

# Testicular Cancer in Ohio 2023

July 2023

## Key Findings and Populations at High Risk

- An average of 305 cases of testicular cancer were diagnosed each year in Ohio in 2016-2020.
- The testicular cancer incidence rate in Ohio was 5.7 per 100,000 males, compared with the national rate of 6.0 per 100,000 males in 2016-2020.
- In both Ohio and the United States, White men had the highest incidence of testicular cancer.
- An average of 14 deaths from testicular cancer occurred each year in Ohio in 2016-2020.
- The testicular cancer mortality rate in Ohio and in the United States was 0.3 per 100,000 males in 2016-2020.
- Testicular cancer was most frequently diagnosed among Ohio men 20 to 34 years old.
- In Ohio from 1996 to 2020, testicular cancer incidence rates were slightly variable.
- Counties with small populations displayed a wide variation in testicular cancer incidence rates, while rates among counties with large populations were less variable.
- The five-year relative survival for testicular cancer in Ohio is estimated at 95.7%, based on cases diagnosed from 2013 to 2019.
- In Ohio, seminomas accounted for 53% of testicular cancer cases from 2016 to 2020.

## Incidence and Mortality

Testicular cancer is cancer that forms in tissues of one or both testicles. Testicular cancer is rare, representing 0.5% of all new cancer cases in the United States.

Among Ohio men, testicular cancer made up 0.9% of newly diagnosed (incidence) cancer cases reported to the Ohio Cancer Incidence Surveillance System (OCISS) from 2016 to 2020. An average of 305 cases of testicular cancer were diagnosed annually in Ohio during this period (Table 1). The average annual age-adjusted incidence rate of testicular cancer in Ohio was 5.7 cases per 100,000 males, compared with the national incidence rate of 6.0 per 100,000 males.

Incidence rates differed by race/ethnicity and age group in 2016-2020; for example, the testicular cancer incidence rate was about four times higher among White men than Black men in Ohio during this time period. In contrast to other types of cancer, the incidence of testicular cancer is higher among men younger than 65 years old.

An average of 14 deaths from testicular cancer occurred each year in Ohio in 2016-2020 (Table 1). Ohio's average annual age-adjusted testicular cancer mortality rate was 0.3 per 100,000 males, the same as the U.S. mortality rate for this cancer.

**Table 1. Average Annual Number of Testicular Cancer Cases and Deaths and Age-Adjusted Incidence and Mortality Rates per 100,000 Males by Race/Ethnicity and Age Group, Ohio, and the United States, 2016-2020**

		Incidence			Mortality		
		Ohio Cases	Ohio Rate	U.S. Rate	Ohio Deaths	Ohio Rate	U.S. Rate
Total		305	5.7	6.0	14	0.3	0.3
Race/Ethnicity	White	283	6.4	7.0	13	0.3	0.3
	Black	12	1.7	1.6	1	*	0.1
	A/PI	3	1.4	2.3	0	*	0.1
	Hispanic	7	2.9	5.9	1	*	0.3
Age Group	<65	295	6.4	6.6	13	0.3	0.3
	65+	10	1.1	1.2	2	N/A	0.3

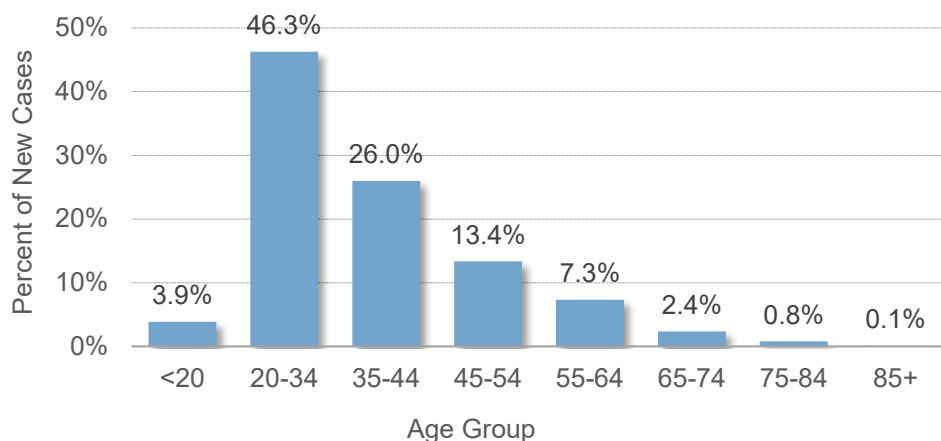
Sources: Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics, Ohio Department of Health, 2023; Surveillance, Epidemiology and End Results (SEER) Program, National Cancer Institute, 2023.

A/PI = Asian/Pacific Islander.

\* Rate not calculated when the death count for 2016-2020 is less than 10.

## Incidence by Age Group

**Figure 1. Percent of Testicular Cancer Cases by Age Group, Ohio, 2016-2020**

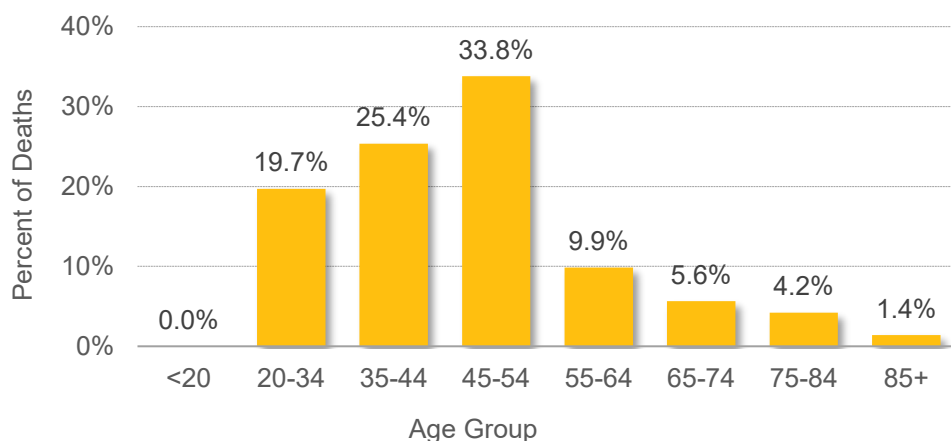


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Figure 1 shows that testicular cancer was most frequently diagnosed among men in the 20-34 age group in Ohio during 2016-2020 and then decreased in each subsequent age group. This pattern is similar to the distribution of testicular cancer cases nationally, where the median age at diagnosis was 32 years old, according to data from the National Cancer Institute.

## Mortality by Age Group

**Figure 2. Percent of Testicular Cancer Deaths by Age Group, Ohio, 2016-2020**

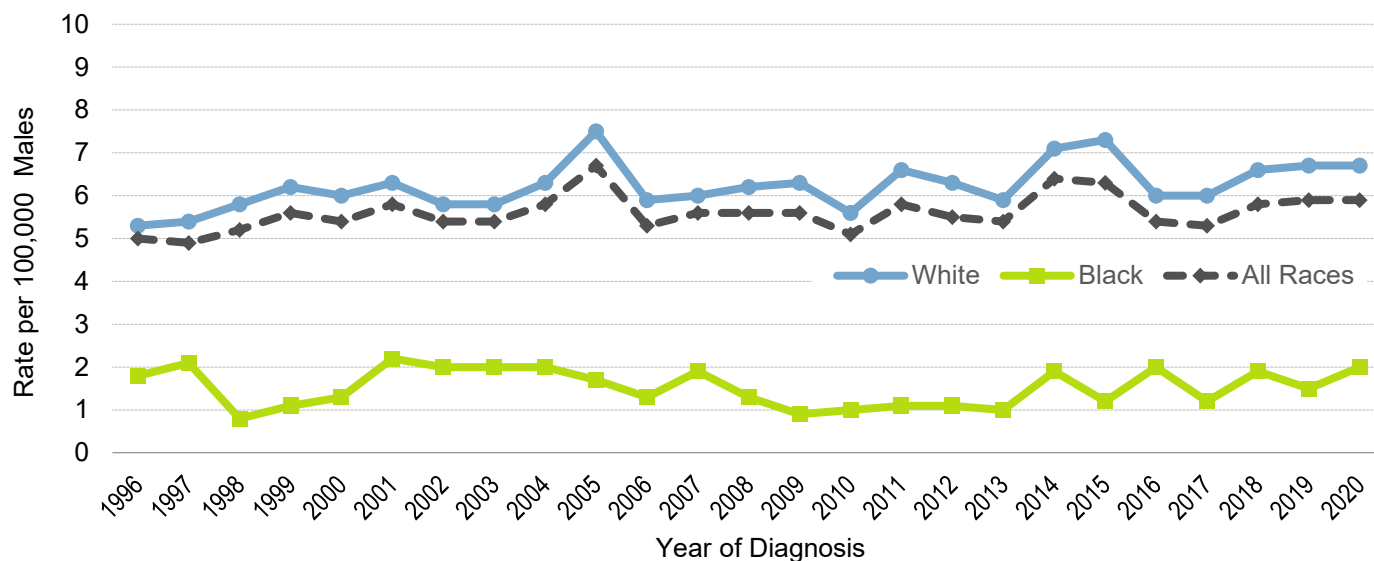


Source: Bureau of Vital Statistics, Ohio Department of Health, 2023.

In Ohio, the percent of testicular cancer deaths was highest among men 45-54 years old during 2016-2020 (Figure 2). In contrast, testicular cancer deaths were highest among men 20 to 34 years old in the United States during that same period. The difference is likely due to the small number of overall testicular cancer deaths (71) in the state during this five-year period.

## Trends in Incidence

**Figure 3. Trends in Age-Adjusted Incidence Rates of Testicular Cancer per 100,000 Males by Race, Ohio, 1996-2020**



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

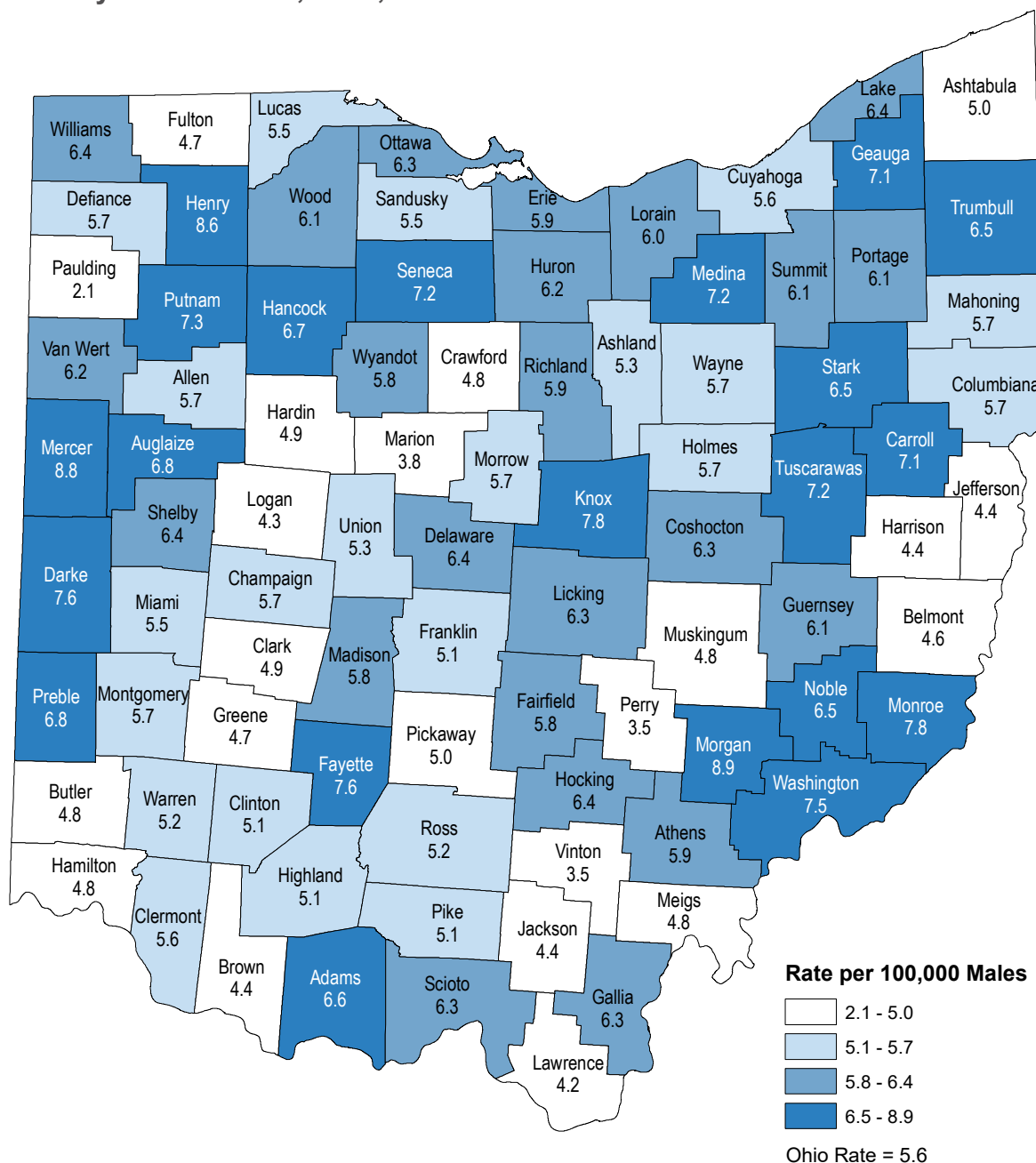
Note: Incidence rates for Asians/Pacific Islanders and Hispanics are unstable due to low numbers and are therefore not presented.

Figure 3 shows incidence rates of testicular cancer in Ohio according to year of diagnosis (1996 to 2020) by race. During this 25-year period, overall testicular cancer incidence rates were slightly variable. For each year, White men had a higher testicular cancer incidence rate than Black men. In the United States, age-adjusted rates for new testicular cancer cases rose on average 0.7% each year from 2010 to 2019.

## Incidence by County

Figure 4 shows 1996-2020 average annual age-adjusted testicular cancer incidence rates by county of residence. County-specific incidence rates in Ohio ranged from 2.1 to 8.9 per 100,000 males during this 25-year period, compared with Ohio's rate of 5.6 per 100,000 males. Counties with small populations (less than 200,000 residents) displayed a wide variation in testicular cancer incidence rates (2 to 9 per 100,000 males), while rates among counties with large populations were less variable and tended to fall between 5 to 6 cases per 100,000 males.

**Figure 4. Average Annual Age-Adjusted Incidence Rates of Testicular Cancer per 100,000 Males by County of Residence, Ohio, 1996-2020**



Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.  
Each category represents approximately 25% of the 88 Ohio counties.

## 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 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. The five-year relative survival for testicular cancer in Ohio is estimated at 95.7%, based on cases diagnosed from 2013 to 2019.

## Types

Almost all testicular cancers start in the germ cells. The two main types of testicular germ cell tumors are seminomas and non-seminomas. These two types grow and spread differently and are treated differently. Non-seminomas tend to grow and spread more quickly than seminomas. Seminomas are more sensitive to radiation. A testicular tumor that contains both seminoma and non-seminoma cells is treated as a non-seminoma. In Ohio, seminomas accounted for 53% of testicular cancer cases from 2016 to 2020, while non-seminomas accounted for 47% of cases.

## 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 testicular cancer:

- **Age:** About half of all testicular cancers occur in men between the ages of 20 and 34.
- **Race:** Risk of testicular cancer is higher among White men than Black men and Asian/Pacific Islanders.
- **Family history:** Risk is higher among men with a family history of testicular cancer, particularly if a father or brother has had testicular cancer.
- **Cryptorchidism:** This condition, in which the testicles do not descend into the scrotum before birth, increases risk.
- **Personal history:** A man who has developed cancer in one testicle has increased risk of developing cancer in the other one.

## Signs and Symptoms

Testicular cancer may cause the following signs and symptoms:

- A painless lump or swelling in either testicle.
- A change in how the testicle feels.
- A dull ache in the lower abdomen or groin.
- A sudden build-up of fluid in the scrotum.
- Pain or discomfort in a testicle or in the scrotum.

*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.*

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## Treatment

Depending on the type and stage of the cancer and other factors, treatment options for testicular cancer can include:

- Surgery.
- Radiation therapy.
- Chemotherapy.
- Surveillance (closely following a patient's condition without treatment unless there are changes in test results).
- High-dose chemotherapy followed by stem cell transplant.

## 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., 2016-2020). 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 1996-2020 rates were calculated using population estimates from the U.S. Census Bureau and National Center for Health Statistics. Population data were compiled from bridged-race intercensal population estimates for July 1, 1990-July 1, 1999 (released July 26, 2004); 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., 2016-2020). Testicular cancer cases were defined as follows: International Classification of Diseases for Oncology, Third Edition (ICD-O-3), codes C62.0-C62.9, excluding histology types 9050-9055, 9140, and 9590-9992.

**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., 2016-2020). Testicular cancer deaths were defined as follows: International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> Edition (ICD-10), codes C62.0-C62.9.

**Rate:** The number of cases or deaths per unit of population (e.g., per 100,000 persons) during a specified time period (e.g., 2016-2020). 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.

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## 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/testicular>

**American Cancer Society:**

<https://www.cancer.org/cancer/types/testicular-cancer.html>

**To address comments and information requests:**

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