Placing the Nation on the Path Toward the Elimination of Hepatitis C

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Centers for Disease Control and Prevention
## Persons Living With HBV and HCV Infections - United States

<table>
<thead>
<tr>
<th>Virus</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBV</td>
<td>740,000 – 2.3 million</td>
</tr>
<tr>
<td>HCV</td>
<td>2.7 – 3.5 million</td>
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</tbody>
</table>
Viral Hepatitis Mortality by Virus Type

N=21653

- Hepatitis A
- Hepatitis B
- Hepatitis C

Effective Interventions

- **Primary prevention (transmission)**
  - Hepatitis B vaccination
  - Safe blood supply
  - Infection control
  - Syringe services/ drug treatment
  - Treatment and antiviral therapy

- **Secondary prevention (disease)**
  - Testing
  - Linkage to care
  - Treatment and cure
Hepatitis B

- Infants of HBsAg-positive women, 1984
- High-risk groups*, 1982
- Universal maternal HBsAg testing 1988
- All US infants, 1991
- Ages 0-18 years, 1999
- Birth dose, 2006
- Adults <60 years with Diabetes

*Health care providers, MSM, IDU, hemodialysis patients, household & sexual partners of persons with chronic HBV, persons in certain institutional settings, e.g., inmates of long-term correctional facilities.

Source: National Notifiable Disease Surveillance System (NNDSS)
Hepatitis B Vaccination Coverage 2012-2014

MMWR 2015 / 64(04);95-102; MMWR August 29, 2014 / 63(34);741-748 CDC. Gov/vaccines
http://www.cdc.gov/vaccines/imz-managers/coverage/index.html
900 infants each year develop chronic HBV
Testing omissions, failures
100-150 infants at risk of HBV mortality

• To reduce vaccine failures
  – Improve birth dose coverage
  – Perinatal management
  – Consider additions
    • eAg/ HBV DNA testing for HBsAg+ mothers
    • Anti-viral prophylaxis
Most New Reports of HBV in the United States Are Among the Foreign Born

Global Burden of HBV Disease

740,000-2.3 million chronic HBV infections
Benefits of HBV Testing, Care and Treatment: Lower Risk of Liver Cancer

- US cohort observed for 5 years
  - 50% decline in liver cancer with HBV therapy (median 45 mos.)
  - 83% reduction for persons with viral load >20,000 IU/mL
- Studies in Asian countries
  - 56%-78% reduction in risk
  - Benefit for patients with and without cirrhosis
- New therapies in development

Twin Epidemics of HCV Transmission and Disease

Rising Number of New Acute HCV Cases related to injection drug use
Twin Epidemics of HCV Transmission and Disease continued

HCV seroprevalence highest for persons born 1945-1965

- 5 fold higher prevalence than others (3.39%)
- 81% of all HCV infected adults
- 73% of HCV related deaths
Benefits of HCV Curative Therapies

- 50%-74% reduction in all cause mortality
- 75% reduction in liver cancer
- 93% reduction in liver failure
- 93% reduction in liver–related mortality

Source: van der Meer JAMA 2012, Morgan Ann Int Med 2012
Multi-Component Interventions for HCV Prevention

A combination of *readily-available* and *low threshold* OAT (with methadone and/or buprenorphine) and SEPs have been shown to:

- Reduce syringe sharing
- Lower injecting risk
- Reduce incidence of HIV and HCV
  - Up to 80% in UK
  - Three fold - New York

OAT: Opioid Agonist Treatment
SEP: Syringe Exchange Programs

Antiviral Therapy Might Be Used to Reduce HCV Prevalence Among Injecting Drug Users

- Annually treating 10 HCV infections per 1000 IDU and achieve SVR of 62.5%
- Projected to result in a relative decrease in HCV prevalence over 10 years of 31%, 13%, or 7% for prevalences of 20%, 40%, or 60%, respectively
- Can the HIV model of “Treatment as Prevention” be applied to HCV?

Martin et al. Journal of Hepatology 2011 vol. 54 j 1137–1144
HCV Elimination Model for the United States

- Elimination requires preventing transmission of incident infections, and curing chronic HCV infections
  - *Reach, test, treat, cure and prevent every case*

- Determine feasibility of eliminating HCV in the US by modeling different elimination strategies
- Compare cost-effectiveness of multiple HCV elimination strategies
- Model will serve as a guide to develop a comprehensive strategy for eliminating HCV in the US
Establishing Public Health Policy

Institute of Medicine
Hepatitis and Liver Cancer: A National Strategy for Prevention and Control of Hepatitis B and C

World Health Assembly Resolution 63.18: Comprehensive Hepatitis Prevention and Control- 2010

A Comprehensive Plan for Viral Hepatitis Prevention, Care, and Treatment United States
Plans for Elimination of Hepatitis B and Hepatitis C

• WHO

• Georgia

• Cherokee Nation (US)

• United States ?
Proposal for Institute of Medicine

A National Strategy for the

Elimination of Hepatitis C and Hepatitis B
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A National Strategy for the Elimination of Hepatitis B and C Charge

- Phase I (September 1, 2015 – April 1, 2016)
  - Determine whether elimination goals for hepatitis B and hepatitis C are feasible
  - Identify possible critical success factors

- Phase II (if exercised, ten months from second task order initiation - target start date is April 1, 2016)
  - Prepare a consensus report that would propose feasible disease incidence and mortality elimination goal(s) to be reached by 2030
  - Specify a plan of action to achieve the goals
Propose feasible elimination goals for Hepatitis C and Hepatitis B

- Mortality
- Incidence
- Elimination goals can be a reduction to zero or below a certain number or rate reached by a certain date (e.g., 2030)
- Based on assessment of key considerations –
  - Epidemiology- transmission, burden of disease
  - Current and potential (modelings) of effectiveness of interventions
  - Capacity of service delivery
Institute of Medicine
A National Strategy for the Elimination of Hepatitis B and C
PROVISIONAL STUDY COMMITTEE

- CHAIR: Brian Strom, MD, MPH – Rutgers, The State University of New Jersey, Newark
- Daniel Church, MPH – Massachusetts Department of Health
- Alison Evans, ScD – Drexel University School of Public Health
- Vincent Lo Re, MD, MSCE – University of Pennsylvania
- Kathleen Maurer, MD, MBA – Connecticut Department of Correction
- Arthur Reingold, MD – University of California, Berkeley
- Neeraj Sood, PhD – University of Southern California, Schaeffer Center for Health Policy & Econ
- Grace Wong, MD – International Community Health Services
- Lucy Wilson, MD – Maryland Department of Health and Mental Hygiene
- Jon Andrus, MD – Sabin Vaccine Institute
- Paul Kuehnert, MS, RN – Robert Wood Johnson Foundation
- Randall Mayer, MS, MPH – Iowa Department of Public Health
- Shruti Mehta, PhD, MPH – Johns Hopkins Bloomberg School of Public Health
- Stuart Ray, MD – Johns Hopkins Bloomberg School of Public Health
- Samuel So, MD – Stanford University of Medicine
- Su Wang, - New York University

Source: National Academies of Science, Committee Membership Information
http://www8.nationalacademies.org/cp/CommitteeView.aspx?key=49749
Institute of Medicine
A National Strategy for the Elimination of Hepatitis B and C
COMMITTEE MEETINGS FOR PHASE I

PHASE I CHARGE
Examine scientific and policy issues related to the prevention, detection, control, and management of HBV and HCV to determine whether elimination goals for hepatitis B and hepatitis C in the United States are feasible and to identify possible critical success factors.

PHASE I MEETING SCHEDULE
Nov. 30
AM: Bias and Conflict-of-Interest Discussion with IOM Executive Officer (closed)
    Discussion of the statement of task “the charge” with the study sponsors (open)
PM: Public testimony and discussion of the feasibility of hepatitis B elimination (open)

Dec. 1
AM: Public testimony and discussion of the feasibility of hepatitis B elimination (open)
PM: Committee deliberations and conclusions about hepatitis B elimination (closed)

Dec. 16
ALL DAY: Public testimony and discussion of the feasibility of hepatitis C elimination (open)

Dec. 17 ALL DAY: Committee deliberations and conclusions about hepatitis C elimination (closed)
Specify a plan of action to achieve elimination goals

- Key intervention – testing, treatment, harm reduction
- Roles of key stakeholders (e.g., public health, clinical care, substance abuse, correctional health services)
- Address barriers (e.g., policy issues, capacity, costs, equity)
- Identify prevention research or technology development needs
Setting HBV and HCV Elimination Targets

Rationale

• Mobilize partners

• Improve prioritization

• Drive innovation

• Increase interest in capacity building

• Provide measures of progress and accountability
It took us 25 years to bring him to his knees... now let's finish him off!...
Rationale for Elimination Targets
Lessons learned from HIV, TB, Other Programs

• **Targets** trigger action (e.g. «3 by 5» target set for HIV in 2002) – price reductions, access has dramatically increased
• Important factors: **simplification**, public health approach
• A **strong civil society movement** was/is essential
• **Solidarity** followed – establishment of the Global Fund; USG Programme (PEPFAR), UNITAID. Foundations
• Development of HIV programmes and **national action plans** in all countries
• **Accountability**: countries report back to World Health Assembly
• Global strategies guide the «**what to do**»
### DVH Strategic Plan 2016–2020: Strategic Imperatives and Objectives

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<tr>
<th>Strategic Imperatives (SI)</th>
<th>Objectives</th>
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<td>Assure vulnerable populations are vaccinated</td>
<td>• Optimize hepatitis A and hepatitis B vaccination strategies.</td>
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<td>Detect and stop viral hepatitis transmission particularly HCV</td>
<td>• Implement HBV testing/prophylaxis to improve maternal/infant health.</td>
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<td>Assure all persons living with viral hepatitis are identified and linked to care and treatment services</td>
<td>• Reduce HCV transmission associated with drug use.</td>
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<td>Act globally to prevent, detect, and control viral hepatitis</td>
<td>• Improve detection and reporting of new/recent infections.</td>
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<td>• Investigate transmission networks</td>
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<td>• Improve HCV prevention strategies.</td>
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<td>• Educate the public and providers</td>
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<td>• Improve the HCV and HBV testing, care, and treatment cascade.</td>
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<td>• Monitor the implementation and impact of CDC testing recommendations, update policies, and promote advances in test technologies</td>
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<td>• Support World Health Organization (WHO) development of technical guidance and policies for viral hepatitis.</td>
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<td>• Assist priority countries implement, and evaluate prevention strategies</td>
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<td>• Disseminate prevention and control strategies and tools.</td>
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