

**Division of Chronic Disease. Primary Care,
and Rural Health**



Liver Cancer



Indiana
Department
of
Health



Bottom Line

Liver cancer in the U.S. has tripled since the 1980's. Incidence rates among women continue to rise but have stabilized among men since 2015.¹ There will be an estimated 41,630 new cases of liver cancer, including intrahepatic bile duct cancer (IHCC), in the U.S. in 2024, comprising of 28,000 males and 13,630 females. For the same year, 29,840 estimated deaths will occur, 19,120 in males and 10,720 in females.¹

These estimates place liver cancer in the tenth position of most common cancer sites in males, the fifth position of most common causes of cancer death in males, and the eighth most common causes of cancer death in females.¹ With a five-year survival of 22 percent, liver cancer is the second most lethal tumor, after pancreatic cancer.³ Both incidence and mortality rates in Indiana are greater in males than females, and are also greater in Blacks than white patients.⁴ Seventy-one percent of liver cell cancers are hepatocellular carcinoma (HCC), with IHCCs representing most of the remaining cancer types, usually arising from bile ducts within the liver.¹

Table 10. Burden of Invasive Liver and Intrahepatic Bile Duct Cancer- Indiana, 1987-2020*

Table 18. Indiana Cancer Survivor Counts*	
Cancer Type	Counts
Female Breast	92,873
Cervical	16,645
Colorectal	31,441
Lung	14,589
Melanoma	33,715
Prostate	53,085
All Types	394,096

Who Gets Liver Cancer?

- **Those infected with hepatitis B virus (HBV) and hepatitis C virus (HCV):** The most common risk factor for liver cancer is chronic infection with HBV or HCV. These infections can lead to cirrhosis of the liver, which makes liver cancer highly common across many parts of the world. HBV and HCV can spread from person to person through sharing contaminated needles, unprotected sex, or childbirth, and can also be passed through blood transfusions. However, this is less likely in the U.S. since the beginning of blood product testing for these viruses.
 - Most people exposed to HBV recover within a few months and only a small percentage of adults become chronic carriers. Infants and children who become infected have a higher risk of becoming lifetime carriers. Most people with HCV develop chronic infections, which are more likely to lead to liver damage or cancer. Baby boomers are more likely to have been afflicted with viral hepatitis and other chronic liver disorders, and thus are at increased risk for liver cancer.²
- **People with cirrhosis:** People living with cirrhosis of the liver are at a higher risk of developing liver cancer.
 - Cirrhosis of the liver is a disease in which liver cells become damaged and replaced by scar tissue. Most people who develop liver cancer have evidence of cirrhosis. There are



several possible causes of cirrhosis. Most cases occur in people who abuse alcohol or have chronic HBV or HCV infections. Individuals with the following diseases might go on to develop cirrhosis: non-alcoholic fatty liver disease, primary biliary cirrhosis, and inherited metabolic diseases.²

- **Heavy alcohol users:** Heavy alcohol use is the leading cause of cirrhosis in the U.S., which in turn is linked to an increased risk of liver cancer.²
- **Those who are overweight or obese:** Being overweight or obese increases the risk of developing liver cancer. This is likely because it can result from fatty liver disease and cirrhosis.²
- **People affected with these rare diseases:** Tyrosinemia, alpha1 antitrypsin deficiency, porphyria cutanea tarda, hemochromatosis, glycogen storage diseases, and Wilson disease.²
- **Those who have had long-term exposure to aflatoxins:** These cancer-causing substances are made by a fungus that contaminates peanuts, wheat, soybeans, ground nuts, corn, and rice. The fungus grows in a moist, warm environment, and is more common in tropical and warmer climate countries. Long-term exposure to these substances is a major risk factor for liver cancer. The risk is increased even more in people with HBV or HVC.²
- **Those who have been exposed to vinyl chloride and thorium dioxide:** Exposure to these chemicals increases the risk of angiosarcoma of the liver and also increases the risk of developing cholangiocarcinoma and hepatocellular cancer.²
- **Those who use anabolic steroids:** These male hormones are used by some athletes to increase their strength and muscle mass. Long-term anabolic steroid use can slightly increase the risk of hepatocellular cancer.²
- **Tobacco users:** Smoking increases the risk of liver cancer. Former smokers have a lower risk than current smokers, but both groups have a higher risk than those who never smoked.²
- **Differences in race and ethnicity:** Asian Americans and Pacific Islanders have the highest rates of liver cancer. This is followed by American Indians/Alaska Natives, Hispanics/Latinos, Blacks, and whites.²
- **Gender differences:** Hepatocellular carcinoma, the primary type of liver cancer, is much more common in males than in females.²

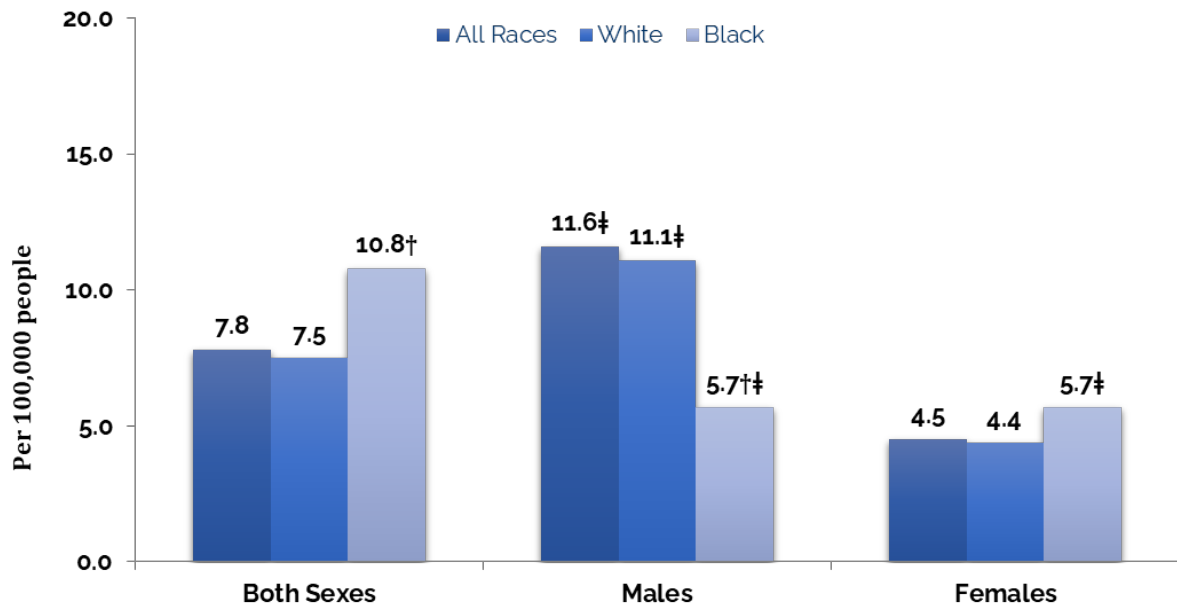
Risk Factors

Chronic liver disease is the dominant risk factor for the development of HCC.^{3,4} In most cases, chronic hepatitis and cirrhosis lead to long-term damage that increases risk over time. In the U.S., the most common underlying causes are chronic infection with HBV or HCV, alcohol-related liver damage, obesity, or diabetes.

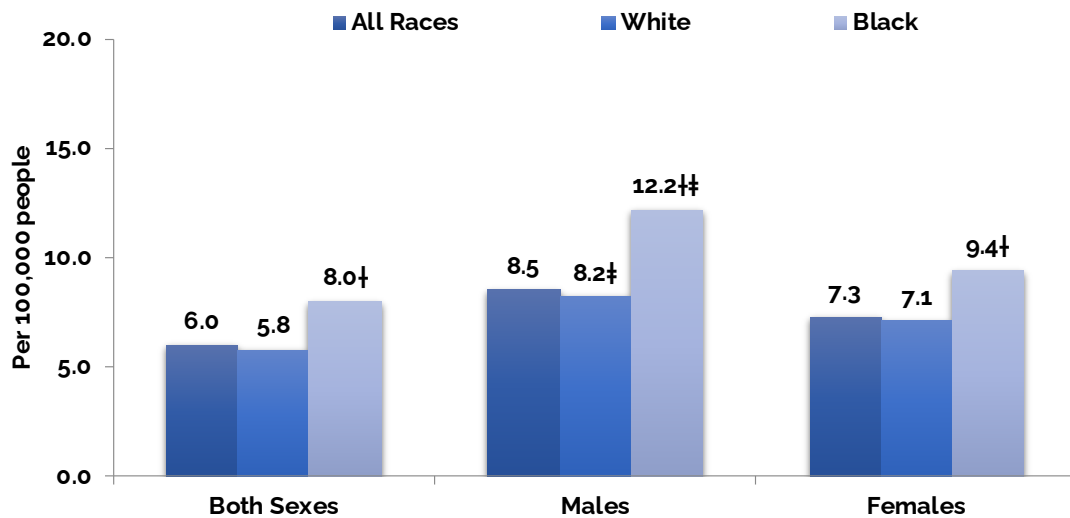
Another form of chronic liver disorder is non-alcoholic steatohepatitis (NASH) that is linked to obesity and other metabolic diseases. In the case of HBV infection, liver cancer can form with or without the presence of liver cirrhosis. Other rare causes of cirrhosis that increase risk include hemochromatosis and Wilson disease. Tobacco smoking has also been associated with an increased liver cancer risk.¹

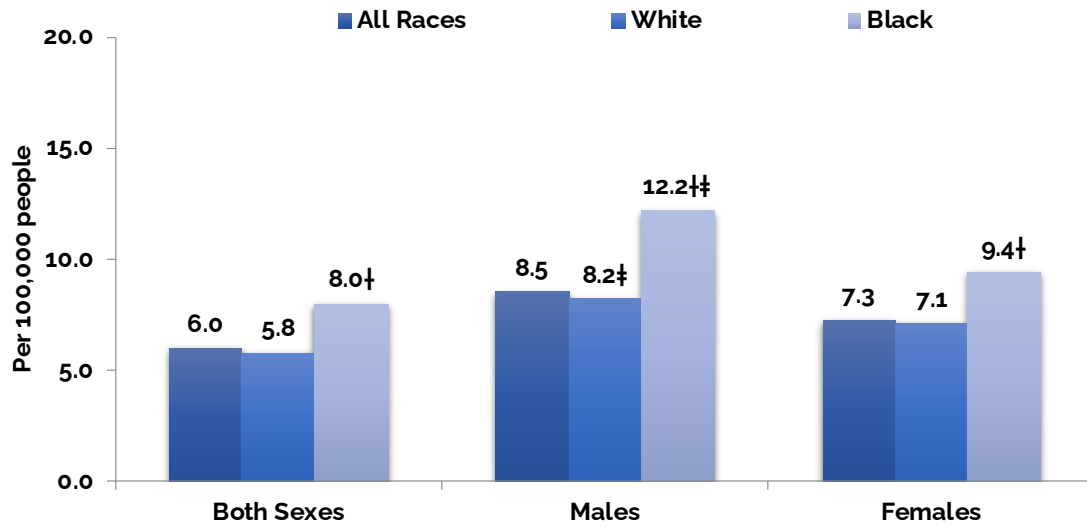
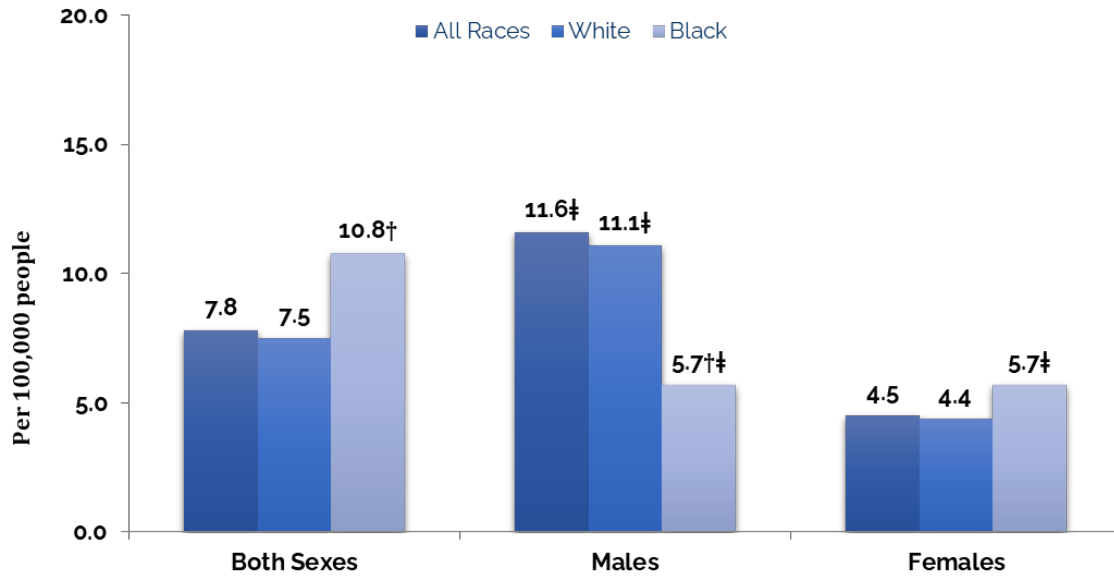


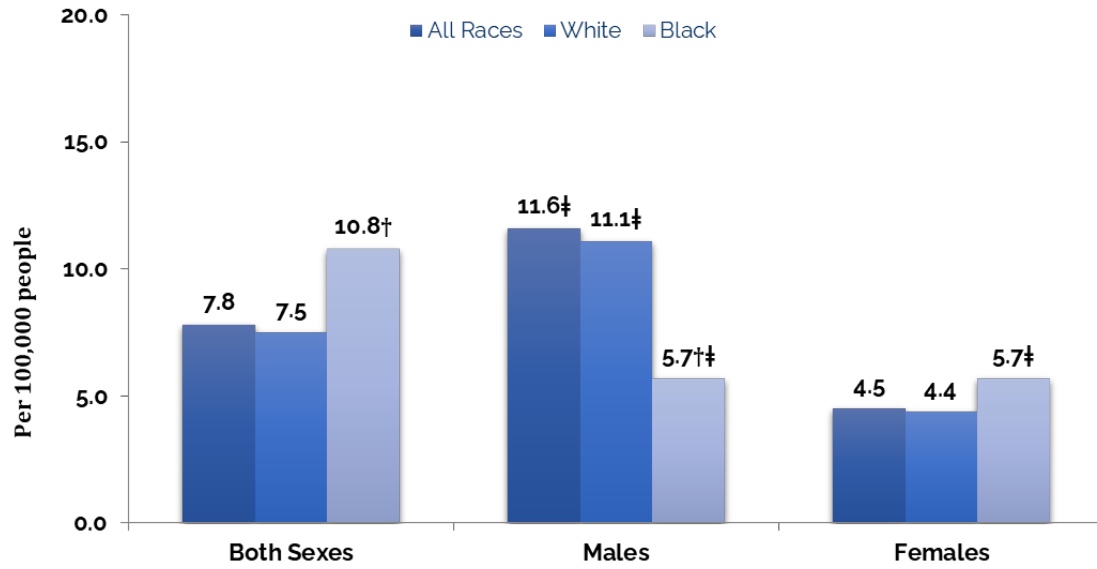
Figure 24. Liver and Intrahepatic Bile Duct Cancer Incidence (A) and Mortality (death) (B) Rates by Sex and Race* - Indiana, 2016-2020



A. Incidence







B. Mortality

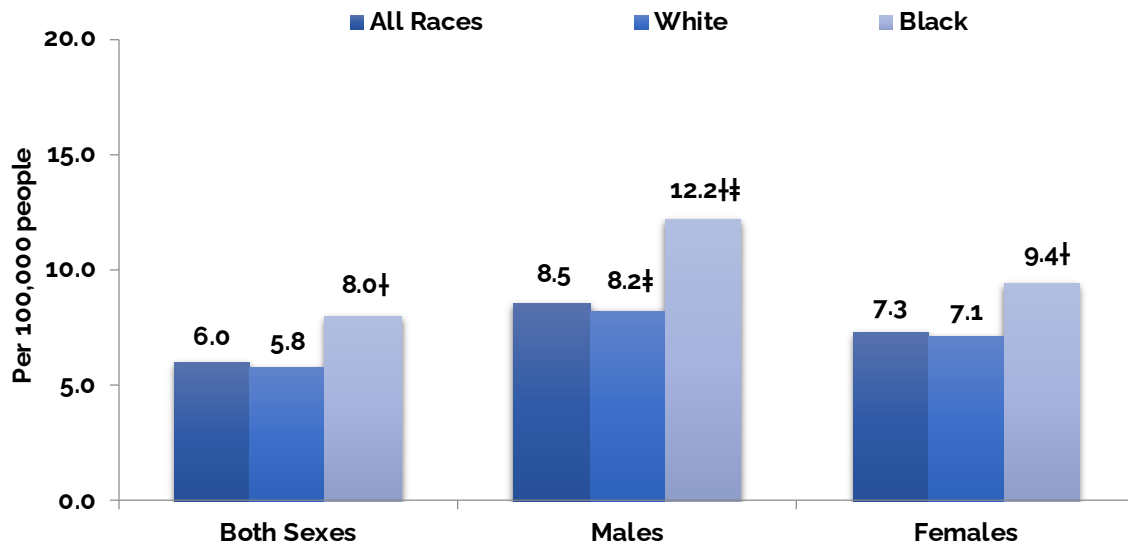
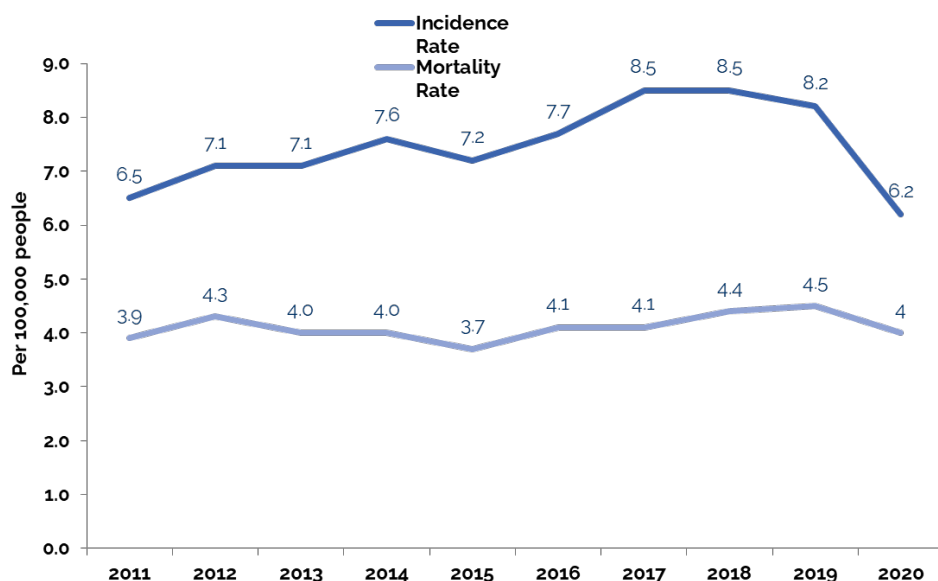


Figure 25. Liver and Intrahepatic Bile Duct Cancer Incidence and Mortality (death) Rates* - Indiana, 2016-2020

*Age-adjusted to the US 2000 Standard Population. Source: Indiana State Cancer Registry



Can Liver Cancer Be Detected Early?

Possible signs and symptoms of liver cancer can be subtle and often reflect damage from underlying liver disease or the extent to which a tumor has spread. Jaundice development can be a symptom of either problem. Abdominal distension due to liver enlargement or as a result of fluid accumulation within the abdomen also tends to occur in late stages. Loss of appetite, weight loss, or pain indicate advanced disease and are seldom encountered with early-stage liver cancer.⁵

Due to the limited ability to detect liver cancer based on symptoms, prevention, and early detection through screening for several types of hepatitis, when indicated, are paramount. Prevention measures focus on preventing chronic liver disease and cirrhosis, which in turn reduces liver cancer risk. For individuals with an increased risk of HBV, vaccination is available. There is currently no approved HCV vaccine, but antiviral treatments are effective in controlling viral hepatitis and have the potential to reduce cirrhosis and liver cancer risk. One-time testing for chronic HCV has been recommended for individuals born between 1945 and 1965.⁶ Other important aspects to reduce hepatitis include testing of blood products and organ donations, infection control measures in medical or dental procedures, needle-exchange programs for intravenous drug users, and safe sex practices.

The possible impact of screening for liver cancer remains unclear, as a reduction in mortality due to screening has not been convincingly demonstrated so far. However, individuals at risk for liver cancer based on chronic hepatitis or cirrhosis are often recommended to undergo blood tests and imaging studies.^{3,6} Fewer than one-third of patients with cirrhosis undergo surveillance.⁷

Surveillance may be recommended for:^{7,3}

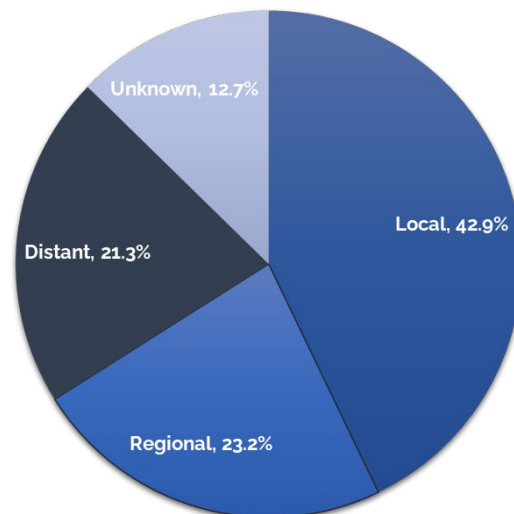
- Patients with certain types of cirrhosis
- Patients awaiting liver transplant
- Patients with hepatitis B virus infection without cirrhosis if any of the following characteristics:



- Active hepatitis
- Family history of HCC
- Blacks
- Asian males over 40 years of age
- Asian females over 50 years of age

Figure 26. Percent of Liver and Intrahepatic Bile Duct Cancer Cases Diagnosed During Each Stage* - Indiana, 2016-2020

**Note: excludes in situ. Source: Indiana State Cancer Registry*



What Factors Influence Liver Cancer Survival?

Survival outlook for liver cancer depends not only on the extent or stage of the liver cancer but also on the course of the underlying liver disease.⁴ In this case, it is important to assess not only the tumor stage based on staging criteria but also to determine the underlying functional ability of the liver. Surgical resection, localized ablation (tumor destruction without removal), focused radiation therapy with stereotactic body radiation therapy (SBRT), or embolization therapy are most commonly used for the treatment of localized disease.⁸ Patients with normal liver function and isolated tumors should undergo surgical resection if possible. Patients with up to three nodules and beginning impairment of liver function should be considered for liver transplantation. If the patient is not transplantable, they can undergo other procedures as recommended.

Traditional chemotherapy is not effective for liver cell cancer (HCC), but has a role for advanced IHCCs. Progression of advanced liver cell cancer with moderate liver function impairment can be delayed with biologic therapy, while patients with terminal disease and severe liver dysfunction should receive supportive care. There are several biologic agents that have recently shown benefits to slow HCC growth, including several therapeutics that block blood vessel growth and one immune system-enhancing therapy.⁹ Patients with advanced HCC may present with upper abdominal pain, weight loss, early satiety, or a palpable mass in the upper abdomen. Advanced IHCC might be treated with targeted therapy or immunotherapy based on markers.^{10, 11, 12}



Be aware! Take charge!

Common signs and symptoms of liver cancer:

- Jaundice or yellowing of skin or eyes
- Collection of fluid in the abdomen
- Weight loss
- Weakness and fatigue
- Easy bruising or bleeding

What can you do to help prevent liver cancer?

- If born between 1945 and 1965, consider an HCV test
- Ask your doctor about the HBV vaccine
- Maintain a healthy weight and live a physically active lifestyle
- Be smoke-free—Visit www.in.gov/quitline for free smoking cessation assistance
- If you have known liver cirrhosis, fatty liver or chronic hepatitis, talk to your doctor about screening tests including: regular blood tests for liver functions, yearly liver ultrasound exam, yearly liver MRI scan, and limit alcohol consumption



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