

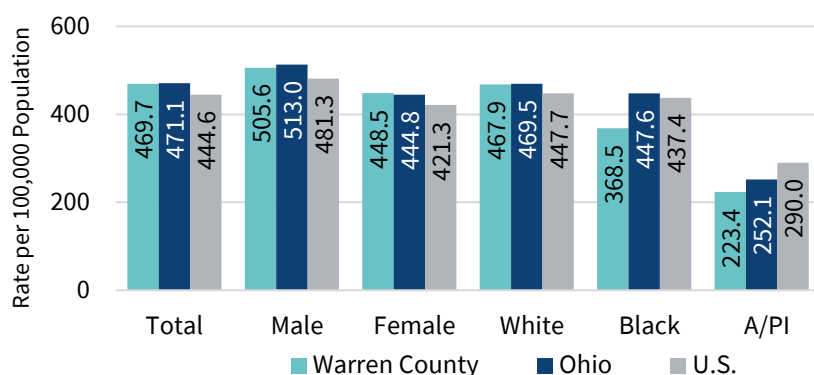
## Introduction

More than one in three people in the United States will be diagnosed with cancer at some point during their lifetime. Cancer is the second leading cause of death in Ohio, accounting for nearly one in five deaths. This report provides an overview of cancer in Warren County, Ohio, including data on cancer incidence (new cases) and mortality (deaths), Ohio and U.S. comparisons, trends, early detection, and risk factors. This information can be used to increase awareness about the burden of cancer in Warren County and to develop targeted cancer programs in the community.



## New Cancer Cases

**Figure 1. Average Annual Age-Adjusted Cancer Incidence Rates by Sex and Race in Warren County, Ohio, and the United States, 2018-2022**

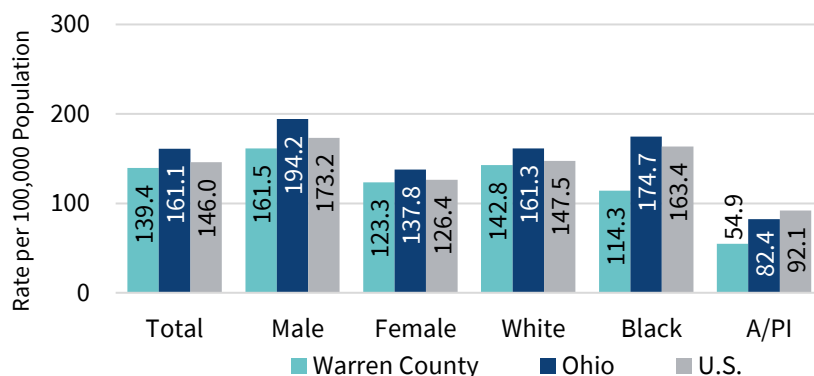


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2025; U.S. Cancer Statistics, Centers for Disease Control and Prevention and National Cancer Institute, June 2024 (Note: 2017-2021 U.S. cancer incidence data was the most recent available at the time of this publication).  
A/PI = Asian/Pacific Islander.

- An average of **1,351** new invasive cancer cases were diagnosed each year among Warren County residents from 2018 through 2022.
- The cancer incidence rate for all sites/types combined in Warren County was 469.7 per 100,000 population, compared with the Ohio rate of 471.1 per 100,000 and the U.S. rate of 444.6 per 100,000.
- Cancer incidence rates among males were higher than the rates among females in Warren County, Ohio, and the United States.
- Cancer incidence rates among White people were higher than the rates among Black people and Asian/Pacific Islanders in Warren County, Ohio, and the United States.

## Cancer Deaths

**Figure 2. Average Annual Age-Adjusted Cancer Mortality Rates by Sex and Race in Warren County, Ohio, and the United States, 2018-2022**

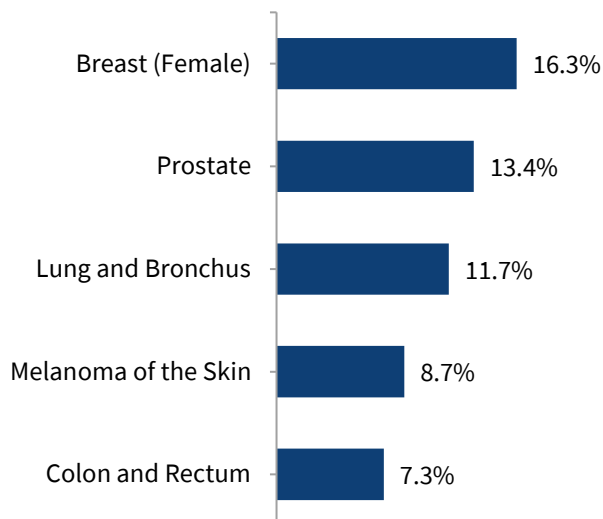


Source: SEER\*Stat Database: Mortality - All Cause of Death, Aggregated With County, Total U.S. (1990-2022), National Cancer Institute, April 2024. Underlying mortality data provided by the National Center for Health Statistics.  
A/PI = Asian/Pacific Islander.

- An average of **391** cancer deaths occurred each year among Warren County residents from 2018 through 2022.
- The 2018-2022 cancer mortality rate in Warren County was 139.4 per 100,000 population, compared with the Ohio rate of 161.1 per 100,000 and the U.S. rate of 146.0 per 100,000.
- Cancer mortality rates among males were higher than the rates among females in Warren County, Ohio, and the United States from 2018 to 2022.
- The cancer mortality rate among White people was higher than the rate among Black people and Asian/Pacific Islanders in Warren County but not in Ohio or the United States.

## Top Five Cancers by Percentage of New Cancer Cases

Figure 3. Percentage of New Invasive Cancer Cases by Site/Type for the Top Five Cancers in Warren County, 2018-2022

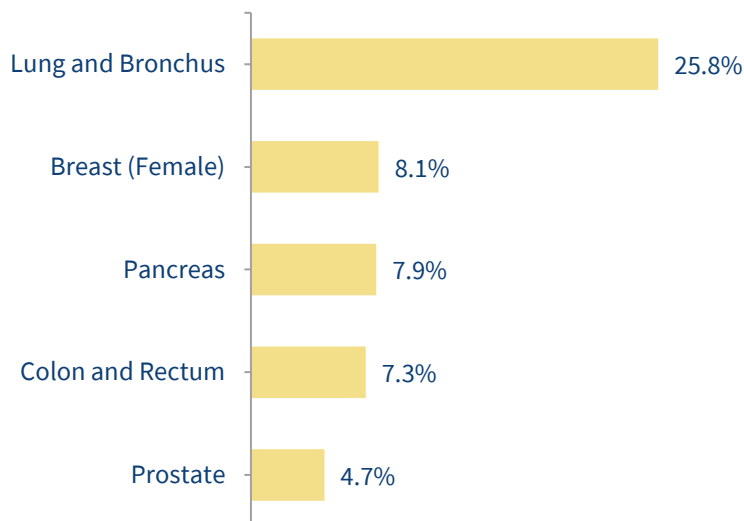


- Female breast cancer was the leading cause of cancer incidence in Warren County from 2018 to 2022, accounting for 16.3% of cancer cases, followed by prostate cancer, lung and bronchus cancer, melanoma of the skin, and colon and rectum cancer.
- Together, the top five cancers accounted for 57% of all new invasive cancer cases.

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2025.

## Top Five Cancers by Percentage of Cancer Deaths

Figure 4. Percentage of Cancer Deaths by Site/Type for the Top Five Cancers in Warren County, 2018-2022



- Lung and bronchus cancer was the leading cause of cancer mortality in Warren County from 2018 to 2022, accounting for 25.8% of cancer deaths, followed by female breast cancer, pancreatic cancer, colon and rectum cancer, and prostate cancer.
- Together, the top five cancers accounted for 54% of all cancer deaths.

Source: SEER\*Stat Database - Mortality: All Cause of Death, Aggregated With State, Total U.S. (1990-2022), National Cancer Institute, April 2024. Underlying mortality data provided by the National Center for Health Statistics.

## Cancer Sites/Types

**Table 1. Average Annual Number and Age-Adjusted Cancer Incidence and Mortality Rates by Site/Type in Warren County, Ohio, and the United States, 2018-2022**

	Incidence				Mortality			
	Warren County		Ohio	U.S.	Warren County		Ohio	U.S.
	Cases	Rate	Rate	Rate	Deaths	Rate	Rate	Rate
<b>All Sites/Types</b>	<b>1,351</b>	<b>469.7</b>	<b>471.1</b>	<b>444.6</b>	<b>391</b>	<b>139.4</b>	<b>161.1</b>	<b>146.0</b>
Bladder	55	19.5	21.5	18.8	11	4.3	4.9	4.1
Brain and Other CNS	20	7.6	6.5	6.3	10	3.4	4.5	4.4
Breast (Female)	221	147.7	133.0	129.8	32	21.1	20.2	19.3
Cervix	6	4.7	7.8	7.5	<2	*	2.3	2.2
Colon and Rectum	99	34.9	38.2	36.4	28	10.4	13.9	12.9
Esophagus	13	4.2	5.8	4.5	9	3.1	4.8	3.7
Hodgkin Lymphoma	5	2.0	2.6	2.5	<2	*	0.3	0.3
Kidney and Renal Pelvis	51	17.4	18.2	17.3	12	4.5	3.8	3.4
Larynx	8	2.8	3.6	2.9	<2	*	1.1	0.9
Leukemia	46	16.7	12.9	14.1	16	6.0	6.3	5.9
Liver and Intrahepatic Bile Duct	20	6.5	7.6	8.6	13	4.3	6.2	6.6
Lung and Bronchus	158	54.3	63.3	53.3	101	34.8	39.8	32.4
Melanoma of the Skin	117	41.8	27.0	22.7	7	2.7	2.4	2.0
Multiple Myeloma	21	7.4	6.4	7.1	9	3.3	3.2	3.0
Non-Hodgkin Lymphoma	53	19.2	18.8	18.5	14	5.3	5.5	5.0
Oral Cavity and Pharynx	31	10.9	12.9	12.0	8	2.6	2.9	2.6
Ovary	16	11.0	9.8	10.1	9	5.8	5.8	6.0
Pancreas	38	13.3	14.1	13.5	31	10.9	12.1	11.2
Prostate	181	120.8	120.7	113.1	18	16.3	19.3	19.0
Stomach	12	4.2	5.7	6.3	4	1.4	2.2	2.7
Testis	7	6.2	5.9	5.7	<2	*	0.3	0.3
Thyroid	34	13.4	14.1	12.9	<2	*	0.5	0.5
Uterus	38	24.6	30.4	27.8	7	5.2	5.4	5.2

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2025; U.S. Cancer Statistics, Centers for Disease Control and Prevention and National Cancer Institute, June 2024 (Note: 2017-2021 U.S. cancer incidence data was the most recent available at the time of this publication); SEER\*Stat Database: Mortality - All Cause of Death, Aggregated With County, Total U.S. (1990-2022), National Cancer Institute, April 2024. Underlying mortality data provided by the National Center for Health Statistics.

Rates are sex-specific for cancers of the breast, cervix, ovary, prostate, testis, and uterus.

CNS = Central Nervous System.

\* Rates may be unstable and are not presented when the total count from 2018 to 2022 is less than five (incidence) or 10 (mortality).

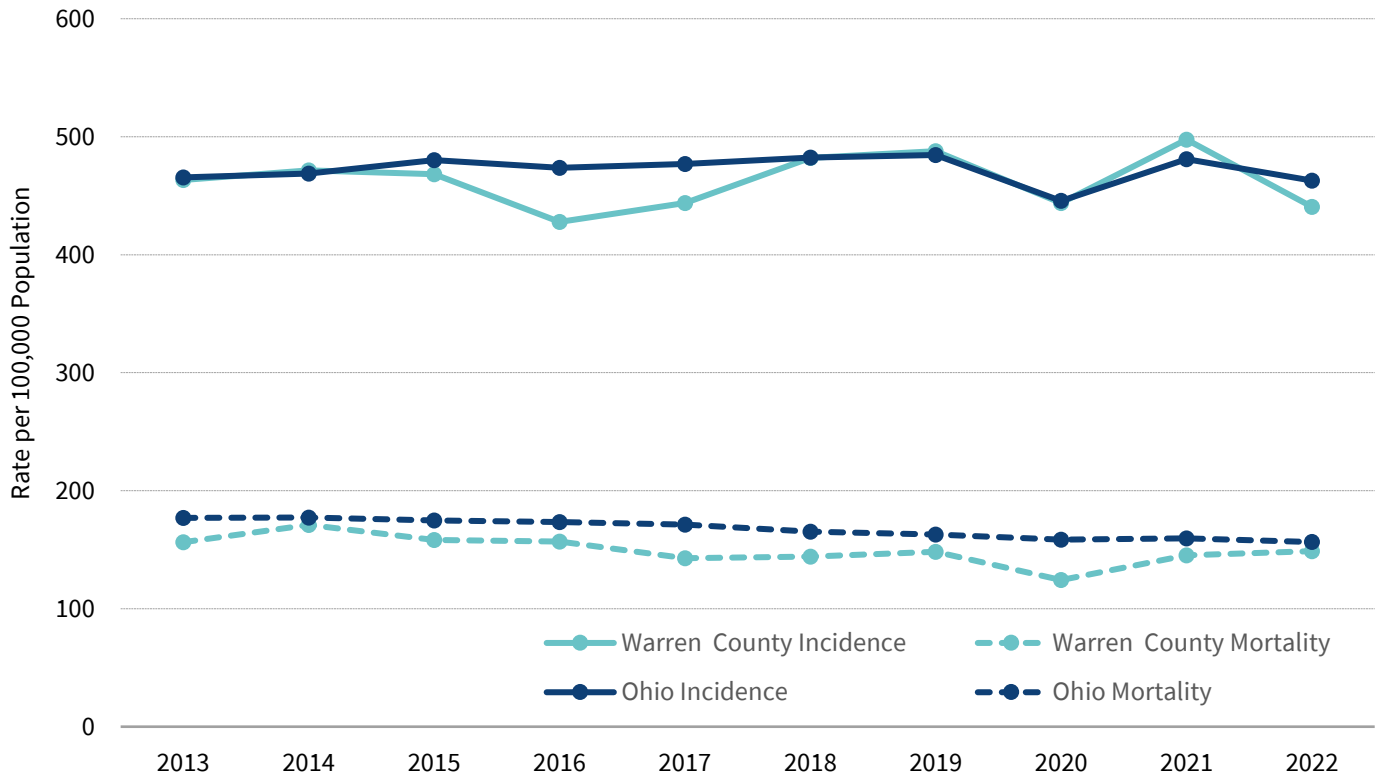
The total for all sites/types in Warren County includes an average of 102 new cases and 46 deaths from other types of cancer (not shown).

## Trends

Cancer incidence rates were variable in Warren County from 2013 to 2022. In Ohio, cancer incidence rates slightly increased from 2013 to 2019, decreased in 2020, and rebounded in 2021 and 2022. The COVID-19 pandemic disrupted health services, leading to delays and reductions in cancer screening and diagnosis. This may have contributed to the decline in new cancer cases in 2020.

Cancer mortality rates declined 5% in Warren County and 12% in Ohio from 2013 to 2022. It is important to note that cancer incidence and mortality rates at the county level are often variable from year to year, particularly for counties with small populations.

**Figure 5. Trends in Age-Adjusted Cancer Incidence and Mortality Rates for All Cancers Combined in Warren County and Ohio, 2013-2022**



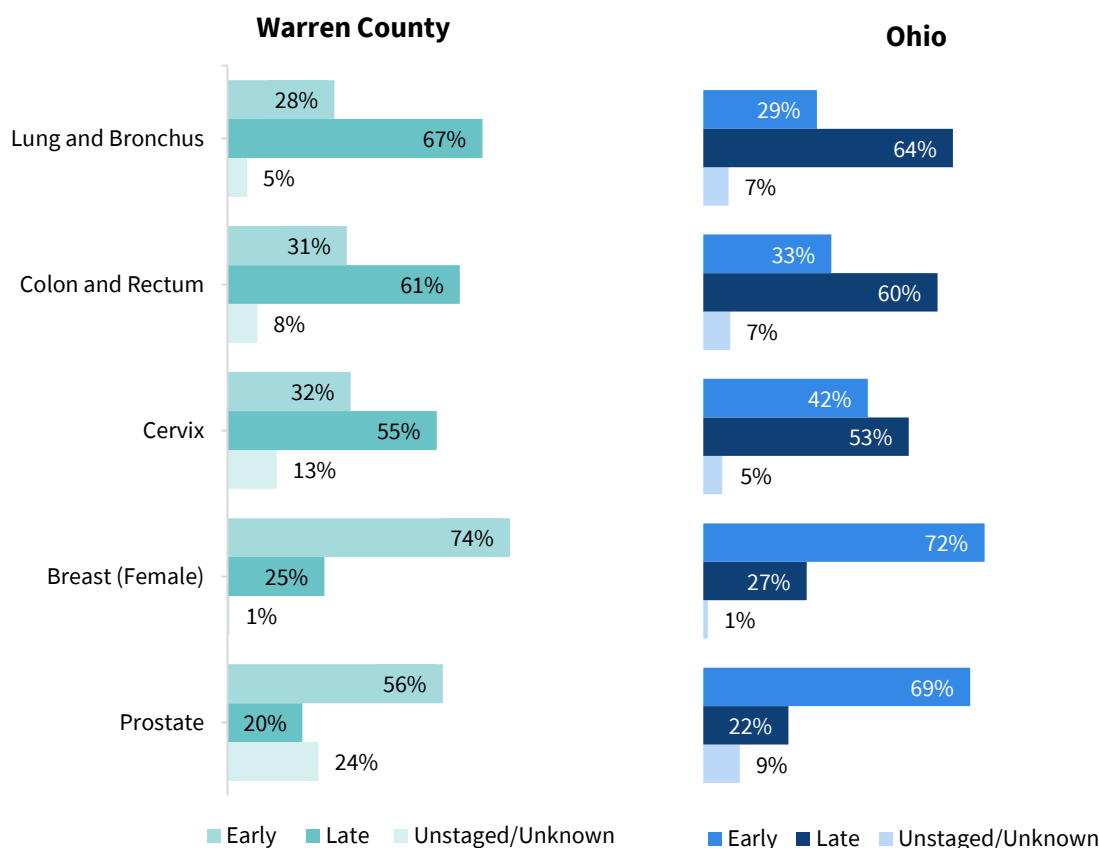
Source: Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics, Ohio Department of Health, 2025.

## Stage at Diagnosis

Cancer stage at diagnosis is the extent or spread of the tumor from the site of origin. According to a system of summary staging (SEER Summary Stage), the stages, in order of increasing spread, are *in situ*, local, regional, and distant. Early-stage cancers are those diagnosed at the *in situ* or local stages, where the cancer has not spread to other parts of the body. Late-stage cancers are those diagnosed at the regional stage (cancer has spread to the lymph nodes) or distant stage (cancer has spread to other organs). Cancers may also be reported as unstaged/unknown when information is not sufficient to assign a stage. (See Glossary on page 8.) Please note that the percentage of unstaged/unknown cases can vary by cancer site/type and region and may impact the percentage distribution of early and late-stage cases; therefore, comparisons between the county and the state should be interpreted with caution when the proportion of unstaged/unknown cases in the county is considerably different than the state. Regular screening can result in the detection of certain cancers (including lung and bronchus, cervix, colon and rectum, breast, and prostate) at earlier stages, when treatment is more likely to be successful.

Warren County had similar proportions of late-stage lung and bronchus cancer, colon and rectum cancer, cervical cancer, female breast cancer, and prostate cancer from 2018 to 2022, compared with Ohio.

**Figure 6. Proportion of Cases (%) by Stage Group for Select Cancers in Warren County and Ohio, 2018-2022**



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2025.

## Early Detection

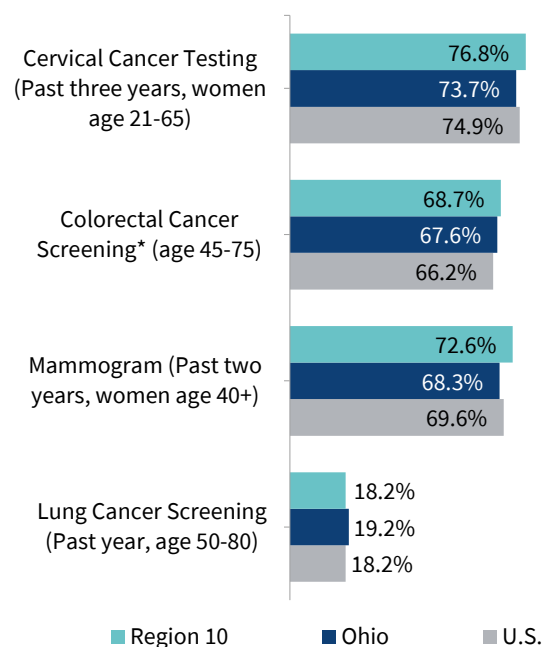
Cancer screening can detect some cancers early when treatment is often less intensive and more successful. The American Cancer Society indicates that cancer screening is known to reduce mortality for cancers of the breast, colon and rectum, cervix, prostate, and lung and bronchus (among current or former heavy smokers). Screening can help prevent colon and rectum and cervical cancers by detecting precancerous lesions that can be removed.



The Ohio Behavioral Risk Factor Surveillance System (BRFSS) is an annual telephone survey conducted by the Ohio Department of Health (ODH) and supported by the Centers for Disease Control and Prevention (CDC). The BRFSS is the primary source of health information voluntarily self-reported by Ohio residents 18 years and older. The 14 geographic regions and associated counties are shown in the map on the left.

Prevalence refers to the proportion of people with a certain disease or characteristic at a given time. Figure 7 shows the prevalence of adults in the region that includes Warren County (Region 10) who reported having a recommended cancer screening test in 2022, compared with Ohio and the United States.

**Figure 7. Prevalence of Adults Who Reported Having a Recommended Cancer Screening Test in Region 10, Ohio, and the United States, 2022**



### In Region 10:

- Among women 21 to 65 years old, 76.8% reported they had a cervical cancer test in the past three years, compared with 73.7% in Ohio and 74.9% in the United States.
- Among adults 45 to 75 years old, 68.7% met colon and rectum cancer screening guidelines\*, compared with 67.6% in Ohio and 66.2% in the United States.
- Among women 40+ years old, 72.6% reported they had a mammogram in the past two years, compared with 68.3% in Ohio and 69.6% in the United States.
- Among adults 50 to 80 years old, 18.2% with a 20 pack/year smoking history or who currently smoke or have quit within the past 15 years reported that they had a computed tomography (CT) scan in the past year, compared with 19.2% in Ohio and 18.2% in the United States.

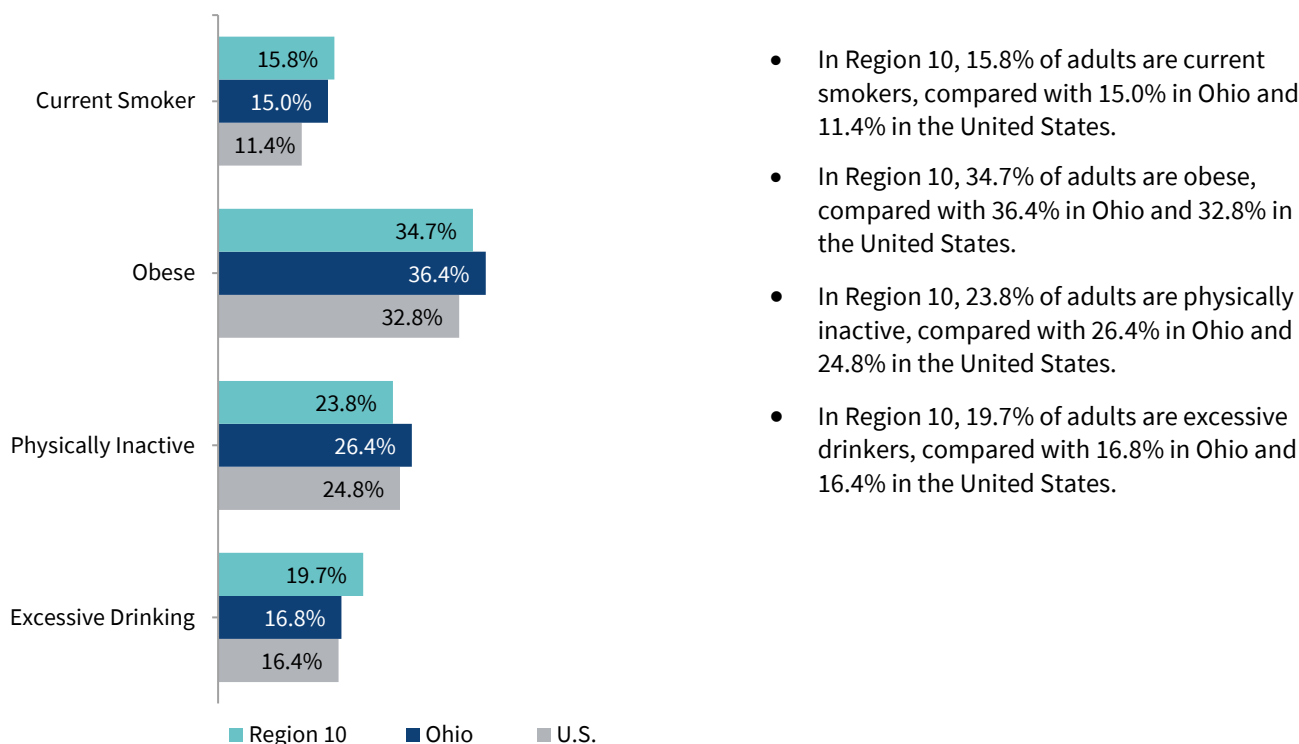
\*A screening colonoscopy every 10 years, or sigmoidoscopy every five years with high-sensitivity fecal occult blood test (FOBT) every three years, or screening with high-sensitivity FOBT every year.

Source: 2022 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2025.

## Risk Factors

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

**Figure 8. Prevalence of Adults Who Are Current Smokers, Obese, Physically Inactive, or Excessive Drinkers in Region 10, Ohio, and the United States, 2023**



Source: 2023 Behavioral Risk Factor Surveillance System (BRFSS), 2025.

Current Smoker = Percentage of adults (age 18+) who are current smokers.

Obese = Percentage of adults (age 18+) with a body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>.

Physically Inactive = Percentage of adults (age 18+) who reported no leisure-time physical activity in the past 30 days.

Excessive Drinking = Percentage of adults (age 18+) reporting binge or heavy drinking. Binge drinking = Five or more drinks per occasion (men) or four or more drinks per occasion (women) in the past 30 days. Heavy drinking = More than two drinks per day (men) or more than one drink per day (women).

### DID YOU KNOW?

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

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## Glossary

**Age adjustment:** A statistical method used to compare rates among groups of people with different age compositions. This method applies a standard age composition to the groups being compared to remove the effect of age. Rates presented in this report are age-adjusted to the 2000 U.S. standard population.

**Incidence rate:** The number of new cases of a disease that occur in a defined population per 100,000 during a specified period of time. Incidence counts and rates in this report were based on newly diagnosed invasive cancers and *in situ* (non-invasive) bladder cancers.

**Invasive cancer:** Cancer that has spread beyond the layer of cells where it first developed to involve adjacent tissues. Invasive cancer excludes basal and squamous cell carcinomas of the skin, benign and borderline brain and central nervous system tumors, and *in situ* cancers except urinary bladder.

**Mortality rate:** The number of deaths that occur in a defined population per 100,000 during a specified period of time.

**Prevalence:** The proportion of people with a certain disease or characteristic at a given time.

**Stage at diagnosis:** The degree to which a tumor has spread from its site of origin at the time of diagnosis. A system of summary staging is often used to group cases into the following stages:

***In situ*** – Noninvasive cancer that has not penetrated surrounding tissue.

**Local** – A malignant tumor confined entirely to the organ of origin.

**Regional** – A malignant tumor that has extended beyond the organ of origin directly into surrounding organs or tissues or into regional lymph nodes.

**Distant** – A malignant tumor that has spread to parts of the body (distant organs, tissues, and/or lymph nodes) remote from the primary tumor.

**Unstaged/Unknown** – Insufficient information is available to determine the stage or extent of the disease at diagnosis.

**Stage group:** Cancer stages are further collapsed into the following stage groupings:

**Early stage** – Cancers diagnosed at the *in situ* or local stage.

**Late stage** – Cancers diagnosed at the regional or distant stage.

**Tumor:** An abnormal lump or mass of tissue. Tumors can be benign (noncancerous) or malignant (cancerous).



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## 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 is supported in part by the State of Ohio and the Centers for Disease Control and Prevention (CDC), National Program of Cancer Registries, cooperative agreement number NU58DP007097. The contents of this report are the sole responsibility of the Ohio Department of Health (ODH) and do not necessarily represent the official views of the CDC.

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

Phone: 614-752-2689.

Email: [ociss@odh.ohio.gov](mailto:ociss@odh.ohio.gov).

### U.S. Cancer Incidence:

U.S. Cancer Statistics, Centers for Disease Control and Prevention and National Cancer Institute, June 2024 (Note: 2017-2021 U.S. cancer incidence data was the most recent available at the time of this publication).

### U.S. Cancer Mortality:

SEER\*Stat Database: Mortality - All Cause of Death, Total U.S. (1990-2022), National Cancer Institute, April 2024. Underlying mortality data provided by the National Center for Health Statistics.

Analysis performed using SEER\*Stat 8.4.4 software.

### American Cancer Society:

<https://www.cancer.org/>.

### National Cancer Institute:

<https://www.cancer.gov/>.

### Centers for Disease Control and Prevention:

<https://www.cdc.gov/cancer/>.