

Liver and IBD Cancer in Ohio 2023

October 2023

Key Findings

- An average of **1,201** cases of liver and IBD cancer were diagnosed each year in Ohio during 2016-2020.
- The liver and IBD cancer incidence rate in Ohio was 7.6 per 100,000 population, compared with 9.3 per 100,000 nationally from 2016 to 2020.
- Liver and IBD cancer occurs more than 2.5 times as often in males than in females.
- Black Ohioans had a liver and IBD cancer incidence rate 60% higher than White Ohioans.
- Liver and IBD cancer was most frequently diagnosed among people 65-74 years old.
- Liver and IBD cancer incidence rates tripled for both males and females from 1996 to 2019.
- Incidence rates for liver and IBD cancer tended to be higher in southern counties and in counties with large cities.
- In Ohio, 42% of liver and IBD cancers were diagnosed at an early (local stage).
- Five-year relative survival for Ohio patients with liver and IBD cancer is approximately 21% overall.
- The most common type of primary liver cancer in adults is hepatocellular carcinoma (HCC).

New Cases

Liver and intrahepatic bile duct cancer (hereafter, referred to as liver and IBD cancer) made up 1.7% of newly diagnosed (incidence) cancer cases in Ohio reported to the Ohio Cancer Incidence Surveillance System (OCISS) from 2016 to 2020. An average of 1,201 cases of liver and IBD cancer were diagnosed annually in Ohio during this period (Table 1). The average annual age-adjusted liver and IBD cancer incidence rate in Ohio was 7.6 cases per 100,000 population, compared with the national incidence rate of 9.3 per 100,000. In Ohio, the liver and IBD cancer incidence rate among males was more than 2.5 times higher than the rate among females, and 60% higher among Black people than White people.

Deaths

An average of 986 deaths from liver and IBD cancer occurred each year in Ohio from 2016 to 2020 (Table 1). Ohio's average annual age-adjusted liver and IBD cancer mortality rate was 6.2 per 100,000 population, compared with the U.S. mortality rate of 6.6 per 100,000. The mortality rate among males was more than double the rate among females in Ohio and the United States during this period.

Table 1. Average Annual Number of Invasive Liver and IBD Cancer Cases and Deaths and Age-Adjusted Incidence and Mortality Rates per 100,000 Population by Sex, Race, Ethnicity, and Age Group, Ohio and the United States, 2016-2020

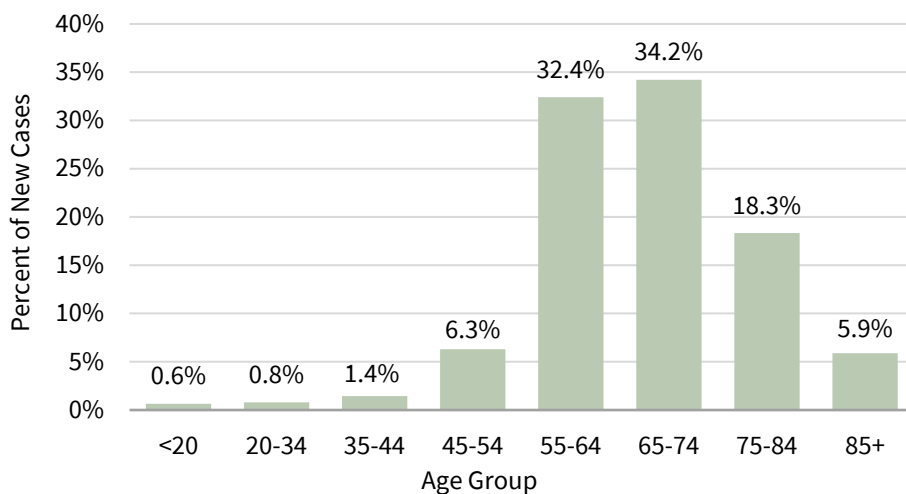
		New Cases			Deaths		
		Ohio		U.S.	Ohio		U.S.
		Cases	Rate	Rate	Deaths	Rate	Rate
Total		1,201	7.6	9.3	986	6.2	6.6
Sex	Male	833	11.3	14.1	651	9.0	9.6
	Female	368	4.4	5.2	336	4.0	4.1
Race	White	970	7.0	8.8	799	5.8	6.3
	Black	197	11.5	10.4	164	9.8	8.1
	A/PI	23	9.6	11.7	16	7.4	8.3
Ethnicity	Hispanic	23	8.4	14.9	19	7.3	9.2

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.

Incidence by Age Group

In Ohio, from 2016-2020, liver and IBD cancer was most frequently diagnosed among people in the 65-74 age group (34.2%). Only 9% of liver and IBD cancers were diagnosed before age 55 (Figure 1).

Figure 1. Percent of New Liver and IBD Cancer Cases by Age Group, Ohio, 2016-2020

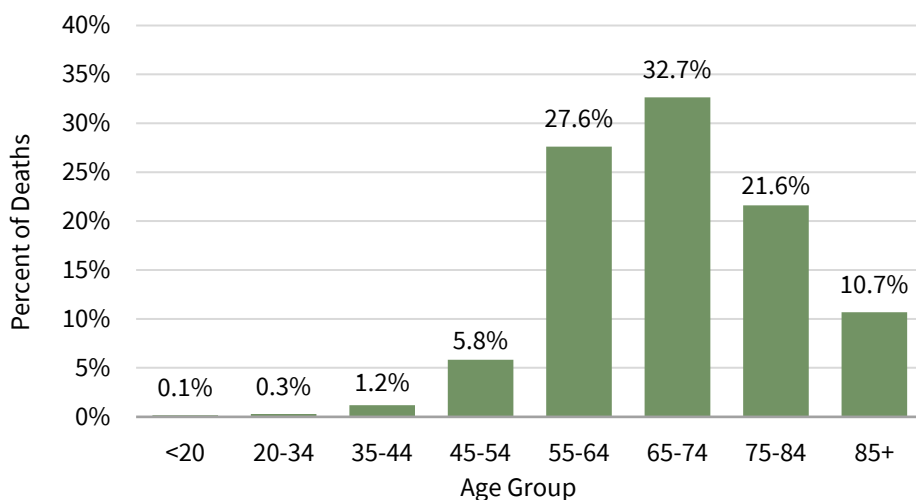


Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023.

Mortality by Age Group

The percentage of liver and IBD cancer deaths in Ohio was highest among people in the 65-74 age group from 2016-2020 (Figure 2).

Figure 2. Percent of Liver and IBD Cancer Deaths by Age Group, Ohio, 2016-2020

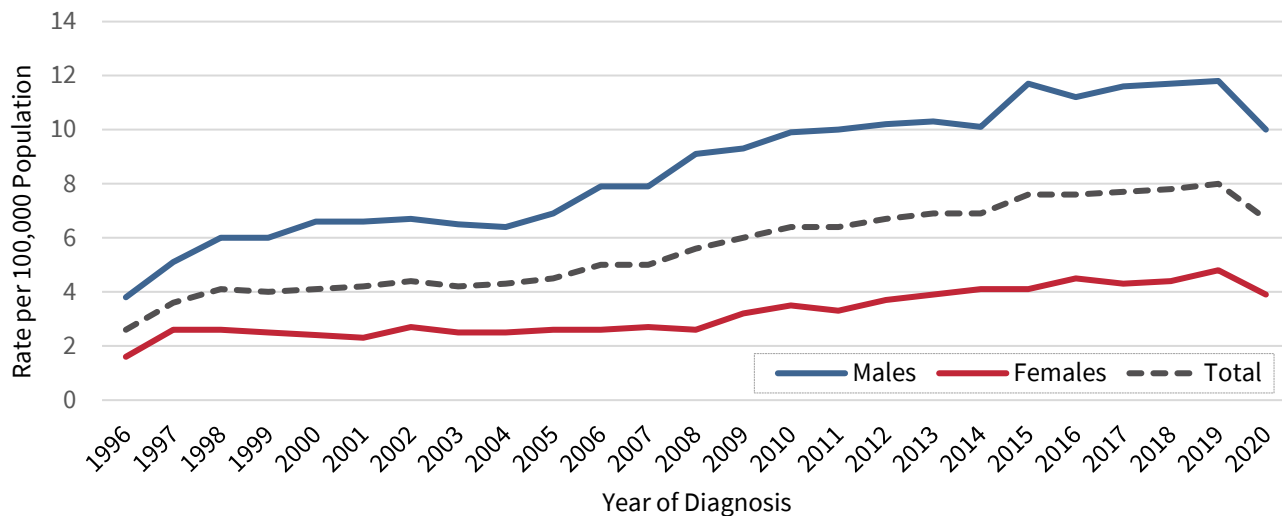


Source: Bureau of Vital Statistics, Ohio Department of Health, 2023.

Trends in Rates

Figure 3 shows incidence rates of liver and IBD cancer based on year of diagnosis (1996 through 2020) for males and females in Ohio. For each year, the incidence rate was higher among Ohio males, compared with females. Liver and IBD cancer incidence rates tripled for both males and females from 1996 to 2019 in Ohio. However, incidence rates decreased sharply in 2020, likely due to the COVID-19 pandemic, which disrupted health services, leading to delays and reductions in cancer screening, diagnosis, and reporting of data. A goal of the *Ohio Comprehensive Cancer Control Plan 2021-2030* is to reduce the incidence rate of liver cancer to 6.5 per 100,000 people by 2025 and to 5.8 per 100,000 people by 2030.

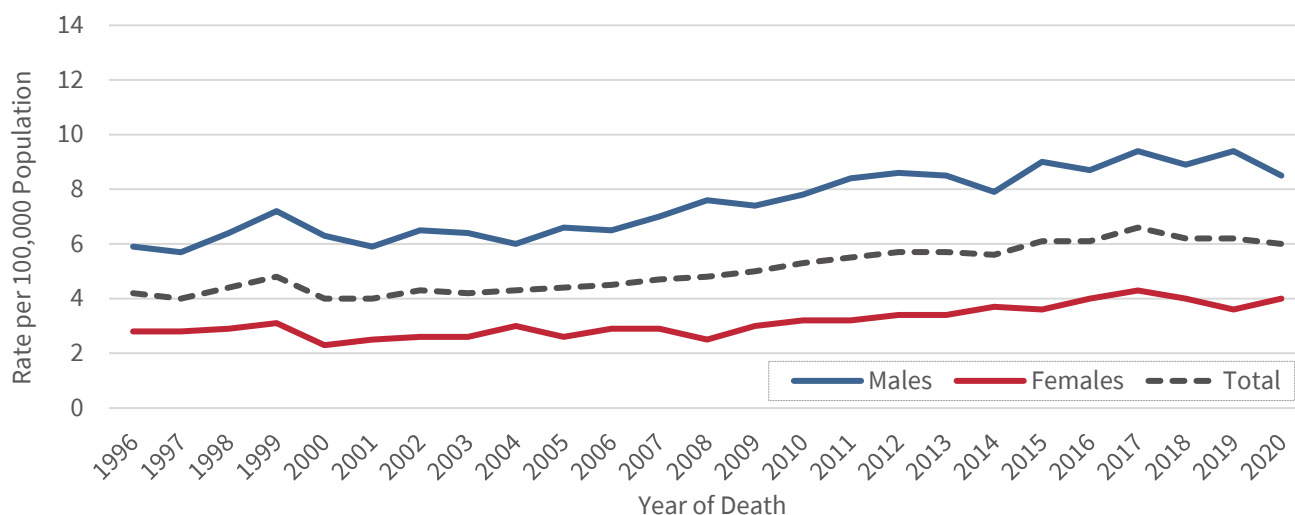
Figure 3. Trends in Age-Adjusted Incidence Rates of Liver and IBD Cancer per 100,000 Population by Sex, Ohio, 1996-2020



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

Figure 4 shows liver and IBD cancer mortality rates in Ohio according to year of death (1996 through 2020) for males and females. For each year, the mortality rate was higher among Ohio males, compared with females. In Ohio, liver and IBD cancer mortality rates increased by 40% for both males and females individually and combined from 1996 to 2020.

Figure 4. Trends in Age-Adjusted Mortality Rates of Liver and IBD Cancer per 100,000 Population by Sex, Ohio, 1996-2020

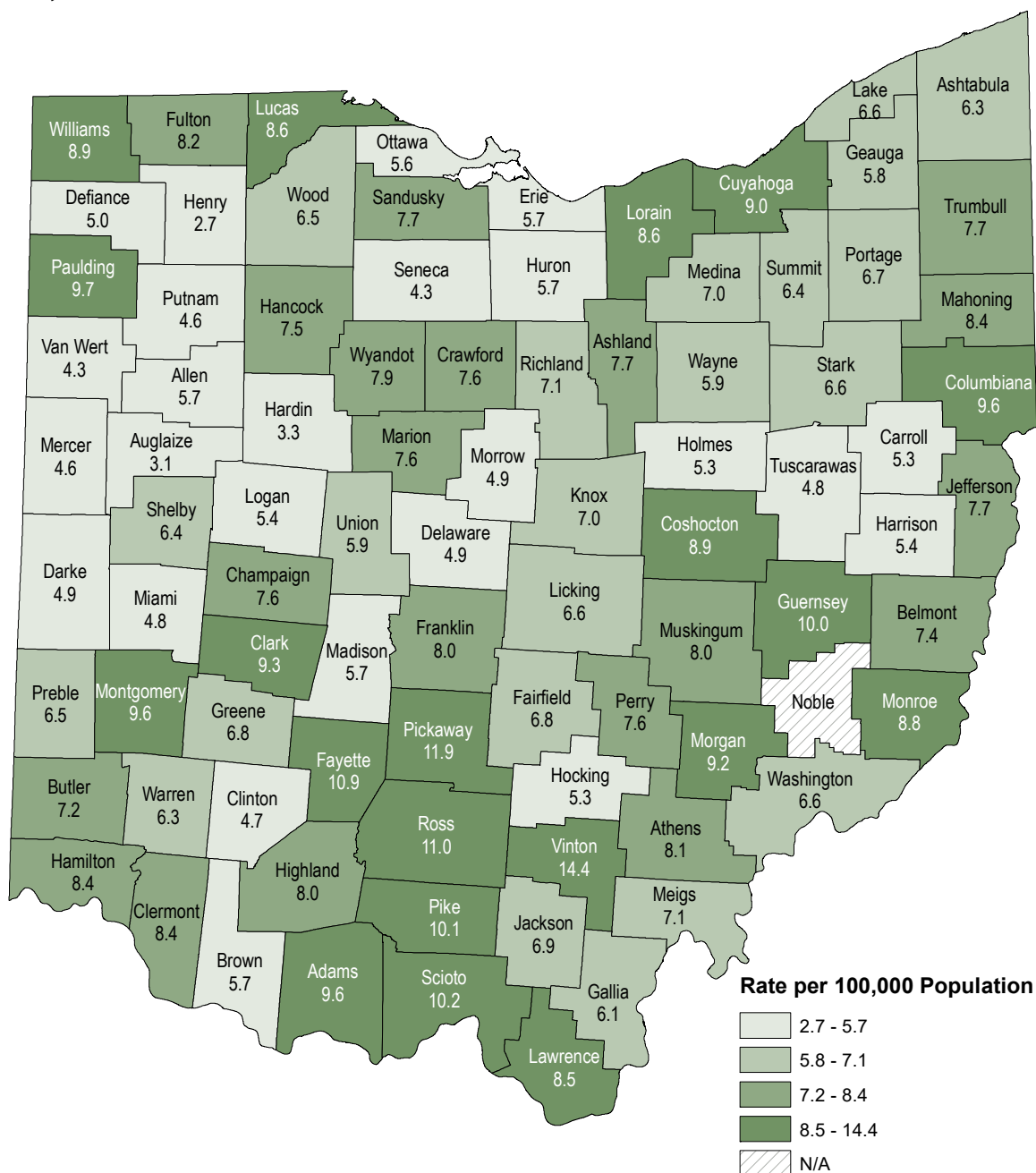


Source: Bureau of Vital Statistics, Ohio Department of Health, 2023.

Incidence by County

Figure 5 shows 2016-2020 average annual age-adjusted liver and IBD cancer incidence rates by county of residence. County liver and IBD cancer incidence rates in Ohio ranged from 2.7 to 14.4 per 100,000 population, compared with Ohio's rate of 7.6 per 100,000. Incidence rates for liver and IBD cancer tended to be higher in southern counties and in counties with large cities.

Figure 5. Average Annual Age-Adjusted Incidence Rates of Liver and IBD Cancer per 100,000 Population by County of Residence, Ohio, 2016-2020



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

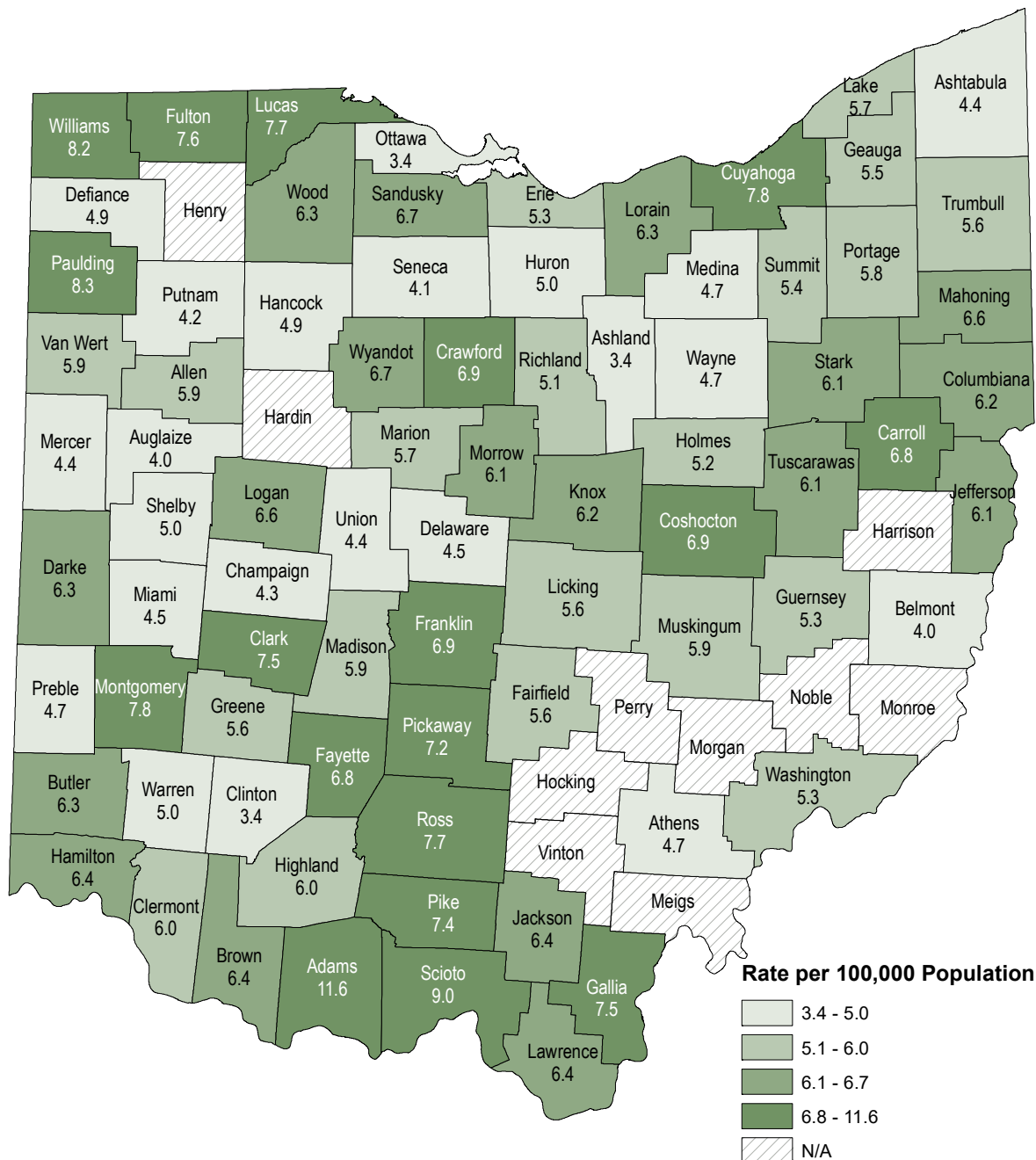
Each category represents approximately 25% of the 88 Ohio counties.

N/A: Rate not calculated when the case count for 2016-2020 is less than five (i.e., the average annual count is less than one).

Mortality by County

Figure 6 shows 2016-2020 average annual age-adjusted liver and IBD cancer mortality rates by county of residence. County liver and IBD cancer mortality rates in Ohio ranged from 3.4 to 11.6 per 100,000 population, compared with Ohio's rate of 6.2 per 100,000. Mortality rates for liver and IBD cancer tended to be higher in southern counties and in counties with large cities.

Figure 6. Average Annual Age-Adjusted Mortality Rates of Liver and IBD Cancer per 100,000 Population by County of Residence, Ohio, 2016-2020



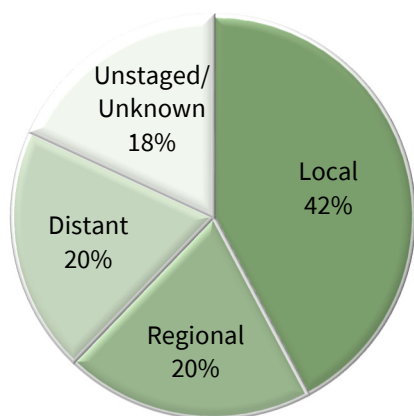
Source: Bureau of Vital Statistics, Ohio Department of Health, 2023.

N/A: Rate not calculated when the death count for 2016-2020 is less than 10 (i.e., the average annual count is less than two).

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. Non-invasive cancers that have not penetrated surrounding tissue are *in situ* stage. If a malignant tumor is confined to the organ in which it originated, it is localized (local stage). In the regional stage, the tumor has spread to surrounding organs, tissues, or regional lymph nodes. In the distant stage, the malignancy has spread, or metastasized, to distant organs, tissues, or lymph nodes remote from the primary tumor. *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 Liver and IBD Cancer Cases (%) by Stage at Diagnosis, Ohio, 2016-2020

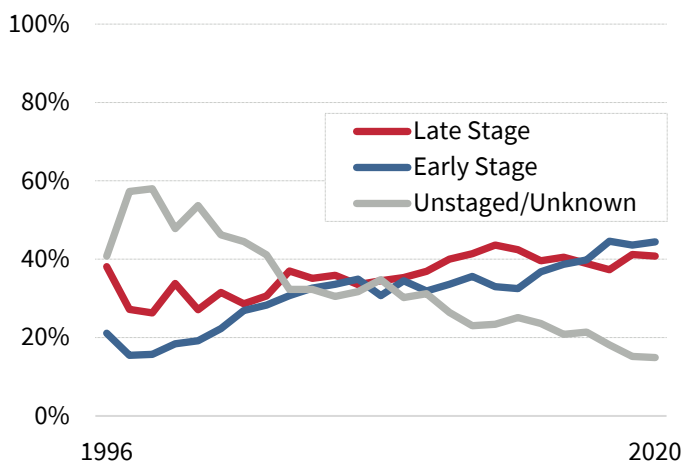


- In Ohio in 2016-2020, 42% of cancer cases were diagnosed at a local stage, 20% at a regional stage, 20% at a distant (latest) stage, and 18% were unstaged/unknown stage (Figure 7). There were very few (less than 1%) *in situ* cases (not shown).

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

Stage Trends

Figure 8. Trends in Liver and IBD Cancer by Stage Group, Ohio, 1996-2020



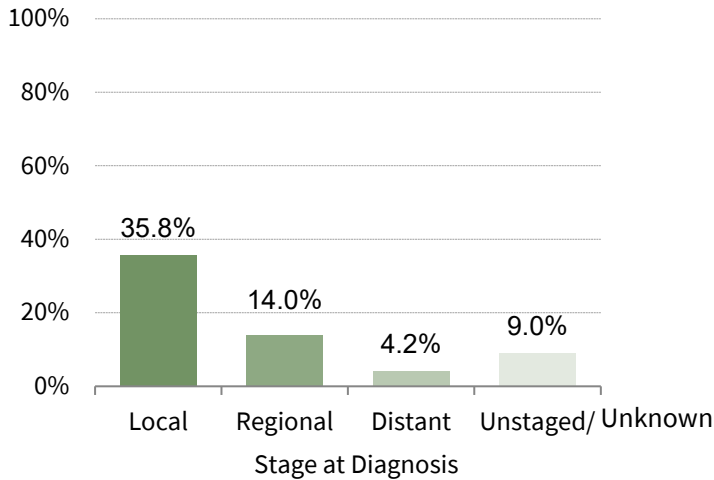
- In Ohio, there was a decrease in the proportion of liver and IBD cancers with an unstaged/unknown stage and a corresponding increase in early-stage diagnoses from 1996 to 2020.
- There was an increasing trend in late-stage diagnoses of liver and IBD cancer in Ohio from 1996 to 2020.
- A goal of the *Ohio Comprehensive Cancer Control Plan 2021-2030* is to reduce the percentage of Ohioans diagnosed with late-stage liver cancer to 36.8% in 2025 and 33.3% in 2030.

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

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 population who are the same age, race, and sex, and who have not been diagnosed with cancer. Overall, only one in five people survive beyond five years with this cancer.

Figure 9. Five-Year Relative Survival (%) by Stage at Diagnosis for Liver and IBD Cancer, Ohio, 2013-2019

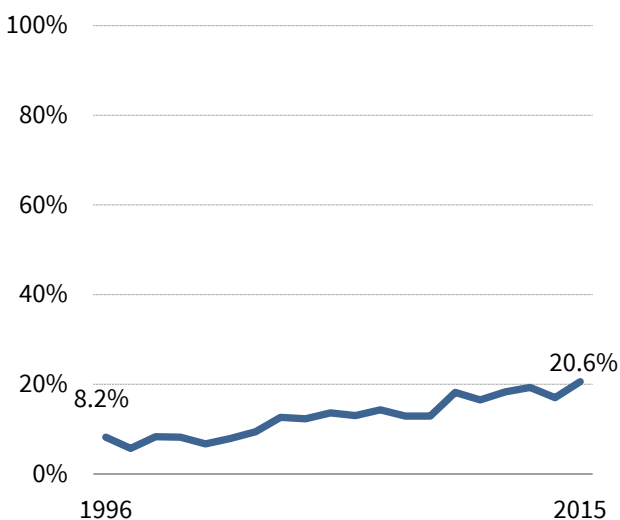


- In Ohio, the five-year relative survival for liver and IBD cancer patients diagnosed in 2013-2019 was 20.9% for all stages combined (not shown), 35.8% among those diagnosed at a local stage, 14.0% at a regional stage, 4.2% when the cancer was diagnosed at a distant stage, and 9.0% for unstaged/unknown stage cases (Figure 9).

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

Survival Trends

Figure 10. Trend in Five-Year Relative Survival (%) for Liver and IBD Cancer, Ohio, 1996-2015



- As shown in Figure 10, there was an improvement in five-year relative survival for liver and IBD cancer in Ohio from 1996 (8.2%) to 2015 (20.6%).

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

Types of Liver and IBD Cancer

Cancer that starts in the liver is called primary liver cancer. The most common type of primary liver cancer in adults is hepatocellular carcinoma (HCC). This type of liver cancer is the third leading cause of cancer-related deaths worldwide. Bile duct cancer, also called cholangiocarcinoma, is cancer that starts in the bile ducts, which are tubes that connect the liver and gallbladder to the small intestine. Cancer that forms in the bile ducts inside the liver is called intrahepatic bile duct cancer.

- During 2016-2020 in Ohio, the proportions of these two major types of liver and IBD cancer were: 67% hepatocellular carcinoma (806 cases per year) and 25% cholangiocarcinoma (301 cases per year).

Risk Factors

Many risk factors have been associated with liver cancer. Not everyone with one or more of these risk factors will develop the disease, and the disease will develop in some people who don't have any known risk factors. Risk factors include the following:

- **Hepatitis B virus (HBV) infection:** HBV can be transmitted in blood, semen, or other body fluids. The infection can be passed from mother to child during childbirth, through sexual contact, or by sharing needles that are used to inject drugs. It can cause inflammation (swelling) of the liver that leads to cancer. Routine HBV vaccination in infancy is reducing the incidence of HBV infection. Chronic HBV infection is the leading cause of liver cancer in Asia and Africa.
- **Hepatitis C virus (HCV) infection:** HCV can be transmitted in the blood. The infection can be spread by sharing needles that are used to inject drugs or, less often, through sexual contact. In the past, it was also spread during blood transfusions or organ transplants. Today, blood banks test all donated blood for HCV, which greatly lowers the risk of getting the virus from blood transfusions. HCV can cause cirrhosis that may lead to liver cancer. Chronic HCV infection is the leading cause of liver cancer in North America, Europe, and Japan.
- **Cirrhosis:** The risk of developing liver cancer is increased for people who have cirrhosis, a disease in which healthy liver tissue is replaced by scar tissue. The scar tissue blocks the flow of blood through the liver and keeps it from working as it should. Chronic alcoholism and chronic hepatitis infections are common causes of cirrhosis. People with HCV-related cirrhosis have a higher risk of developing liver cancer than people with cirrhosis related to HBV or alcohol use.
- **Heavy alcohol use:** Heavy alcohol use can cause cirrhosis, which is a risk factor for liver cancer. Liver cancer can also occur in heavy alcohol users who do not have cirrhosis. Heavy alcohol users who have cirrhosis are 10 times more likely to develop liver cancer, compared with heavy alcohol users who do not have cirrhosis. Studies have shown there is also an increased risk of liver cancer in people with HBV or HCV infection who use alcohol heavily.
- **Aflatoxin B1:** The risk of developing liver cancer may be increased by eating foods that contain aflatoxin B1 (poison from a fungus that can grow on foods, such as corn and nuts, that have been stored in hot, humid places). It is most common in sub-Saharan Africa, Southeast Asia, and China.
- **Nonalcoholic steatohepatitis (NASH):** NASH is a condition that can cause cirrhosis that may lead to liver cancer. It is the most severe form of nonalcoholic fatty liver disease, where there is an abnormal amount of fat in the liver. In some people, this can cause inflammation and injury to the cells of the liver. Having NASH-related cirrhosis increases the risk of developing liver cancer. Liver cancer has also been found in people with NASH who do not have cirrhosis.
- **Cigarette smoking:** Cigarette smoking has been linked to a higher risk of liver cancer. The risk increases with the number of cigarettes smoked per day and the number of years the person has smoked.
- **Other conditions:** Certain rare medical and genetic conditions may increase the risk of liver cancer. These conditions include the following:

- Untreated hereditary hemochromatosis.
 - Alpha-1 antitrypsin deficiency.
 - Glycogen storage disease.
 - Porphyria cutanea tarda.
 - Wilson disease.
- **Obesity:** Being overweight or having obesity are linked with a higher risk of getting 13 types of cancer, including liver cancer.



Did You Know?

- Liver cancer can be caused by a long-term infection with hepatitis B virus or hepatitis C virus. The risk of getting hepatitis B and hepatitis C is particularly high among people who inject drugs. But there are ways to lower the risk of liver cancer:
 - Getting vaccinated is the best way to prevent hepatitis B.
 - Hepatitis C infections can be cured with safe and effective treatments.
- It is estimated that more than 2 million people in the United States have hepatitis C, which if left untreated, often leads to serious and sometimes deadly outcomes such as liver cancer and liver failure. A [report](#)* from the Centers for Disease Control and Prevention suggests the majority of people with hepatitis C still have not been cured nearly a decade after breakthrough treatments that clear the viral infection were first approved.
 - **The U.S. Preventive Services Task Force (USPSTF) now recommends screening for hepatitis C virus infection in adults aged 18 to 79 years.**

* Hepatitis C Virus Clearance Cascade — United States, 2013–2022.

Signs and Symptoms

Some of the more common signs and symptoms of liver and IBD cancer include:

- A hard lump on the right side just below the rib cage.
- Discomfort in the upper abdomen on the right side.
- A swollen abdomen.
- Pain near the right shoulder blade or in the back.
- Jaundice (yellowing of the skin and whites of the eyes).
- Easy bruising or bleeding.
- Unusual tiredness or weakness.
- Nausea and vomiting.
- Loss of appetite or feelings of fullness after eating a small meal.
- Weight loss for no known reason.
- Pale, chalky bowel movements and dark urine.
- Fever.

Other conditions may cause similar signs or symptoms. If you have any of these signs/symptoms, see your healthcare provider.

Screening

Although there is no standard or routine screening test for liver cancer, the following tests are being used or studied: ultrasound, CT scan (CAT scan or computed tomography), and tumor markers such as alpha-fetoprotein.

Content presented in the *Liver Cancer Risk Factors* (with the exception of obesity), *Signs and Symptoms*, and *Screening* sections were originally published by the National Cancer Institute.

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. Using 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; revised bridged-race intercensal population estimates for July 1, 2000-July 1, 2004 (Oct. 26, 2012); revised bridged-race intercensal population estimates for July 1, 2005-July 1, 2009 (released June 26, 2014), and vintage 2020 bridged-race postcensal population estimates for July 1, 2010-July 1, 2020 (released Sept. 22, 2021).

Incidence: The number of cases diagnosed during a specified time period (e.g., 2016-2020). Liver and IBD cancer cases were defined as follows: International Classification of Diseases for Oncology, Third Edition (ICD-O-3), codes C22.0 and C22.1.

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 document.

Mortality: The number of deaths during a specified time period (e.g., 2016-2020). Liver and IBD cancer deaths were defined as follows: International Statistical Classification of Diseases and Related Health Problems, Ninth Edition (ICD-9), codes 155.0-155.2 for 1996-1998 and International Statistical Classification of Diseases and Related Health Problems, Tenth Edition (ICD-10), codes C22.0-C22.9 for 1999-2020.

Rate: The number of cases or deaths per unit of population (e.g., per 100,000 population) during a specified time period (e.g., 2016-2020). Rates may be unstable and are not presented when the count is less than five (incidence) or 10 (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. In this report, five-year relative survival is based on Ohio cancer cases diagnosed from 2013-2019 with follow-up through December 2020.

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.

Table 2. Average Annual Number of Invasive Liver and IBD Cancer Cases and Age-Adjusted Incidence Rates per 100,000 Population by County of Residence and Sex, Ohio, 2016-2020

	Male		Female		Total			Male		Female		Total	
	Cases	Rate	Cases	Rate	Cases	Rate		Cases	Rate	Cases	Rate	Cases	Rate
Ohio	833	11.3	368	4.4	1,201	7.6	Lawrence	6	14.2	2	3.6	7	8.5
U.S.		14.1		5.2		9.3	Licking	10	9.1	5	4.3	15	6.6
Adams	3	13.4	1	5.9	4	9.6	Logan	2	7.8	1	3.2	4	5.4
Allen	6	9.5	2	2.5	8	5.7	Lorain	23	11.5	14	6.1	37	8.6
Ashland	4	11.2	2	4.9	6	7.7	Lucas	36	13.6	13	4.3	49	8.6
Ashtabula	6	8.9	3	4.1	9	6.3	Madison	3	9.1	<1	*	3	5.7
Athens	4	15.5	1	3.0	5	8.1	Mahoning	22	12.5	10	4.9	31	8.4
Auglaize	2	4.4	<1	*	2	3.1	Marion	5	11.0	2	4.3	7	7.6
Belmont	5	11.1	3	4.3	8	7.4	Medina	12	9.6	6	4.6	18	7.0
Brown	2	7.9	1	3.9	3	5.7	Meigs	2	10.4	<1	*	3	7.1
Butler	23	10.6	11	4.4	33	7.2	Mercer	2	5.8	1	3.5	3	4.6
Carroll	2	8.1	<1	*	2	5.3	Miami	4	5.9	3	3.6	8	4.8
Champaign	3	11.0	1	4.8	4	7.6	Monroe	1	11.1	<1	*	2	8.8
Clark	12	13.6	6	5.7	18	9.3	Montgomery	52	15.5	19	4.8	71	9.6
Clermont	17	13.1	6	4.5	23	8.4	Morgan	2	13.2	<1	*	2	9.2
Clinton	3	8.7	<1	*	3	4.7	Morrow	2	7.5	<1	*	3	4.9
Columbiana	10	14.1	5	5.4	14	9.6	Muskingum	7	12.6	2	4.1	10	8.0
Coshocton	3	10.8	2	7.1	5	8.9	Noble	<1	*	<1	*	<1	*
Crawford	3	8.3	2	7.1	5	7.6	Ottawa	3	7.9	1	3.3	4	5.6
Cuyahoga	112	14.0	50	5.0	162	9.0	Paulding	1	10.6	1	8.7	2	9.7
Darke	2	6.5	2	3.5	4	4.9	Perry	3	11.1	<1	*	3	7.6
Defiance	2	8.2	<1	*	3	5.0	Pickaway	6	17.7	3	6.6	9	11.9
Delaware	7	7.1	3	3.1	11	4.9	Pike	3	13.7	1	6.8	4	10.1
Erie	5	9.3	2	2.4	6	5.7	Portage	9	9.4	4	4.3	13	6.7
Fairfield	9	9.4	5	4.5	14	6.8	Preble	3	9.4	1	4.1	4	6.5
Fayette	3	18.9	<1	*	4	10.9	Putnam	2	7.6	<1	*	2	4.6
Franklin	76	11.8	35	4.8	111	8.0	Richland	9	10.9	4	3.8	13	7.1
Fulton	3	11.9	1	5.0	4	8.2	Ross	7	13.2	5	9.4	12	11.0
Gallia	2	9.4	<1	*	3	6.1	Sandusky	5	11.9	1	3.9	6	7.7
Geauga	5	6.7	3	5.0	8	5.8	Scioto	8	16.7	3	5.0	11	10.2
Greene	11	10.4	5	3.9	15	6.8	Seneca	2	5.7	1	2.8	4	4.3
Guernsey	4	15.3	1	5.3	6	10.0	Shelby	3	9.6	1	3.2	4	6.4
Hamilton	66	13.8	22	3.8	88	8.4	Stark	24	9.5	12	4.2	36	6.6
Hancock	6	13.1	1	2.6	8	7.5	Summit	34	9.3	16	4.1	50	6.4
Hardin	<1	*	<1	*	1	3.3	Trumbull	18	11.9	7	4.2	25	7.7
Harrison	1	7.5	<1	*	1	5.4	Tuscarawas	4	6.4	3	3.3	7	4.8
Henry	<1	*	<1	*	1	2.7	Union	2	5.7	2	6.1	4	5.9
Highland	3	10.2	2	6.1	5	8.0	Van Wert	1	7.2	<1	*	2	4.3
Hocking	1	6.0	1	4.4	2	5.3	Vinton	2	19.3	<1	*	3	14.4
Holmes	2	7.9	<1	*	3	5.3	Warren	12	9.3	5	3.6	17	6.3
Huron	3	7.7	1	3.8	4	5.7	Washington	5	10.3	2	3.4	6	6.6
Jackson	1	7.0	2	7.3	3	6.9	Wayne	6	7.6	4	4.5	9	5.9
Jefferson	5	9.1	3	6.5	8	7.7	Williams	3	13.5	1	5.4	5	8.9
Knox	4	10.2	2	4.1	6	7.0	Wood	7	9.4	4	4.2	11	6.5
Lake	17	10.4	7	3.6	24	6.6	Wyandot	2	10.9	1	5.4	3	7.9

Source: Ohio Cancer Incidence Surveillance System, Ohio Department of Health, 2023; Surveillance, Epidemiology and End Results (SEER) Program, National Cancer Institute, 2023.

*Rate not presented when the count for 2016-2020 is less than five (i.e., the average annual count is less than one).

Table 3. Average Annual Number of Liver and IBD Cancer Deaths and Age-Adjusted Mortality Rates per 100,000 Population by County of Residence and Sex, Ohio, 2016-2020

	Male		Female		Total			Male		Female		Total	
	Deaths	Rate	Deaths	Rate	Deaths	Rate		Deaths	Rate	Deaths	Rate	Deaths	Rate
Ohio	651	9.0	336	4.0	986	6.2	Lawrence	4	9.3	<2	*	5	6.4
U.S.	9.6		4.1		6.6		Licking	8	7.7	5	3.9	13	5.6
Adams	2	12.7	<2	*	4	11.6	Logan	3	9.3	<2	*	4	6.6
Allen	5	7.6	3	4.4	8	5.9	Lorain	18	8.8	10	4.2	28	6.3
Ashland	2	6.1	<2	*	3	3.4	Lucas	30	11.4	14	4.6	44	7.7
Ashtabula	4	6.5	<2	*	6	4.4	Madison	<2	*	<2	*	3	5.9
Athens	3	9.1	<2	*	3	4.7	Mahoning	18	10.5	7	3.4	24	6.6
Auglaize	2	6.5	<2	*	3	4.0	Marion	4	9.4	<2	*	5	5.7
Belmont	3	5.7	<2	*	4	4.0	Medina	7	6.1	4	3.3	11	4.7
Brown	3	10.0	<2	*	4	6.4	Meigs	<2	*	<2	*	<2	*
Butler	19	9.5	9	3.7	28	6.3	Mercer	<2	*	<2	*	2	4.4
Carroll	<2	*	<2	*	3	6.8	Miami	4	6.3	2	2.7	7	4.5
Champaign	<2	*	<2	*	2	4.3	Monroe	<2	*	<2	*	<2	*
Clark	10	11.4	5	4.3	15	7.5	Montgomery	40	11.8	19	4.5	59	7.8
Clermont	11	8.3	6	4.1	17	6.0	Morgan	<2	*	<2	*	<2	*
Clinton	<2	*	<2	*	2	3.4	Morrow	<2	*	<2	*	3	6.1
Columbiana	7	9.0	3	3.8	10	6.2	Muskingum	5	8.3	2	3.8	7	5.9
Coshocton	2	8.1	<2	*	4	6.9	Noble	<2	*	<2	*	<2	*
Crawford	2	8.3	<2	*	4	6.9	Ottawa	2	5.3	<2	*	3	3.4
Cuyahoga	95	11.9	45	4.5	140	7.8	Paulding	<2	*	<2	*	2	8.3
Darke	2	6.6	3	6.0	5	6.3	Perry	<2	*	<2	*	<2	*
Defiance	<2	*	<2	*	3	4.9	Pickaway	4	12.9	<2	*	5	7.2
Delaware	5	4.8	5	4.3	10	4.5	Pike	<2	*	<2	*	3	7.4
Erie	5	8.3	<2	*	6	5.3	Portage	8	8.2	4	3.8	12	5.8
Fairfield	7	7.4	4	4.1	11	5.6	Preble	3	9.1	<2	*	3	4.7
Fayette	<2	*	<2	*	3	6.8	Putnam	<2	*	<2	*	2	4.2
Franklin	61	10.0	31	4.3	92	6.9	Richland	5	5.7	5	4.4	10	5.1
Fulton	3	11.6	<2	*	4	7.6	Ross	4	8.3	4	7.3	8	7.7
Gallia	2	11.7	<2	*	3	7.5	Sandusky	3	8.2	2	5.2	5	6.7
Geauga	5	6.7	3	4.7	8	5.5	Scioto	7	14.2	3	4.5	9	9.0
Greene	8	8.0	5	3.6	13	5.6	Seneca	2	6.5	<2	*	3	4.1
Guernsey	3	9.2	<2	*	3	5.3	Shelby	3	8.4	<2	*	4	5.0
Hamilton	45	9.5	22	3.9	67	6.4	Stark	21	8.3	13	4.3	34	6.1
Hancock	4	8.6	<2	*	5	4.9	Summit	28	7.8	14	3.4	42	5.4
Hardin	<2	*	<2	*	<2	*	Trumbull	13	8.6	5	3.3	18	5.6
Harrison	<2	*	<2	*	<2	*	Tuscarawas	5	7.9	3	4.7	9	6.1
Henry	<2	*	<2	*	<2	*	Union	<2	*	<2	*	3	4.4
Highland	2	8.6	<2	*	4	6.0	Van Wert	2	11.0	<2	*	3	5.9
Hocking	<2	*	<2	*	<2	*	Vinton	<2	*	<2	*	<2	*
Holmes	<2	*	<2	*	3	5.2	Warren	9	7.4	4	3.0	13	5.0
Huron	2	5.3	<2	*	4	5.0	Washington	4	9.2	<2	*	5	5.3
Jackson	<2	*	<2	*	3	6.4	Wayne	4	4.9	4	4.4	7	4.7
Jefferson	3	6.4	3	5.9	6	6.1	Williams	2	8.0	2	8.6	4	8.2
Knox	4	8.4	<2	*	5	6.2	Wood	7	9.0	3	4.1	10	6.3
Lake	14	9.1	6	3.0	20	5.7	Wyandot	<2	*	<2	*	2	6.7

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

*Rate not presented when the count for 2016-2020 is less than 10 (i.e., the average annual count is less than two).

Sources of Data and Additional Information

Ohio Cancer Incidence Surveillance System:

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

National Cancer Institute:

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

American Cancer Society:

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

Centers for Disease Control and Prevention:

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

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