

Hepatitis B

Hepatocellular Carcinoma Screening

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Disclosures

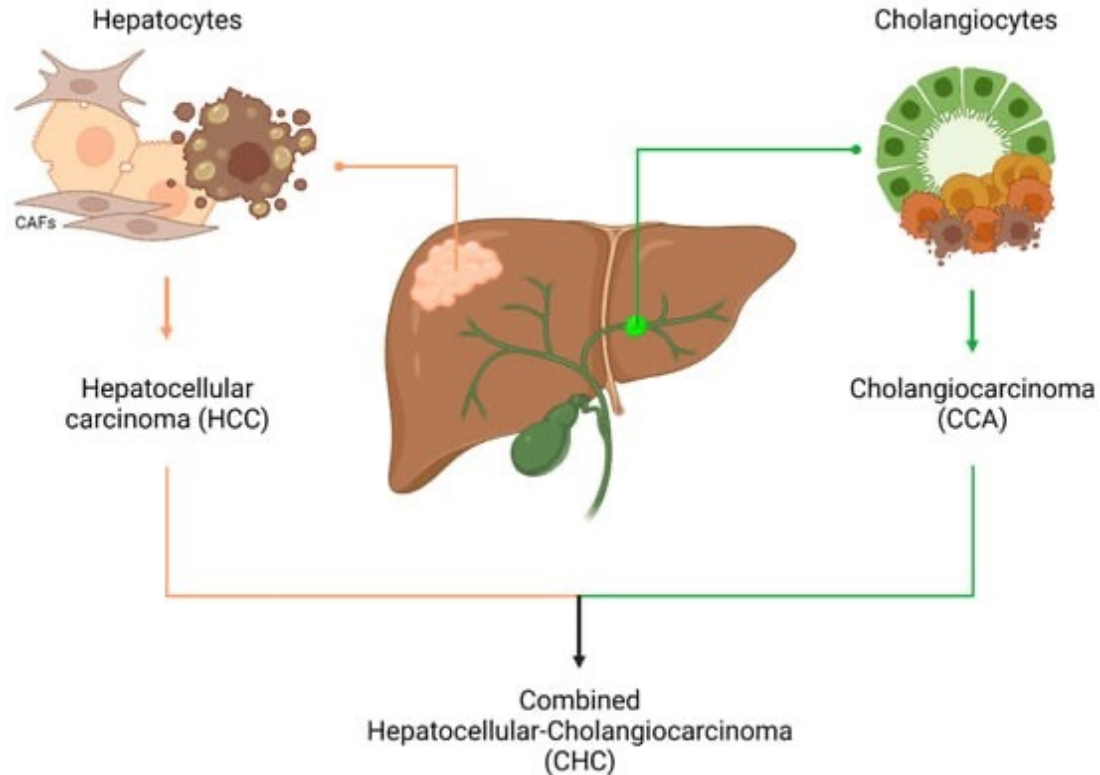
H. Nina Kim, MD MSc

Gilead Sciences provides program funding to my institution

Hepatocellular Carcinoma (HCC) due to Chronic Hepatitis B

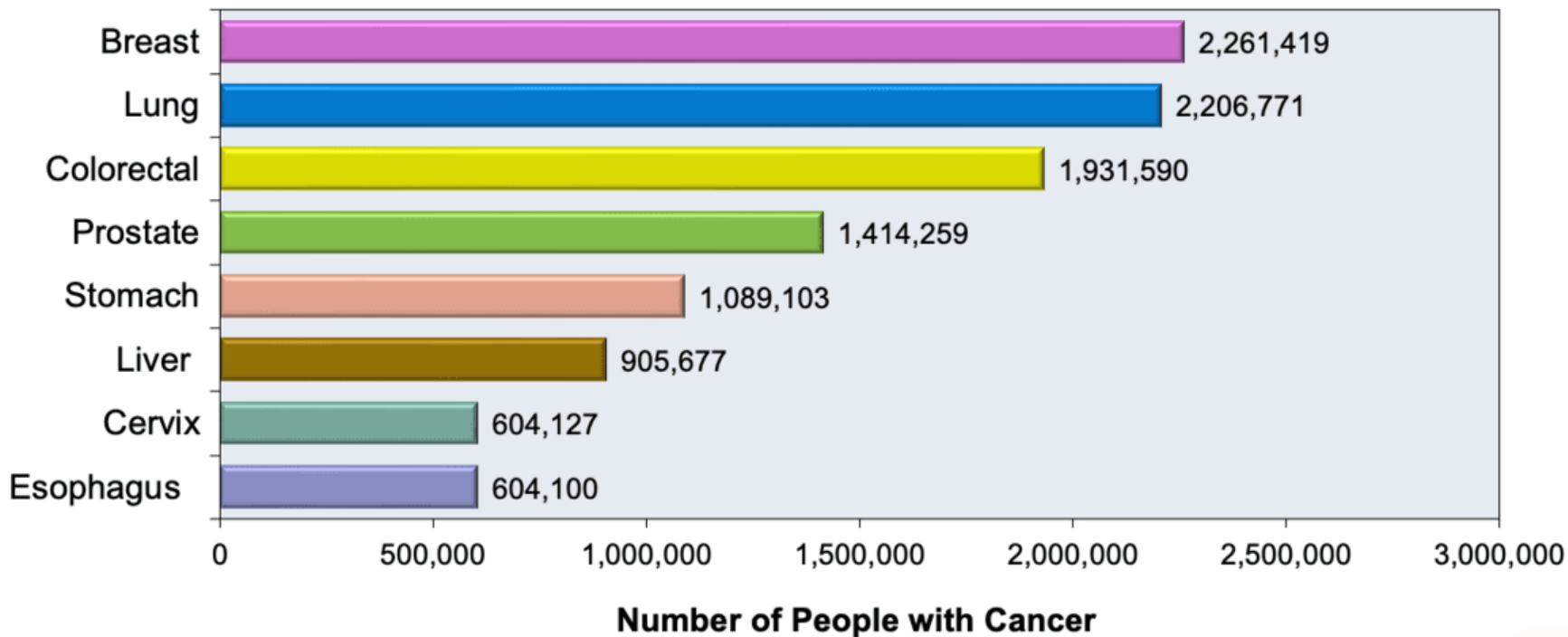
- Terminology
- HCC epidemiology – global and US
- Distinct oncogenic risk related to hepatitis B (HBV)
- Evidence to support HCC screening
- Who to screen
- How to screen

Terminology of primary liver cancer



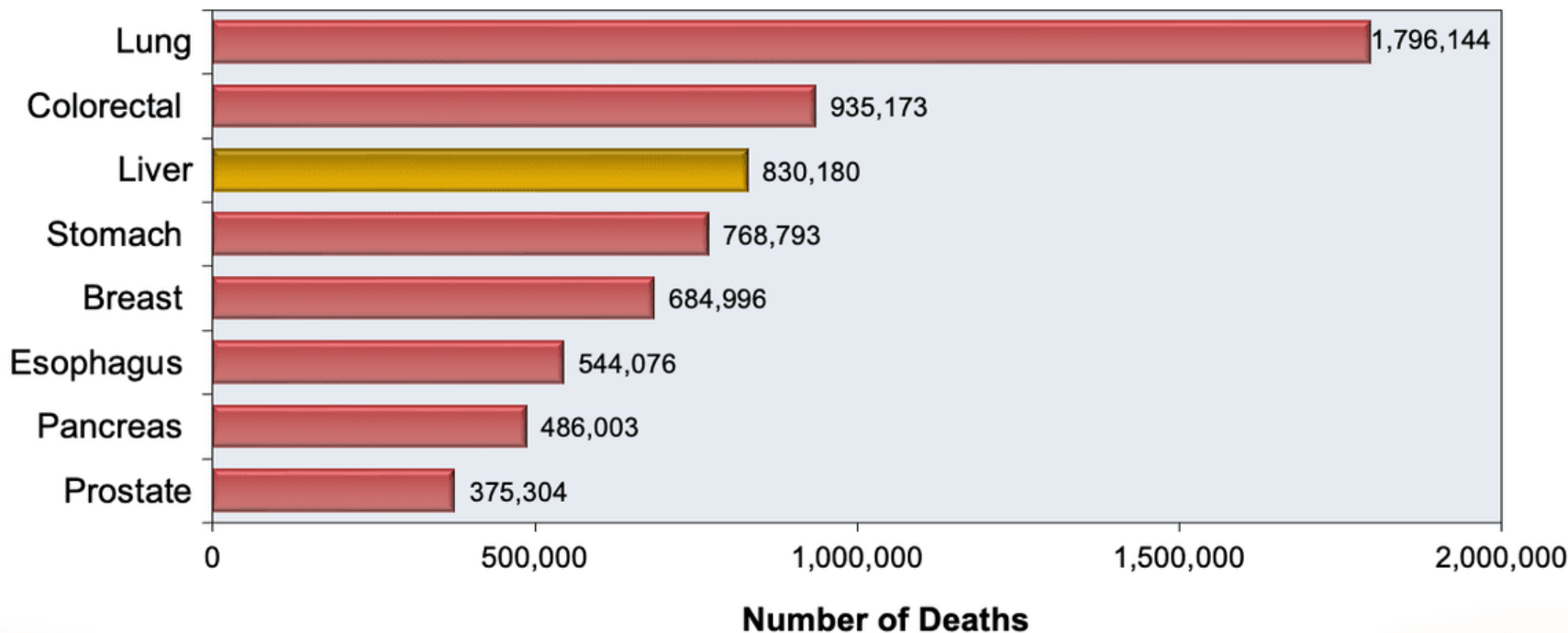
Liver Cancer – Among the leading cancers worldwide

World Estimated Number of New Cancers in 2020, Both Sexes, All Ages

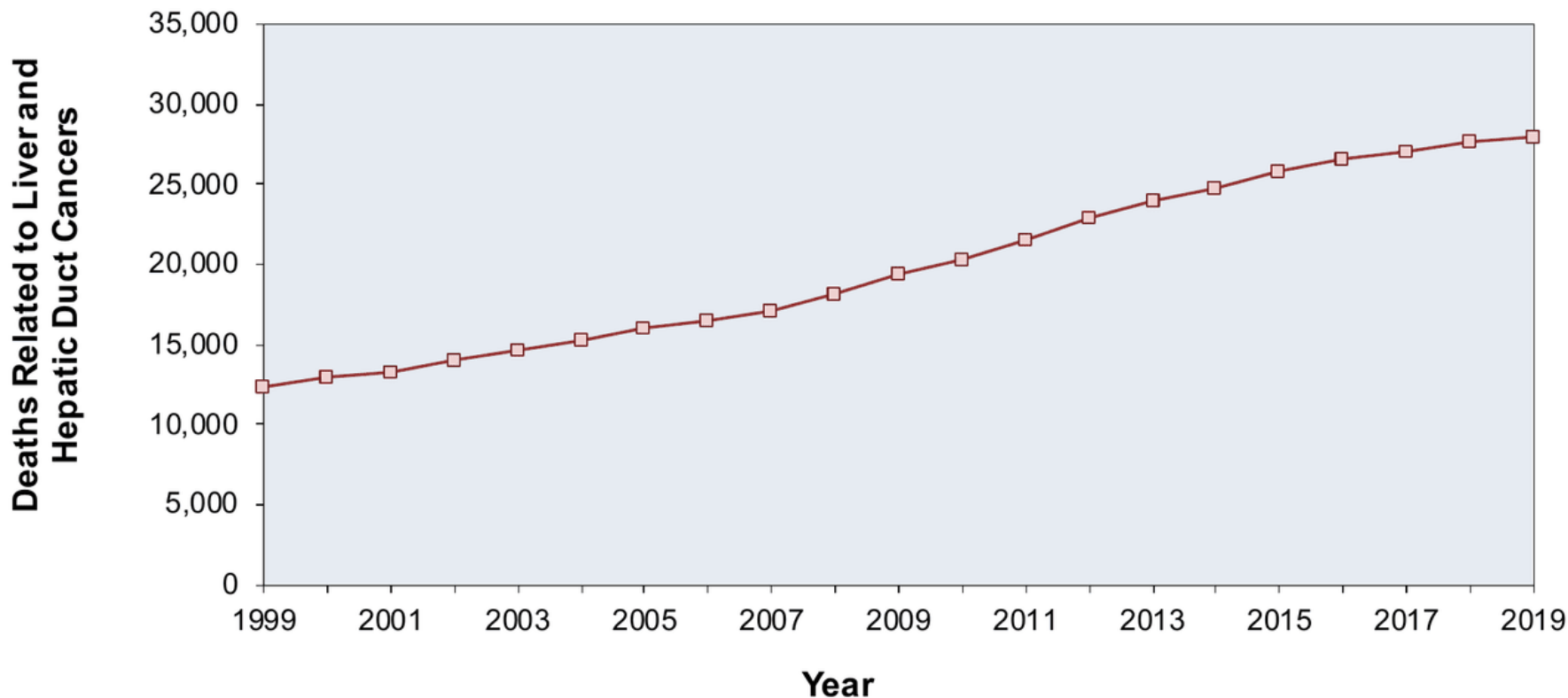


Liver Cancer – 3rd leading cause of cancer death

World Estimated Number of Cancer Deaths in 2020, Both Sexes, All Ages

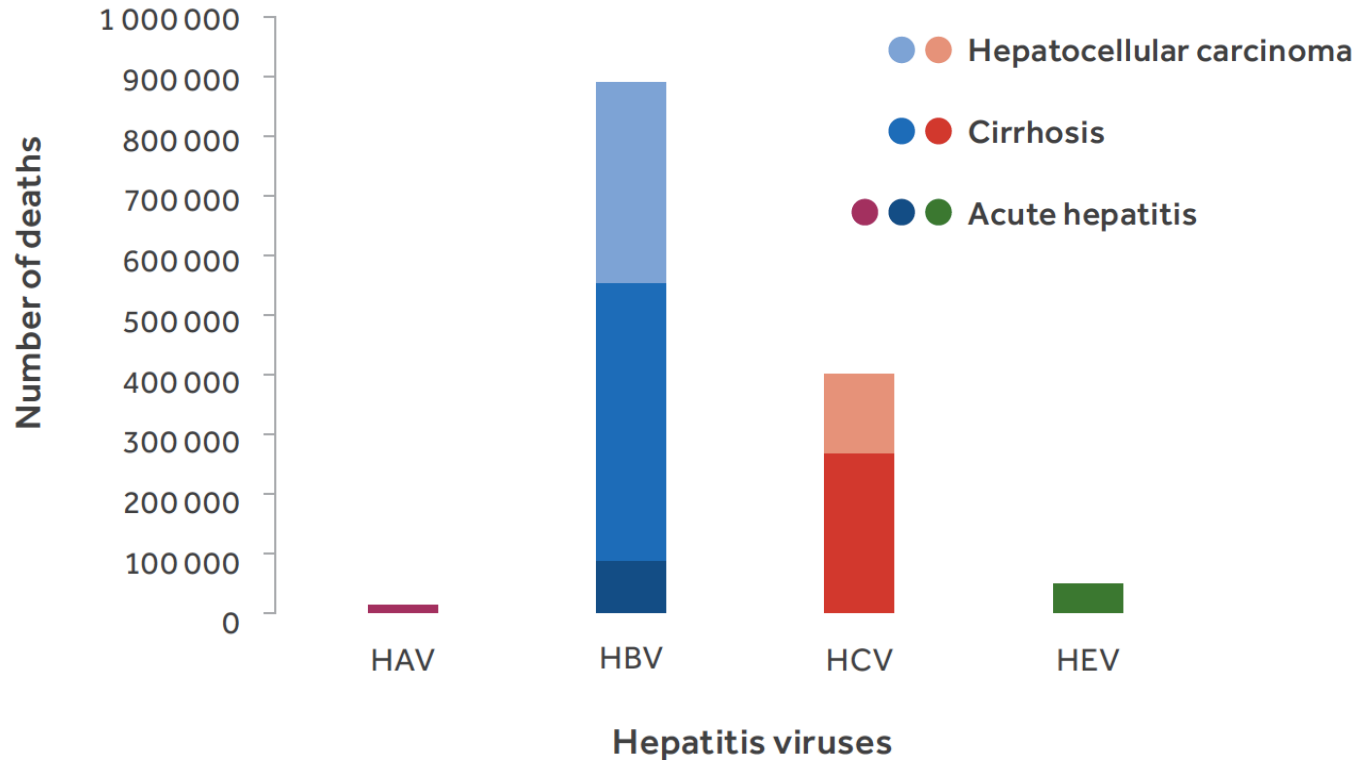


HCC-related deaths, 1999-2019 in US



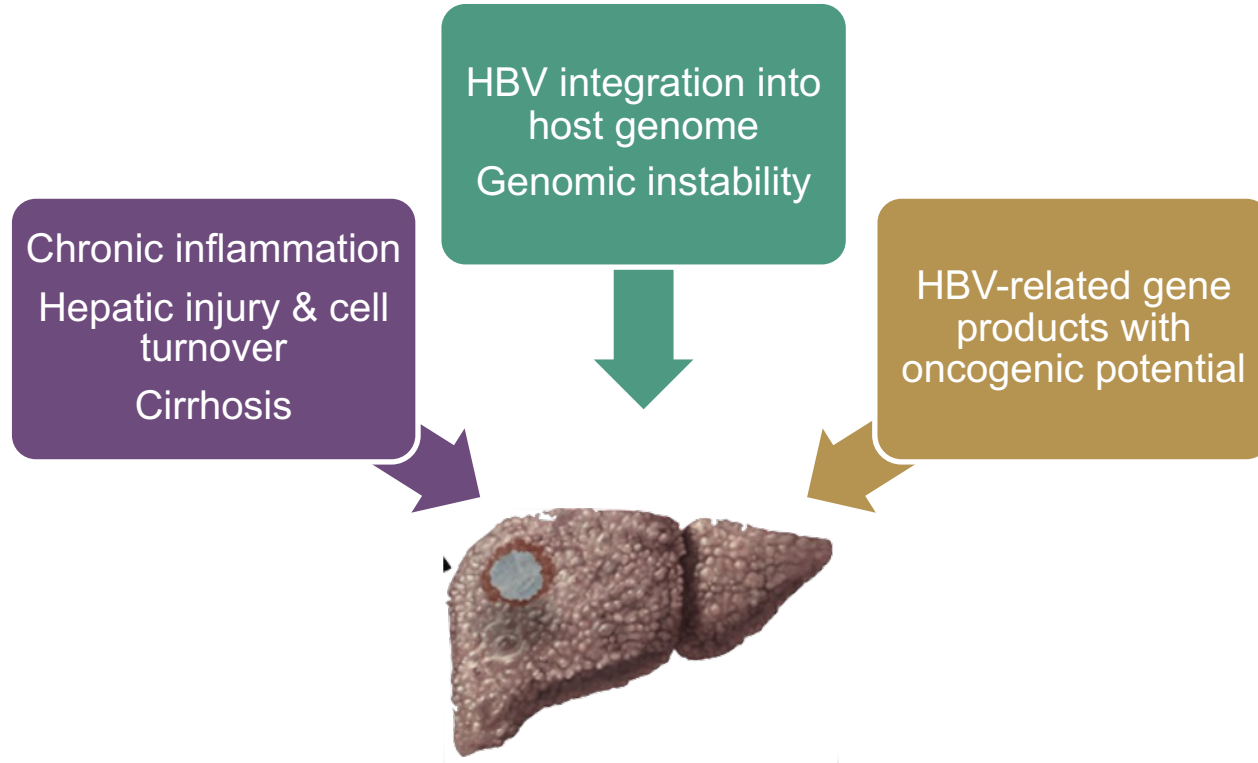
Source: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2021 submission data (1999-2019); U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute. Released June 2022.

Deaths from Viral Hepatitis: Role of HBV-related HCC



Source: World Health Organization, Global Hepatitis Report, 2017.

Mechanisms for HBV Oncogenesis

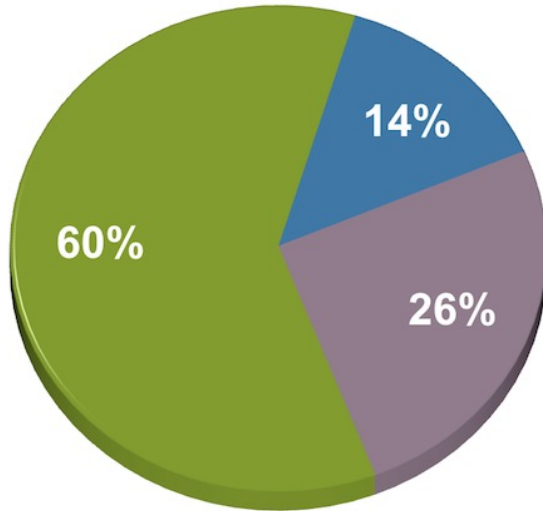


Cluster randomized trial of HCC screening

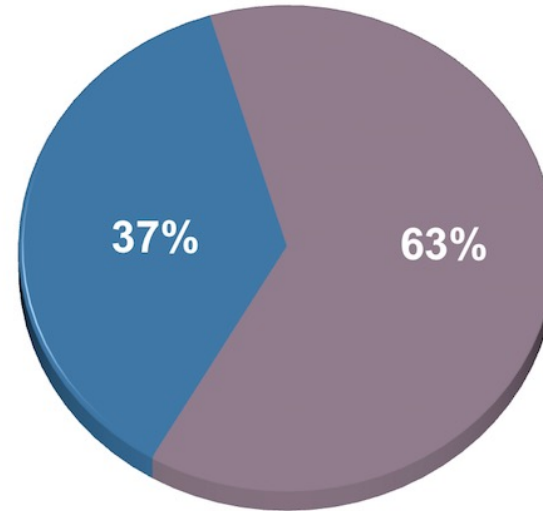
Stage I

Stage II

Stage III

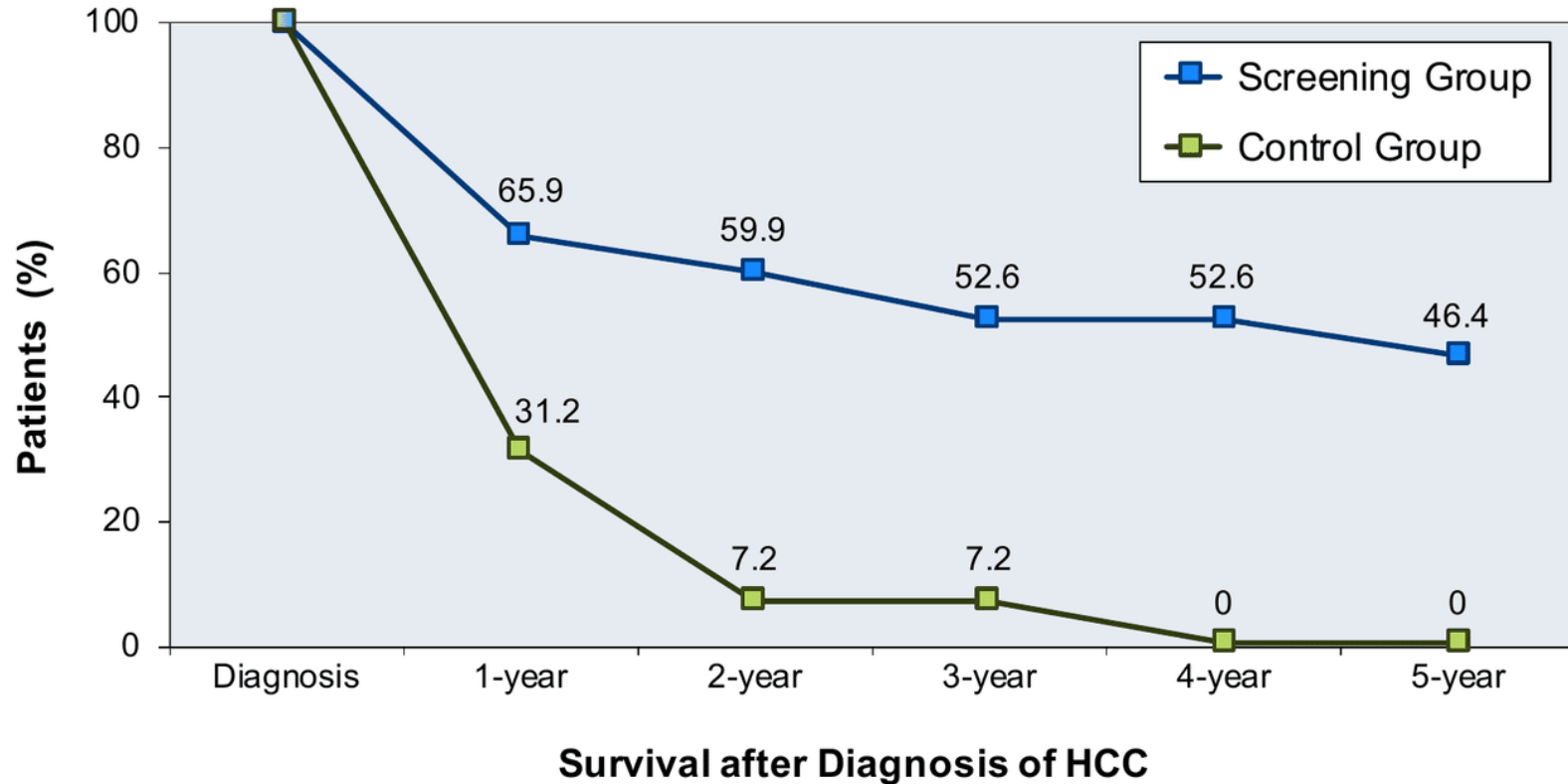


Screened Group



Control Group

Cluster randomized trial of HCC screening



Who to Screen for HCC in Persons with chronic HBV (AASLD)

- All persons with cirrhosis
- Black males older than 40 years of age
- Asian males older than 40 years of age
- Asian females older than 50 years of age
- Persons with 1st degree family member with history of HCC
- Persons with hepatitis delta coinfection

Risk Factors for HCC

Host	Viral/Disease	Environmental/Exposure
<ul style="list-style-type: none">• Age >40 years• Male sex• Immune compromised	<ul style="list-style-type: none">• Presence of cirrhosis• High HBV DNA level (>2000 IU/ml)• Genotype C• Longer duration of infection• Concurrent viral infections (HIV, HCV, HDV)	<ul style="list-style-type: none">• Alcohol• Metabolic syndrome (NAFLD, diabetes, obesity)• Aflatoxin• Smoking

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How to Screen: Abdominal Ultrasound every 6 months

- Advantages
 - Inexpensive
 - No radiation or IV
 - Readily available
 - Well tolerated
- Limitations
 - Operator dependent
 - Body habitus, hold breath
 - Liver factors (nodularity, steatosis)
 - Sensitivity ranges from 40-80%



Photo: <https://ethnomed.org/resource/abdominal-ultrasound>

Biomarker for HCC Screening

- Serum alpha fetoprotein (AFP)
 - **Advantages:** Readily available, relatively inexpensive, easy to perform
 - **Limitations:** Suboptimal sensitivity & specificity
 - (1) Lack of uniform secretion of AFP by HCC tumors, esp. tumors <3 cm²
 - (2) Fluctuating and elevated AFP levels in patients with viral hepatitis or advanced fibrotic liver disease without HCC
 - Debate over benefit of adding AFP to ultrasound

	EASL	AASLD	APASL
Biomarker	Not recommended	At discretion of clinician	AFP (+ US)

Summary

- HCC is a leading cause of cancer-related deaths worldwide, and much of it is HBV-related.
- Overall 5-year survival of HCC in the US is ~20%. Survival depends on the stage of HCC at the time of diagnosis.
- The primary goal of HCC surveillance is to detect disease in an early stage and therefore increase the likelihood of potentially curative therapy.
- Cirrhosis remains a consensus indication for HBV screening. Other indications per AASLD include factors determined by age/race, family hx, delta coinfection.
- The recommended HCC screening method is hepatic ultrasound every 6 months, with or without serum alpha-fetoprotein.

[Quick Reference](#) >[Self Study](#) >[Hepatitis B Primary Care Guidance](#)[HBV Medications](#) >[HBV Vaccines](#) >[Clinical Challenges](#)[Tools & Calculators](#) >

Hepatitis B Online

A free educational website from the
University of Washington Infectious Diseases Education & Assessment (IDEA) program

[Contributors](#)

Funded by
Centers for Disease Control and Prevention (CDC)

Course Modules

Quick Access to Course Information
Self Study with Progress Tracker
Free CME and CNE/CE

[Start the Self-Study Modules »](#)

Hepatitis B Virus

HBV Epidemiology

Reviews United States and global HBV incidence and prevalence, populations at risk for HBV acquisition, and the clinical and laboratory criteria for HBV case definitions.

Quick Reference >

Rapidly access info about
Epidemiology

Self-Study **CNE/CME**

Track progress and receive CE credit

HBV Screening and Diagnosis

Details the groups considered at priority for HBV testing, the recommended screening and diagnostic tests, and how to interpret HBV diagnostic test results.

Quick Reference >

Rapidly access info about Screening
and Diagnosis

Self-Study **CNE/CME**

Track progress and receive CE credit

HBV Immunizations

Identifies indications for HBV vaccine, describes dosing schedules and administration of vaccines, and management of vaccine nonresponders.

Quick Reference >

Rapidly access info about
Immunization

Self-Study **CNE/CME**

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Acknowledgments

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