

# Prostate Cancer in Ohio 2023

February 2023

## Key Findings and Populations at High Risk

- An average of 8,293 cases of prostate cancer were diagnosed each year in Ohio in 2015-2019.
- The prostate cancer incidence rate in Ohio was 112.5 per 100,000 males, similar to the national rate of 112.7 per 100,000 males in 2015-2019.
- In both Ohio and the United States, Black men had the highest incidence and mortality rates of prostate cancer, while Asians/Pacific Islanders had the lowest rates.
- Prostate cancer was most frequently diagnosed among Ohio men 65 to 69 years old.
- In Ohio from 2000 to 2019, prostate cancer incidence rates decreased 26% among white and Black men. Mortality rates decreased 37% and 53% among white and Black men, respectively.
- Prostate cancer incidence rates were higher around major urban areas and in northwest Ohio.
- Most (68%) prostate cancers in Ohio were diagnosed at a local stage with a five-year relative survival of nearly 100%.
- The United States Preventive Services Task Force recommends that men 55 to 69 years old should make an individual decision about prostate cancer screening with their clinician.
- The prevalence of prostate-specific antigen testing in the past two years for Ohio men 40 years old and older was 32.0% in 2020.

## Incidence and Mortality

Prostate cancer is the most common cancer diagnosed among men in Ohio and the United States. In 2015-2019, prostate cancer made up 24% of newly diagnosed (incidence) cancer cases among men reported to the Ohio Cancer Incidence Surveillance System (OCISS). An average of 8,293 cases of prostate cancer were diagnosed annually in Ohio during this time period (Table 1). The average annual age-adjusted prostate cancer incidence rate in Ohio was 112.5 per 100,000 males, similar to the national incidence rate of 112.7 per 100,000 males. In Ohio in 2015-2019, the prostate cancer incidence rate was highest among Black males (163.9 per 100,000 males) and lowest among Asians/Pacific Islanders (45.8 per 100,000 males). In Ohio, prostate cancer incidence rates were nearly 13 times higher for males 65 years old and older than those younger than 65 years old.

An average of 1,192 deaths from prostate cancer occurred each year in Ohio in 2015-2019 (Table 1). Ohio's average annual age-adjusted prostate cancer mortality rate was 19.4 per 100,000 males, compared with the U.S. mortality rate of 18.9 per 100,000 males. Similar to incidence, the mortality rate was higher for Black males (34.7 per 100,000 males) than white males (18.1 per 100,000 males) and Asians/Pacific Islanders (7.4 per 100,000 males) in Ohio during this time period. Prostate cancer deaths are rare for men younger than 65 years old; mortality rates were 78 times higher for men 65 years old and older than those younger than 65 years old in Ohio.

**Table 1. Average Annual Number of Prostate Cancer Cases and Deaths and Age-adjusted Incidence and Mortality Rates per 100,000 Males by Race and Age Group, Ohio and the U.S., 2015-2019**

		Incidence			Mortality		
		Ohio Cases	Ohio Rate	U.S. Rate	Ohio Deaths	Ohio Rate	U.S. Rate
Total		8,293	112.5	112.7	1,192	19.4	18.9
Race	White	6,849	104.6	105.3	998	18.1	17.7
	Black	1,174	163.9	177.6	185	34.7	36.9
	Asian/Pacific Islander	45	45.8	59.1	5	7.4	8.6
Age Group	<65	3,263	45.5	43.7	132	1.8	1.7
	65+	5,029	575.7	589.4	1,060	141.2	137.8

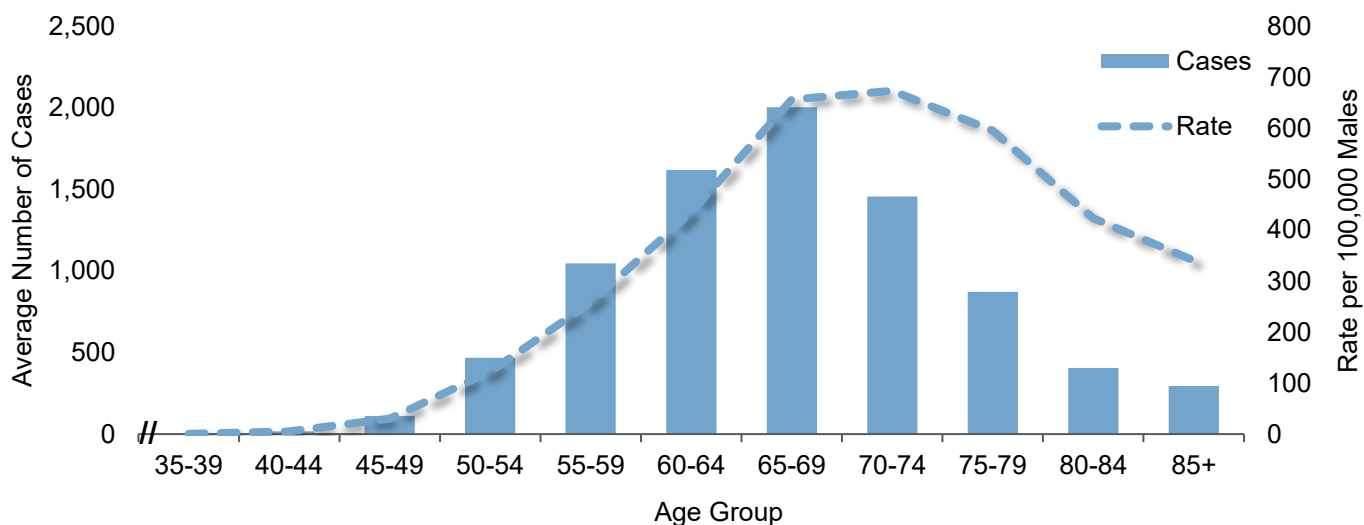
Sources: Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics, Ohio Department of Health, 2022; Surveillance, Epidemiology and End Results (SEER) Program, National Cancer Institute, 2022.



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## Incidence by Age Group

Figure 1. Average Annual Number and Age-Specific Incidence Rates of Prostate Cancer per 100,000 Males by Age Group, Ohio, 2015-2019

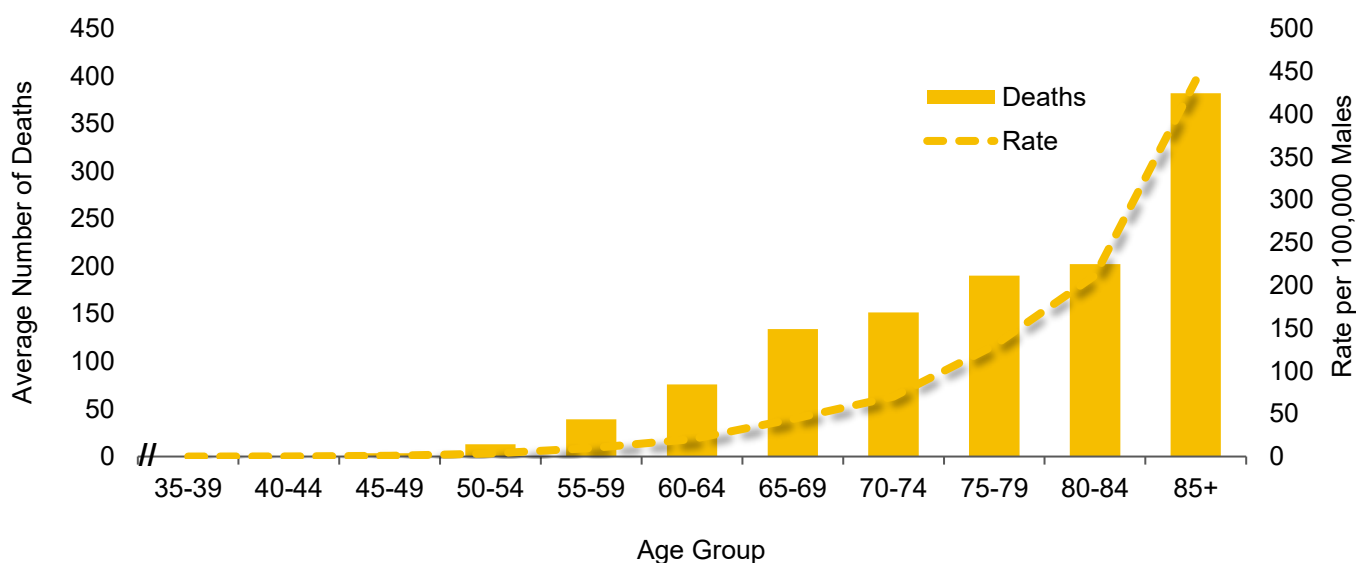


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.

Figure 1 shows that prostate cancer was most frequently diagnosed among men in the 65-69 age group in Ohio during 2015-2019. Prostate cancer age-specific incidence rates increased with advancing age group from 35-39 years old to 70-74 years old, followed by a decline for those 75 years old and older.

## Mortality by Age Group

Figure 2. Average Annual Number and Age-Specific Mortality Rates of Prostate Cancer per 100,000 Males by Age Group, Ohio, 2015-2019

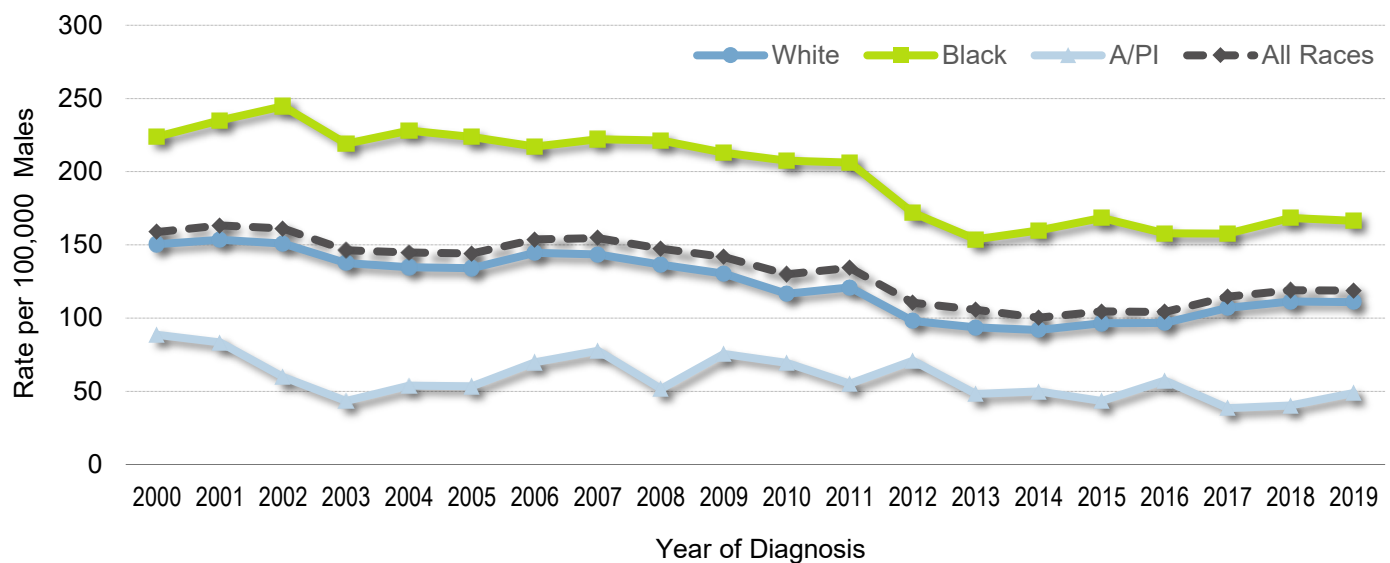


Source: Bureau of Vital Statistics, Ohio Department of Health, 2022.

Figure 2 shows that prostate cancer deaths most frequently occurred among men 85 years old and older in Ohio in 2015-2019. Prostate cancer age-specific mortality rates increased with advancing age group throughout the lifespan.

## Trends in Incidence and Mortality

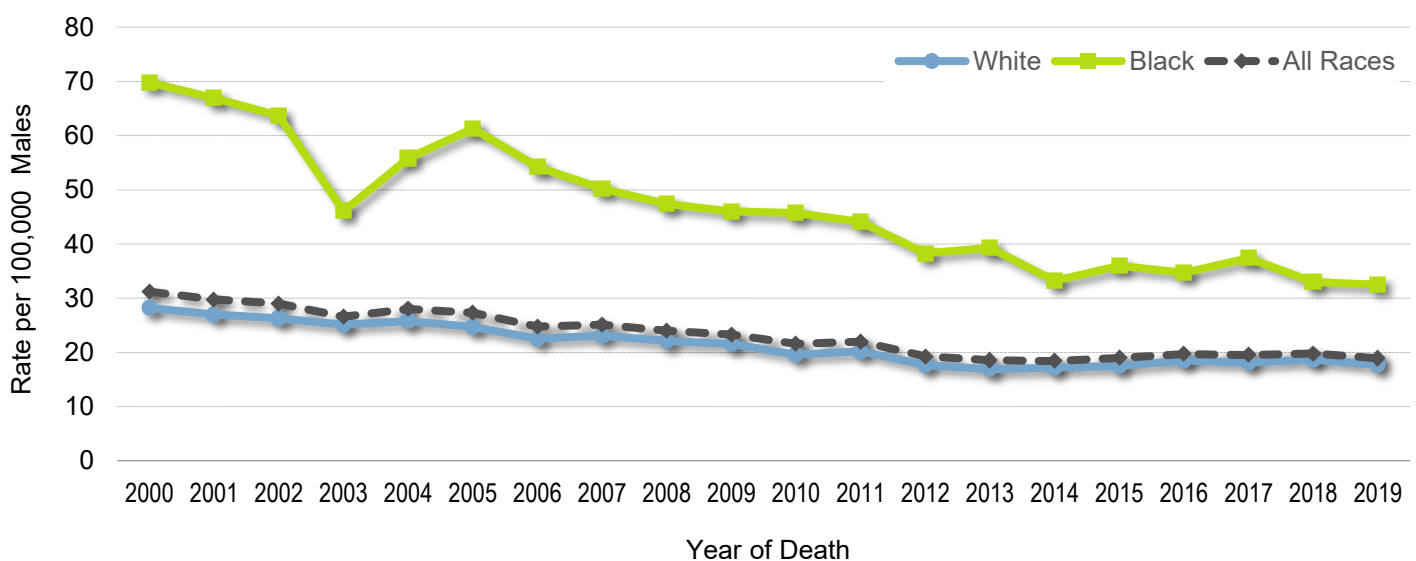
Figure 3. Trends in Age-Adjusted Incidence Rates of Prostate Cancer per 100,000 Males by Race, Ohio, 2000-2019



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.  
A/PI = Asian/Pacific Islanders

Figure 3 shows incidence rates of prostate cancer in Ohio according to year of diagnosis (2000 to 2019) by race. During this 20-year period, prostate cancer incidence rates decreased 26% among both white and Black men. The decline in prostate cancer rates during the late 2000s and early 2010s may be due to changes in screening guidelines, which resulted in fewer men getting a PSA (prostate-specific antigen) test. Incidence rates were relatively stable after 2014.

Figure 4. Trends in Age-Adjusted Mortality Rates of Prostate Cancer per 100,000 Males by Race, Ohio, 2000-2019



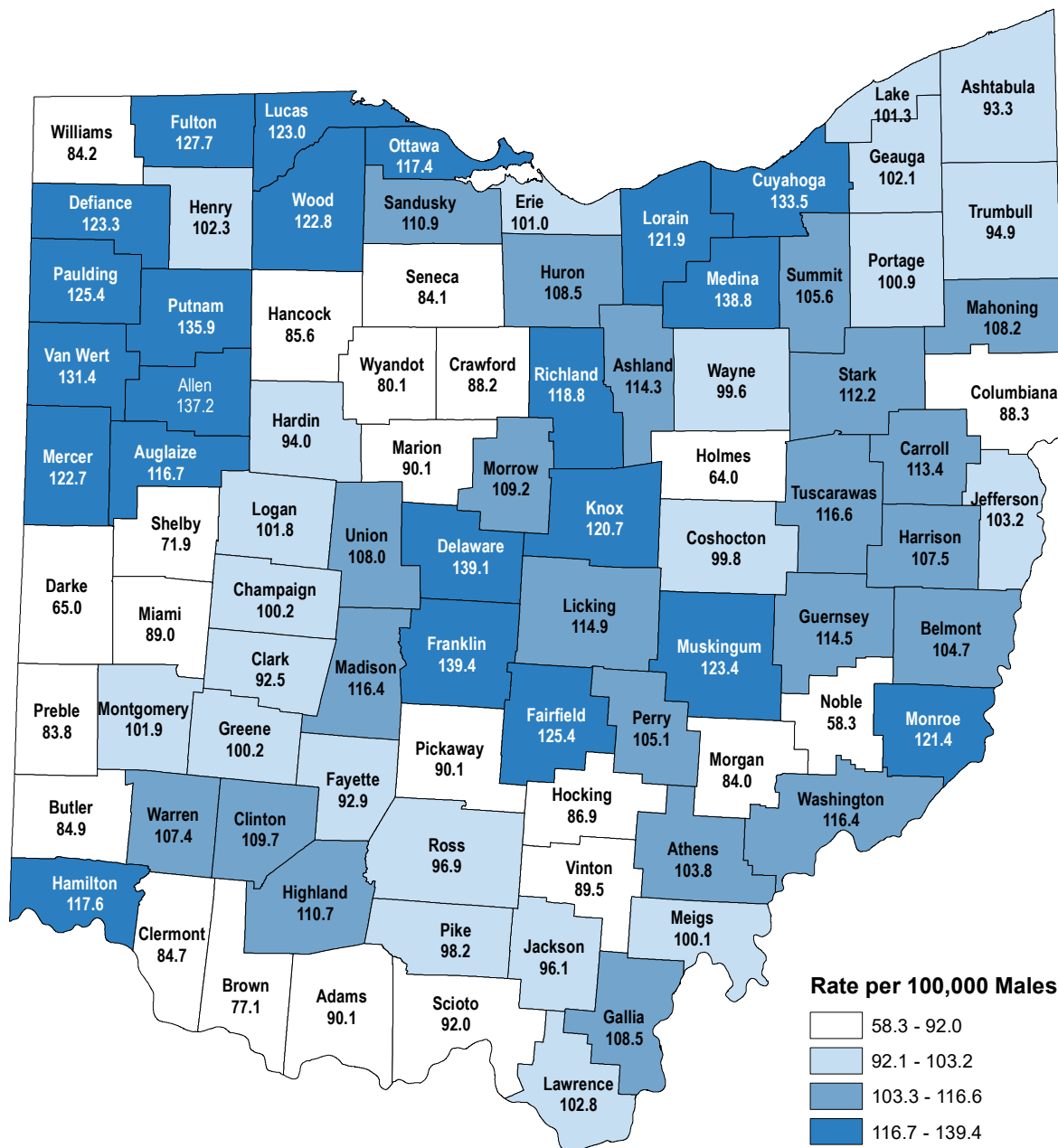
Source: Bureau of Vital Statistics, Ohio Department of Health, 2022.  
Note: Mortality rates for Asians/Pacific Islanders are unstable due to low numbers and therefore not presented.

Figure 4 shows trends in mortality rates of prostate cancer according to year of death (1996 to 2015) by race. From 1996 to 2015, the prostate cancer mortality rate decreased by about half among both white and Black men in Ohio. During this 20-year period, prostate cancer death rates decreased 37% among white men and 53% among Black men.

## Incidence by County

Figure 5 shows 2015-2019 average annual age-adjusted prostate cancer incidence rates by county of residence. County-specific prostate cancer incidence rates in Ohio ranged from 58.3 to 139.4 per 100,000 male residents, compared with Ohio's rate of 112.5 per 100,000 males. Prostate cancer incidence rates tended to be higher around major urban areas and/or in areas with a high percentage of Black residents. However, high prostate cancer incidence rates were also found in rural counties with a low percentage of Black residents, including counties in the northwestern portion of the state.

**Figure 5. Average Annual Age-Adjusted Incidence Rates of Prostate Cancer per 100,000 Males by County of Residence, Ohio, 2015-2019**

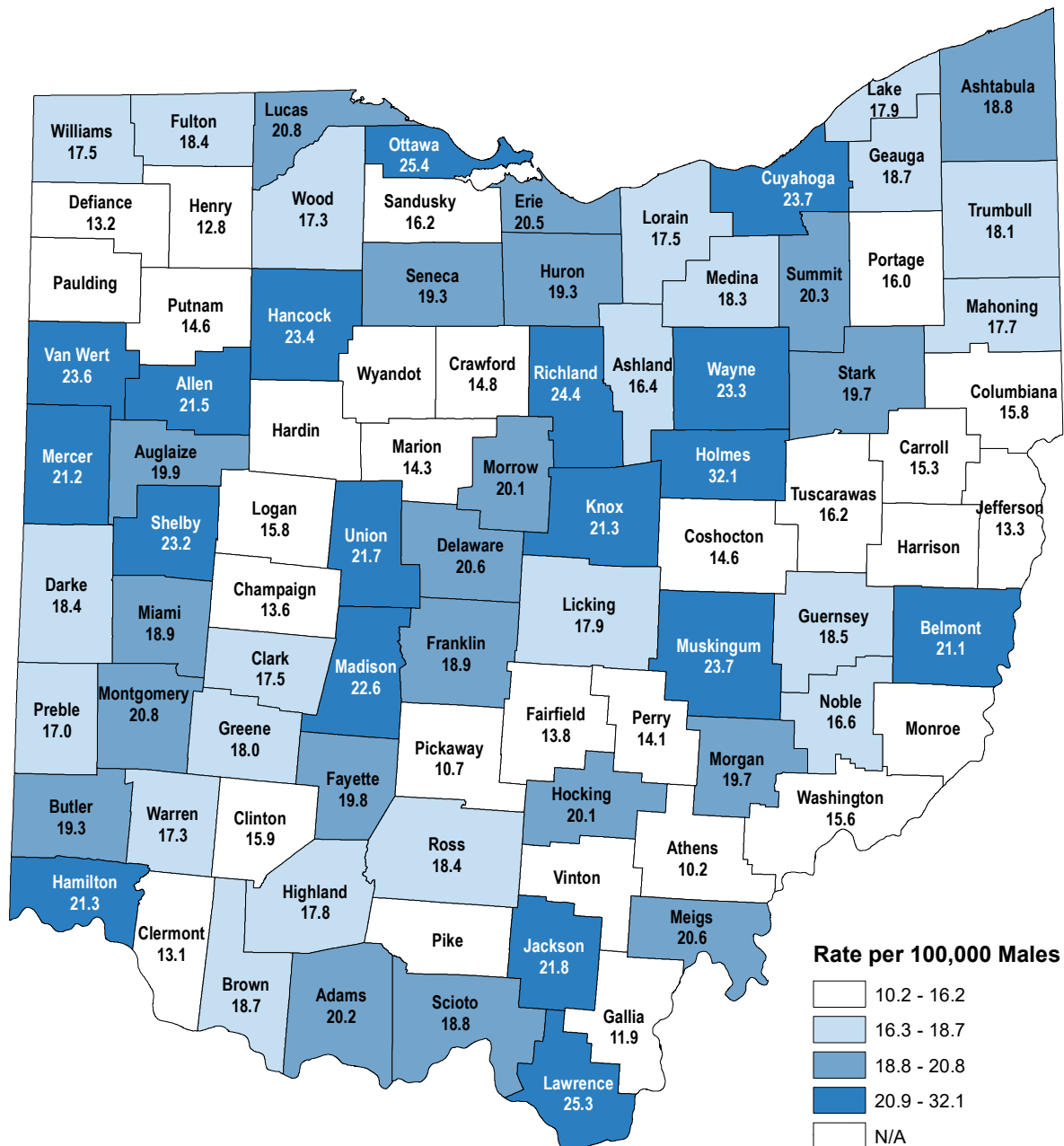


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.  
Each category represents approximately 25% of the 88 Ohio counties.

## Mortality by County

Figure 6 shows 2015-2019 average annual age-adjusted prostate cancer mortality rates by county of residence. County-specific prostate cancer mortality rates in Ohio ranged from 10.2 to 32.1 per 100,000 male residents, compared with Ohio's rate of 19.4 per 100,000 males. Prostate cancer mortality rates by county were variable across the state.

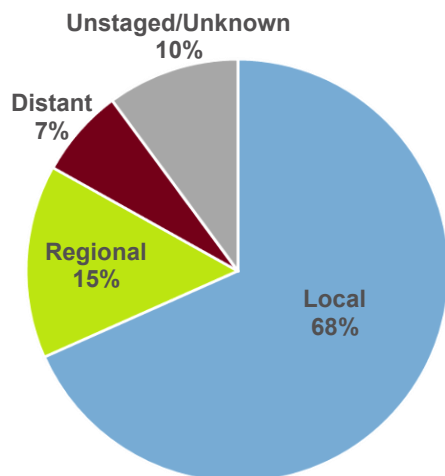
**Figure 6. Average Annual Age-Adjusted Mortality Rates of Prostate Cancer per 100,000 Males by County of Residence, Ohio, 2015-2019**



## Stage at Diagnosis

Cancer stage at diagnosis, which refers to the extent or spread of a cancer in the body, is used to select appropriate treatment and is an important determinant of survival. For *in situ* cancers, the tumor has not invaded or penetrated surrounding tissue. In the local stage, the tumor is confined to the organ in which it originated. In the regional stage, the tumor has spread to surrounding tissues. In the distant stage, the malignancy has spread, or metastasized, to other organs. *In situ* and local stage cancers are known as “early stage” cancers, and regional and distant stage cancers are known as “late stage” cancers.

**Figure 7. Proportion of Prostate Cancer Cases (%) by Stage at Diagnosis, Ohio, 2015-2019**



In Ohio in 2015-2019:

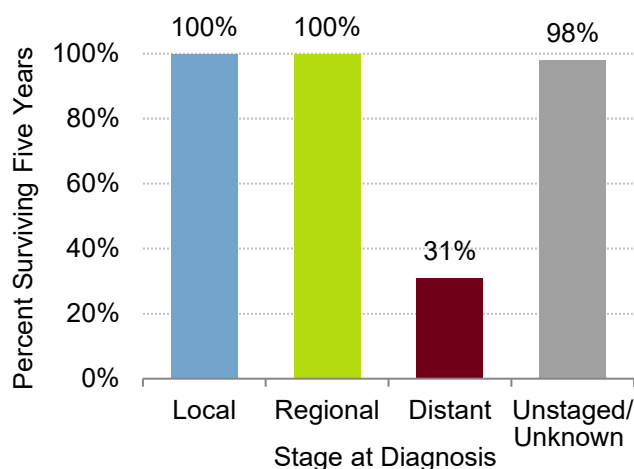
- 68% of prostate cancers were diagnosed at the local stage.
- 15% of prostate cancers were diagnosed at a regional stage.
- 7% of prostate cancers were diagnosed at a distant stage. Both Black and Asian/Pacific Islander men had higher proportions of cases diagnosed at a distant stage (8.4%) than white men (6.7%) (not shown).
- The percentage of prostate cancers reported unstaged/unknown stage was 10% (Figure 7).

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.

## Survival

In general, cancer survival is the estimated proportion of people alive at some point after cancer diagnosis, usually five years. Five-year relative survival, the estimate used here, compares the survival of people diagnosed with cancer with the survival of people in the general population who are the same age, race, and sex, and who have not been diagnosed with cancer.

**Figure 8. Five-Year Relative Survival (%) by Stage at Diagnosis, Ohio, 2012-2018**



In Ohio, the five-year relative survival for prostate cancer cases diagnosed in 2012-2018 was:

- 99% for all stages combined (not shown).
- Nearly 100% among those diagnosed at the local or regional stage.
- 31% when the cancer was diagnosed at the latest (distant) stage.
- 98% for unstaged or unknown stage cases (Figure 8).

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.

## Risk Factors

A cancer risk factor is anything that increases a person's risk of developing cancer. However, having one or more risk factors does not mean that a person will develop cancer. The following have been identified as risk factors for prostate cancer.

**Age:** The most common risk factor is age. The older a man is, the greater the chance of getting prostate cancer.

**Race/ethnicity:** Black men are more likely to be diagnosed with prostate cancer than white men and often at a more advanced stage. The death rate for Black men is more than two times higher than for white men. Prostate cancer is less common among Asian-American and Hispanic/Latino men compared with non-Hispanic white men.

**Family history:** Having a father or brother with prostate cancer more than doubles a man's risk of developing this disease. Risk is even higher for men with several affected relatives, particularly if their relatives were young at the time of diagnosis.

**Genetic changes:** Men with genetic changes in one or more specific regions of certain chromosomes have increased risk. Risk increases with the number of genetic changes. In addition, changes in the BRCA1 and BRCA2 genes increase risk. Men with Lynch syndrome also are at increased risk.

## Signs and Symptoms

Although men with early stages of prostate cancer do not usually experience symptoms, those with a more advanced stage of the disease may experience:

- Weak or interrupted urine flow.
- Inability to urinate or start or stop urine flow.
- Need to urinate more frequently especially at night.
- Blood in urine.
- Pain or burning with urination.
- Difficulty getting an erection (erectile dysfunction).
- Pain in hips, spine, ribs, or other areas from cancer that has spread to bones.
- Weakness or numbness in legs or feet.
- Loss of bladder or bowel control.

*Any of these signs/symptoms may be caused by cancer or by other less serious health problems. If you have any of these signs/symptoms, see your healthcare provider.*

## Prostate Cancer Screening Discussion

No organizations presently endorse routine prostate cancer screening for men at average risk because of concerns about the high rate of over-diagnosis (detecting disease that would never have caused symptoms), along with the significant potential for serious side effects associated with prostate cancer treatment, such as incontinence and erectile dysfunction.

The **American Cancer Society (ACS)** recommends that men have a chance to make an informed decision with their healthcare provider about whether to be screened for prostate cancer. The decision should be made after getting information about the uncertainties, risks, and potential benefits of prostate cancer screening. **Men should not be screened unless they have received this information.** The discussion about screening should take place at: **age 50 for men who are at average risk** of prostate cancer and are expected to live at least 10 years or longer, **age 45 for men at high risk** of developing prostate cancer – including Black men and men who have a first-degree relative (father or brother) diagnosed with prostate cancer at an early age (younger than age 65), and **age 40 for men at even higher risk** (those with more than one first-degree relative who had prostate cancer at an early age).

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## Prostate Cancer Screening Discussion (continued)

After this discussion, men who want to be screened should be tested with the Prostate-Specific Antigen (PSA) blood test. A digital rectal exam (DRE) may also be done as a part of screening.

The **U.S. Preventive Services Task Force (USPSTF)** recommends that for men **55 to 69 years old**, the decision to receive PSA-based screening should be an individual one and should include discussion with their clinician about the potential benefits and harmful effects of screening. Clinicians should not screen men who do not express a preference for screening. The USPSTF recommends **against** PSA-based screening for prostate cancer in men **70 years old and older**.

**Table 2. Prevalence of Men (Age 40+) who Reported Having Had a Conversation with Their Healthcare Provider About the Advantages and/or Disadvantages of Prostate-Specific Antigen (PSA) Testing, Ohio, 2020**

Demographic Characteristics	Prevalence (%)	95% Confidence Interval
<b>Total</b>	43.7	41.6 – 45.7
<b>Age</b>		
40-44	7.1	3.9 – 10.3
45-54	28.1	24.1 – 32.1
55-64	49.7	45.9 – 53.5
65+	63.3	60.2 – 66.5
<b>Race/Ethnicity</b>		
White, Non-Hispanic	44.9	42.8 – 47.1
Black, Non-Hispanic	42.8	34.9 – 50.7
Hispanic	25.2	13.7 – 36.8
Other, Non-Hispanic	23.8	11.3 – 36.4
Multiracial	56.0	41.7 – 70.3
<b>Annual Household Income</b>		
<\$15,000	33.3	25.6 – 41.1
\$15,000-\$24,999	36.6	31.1 – 42.1
\$25,000-\$34,999	53.1	45.9 – 60.2
\$35,000-\$49,999	41.8	36.1 – 47.4
\$50,000-\$74,999	42.5	37.2 – 47.9
\$75,000+	46.8	43.1 – 50.4
<b>Education</b>		
Less than High School	33.0	25.5 – 40.5
High School Diploma	37.7	34.5 – 41.0
Some College	46.0	42.0 – 50.0
College Graduate	53.0	49.6 – 56.4

In 2020, 43.7% of Ohio men 40 years of age and older reported ever having a conversation with their doctor, nurse, or other health professional about the advantages and/or disadvantages of prostate-specific antigen (PSA) testing, compared with 44.0% of U.S. men.

### Discussions regarding prostate cancer screenings:

- Increased with advancing age – men 65 years old and older (63.3%) were nearly nine times more likely to have a discussion, compared with men 40-44 years of age (7.1%).
- Were significantly lower among Hispanic men (25.2%) and other, non-Hispanic men (23.8%), compared with white, non-Hispanic men (44.9%), and multi-racial men (56.0%).
- Were significantly higher among men with an annual household income of \$75,000 or more, compared with men earning less than \$25,000 per year.
- Increased with increasing education – 33.0% of men with less than a high school education had a discussion about the advantages and/or disadvantages of PSA testing, compared with 53.0% of men with a college degree.

Source: 2020 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2022.



## Prostate-Specific Antigen (PSA) Testing

The PSA test measures the level of PSA in the blood. PSA is a substance made mostly by the prostate that may be found in an increased amount in the blood of men who have prostate cancer. The level of PSA may also be high in men who have an infection or inflammation of the prostate or benign prostatic hyperplasia (BPH – an enlarged, but noncancerous, prostate). A PSA test or a digital rectal exam (DRE) may be able to detect prostate cancer at an early stage, but it is not clear whether early detection and treatment decrease the risk of dying from prostate cancer.

## Prevalence of PSA Testing

**Table 3. Prevalence of Men (Age 40+) who Reported Having Had a Prostate-Specific Antigen (PSA) Test in the Past Two Years by Demographics, Ohio, 2020**

Demographic Characteristics	Prevalence (%)	95% Confidence Interval
<b>Total</b>	32.0	30.1 - 33.9
<b>Age</b>		
40-49	6.4	4.0 - 8.7
50-59	28.1	24.4 - 31.8
60-64	40.9	35.7 - 46.1
65+	49.4	46.1 - 52.8
<b>Race/Ethnicity</b>		
White, non-Hispanic	34.0	31.9 - 36.0
Black, non-Hispanic	21.7	14.8 - 28.5
Hispanic	*	*
Other, non-Hispanic	*	*
Multiracial, non-Hispanic	56.5	40.1 - 72.8
<b>Annual Household Income</b>		
<\$15,000	15.0	9.7 - 20.2
\$15,000-\$24,999	26.6	21.2 - 31.9
\$25,000-\$34,999	35.8	29.0 - 42.5
\$35,000-\$49,999	35.5	30.1 - 40.9
\$50,000-\$74,999	31.0	26.1 - 35.8
\$75,000+	34.6	31.2 - 38.1
<b>Education</b>		
Less than High School	18.4	12.6 - 24.2
High School Diploma	27.5	24.4 - 30.6
Some College	35.4	31.5 - 39.3
College Graduate	39.3	36.0 - 42.7

Source: 2020 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2022.

\* Estimate does not meet the reliability criteria for reporting set by the CDC.

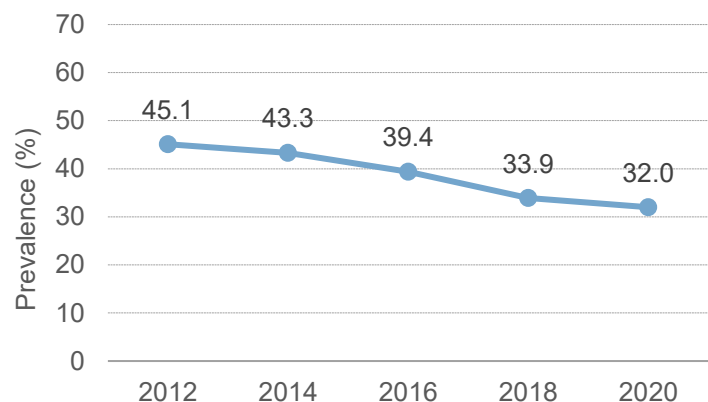
In 2020, 32.0% of Ohio men (age 40+) reported having had a PSA test in the past two years, compared with 31.8% of U.S. men (Table 3).

### The prevalence of having had a PSA test in Ohio was:

- Highest among men 65 years old and older (49.4%).
- Significantly higher among multiracial, non-Hispanic men (56.5%) than white, non-Hispanic men (34.0%) and Black, non-Hispanic men (21.7%).
- Lowest for those with an income of less than \$15,000 per year (15.0%).
- Highest for college graduates (39.3%).

Trends in PSA testing among men 40 years old and older decreased from 2012 (45.1%) to 2020 (32.0%) (Figure 9).

**Figure 9. Trends in PSA Testing by Year, Ohio, 2012-2020**



Source: Ohio Behavioral Risk Factor Surveillance System, Prevalence & Trends Data, Centers for Disease Control and Prevention (CDC), 2022.

## Gleason Score and Grade Group

A cancer's grade describes how normal or abnormal cancer cells look under a microscope. The **Gleason scoring** system is used to grade prostate cancer. The Gleason score is based on biopsy samples taken from the prostate. The pathologist checks the samples to see how similar the tumor tissue looks to normal prostate tissue. Both a primary and a secondary pattern of tissue organization are identified. The primary pattern represents the most common tissue pattern seen in the tumor, and the secondary pattern represents the next most common pattern. For example, if the Gleason score is written as 3 + 4, it means most of the tumor is grade 3 and less is grade 4. The two grades are then added to give a Gleason score.

The [American Joint Committee on Cancer](#) recommends grouping Gleason scores into the following categories:

- Gleason 2–6: Tumor tissue is well differentiated (looks more like normal cells).
- Gleason 7: Tumor tissue is moderately differentiated.
- Gleason 8–10: Tumor tissue is poorly differentiated or undifferentiated.

Physicians use **Grade Groups** to classify prostate cancer ranging from 1 (most favorable) to 5 (least favorable):

Grade Group 1 = Gleason score of 6 (or less).

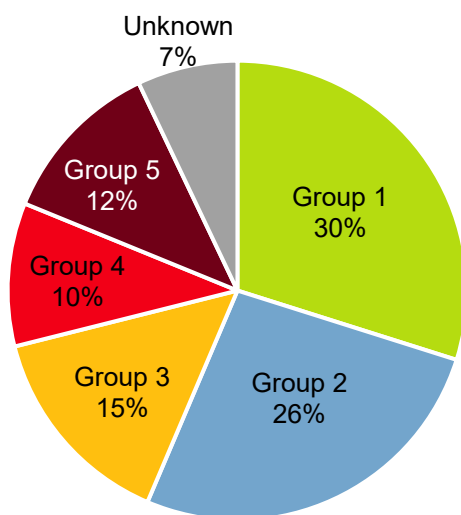
Grade Group 2 = Gleason score of 3+4=7.

Grade Group 3 = Gleason score of 4+3=7.

Grade Group 4 = Gleason score of 8.

Grade Group 5 = Gleason score of 9 or 10.

**Figure 10. Proportion of Prostate Cancer Cases (%) by Clinical Grade Group, Ohio, 2018-2019**



For prostate cancer cases diagnosed in Ohio in 2018 and 2019:

- 30% were classified as Grade Group 1 (low-grade prostate cancer).
- 26% were classified as Grade Group 2.
- 15% were classified as Grade Group 3.
- 10% were classified as Grade Group 4.
- 12% were classified as Grade Group 5 (high-grade prostate cancer).
- 7% were in the Unknown/Grade cannot be assessed category (Figure 10).

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.

## Treatment

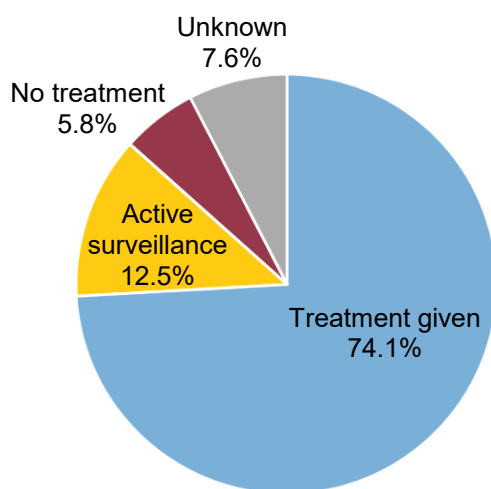
Different types of treatment are available for prostate cancer. Some common treatments are:

- **Active surveillance:** Closely monitoring the prostate cancer by performing PSA tests and prostate biopsies regularly and treating the cancer only if it grows or causes symptoms.
- **Watchful waiting:** No tests are done. Symptoms are treated when they develop. Usually recommended for men who are expected to live for 10 more years or less.
- **Surgery:** A *prostatectomy* is an operation in which the prostate is removed. Radical prostatectomy removes the prostate as well as the surrounding tissue.
- **Radiation therapy:** Using high-energy rays (similar to X-rays) to kill the cancer. There are two types:
  - **External radiation therapy:** A machine outside the body directs radiation at the cancer cells.
  - **Internal radiation therapy (brachytherapy):** Radioactive seeds or pellets are surgically placed into or near the cancer to destroy the cancer cells.

Other therapies used in the treatment of prostate cancer that are still under investigation include:

- **Cryotherapy:** Placing a special probe inside or near the prostate cancer to freeze and kill the cancer cells.
- **Chemotherapy:** Using special drugs to shrink or kill the cancer. The drugs can be pills or medicines given through veins.
- **Biological therapy:** Works with the body's immune system to help it fight cancer or to control side effects from other cancer treatments.
- **High-intensity focused ultrasound:** This therapy directs high-energy sound waves (ultrasound) at the cancer to kill cancer cells.
- **Hormone therapy:** Blocks cancer cells from getting the hormones they need to grow.

**Figure 11. Summary of First Course of Treatment Status for Prostate Cancer, Ohio, 2015-2019**



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2022.

In Ohio in 2015-2019, treatment was given in 74.1% of prostate cancer cases, while 12.5% of cases were monitored through active surveillance or watchful waiting. In 5.8% of cases, no treatment was given, and in 7.6% of cases, it was unknown if treatment was given (Figure 11). These data are based on initiated first course of treatment only; treatments planned but not yet started at the time of reporting to the Ohio Cancer Incidence Surveillance System are not included.

Among all the therapies used in the first course of treatment for prostate cancer (more than one type of therapy in some cases), 45% were surgeries, 23% involved radiation treatments, and 29% included hormone therapies. Chemotherapy and biological therapy made up 2% and 1% of the total therapies respectively (not shown). Among surgeries, most (79%) involved radical and total prostatectomy, where the prostate is removed (not shown).

## Technical Notes

**Age-adjusted rate:** A summary rate that is a weighted average of age-specific rates, where the weights represent the age distribution of a standard population (direct adjustment). The incidence and mortality rates presented in this report were standardized to the age distribution of the 2000 U.S. Standard Population. Under the direct method, the population was first divided into 19 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 standard population proportion for the respective age group.

**Average annual number:** The number of cases or deaths diagnosed per year, on average, for the time period of interest (e.g., 2015-2019). Average annual numbers are calculated by summing the number of cases or deaths for a given time period, dividing by the number of years that comprise the time period, and rounding to the nearest whole number.

**Census data:** The 2000-2019 rates were calculated using population estimates from the U.S. Census Bureau and National Center for Health Statistics. Population data were compiled from revised bridged-race intercensal population estimates for July 1, 2000 to July 1, 2004 (released Oct. 26, 2012); revised bridged-race intercensal population estimates for July 1, 2005 to July 1, 2009 (released June 26, 2014); and vintage 2020 bridged-race postcensal population estimates for July 1, 2010 to July 1, 2020 (released Sept. 22, 2021).

**Incidence:** The number of cases diagnosed during a specified time period (e.g., 2015-2019). Prostate cancer cases were defined as follows: International Classification of Diseases for Oncology, Third Edition (ICD-O-3), code C619.

**Invasive cancer:** A malignant tumor that has infiltrated the organ in which the tumor originated. Invasive cancers consist of those diagnosed at the local, regional, distant, and unstaged/unknown stages. Only invasive cancers were included in the calculation of incidence rates in this report.

**Mortality:** The number of deaths during a specified time period (e.g., 2015-2019). Prostate cancer deaths were defined as follows: International Statistical Classification of Diseases and Related Health Problems, Tenth Edition (ICD-10), codes C610-C619 for 1999-2019.

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

**Rate:** The number of cases or deaths per unit of population (e.g., per 100,000 persons) during a specified time period (e.g., 2015-2019). Rates may be unstable and are not presented when the count is less than five for incidence and 10 for mortality.

**Relative survival:** The percentage of people who are alive at a designated time period (usually five years) after a cancer diagnosis divided by the percentage expected to be alive in the absence of cancer based on normal life expectancy.

**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.
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**Table 4. Average Annual Number and Age-Adjusted Rates of Prostate Cancer Cases and Deaths per 100,000 Males by County of Residence, Ohio and the United States, 2015-2019**

	Incidence		Mortality			Incidence		Mortality	
	Cases	Rate	Deaths	Rate		Cases	Rate	Deaths	Rate
<b>Ohio</b>	<b>8,293</b>	<b>112.5</b>	<b>1,192</b>	<b>19.4</b>	Lawrence	42	102.8	9	25.3
<b>U.S.</b>		<b>112.7</b>		<b>18.9</b>	Licking	128	114.9	15	17.9
Adams	17	90.1	3	20.2	Logan	33	101.8	4	15.8
Allen	91	137.2	12	21.5	Lorain	254	121.9	30	17.5
Ashland	41	114.3	5	16.4	Lucas	324	123.0	44	20.8
Ashtabula	65	93.3	11	18.8	Madison	32	116.4	5	22.6
Athens	34	103.8	3	10.2	Mahoning	182	108.2	26	17.7
Auglaize	36	116.7	5	19.9	Marion	41	90.1	6	14.3
Belmont	53	104.7	9	21.1	Medina	169	138.8	18	18.3
Brown	24	77.1	5	18.7	Meigs	17	100.1	3	20.6
Butler	185	84.9	33	19.3	Mercer	34	122.7	5	21.2
Carroll	25	113.4	3	15.3	Miami	64	89.0	11	18.9
Champaign	27	100.2	3	13.6	Monroe	15	121.4	1	*
Clark	86	92.5	14	17.5	Montgomery	341	101.9	61	20.8
Clermont	108	84.7	13	13.1	Morgan	10	84.0	2	19.7
Clinton	29	109.7	4	15.9	Morrow	27	109.2	4	20.1
Columbiana	69	88.3	11	15.8	Muskingum	70	123.4	11	23.7
Coshocton	26	99.8	3	14.6	Noble	11	58.3	2	16.6
Crawford	27	88.2	4	14.8	Ottawa	44	117.4	8	25.4
Cuyahoga	1059	133.5	167	23.7	Paulding	18	125.4	2	*
Darke	24	65.0	6	18.4	Perry	26	105.1	2	14.1
Defiance	33	123.3	3	13.2	Pickaway	32	90.1	3	10.7
Delaware	157	139.1	17	20.6	Pike	18	98.2	1	*
Erie	61	101.0	11	20.5	Portage	106	100.9	14	16.0
Fairfield	119	125.4	11	13.8	Preble	24	83.8	4	17.0
Fayette	17	92.9	3	19.8	Putnam	31	135.9	3	14.6
Franklin	844	139.4	88	18.9	Richland	99	118.8	18	24.4
Fulton	36	127.7	5	18.4	Ross	49	96.9	7	18.4
Gallia	22	108.5	2	11.9	Sandusky	47	110.9	6	16.2
Geauga	75	102.1	12	18.7	Scioto	45	92.0	8	18.8
Greene	106	100.2	16	18.0	Seneca	32	84.1	6	19.3
Guernsey	32	114.5	4	18.5	Shelby	22	71.9	6	23.2
Hamilton	548	117.6	83	21.3	Stark	287	112.2	45	19.7
Hancock	42	85.6	9	23.4	Summit	378	105.6	61	20.3
Hardin	18	94.0	1	*	Trumbull	143	94.9	24	18.1
Harrison	13	107.5	2	*	Tuscarawas	75	116.6	9	16.2
Henry	19	102.3	2	12.8	Union	33	108.0	5	21.7
Highland	31	110.7	4	17.8	Van Wert	25	131.4	4	23.6
Hocking	19	86.9	3	20.1	Vinton	9	89.5	1	*
Holmes	14	64.0	6	32.1	Warren	143	107.4	17	17.3
Huron	40	108.5	6	19.3	Washington	54	116.4	6	15.6
Jackson	21	96.1	3	21.8	Wayne	76	99.6	15	23.3
Jefferson	53	103.2	6	13.3	Williams	21	84.2	4	17.5
Knox	49	120.7	8	21.3	Wood	90	122.8	10	17.3
Lake	166	101.3	26	17.9	Wyandot	13	80.1	2	*

Source: Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics, Ohio Department of Health, 2022; Surveillance, Epidemiology and End Results (SEER) Program, National Cancer Institute, 2022.

## Sources of Data and Additional Information

**Ohio Cancer Incidence Surveillance System:**

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

**Ohio Public Health Data Warehouse:**

<https://publicapps.odh.ohio.gov/EDW/DataCatalog/>

**National Cancer Institute:**

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

**American Cancer Society:**

<https://www.cancer.org/cancer/prostate-cancer.html>

**Centers for Disease Control and Prevention:**

[https://www.cdc.gov/cancer/prostate/basic\\_info/treatment.htm](https://www.cdc.gov/cancer/prostate/basic_info/treatment.htm)

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