



MedStar Georgetown
Transplant Institute

Knowledge and Compassion
Focused on You

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Viral Induced Cancer: Hepatocellular Carcinoma (HCC)

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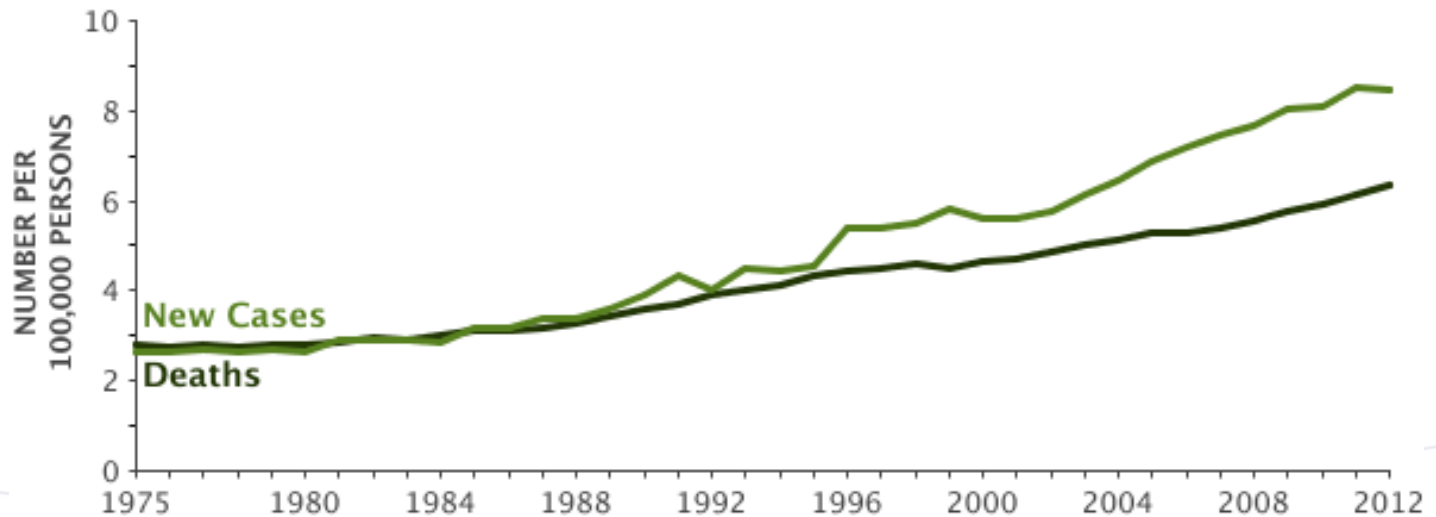
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Hepatocellular Carcinoma: Increasing incidence

- In the US, 35,660 new cases in 2015 with 24,550 estimated deaths
- One of the deadliest cancers (17% 5-yr survival)



HCC: Hot off the presses

- While overall cancer death rate decreased from 2003-2013
- Liver cancer incidence rates have increased sharply (72%) and deaths increased at highest rate
- HCV and liver cancer associated death rates highest among those born between 1945-1965
- “Efforts to vaccinate populations that are vulnerable to hepatitis B virus (HBV) infection and to identify and treat those living with HCV or HBV infection...can be effective in reducing the incidence and mortality of liver cancer.”

Annual Report to the Nation on the Status of Cancer. March 9, 2016 DOI: 10.1002/cncr.29936



HCC

- Primary liver cancer
- Major risk factors:
 - Underlying chronic liver disease or cirrhosis (80%)
 - Most of these are due to chronic viral hepatitis (78%)

Viral hepatitis

- Hepatitis C virus (HCV) and Hepatitis B virus (HBV)
- Silent killers
- Most people who have chronic infection are asymptomatic until disease is advanced
- Most Americans are **unaware** of their infection
- Lack of awareness of public and policy makers



Hepatitis B Virus (HBV)

- 2 billion people worldwide have been infected
- 240 million with chronic infection
- 780,000 die each year due to cancer or liver disease
- 1.2 million with chronic HBV in US
- 19,800 new infections in 2013



HBV: Awareness

- High risk persons should be screened

People born in regions of $\geq 2\%$ prevalence

Unvaccinated US born people whose parents are from a country where $\geq 8\%$ prevalence

HIV positive individuals

Injection drug users

Household contacts and sexual partners of persons with HBV

MSM

Pregnant women

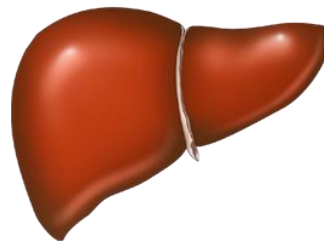
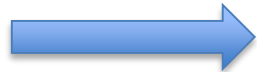
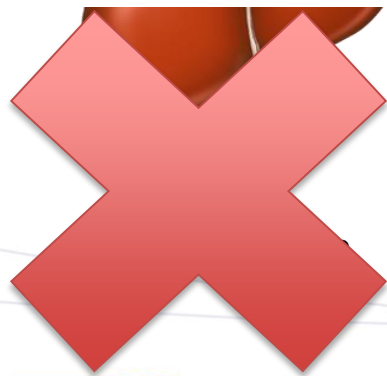
Those receiving chemotherapy or immunosuppressives

Hemodialysis

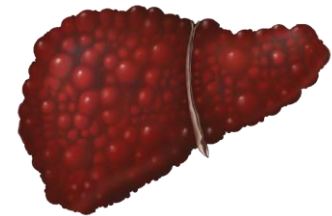
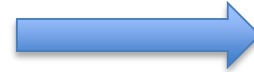
HBV: Prevention

- Vaccine effective in 95%
- Universal infant immunization (imperfect)
- Screening of pregnant women
- Catch up vaccination and high risk adults

Vaccination



Chronic infection
(variable)



Cirrhosis (up to 10%
annual incidence)
Liver cancer (up to 8%/yr)

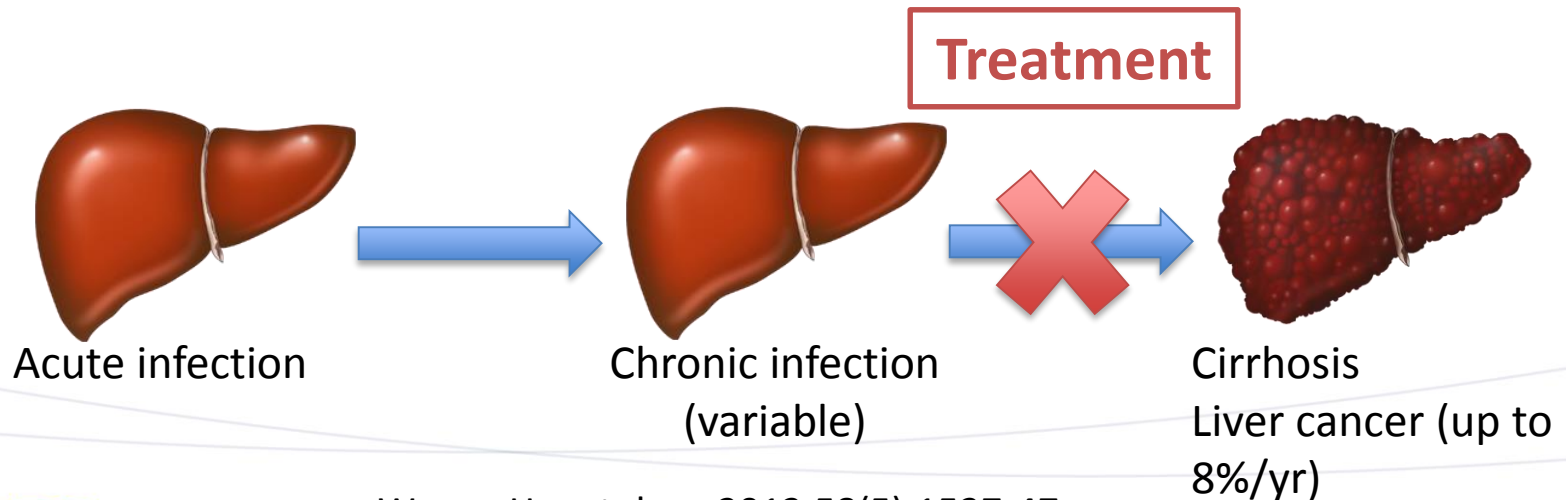


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HBV: Treatment

- No cure available
- Highly effective oral therapies to control virus
 - Reduce transmission
 - Reduce progression of disease
 - Reduce deaths
 - Reduce incidence of liver cancer



Hepatitis C Virus (HCV)

- 150 million people worldwide are infected
- 350,000 die per year
- 3.2 million in US with chronic infection
- 29,700 new infections in 2013

HCV: Awareness

- 75% of those infected are unaware
- Risk based screening
- Birth cohort screening
 - 1945-1965

Adults born between 1945-1965

Past or current injection drug use

Blood transfusion or organ transplant prior to 1992

HIV infection

Persistently abnormal ALT

Children born to HCV infected mother

Persons who have been incarcerated

Intranasal drug use

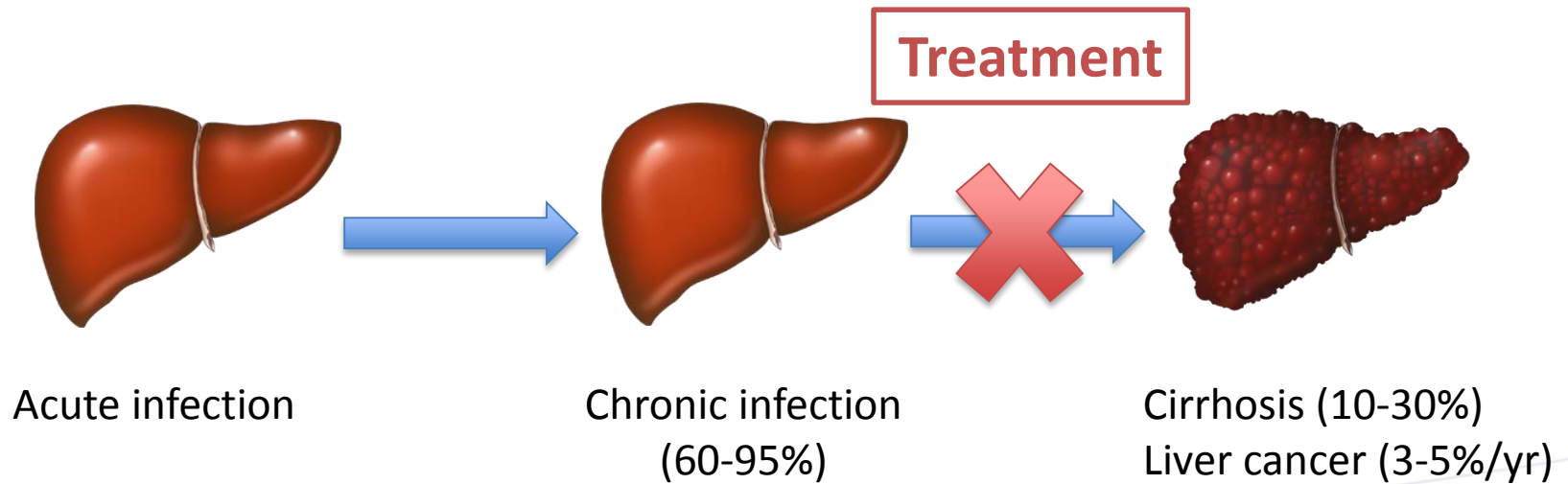
Healthcare workers with exposure to HCV infected blood

Hemodialysis



HCV: Prevention

- No vaccine
- Improved awareness and disease surveillance



HCV: Treatment

- HCV can be cured in the majority of patients
- Current therapies are oral with low incidence of serious side effects
- Cure results in mortality reduction
- Cure results in reduction in risk of liver cancer
- Reduced transmission

Morgan, *Ann Intern Med.* 2013;158(5 Pt 1):329-337.

Singal, *Clin Gastroenterol Hepatol* 2010;8:280-288, 288 e281.

Backus, *Clin Gastroenterol Hepatol* 2011;9:509-516 e501



Summary

- HBV and HCV are leading causes of liver cancer
- HBV vaccination can **prevent HBV infection** and as a result **prevent liver cancer** from this cause
- HBV treatments **reduce risk of cancer** development
- No vaccination for HCV is available
- Treatments for HCV can result in **cure** of infection and can **reduce risk of liver cancer**
- Public awareness of viral hepatitis is key to reducing morbidity and mortality