

Hepatitis B: Are We on the Road To Elimination?

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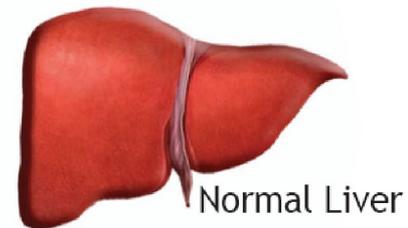
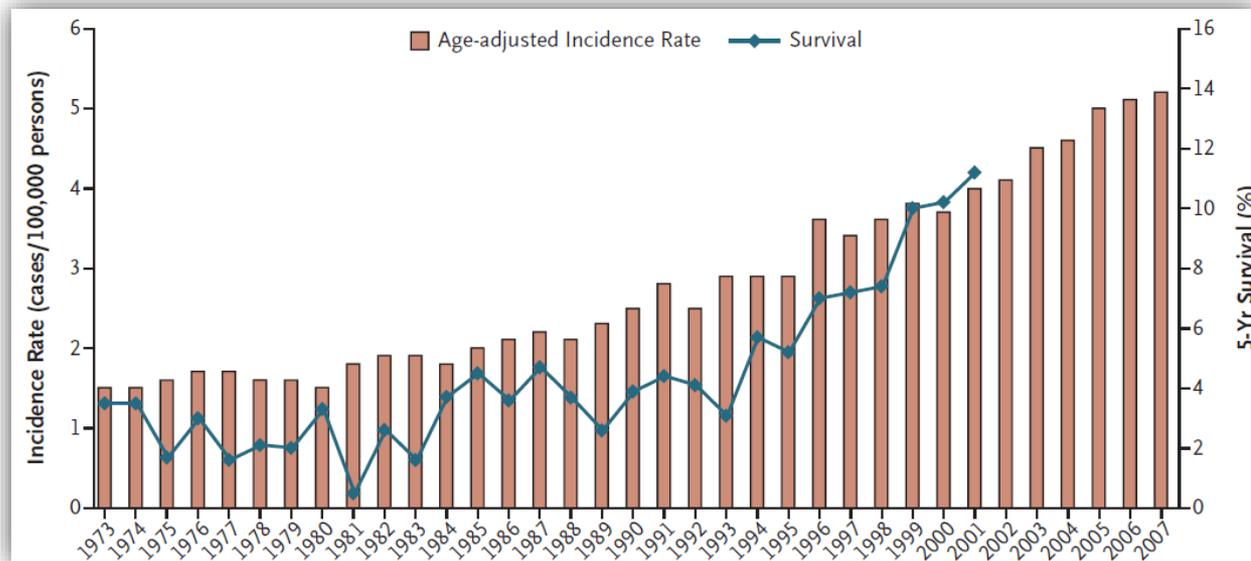
June 6, 2019

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**



Normal Liver



Cirrhosis



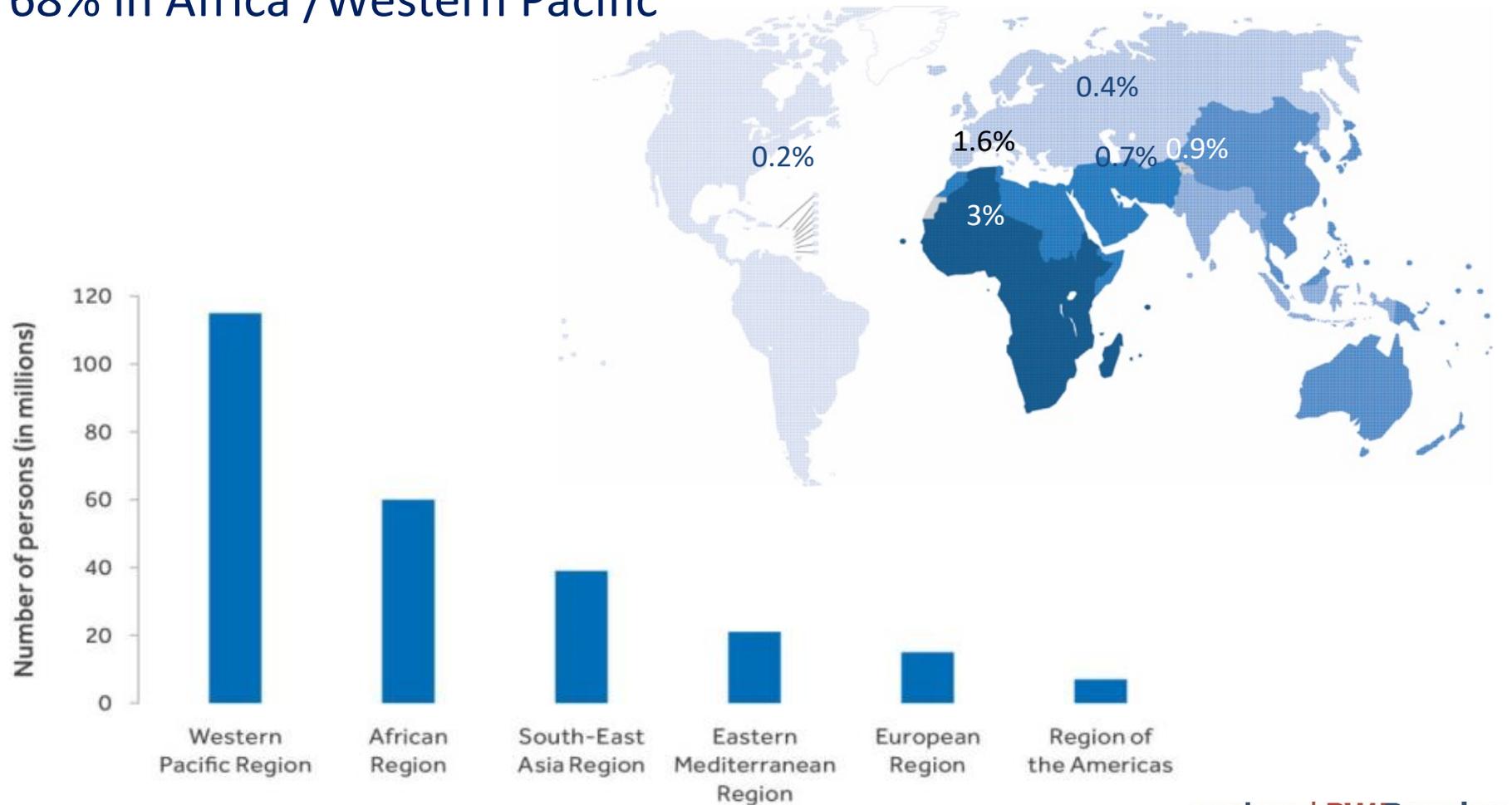
Liver Cancer

Hepatitis B in the World

Prevalence

257 million people living with HBV

68% in Africa /Western Pacific

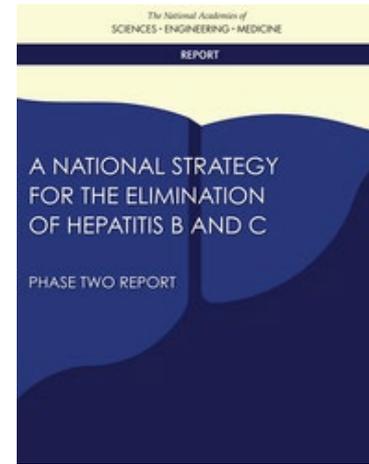
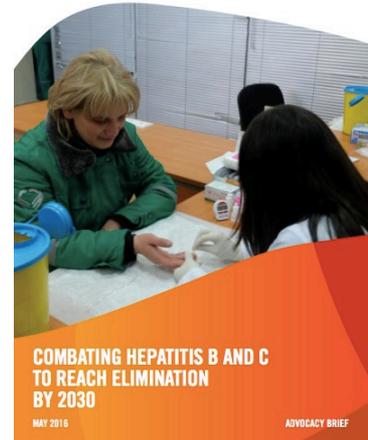


We are in the Era of Viral Hepatitis Elimination

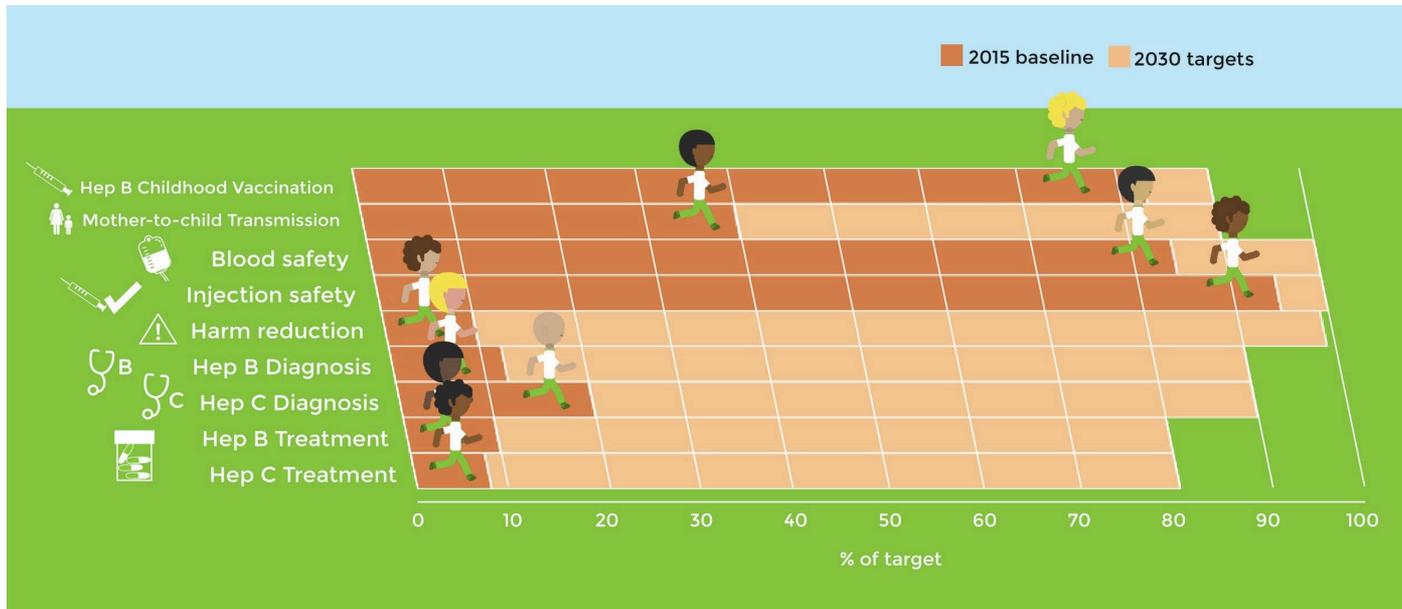
- We have the tools: screening diagnostics, effective prevention strategies, vaccinations, treatment & cure therapies
- In 2016, World Health Organization (WHO) adopted goal of **viral hepatitis elimination by 2030** (193 countries)
- In 2018, the US National Academy of Science (formerly IOM) convened 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



The race to elimination by 2030



Commentary and Analysis

What is required to get us across the finish line:

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

FINISH
Elimination by 2030

Hepatitis is Underfunded

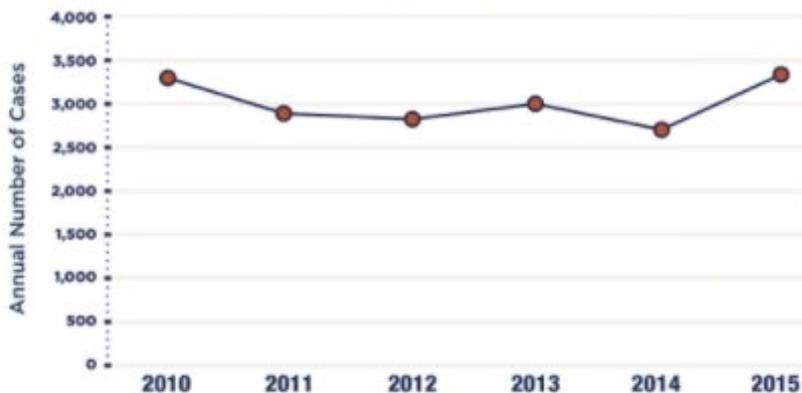
Virus	Disease Burden in US	CDC NCHHSTP Budget '18 \$1,127,000,000
HBV HCV	0.8-2.2 million 2.7-3.5 million	Division of Viral Hepatitis- \$39 Million 3% (for all viral hepatitis, domestic/international)
HIV	1.1 million	HIV/AIDS- \$788 Million 69% (domestic, not including international HIV work)

- 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

Reported Number of Acute Hepatitis B Cases 2010 - 2015

Reported Number of Acute Hepatitis B Cases United States, 2010-2015

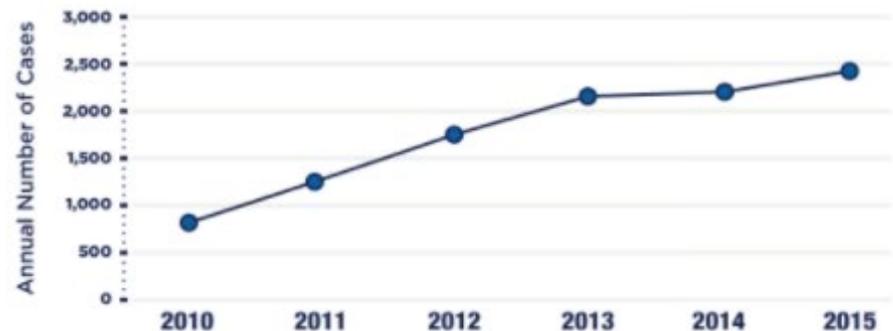


- New hepatitis C infections increased almost 300% from 2010 – 2015

- National progress on hepatitis B prevention has stalled

Reported Number of Acute Hepatitis C Cases 2010 - 2015

Reported Number of Acute Hepatitis C Cases United States, 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.



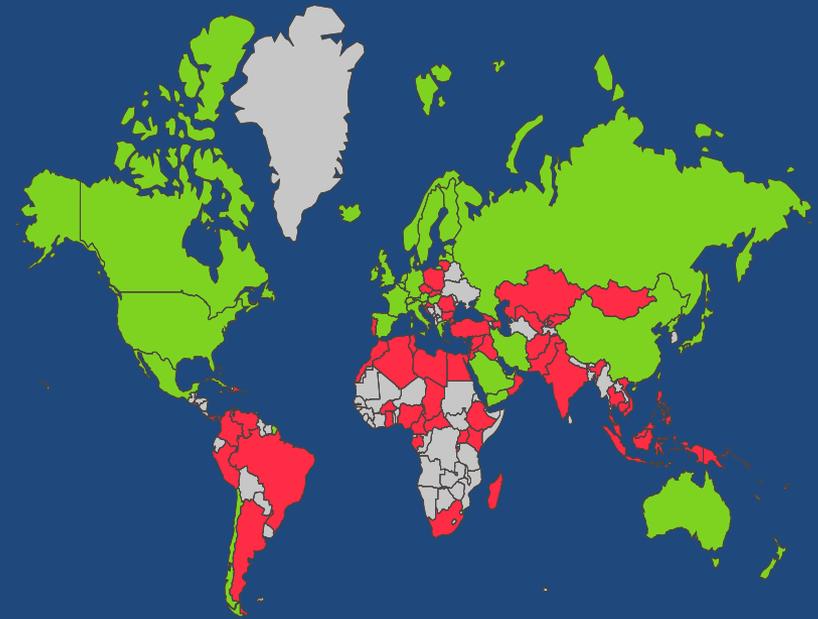
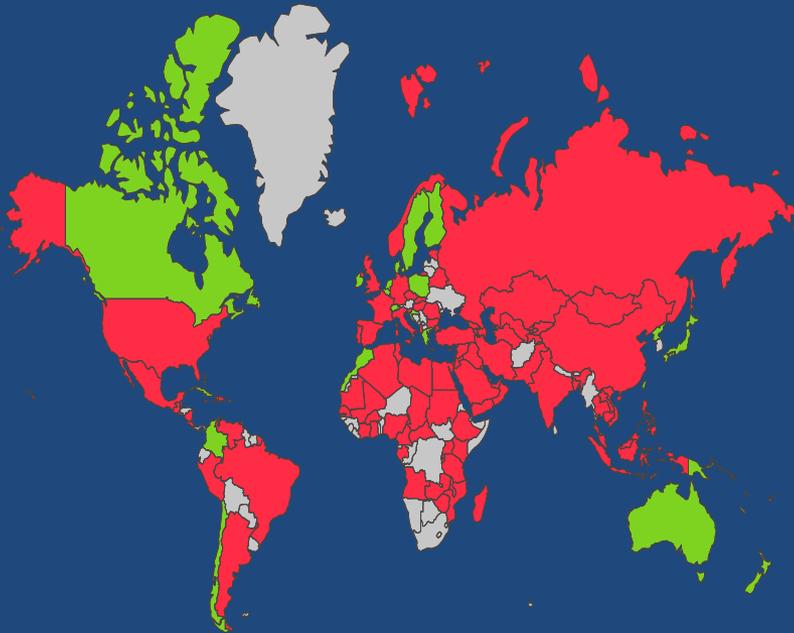
NOhep- Hepatitis Elimination movement



Elimination: Who is on Track with Diagnosis?

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

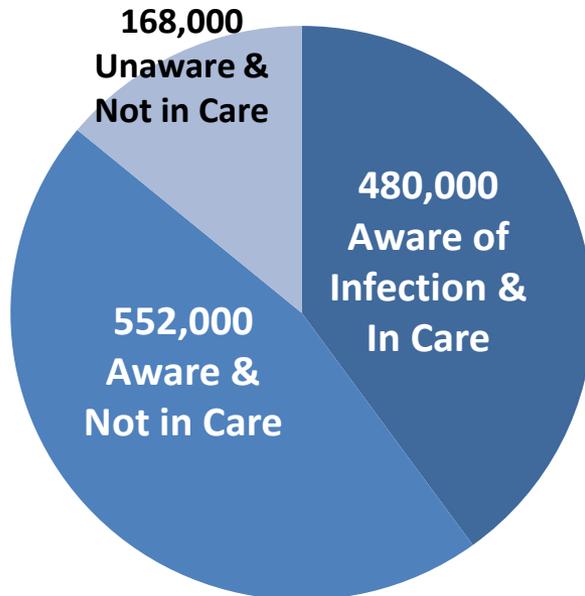
**HBV screening covered by insurance plans
under ACA rules**



Impact of national screening strategies: HIV vs HBV Care Cascade

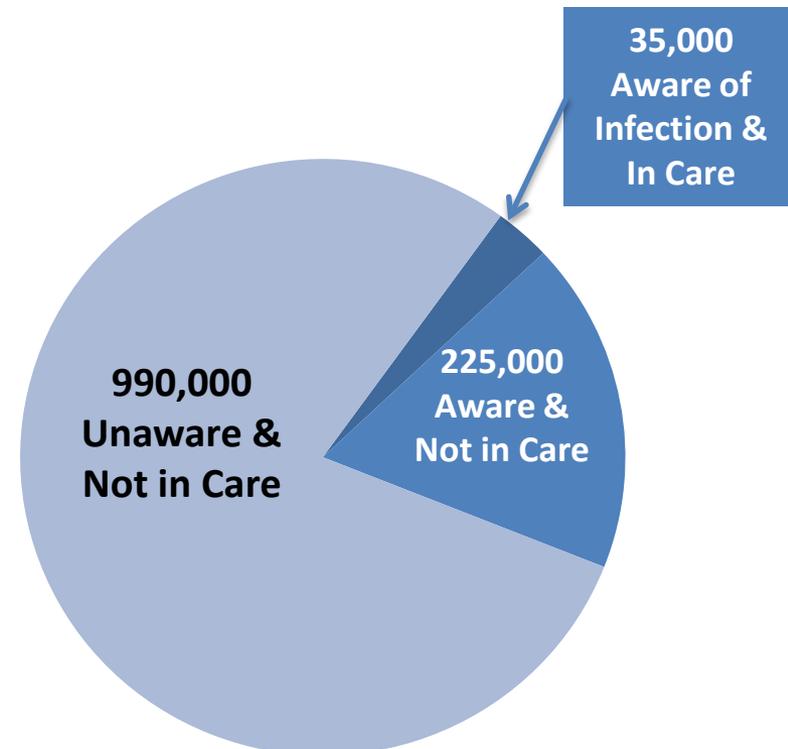
1,200,000
in US with HIV

Routine Screening
One time for all adults,
as of 2006



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

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

Saint Barnabas Medical Center Provides Hepatitis B & C Testing



This facility performs **HBV** and **HCV** testing as part of our routine health care, as recommended by the U.S Centers for Disease Control and Prevention (CDC). Chronic hepatitis is the leading cause of liver cancer.

Your healthcare provider may order these tests if you have not been tested within the past year in our network and you are considered at-risk:

- **Hepatitis C** -- If you were born between 1945-1965
- **Hepatitis B** -- If you were born in a country where HBV is endemic

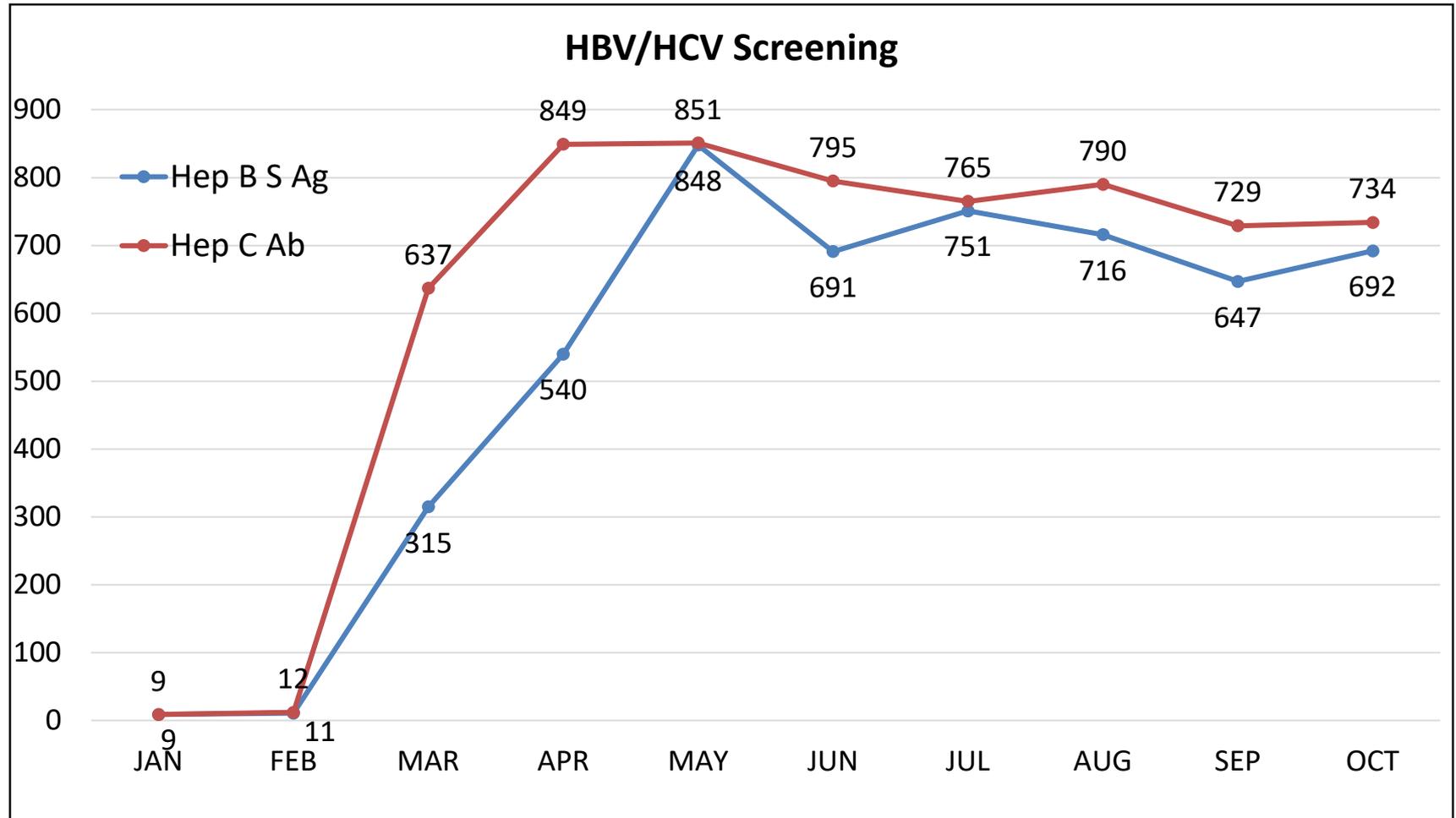
Incorporating hepatitis testing into routine care helps to diagnose patients and offer them care and treatment before the disease progresses.

If you test positive, you will be contacted for further follow-up.

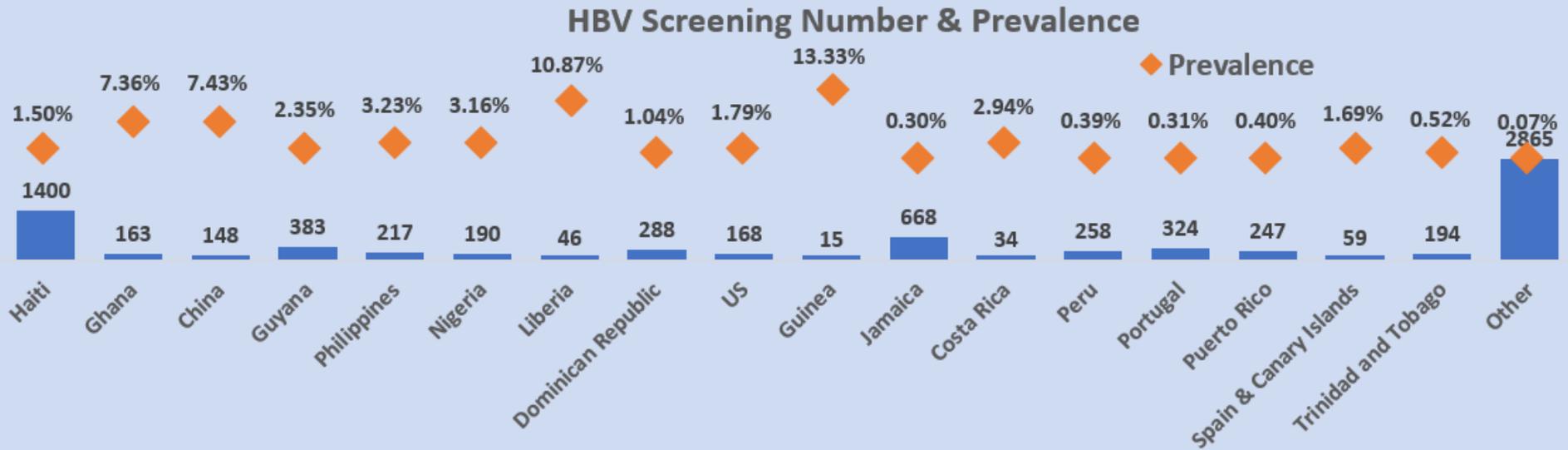
*I understand that notification is contingent on providing accurate contact information.

Results

Uptick in screening- 2018



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

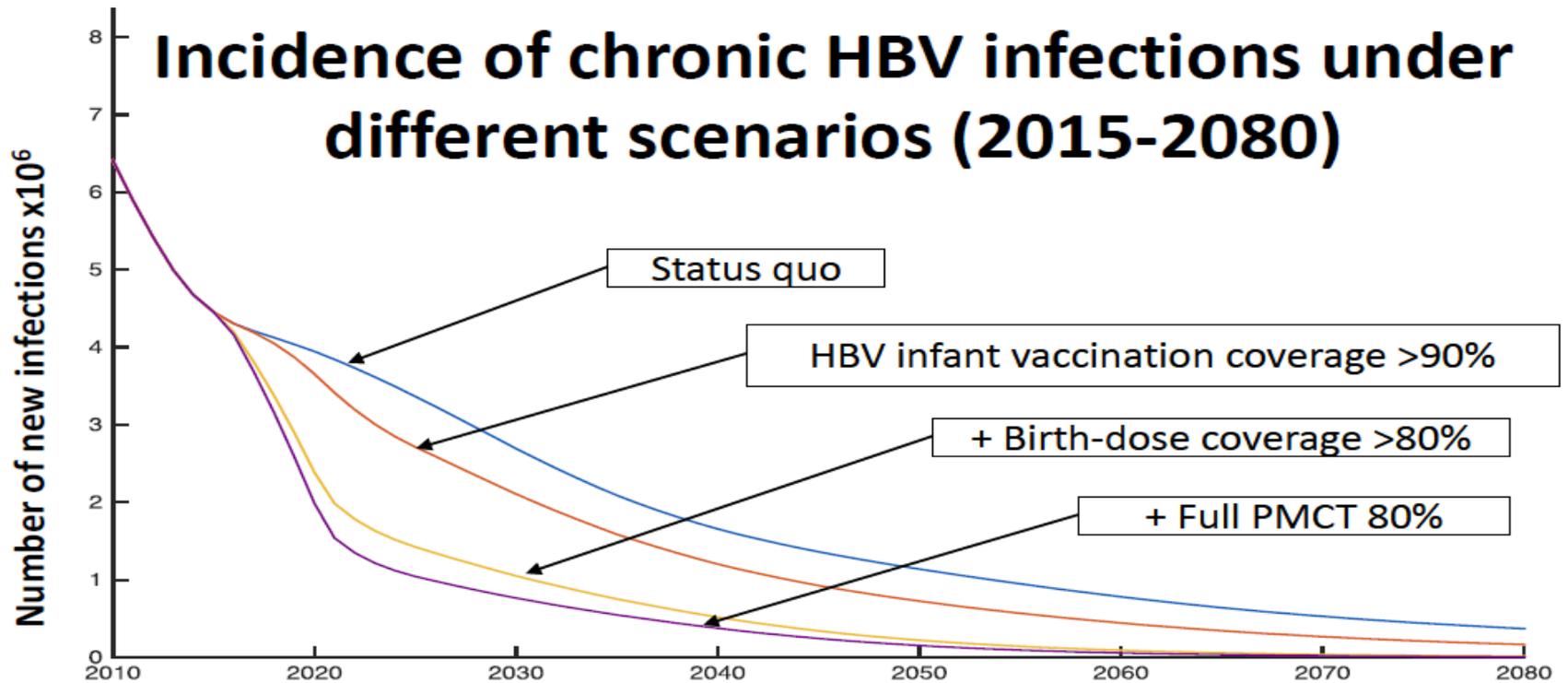
“The goal of eliminating perinatal HBV transmission has not been achieved largely because of incomplete coverage of newborns with a birth dose of hepatitis B vaccine” - Institute of Medicine Report (2010)

- **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

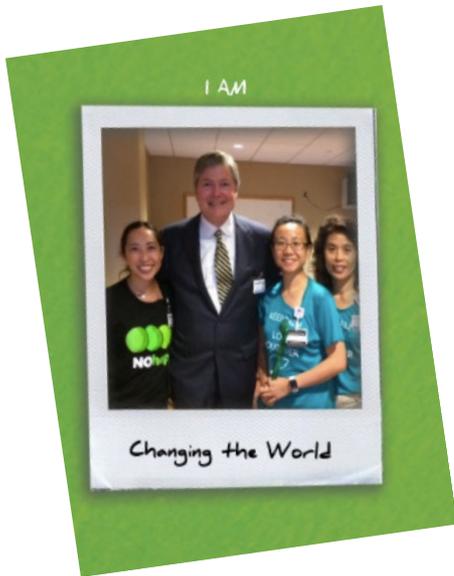
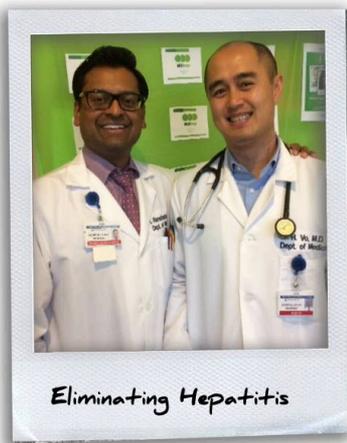
^ <http://www.iom.edu/Reports/2010/Hepatitis-and-Liver-Cancer-A-National-Strategy-for-Prevention-and-Control-of-Hepatitis-B-and-C.aspx>

Modeling of PMTCT intervention impact



Razavi, Homie "Presentation to PAHO Technical Advisory Group", Center for Disease Analysis, Polaris Observatory, <http://polarisobservatory.org>

We have the tools. We need a movement



325M AFFECTED
290M UNDIAGNOSED



Diagnosis and awareness

Demand access

Drive prevention

Create support

Encourage innovation

Save lives

WHA FOCUS:

Find The Missing Millions.

FEATURES



FORGOTTEN NO MORE

A long-overlooked scourge of millions, hepatitis B is in the crosshairs at last

By Jon Cohen

In the quest to cure hepatitis B, an infectious disease that afflicts as many as one in four people worldwide, a small laboratory in a lonely nook of the Rocky Mountains in Idaho plays an outside role. The lab, two nondescript buildings that about a forest off a dirt road, houses 600 woodchucks, also known as groundhogs. These large rodents are

a natural host for a cousin of the hepatitis B virus (HBV), making them a favorite research model for studying the disease. The owner, James Whipple, 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, tucking it-

self away in liver cells and giving few signs of its presence. It can establish a chronic infection, churning 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 900,000 people around the world each year. Whipple's woodchucks, which his lab infects with the virus to study its life cycle and assess

PHOTO: JACQUES TOFFI/ALAMY

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.

NEWS FEATURE • 05 DECEMBER 2018 •

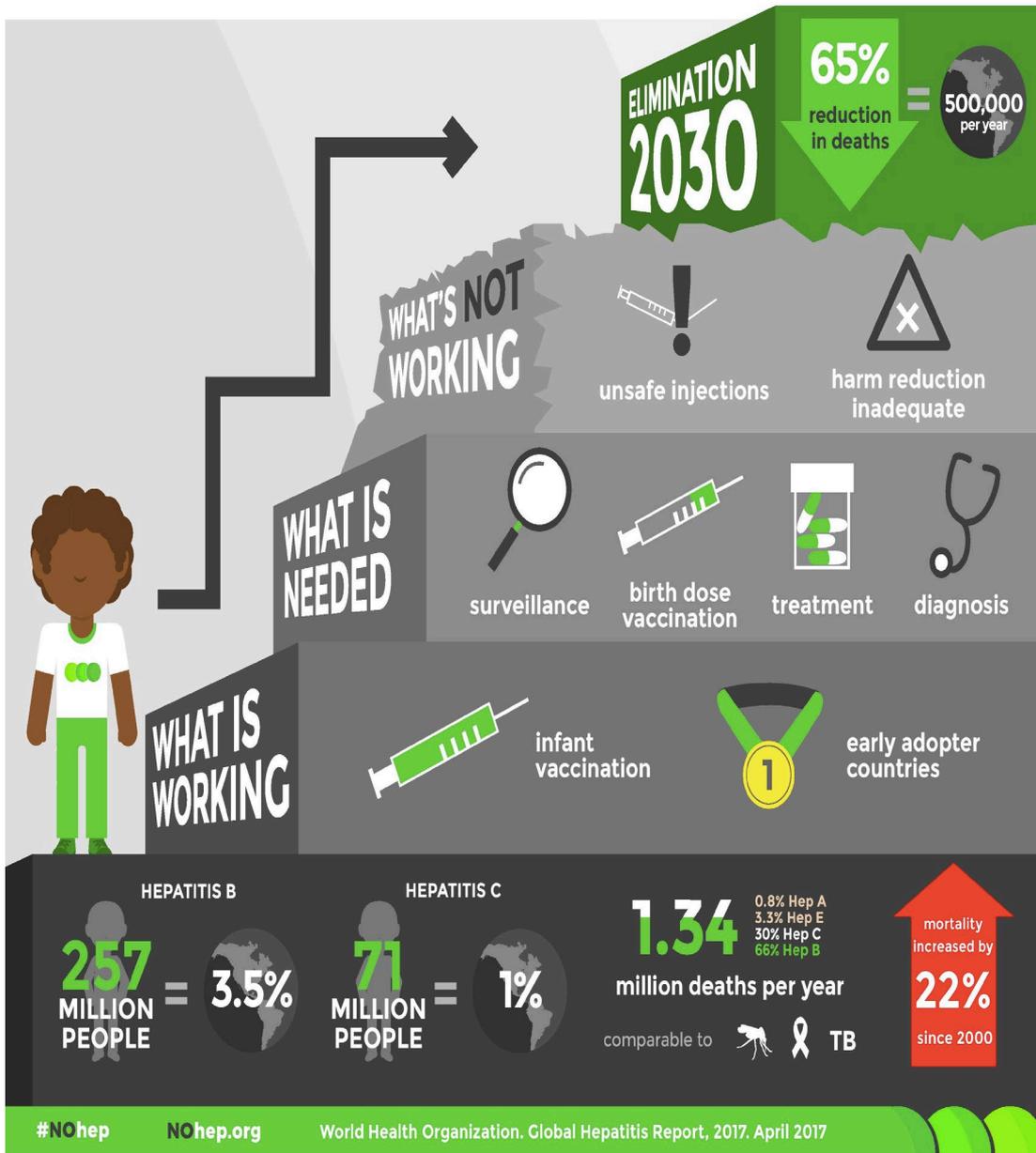


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Accelerating the elimination of viral hepatitis: a *Lancet Gastroenterology & Hepatology* Commission



ELIMINATE HEPATITIS





ELIMINATION

will not be achieved without involving
PEOPLE WHO ARE AFFECTED
by viral hepatitis

