Eliminating the Hepatitis B Virus and Hepatitis C Virus to Reduce New Cases of Liver Cancer

May 16, 2018

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Acknowledgments

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Poll #2
Learning objectives

1. Describe the work of the Centers for Disease Control and Prevention’s Division of Viral Hepatitis and Division of Cancer Prevention and Control
2. Relay strategies and key interventions to eliminate new viral hepatitis B and C infections and reduce the risk of liver cancer to others
3. Describe the connection between chronic hepatitis B and C viruses and liver cancer and at-risk populations
4. List key interventions outlined in the NASEM report to eliminate new viral hepatitis B and C infections and reduce the risk of liver cancer
5. Locate technical assistance resources and partner organizations to introduce or improve strategies to eliminate hepatitis B and C viruses and reduce liver cancer
Speaker

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Viral Hepatitis and Liver Cancer

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The Role of Comprehensive Cancer Control in Reducing Viral Hepatitis-Associated Liver Cancer

May 16, 2018
Viral Hepatitis

Overview
What is hepatitis?

- “Hepatitis” means inflammation of the liver
- Causes of hepatitis:
  - Toxins
  - Certain drugs
  - Heavy alcohol use
  - Viral infections
Viral Hepatitis

- A family of viral infections that affect the liver.
- In the US, most common types of viral hepatitis are:
  - Hepatitis A
  - Hepatitis B
  - Hepatitis C
Viral Hepatitis

- A family of viral infections that affect the liver.
- In the US, most common types of viral hepatitis are:
  - Hepatitis A
  - Hepatitis B
  - Hepatitis C
Acute vs. Chronic Infections

- **Acute viral hepatitis**
  - Short-term illness that occurs within the first 6 months after exposure
  - Can (but doesn’t always) lead to chronic infection

- **Chronic viral hepatitis**
  - Long-term illness that if left untreated can lead to
    - Liver damage
    - Liver failure
    - Liver cancer
    - Death
Hepatitis B Virus

HBV
Transmission

- HBV
  - Injection-drug use
  - Birth to infected mother
  - Sex with infected partner
  - Contact with infected blood
  - Needle sticks
  - Sharing personal items (e.g., razors and toothbrushes)
There is an effective vaccine for HBV
Who should get vaccinated?

- All infants
- Unvaccinated children <19 years of age
- Unvaccinated adults at risk of infection including, *but not limited to*:
  - People who inject drugs (PWID)
  - Incarcerated individuals
  - Men who have sex with men
  - Household contacts of people who are HBsAg-positive
- Pregnant women at risk for infection

Source: Advisory Committee on Immunization Practices
Acute Hepatitis B Infections Slightly Decline

An estimated 847,000-2.2M people had chronic hepatitis B in 2012

Source: CDC, National Notifiable Diseases Surveillance System; source for prevalence; Roberts et al., 2016; Kowdley et al., 2012
Acute Hepatitis B

Source: CDC, National Notifiable Diseases Surveillance System
HBV Treatment

- Certain groups should be tested for HBV
- Treatment can prevent most deaths in those chronically infected with HBV
Hepatitis C Virus

HCV
Transmission

- HCV
  - Injection-drug use
  - Prior receipt of donated blood, blood products, and organs
  - Needle-stick injuries in health-care settings
  - Birth to an HCV-infected mother
  - Sex with infected partner (infrequent)
  - Sharing personal items (infrequent)
  - Unregulated tattooing (infrequent)
Complex & Changing Epidemiology

New cases (incidence)

Prevalence
Diagnosed and undiagnosed

Deaths (mortality)
HCV-related & all-cause

Treatment

HCV
Acute Hepatitis C Infections Continue to Soar

An estimated 3.5M people had chronic hepatitis C in 2010

Source: CDC, National Notifiable Diseases Surveillance System; Edlin et al, 2015
Acute Hepatitis C

Source: CDC, National Notifiable Diseases Surveillance System
Rise in Opioid-Related Deaths

Deaths per 100,000 population

- Natural and semi-synthetic opioid analgesic
- Methadone
- Synthetic opioid analgesic, excluding methadone
- Heroin

Source: National Vital Statistics System Mortality File
New Concern: Interconnected Epidemics

Drug overdose death rates

Reported new HCV infections

Source: CDC, NCHS Data Visualization Gallery, 2015; CDC, National Notifiable Disease Surveillance System, 2013-2014
Prevention Services Are a Must

- Access to safe injection equipment and treatment for drug addiction can lower transmission risk by >70%
- Areas with high HCV incidence in US have low syringe services program (SSP) coverage
  - Only three states have laws supporting access to safe injections
  - 24 state Medicaid programs deny HCV treatment for recent/current PWID
HCV Is Curable

- Curative for 95% of treated people with 8-12 weeks of all-oral therapy
- Initial market price raised alarms ($86,000-$94,000) in U.S.
- Average net cost of a 12-week course now: $47,124
- New pangenotypic medications at list prices below this average (e.g., $26,400)

Source: Express Scripts; Seeking Alpha
HCV Screening

- Everyone born from 1945-1965
- Anyone at high risk including, but not limited to:
  - Current/former injection-drug users
  - Recipients of clotting factor concentrates made before 1987
  - Recipients of blood transfusions or solid organ transplants prior to July 1992
  - Chronic hemodialysis patients or people with HIV
  - Children born to HCV-positive mothers
Viral hepatitis & Liver cancer
Liver and Bile Duct Cancer

- Primary liver cancer starts in the liver
  - Hepatocellular carcinoma (HCC) is the most common type of liver cancer and can be (not always) associated with viral hepatitis
  - Intrahepatic bile duct cancer is less common than HCC but is included in U.S. cancer statistics

- Liver metastasis is when cancer that starts in other parts of the body spreads to the liver – this is common
What causes HCC?

- HBV
- HCV
- Heavy alcohol use
- Cirrhosis
- Obesity
- Diabetes
- Rare metabolic conditions
U.S. Liver cancer incidence is increasing

Source: United States Cancer Statistics, 2017
Age-Adjusted Rate of Liver and Intrahepatic Bile Duct Cancer per 100,000 People, By State — 2014

Source: United States Cancer Statistics, 2017
U.S. Liver Cancer Statistics, 2014

- 31,411 people were diagnosed
- 24,598 people died from liver cancer

Source: United States Cancer Statistics, 2017; Ryerson et al., 2016
Baby boomers in U.S. have higher liver cancer rates

Source: Ryerson et al., 2016
U.S. Baby boomers have higher HCV-related liver cancer deaths

Source: Ryerson et al., 2016
HBV Vaccinated cohorts in Taiwan have significantly lower HCC incidence and mortality

Source: Chiang et al., 2013
Division of Viral Hepatitis, CDC
DVH priorities and activities

- Conduct surveillance and research
- Build state, local, and tribal capacity
- Support providers, health systems, and payers
- Build partnerships
- Empower consumers
Surveillance and research

- Collect timely, actionable data
- Focus prevention efforts
- Conduct research
Build state, local, and tribal capacity

- Implement evidence-based interventions
- Conduct community planning and capacity building
- Establish elimination programs
- Conduct Epi-Aid investigations

Improving State & Local Hepatitis B and C Care Cascades
(CDC-RFA-PS17-1702)

POC List:
https://www.cdc.gov/hepatitis/partners/hepatitiscoordslist.htm
Support providers, health systems, and payers

- Clinical guidelines
- SSP implementation & training
- Enable screening, treatment and engagement of PWID
- Testing algorithms
Build partnerships
Empower consumers

- Public education materials
- Patient education fact sheets
- Online risk assessment tools

http://www.cdc.gov/hepatitis/RiskAssessment/
Conclusion
Summary

- HCC incidence is rising
- HBV and HCV infections cause many cases of HCC
- HCV is largely undiagnosed and incidence is rising
- Highly effective interventions greatly reduce risks for HCC
  - Hepatitis B vaccination
  - Harm reduction services
  - Hepatitis C curative therapy
- With the capacity to deliver effective interventions, goals for HBV and HCV elimination can be achieved
A National Strategy for the Elimination of Hepatitis B and C

- HBV and HCV can be eliminated as a public health threat in the United States
- Recommendations:
  - Improved surveillance
  - Improved access to interventions (e.g., hepatitis B vaccination, perinatal prevention services, SSPs)
  - Improve access to testing and treatment/cure
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
The Role of the Division of Cancer Prevention and Control in the Prevention of Liver Cancer

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Division of Cancer Prevention and Control
Presentation Outline

• Why Liver Cancer?
• Division of Cancer Prevention and Control
• CDC’s National Comprehensive Cancer Control Program (NCCCP)
• Collaborative Study with DVH
• Promising Practices in Liver Cancer Prevention
• Interventions Implemented by Programs
  ▪ Successes, Product Development, Preliminary Results
• Next Steps
Liver Cancer

- Globally, 5th Among Men, 9th Among Women
- In the U.S., 31,000 new cases, 25,000 deaths
- More common in men, A/PI, Hispanic, AI/AN
- 5-year net survival: 14.8%
- The incidence is increasing since the 1970s
- Major risk factor is: HBV and HCV infection
- Preventive Interventions: HCV treatment and HBV vaccination
Division of Cancer Prevention and Control

All People Free of Cancer

Aspirations
- Elimination of preventable cancers
- All people get the right care at the right time for the best outcome
- Cancer survivors live longer, healthier lives

Strategic Priorities
- Reduce the incidence of preventable cancers by reducing modifiable risk factors and promoting healthy behaviors
- Scale our best practices to increase impact of screening continuum
- Improve health outcomes for cancer survivors

Address Health Disparities
Define Expected Outcomes Upfront
Collaborate
Communicate: Tailor to a Specific Audience

Data
Translation & Evaluation
Partnership
National Comprehensive Cancer Control Program (NCCCP)

- For 20 years, CDC’s NCCCP has helped reduce the burden of cancer in the United States
- The NCCCP helps all 50 states, the District of Columbia, 6 U.S. Associated Pacific Island Jurisdictions and Puerto Rico, and 8 tribes or tribal organizations to:
  - Create coalitions
  - Look at the cancer burden in their area
  - Prioritize proven strategies for cancer control
  - Create cancer plans and put them into action
Collaborative Study with DVH

- Development and Implementation of an Evidence-Based Action Plan for Liver Cancer and its Risk Factors
  - Review current literature and NCCCP activities to develop a promising practices manuscript for liver cancer (currently in CDC clearance).
  - Development of an Action Plan
  - Implementation of Interventions in three programs
Key Promising Practices in Liver Cancer Prevention

- Manuscript in Clearance
- Improved Surveillance
- Knowledge and Attitudes
- Immunization
- Improved Viral Hepatitis Services
Intervention Participants

- **Cherokee Nation Health Services (collaboration with DVH)**
  - Lead monthly ECHO Meetings
  - Conducted provider education workshops
  - Conducted 400 screening tests
  - Distributed Patient Education Packets

- **Cherokee Nation Comprehensive Cancer Control Program**
  - Conducted Community Coalition Meetings
  - Disseminated print media

- **Idaho Comprehensive Cancer Control Program**
  - Conducted liver cancer and Hepatitis B presentations to healthcare providers
  - Conducted a print and social media campaign
  - Direct link: [www.healthtools.dhw.idaho.gov](http://www.healthtools.dhw.idaho.gov)
Measures of Success

- ECHO Meetings
- Provider Education Workshops
- HCV Screening Kits
- Distribute Patient Education Packets
- Conduct Community Coalition Meetings
- Disseminate Print Media
- Presentation to Healthcare Providers
- Print and Social Media Campaign
Next Steps

• Immediate Resources: Promising Practices Manuscript and Action Plan

• Inform Future Planning:
  ▪ Work plans already set for Year 2
  ▪ Year 3:
    • Assess the burden of liver cancer in your population
    • Define groups that are at high-risk for HCV and HBV infection
    • Connect with local immunization programs and viral hepatitis programs to determine ways that resources can be leveraged and potential partnerships can be undertaken to increase HBV vaccination and increase HCV screening
    • Consider adding strategies for primary and secondary prevention in work plans
Contact Information

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Questions?
Recommended Strategies for Eliminating the Hepatitis B Virus and Hepatitis C Virus to Reduce New Cases of Liver Cancer

Aubrey Villalobos, MPH, MEd
Director, Cancer Control and Health Equity
• May is Hepatitis Awareness Month

• Hepatitis Testing Day- May 19
What can public health professionals do to address the burden of viral hepatitis?

A National Strategy for the Elimination of Hepatitis B and C: Phase Two Report

Viral hepatitis and liver cancer in our comprehensive cancer control plan

• Goal 4: Increase vaccination rate for vaccines shown to reduce the risk of cancer
• Objective 4.2: Promote hepatitis B vaccine and adoption of CDC recommendations for hepatitis screening
• Strategic Action: Improve health professional knowledge, practice behaviors and system support related to increasing provision of or referral to immunizations against human papillomavirus (HPV) and hepatitis B
5 Themes of Essential Interventions to Address Viral Hepatitis to Reduce Liver Cancer Morbidity and Mortality

1. Improve Access to HBV Vaccination
2. Increase Knowledge and Awareness of Viral Hepatitis in the Community
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers
4. Improve Delivery of Viral Hepatitis Services
5. Conduct Disease Surveillance
HBV immunization rates among children in the United States

- 10% Children Immunized
- 90% Children not immunized

HBV immunization rates among adults in the United States

- 25% Adults Immunized
- 75% Adults not immunized

NASEM, 2017
Work with partners to expand access to free vaccinations in pharmacies and other easily accessible settings including HIV and STD clinics and community health centers.
• President’s Cancer Panel Annual Report’s **Accelerating HPV Vaccine Uptake**
  – Promote and facilitate HPV vaccination in venues outside the medical home
  – Enact laws to implement policies that allow pharmacists to administer vaccines

• National Association of City and County Health Officials (NACCHO)’s **Adult HBV Vaccination: An Implementation Guide for Local Public Health**
Partnerships to

1. Improve Access to HBV Vaccination

- American Pharmacists Association
- Local pharmacies and pharmacists
- Criminal justice system

American Pharmacists Association, 2017

American Pharmacists Association
Improving medication use. Advancing patient care.

OPERATION IMMUNIZATION
APhA Academy of Student Pharmacists

THE GEORGE WASHINGTON UNIVERSITY
Cancer Center
Chronic HBV and HCV infections are often asymptomatic until later stages.

2/3 with HBV and 1/2 with HCV are unaware of their condition.
Promote tools such as CDC’s Viral Hepatitis Risk Assessment to the community

https://www.cdc.gov/hepatitis/riskassessment/
2. Increase Knowledge and Awareness of Viral Hepatitis in the Community

- CDC’s Viral Hepatitis Risk Assessment
- CDC’s Know More Hepatitis
- CDC’s Know Hepatitis B
Resources to

2. Increase Knowledge and Awareness of Viral Hepatitis in the Community

- GW Cancer Center’s Viral Hepatitis and Liver Cancer Social Media Toolkit
- Prevent Cancer Foundation’s Think About the Link
- The Association of Asian Pacific Community Health Organizations’ Hepatitis B Policy Advocacy & Media Outreach Toolkit
- Hep B United’s Tips for Hosting a Successful HBV Screening Event
- Association of State and Territorial Health Officials’ (ASTHO) Hepatitis C Birth Cohort Testing Communications Toolkit
Partnerships to

2. Increase Knowledge and Awareness of Viral Hepatitis in the Community

- Faith-based communities and organizations
- College campuses and organizations
- Local media
- Awareness raising campaigns
  - Hepatitis Awareness Month: May
  - Hepatitis Testing Day: May 19
  - World Hepatitis Day: July 28
  - Liver Cancer Awareness Month: October
• Primary care providers
• Serving rural and underserved communities
Engage, train and educate health care providers and systems to prevent, detect and treat viral hepatitis

Promote health care professional resources such as the HBV and HCV clinical guidelines and factsheets
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers

- GW Cancer Center’s NASEM Strategies Summary

**Strategies to Reduce Viral Hepatitis-Associated Liver Cancer**

Liver cancer diagnoses and deaths are increasing in the United States.

- New liver cancer cases increased by 40% and liver cancer deaths increased 56% between 2003 and 2012.
- Chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infections can cause hepatocellular carcinoma (HCC), the most common form of liver cancer.
- More than 65% of people with HCC have chronic viral hepatitis.

**We can reduce the risk of liver cancers caused by chronic HBV and HCV in the United States through prevention and treatment of viral hepatitis.**

**PREVENTION**

- HBV screening and vaccination: 99% of HBV infections can be prevented with appropriate vaccination.

**TREATMENT**

- Treatment for chronic HBV infections can prevent disease. If treated, people who are infected with chronic HBV can avoid serious chronic liver diseases, including cancer. Infected people need to be identified so they can be treated.

**What Can Public Health Professionals Do to Help Reduce Viral Hepatitis-Related Liver Cancer?**

1. Improve Access to HBV Vaccination
   - Work with partners to request access to free vaccinations in pharmacies and other easily accessible settings including HIV and STD clinics and community health centers.

2. Increase Knowledge and Awareness of Viral Hepatitis in the Community
   - Promote tools such as CDC’s Viral Hepatitis Risk Assessment to the community.

3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers
   - Engage, train, and educate health care providers and systems to prevent, detect, and treat viral hepatitis.
   - Promote health care professional resources such as the HBV and HCV clinical guidelines fact sheets.

4. Improve Delivery of Viral Hepatitis Services
   - Support and coordinate with community resource efforts, such as those that serve key populations, aims to eliminate stigma, or promote health among incarcerated populations.
   - Work with public and private health plans to lift restrictions and lower costs of treatment therapies.
   - Collaborate with local, state, and federal corrections departments to reach incarcerated populations who are at increased risk for viral hepatitis. Promote viral hepatitis screening, management, and treatment guidelines, and develop referral systems to support social and physical mental health programs in correctional facilities.
   - Promote guidelines for viral hepatitis screening, management, and treatment among pregnant women to prevent mother-to-child transmission.
   - Promote comprehensive harm reduction strategies and services that address underlying substance use disorders, such as prevention and enforcement services, referrals to opioid agonist therapy, counseling, testing, and/or viral hepatitis treatment.

5. Conduct Disease Surveillance
   - Use National Notifiable Disease Surveillance data to identify trends, inform patterns of access to care, and describe the burden of viral hepatitis in the community.
   - Support state-level collection of HBV and HCV infection data in the Viral Hepatitis Surveillance Program so additional data are available for program planning.
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers

- GW Cancer Center’s [Viral Hepatitis and Liver Cancer Prevention Profiles](#)
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers

- ASTHO’s Hepatitis C Birth Cohort Testing Communications Toolkit
- CDC’s Health Professional Tools for HBV and HCV include factsheets and guidelines on testing and clinical evaluation
- CDC’s Viral Hepatitis Training Resources
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers

- University of New Mexico’s Project Extension of Community Health Outcomes (ECHO)

People need access to specialty care for their complex health conditions.

There aren’t enough specialists to treat everyone who needs care, especially in rural and underserved communities.

ECHO trains primary care clinicians to provide specialty care services. This means more people can get the care they need.

Patients get the right care, in the right place, at the right time. This improves outcomes and reduces costs.

University of New Mexico School of Medicine, 2017
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers

- American Medical Association; American Academy of Family Physicians
- University of Washington
- University of New Mexico
- American Association for the Study of Liver Diseases (AASLD)
- Infectious Diseases Society of America
• 12-35% of people in jails and prisons have hepatitis C (NASEM, 2017)
• 1-3.5% of people in jails and prisons have chronic hepatitis B infection (NASEM, 2017)
• “The cost and demand for hepatitis C treatments have strained the budgets for many payers” (NASEM, 2017)
• A challenge of viral hepatitis elimination lies “in ensuring that preventative services and care reach the widest possible audience” through implementation research (NASEM, 2017)
• 75% of new HCV infections every year occur among people who inject drugs (NASEM, 2017)
• Early vaccination dosing can prevent mother-to-child transmission of HBV (NASEM, 2017)
Collaborate with local, state, and federal corrections departments to reach incarcerated populations who are at increased risk for viral hepatitis. Promote viral hepatitis screening, management, and treatment guidelines, and develop referral systems to social support and physical and mental health programs in correctional facilities.
4. Improve Delivery of Viral Hepatitis Services

- The New York State Department of Health’s Hepatitis C Continuity Program
- He et al.’s article on “Prevention of Hepatitis C by Screening and Treatment of U.S. Prisons”
- TARGET Center’s Creating a Jail Linkage Program: Tools from the Integrating HIV Innovative Practices Program
- Florida Department of Health’s Jail Linkage Program Guidelines and Standards
- CDC’s Correctional Health webpage
4. Improve Delivery of Viral Hepatitis Services

Support and coordinate with community research efforts, such as those that serve key populations, aim to alleviate stigma, or promote health among incarcerated populations.

Work with public and private health plans to lift restrictions and lower costs of treatment therapies.
4. Improve Delivery of Viral Hepatitis Services

- GW Cancer Center’s Action 4 PSE Change example on D.C. Policy Advances to Improve Medicaid Patient Access to Cancer Care
- American Liver Foundation’s Financial Assistance Resources
- National Alliance of State and Territorial AIDS Directors’ Pharmaceutical Company Hepatitis Patient Assistance Programs and Cost-Sharing Assistance Programs
Promote guidelines for HBV screening, management and treatment among pregnant women to prevent mother-to-child transmission.

Promote comprehensive harm reduction strategies that address underlying substance use disorders, such as prevention and treatment services, referrals to opioid agonist therapy, counseling, testing and/or viral hepatitis treatment.
CDC’s overview of Perinatal Transmission of HBV
CDC’s overview of Strategies for Disease Prevention among Persons Who Use Drugs
CDC’s overview of Syringe Services Programs
CDC’s National Prevention Information Network
CDC’s Syringe Services Programs: Developing, Implementing and Monitoring Programs Factsheet
North American Syringe Exchange Network’s Directory of Syringe Exchange Programs
• State and local detention centers and correctional facilities
• National Institute of Corrections
• Local universities and state and local government agencies conducting research
• State health insurance plans
• CDC’s National Prevention Information Network
• Local syringe services programs
• Track progress toward elimination
• Identify spikes in new infections
• Give insight into patterns of access to care
• Help estimate disease prevalence
• Tailor prevention and response programs

NASEM, 2017
Use National Notifiable Disease Surveillance System data to identify trends, inform patterns of access to care, and describe the burden of viral hepatitis in the community.

Support state-level collection of HBV and HCV infection data in the Viral Hepatitis Surveillance Program so additional data are available for program planning.
Resources to:

- CDC’s Guidelines for Viral Hepatitis Surveillance and Case Management
- ASTHO’s Viral Hepatitis Epidemiologic Profiles
- Association of Immunization Managers’ Adult Immunization Resource Guide
• CDC-funded Viral Hepatitis Prevention and Surveillance programs
• CDC’s Viral Hepatitis Prevention Points of Contact
• CDC’s Improving Hepatitis B and C Care Cascades; Focus on Increased Testing and Diagnosis
• CDC’s Strengthening Surveillance in Jurisdictions with High Incidence of Hepatitis C Virus and Hepatitis B Virus Infections
5 Themes of Essential Interventions to Address Viral Hepatitis to Reduce Viral Hepatitis-Associated Liver Cancer

1. Improve Access to HBV Vaccination
2. Increase Knowledge and Awareness of Viral Hepatitis in the Community
3. Increase Knowledge and Awareness of Viral Hepatitis Among Health Care Providers
4. Improve Delivery of Viral Hepatitis Services
5. Conduct Disease Surveillance
How can we help reduce liver cancer morbidity and mortality?

• GW Cancer Center’s worksheet: [What Can Public Health Professionals Do to Help Reduce Viral Hepatitis-Related Liver Cancer?](#)
Poll #3
Thank you!

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Follow us on Twitter: @GWcancer
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