Hepatitis B: Are We on the Road To Elimination?

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B Informed: Hepatitis B Conference
Worldwide Burden of Hepatitis B

• 257 Million with chronic hepatitis B (CHB) infection in the world
  – More prevalent than HIV (37M) and HCV (71M) globally
  – Only 22 M (9%) know their diagnosis

• Liver cancer rates are on the rise globally & in US, largely due to viral hepatitis
Hepatitis B in the World

Prevalence
257 million people living with HBV
68% in Africa /Western Pacific
We are in the Era of Viral Hepatitis Elimination

• We have the tools: screening diagnostics, effective prevention strategies, vaccinations, treatment & cure therapies

• In 2016, World Health Organization (WHO) adopted goal of viral hepatitis elimination by 2030 (193 countries)

• In 2018, the US National Academy of Science (formerly IOM) convened committee for national strategy which concluded:

  “We have the tools to eliminate, but it will require significant resource allocation, commitment, and strategy.”

→ Status quo needs to change
ELIMINATE HEPATITIS

The race to elimination by 2030

Commentary and Analysis

What is required to get us across the finish line:

- Improving data
- Closing gaps in prevention
- Public health approach
- Accelerating innovation
- Scaling-up testing and treatment

FINISH
Elimination by 2030
Hepatitis is Underfunded

<table>
<thead>
<tr>
<th>Virus</th>
<th>Disease Burden in US</th>
<th>CDC NCHHSTP Budget ‘18</th>
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<tbody>
<tr>
<td></td>
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<td>$1,127,000,000</td>
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<tr>
<td>HBV</td>
<td>0.8-2.2 million</td>
<td>Division of Viral Hepatitis- $39 Million</td>
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<td></td>
<td>2.7-3.5 million</td>
<td>3% (for all viral hepatitis, domestic/international)</td>
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<td>HCV</td>
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<tr>
<td>HIV</td>
<td>1.1 million</td>
<td>HIV/AIDS- $788 Million</td>
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<td>69% (domestic, not including international HIV work)</td>
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- Those affected are often the silent minorities, not well represented politically
- Funding impacts research, programs, surveillance, public awareness, provider awareness, progress...
We Are Losing Ground in the Fight Against New Viral Hepatitis Infections

- National progress on hepatitis B prevention has stalled

- New hepatitis C infections increased almost 300% from 2010 – 2015
Status Quo Not Working: What Do We Need?

- Scale up screening in novel ways
- HBV services access
  - Frontline healthcare workers (primary care) doing screening and treating
  - Need medical guidelines simplification
  - Rx affordability
- Prevention: more HBV vaccines, eliminate maternal-child transmission
- Need a movement of patients and community
- More HBV research & cure development!
Screening is the first step

Find The Missing Millions.

World Hepatitis Day 2018

300 million people are living with viral hepatitis and don’t know it. Join us on World Hepatitis Day 2018 in the quest to find the missing millions.

NOhep- Hepatitis Elimination movement
Elimination: Who is on Track with Diagnosis?

Countries on target to reach WHO's interim target of 30% by 2020

Countries not on target to reach WHO's interim target of 30% by 2020

Data not available

Global HBV Dx Rates

Global HCV Dx Rates

Countries on target to reach WHO's interim target of 30% by 2020
Countries not on target to reach WHO's interim target of 30% by 2020
Data not available
HBV Screening Recommended
CDC, USPSTF, Medicare

• Screen high-risk populations, including those
  – Born in HBV prevalent regions (Asia, Africa, Middle East, Eastern Europe, etc)
  – US-born w/ parents born in above countries
  – HIV, IVDA, MSM
  – Living with or sexual partners of HBV+
  – Persons with condition that may require immune-modifying therapy
  – On hemodialysis

HBV screening covered by insurance plans under ACA rules
Impact of national screening strategies: HIV vs HBV Care Cascade

1,200,000 in US with HIV

- 168,000 Unaware & Not in Care
- 480,000 Aware of Infection & In Care
- 552,000 Aware & Not in Care

Routine Screening
One time for all adults, as of 2006

1,250,000 in US with Chronic HBV (low estimate)

- 225,000 Aware & Not in Care
- 990,000 Unaware & Not in Care
- 35,000 Aware of Infection & In Care

Risk-Based Screening

Who Are We Missing?
Patients who didn’t get screened

• 68 year old retired librarian found to have 12 cm HCC (Chinese)
• 65 yo with primary CNS lymphoma w fulminant liver failure 2 to HBV reactivation from chemotherapy (Taiwanese)
• 54 yo wo DM, s/p CVA x2 found incidentally to have cirrhosis 2 to HBV (Haitian)
Novel Screening/Linkage Strategies: ED-Based Automated Screening

- SBMC ED: ~100,000 visits/yr
- Automate screening through EMR algorithm
  - Goal: Integrate into normal workflow seamlessly
  - HBV: Collect country of birth at registration for endemic countries, automatically fires Hbsag order with labwork
  - HCV: date of birth
- Link HBV/HCV patients into care via navigator
Results
Uptick in screening - 2018

HBV/HCV Screening

- Hep B S Ag
- Hep C Ab

JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT
9  12  315  540  849  851  795  751  790  729  734
9  11  637  848  795  765  790  716  647  692
HBV Screening Numbers & Prevalence by Different Countries
Preventing Perinatal HBV Transmission
Low Coverage of HBV Universal Birth Dose

- ~1.8 million 5 year-olds living with HBV globally (2016)
- Yearly, 800-1000 infants infected in US
  - Failure of healthcare system- mother not dx, missed vax
  - Biologic Failures- high viral load
  → Our goal should be 0 infants

“The goal of eliminating perinatal HBV transmission has not been achieved largely because of incomplete coverage of newborns with a birth dose of hepatitis B vaccine” - Institute of Medicine Report (2010)

- HBV Birth Dose Rates in the Americas
  - US: 69%*
  - Dominican Republic 82%, Costa Rica 89%, Mexico 89%, Cuba 99%

*http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6245a4.htm?s_cid=mm6245a4_w
Modeling of PMTCT intervention impact

Incidence of chronic HBV infections under different scenarios (2015-2080)

- Status quo
- HBV infant vaccination coverage >90%
- + Birth-dose coverage >80%
- + Full PMCT 80%

We have the tools. We need a movement.
325M AFFECTED
290M UNDIAGNOSED

WHA FOCUS:
Find The Missing Millions.
The silent epidemic killing more people than HIV, malaria or TB

Viral hepatitis is on the rise. Tackling hepatitis B in Africa is key to fighting back.

FORGOTTEN NO MORE
A long-overlooked scourge of millions, hepatitis B is in the crosshairs at last

By Jon Cohen

n the quest to cure hepatitis B, an infectious disease that affects as many as one in four people worldwide, a small laboratory in a hilly nook of the Rocky Mountains of Idaho plays an outsized role. The lab, two modest-sized buildings that sit a forest off a dirt road, houses 400 woodchucks, also known as groundhogs. These large rodents are a natural host for a cousin of the hepatitis B virus (HBV), making them a favored research model for studying the disease. The center, J. James Whitby, both traps pregnant females in the wild and breeds woodchucks in the colony. These days, he says, “It’s a job keeping up with the demand.” In woodchucks, as in people, the virus is a shape-shifter: It can lie low, tricking itself away in liver cells and giving few signs of its presence. It can establish a chronic infection, drumming out new viruses but doing little harm. Or it can rage, triggering liver damage that can develop into HBV-related cirrhosis or cancer, which kills nearly 600,000 people around the world each year. Whitby’s woodchucks, which his lab infects with the virus to study its life cycle and assess

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Accelerating the elimination of viral hepatitis: a Lancet Gastroenterology & Hepatology Commission
ELIMINATION will not be achieved without involving PEOPLE WHO ARE AFFECTED by viral hepatitis