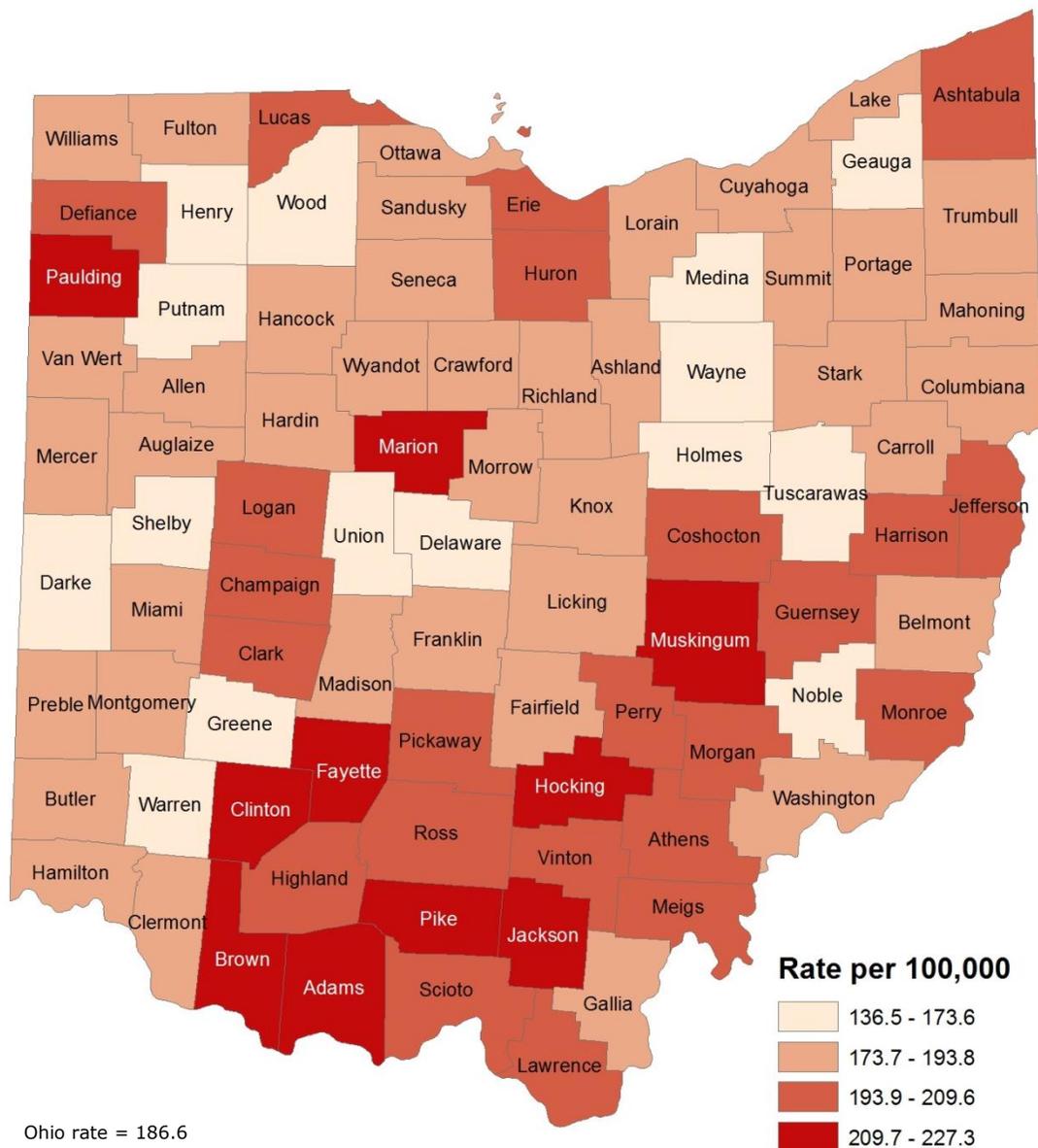
**Figure 6.** Average Annual Age-adjusted Incidence Rates for All Cancer Sites/Types Combined in Ohio by County, 2008-2012<sup>1</sup>



<sup>1</sup> Source of Ohio data: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2015.

- The cancer incidence rate in Ohio varied by county in 2008-2012. The county with the highest age-adjusted cancer incidence rate (Knox County, 522.0 per 100,000) had a rate 1.6 times higher than the county with the lowest rate (Holmes County, 318.8 per 100,000)

**Figure 7.** Average Annual Age-adjusted Mortality Rates for All Cancer Sites/Types Combined in Ohio by County, 2008-2012<sup>1</sup>



<sup>1</sup> Source: Chronic Disease Epidemiology and Evaluation Section and the Bureau of Vital Statistics, Ohio Department of Health, 2015.

- The cancer mortality rate in Ohio varied by county in 2008-2012. The county with the highest age-adjusted cancer mortality rate (Clinton County, 227.3 per 100,000) had a rate 1.7 times higher than the county with the lowest rate (Noble County, 136.5 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.

### Ohio Behavioral Risk Factor Surveillance System (BRFSS)

The BRFSS is an annual survey designed to collect data on diseases, health behaviors, clinical risk factors and injuries through landline and cell phone interviews of randomly selected adults age 18 and older. ODH conducts the Ohio BRFSS in conjunction with the Centers for Disease Control and Prevention (CDC).

### 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, 1975-2012* and the SEER\*Stat Database, SEER 18 Registries Research Data, released April 2015, based on the November 2014 submission. Stage distributions were calculated using SEER\*Stat software version 8.2.1.

### Other Sources of Information

Ohio Department of Health, Cancer Data and Statistics:  
<http://www.healthy.ohio.gov/cancer/ocisshs/newrpts1.aspx>  
American Cancer Society: <http://www.cancer.org>  
National Cancer Institute: <http://www.cancer.gov>

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