The Opportunity to Eliminate Viral Hepatitis as a Public Health Threat

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VHPB, Vilnius Lithuania
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The Task Force for Global Health

• Mission
  • Control, eliminate, and eradicate debilitating diseases that affect vulnerable populations

• Current disease elimination/eradication programs
  • Eliminate trachoma, onchocerciasis, LF
  • Eradicate polio

• New focus: HBV and HCV elimination

Alan Hinman
Infection and Disease
Control, Elimination and Eradication

Control
- Below acceptable levels (e.g., flu)

Elimination
- Zero cases in an area (e.g., measles)
- Below a certain rate (e.g., TB)
- A proportional decrease (e.g., malaria)
- As a public health threat (LF, Chagas)

Eradication
- Zero cases globally (e.g., smallpox)

Prevention Interventions

Ongoing - Ongoing - Cease
Disease Elimination and Eradication

• **Guiding Principle** - Health equity

• **Goals**
  - Primary: Improved health through disease reduction /elimination
  - Secondary: Strengthen health systems

• **The importance of targets**
  - Sense of urgency
  - Accountability
  - Attract and sustain stakeholder interest

HBV and HCV Meet Criteria for Disease Elimination

- **Biologic feasibility**-
  - Humans required for replication
  - No intermediate hosts, or environmental propagation

- **Technical feasibility**-
  - Prevent transmission-
    - Hepatitis B vaccine >95% efficacy
    - Prevent parenteral blood exposures and sexual contact (HBV)
  - Prevent mortality – HBV and HCV treatment
    - HBV treatment- long term viral suppressive therapy
      - Reduced risk of liver cancer (50%) and all cause mortality (40%)
    - HCV treatment and cure
      - Reduced risk of liver cancer (80%) and cause mortality (75%)
  - Reliable, widely available tests- high sensitivity and specificity
HBV and HCV Are Large Public Health Problems

- **HBV**
  - 257 million persons with chronic HBV
  - 799,000 deaths

- **HCV**
  - 71 million persons with current HCV
  - 580,000 deaths

Sources – WHO (LSHTM); Lancet 2016; 388: 1459–544
Eliminate Hepatitis B Virus and Hepatitis C Virus as Public Health Threats by 2030

Global endorsement
World Health Assembly
International Task Force for Disease Eradication

# Benefits and Cost of Full Implementation of HBV and HCV Elimination Strategies

## HBV

<table>
<thead>
<tr>
<th>Prevent</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.7 M new infections</td>
<td>Annual $5.5b</td>
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<tr>
<td>7.3 M deaths</td>
<td>Total $88.7b</td>
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## HCV

<table>
<thead>
<tr>
<th>Prevent</th>
<th>Cost</th>
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<tbody>
<tr>
<td>12 M infections (85% reduction)</td>
<td>Annual $4.8b (max) (2021)</td>
</tr>
<tr>
<td>2.1M deaths (68% reduction)</td>
<td>Total $51b</td>
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<td>Cost saving by 2027</td>
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Monitoring Implementation to Reach HBV and HCV Elimination Goals

- HBV-Vaccination
- HBV-PMTCT
- Blood safety
- Injection safety
- Harm reduction
- HBV – Diagnosis
- HCV – Diagnosis
- HBV – Treatment
- HCV – Treatment

Coverage (%)

- 2015 baseline
- 2030 targets
Since 2000, 83% and 91% Reduction in Health-Care Related HBV and HCV Transmission, Respectively

• In 2010, health-care injections accounted for approximately 315,000 HCV and 1.7 million HBV infections

• Implement three step prevention strategy
  • Reduce injection use
  • Provide sufficient quantities of safe equipment
  • Dispose medical waste properly

• Introduce reuse prevention syringes

• Strengthen blood-transfusion services for quality testing of blood donations
Hepatitis B Vaccination
Western Pacific Region Achieved Goal of <1% of Children with HBV by 2017

Western Pacific Region

- Strategic information to guide planning
- Plans with time limited goals and financing
- Implementation platform and tools
- Accountability
- Strategic information to monitor progress
- Certification process to document achievement of goal

The Challenge to HBV Elimination
Hepatitis B Vaccination of Newborns

• High infant immunization coverage globally, 84%

• Perinatal transmission will cause 50% of new chronic HBV infections by 2030

• Newborns highest risk of severe HBV disease and liver cancer

• Lowest coverage in Sub-Saharan Africa ~10%

• GAVI support for Hep B birth dose vaccination (2021)

• Barriers to implementation in GAVI-eligible countries

WHO global hepatitis report
Of 179 Countries, 52% and 48% Lack Syringe Services and Opioid Substitution Services, Respectively

- Drug treatment and safe injection equipment reduces HCV transmission risk by 71%

- Models indicate HCV cure as prevention (CAP) strategies reduce risk by > 90%

<table>
<thead>
<tr>
<th>Region</th>
<th>Recipients of drug treatment per 100 PWID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Europe</td>
<td>(16/18)</td>
</tr>
<tr>
<td>Western Europe</td>
<td>(25/27)</td>
</tr>
<tr>
<td>East and SE Asia</td>
<td>(7/16)</td>
</tr>
<tr>
<td>South Asia</td>
<td>(5/9)</td>
</tr>
<tr>
<td>Central Asia</td>
<td>(2/5)</td>
</tr>
<tr>
<td>Latin America</td>
<td>(2/18)</td>
</tr>
<tr>
<td>Canada &amp; US</td>
<td>(2/2)</td>
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<tr>
<td>Australia &amp; NZ</td>
<td>(2/2)</td>
</tr>
<tr>
<td>Middle East &amp; N Africa</td>
<td>(2/2)</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>(4/16)</td>
</tr>
<tr>
<td>Global</td>
<td>(70/151*)</td>
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</tbody>
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<table>
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<tr>
<th>Region</th>
<th>Needles/syringes distributed per PWID per year</th>
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</table>

* (Number of countries reporting implementing OST, of those with injecting drug use identified)

Larney S, Lancet Glob Health. 2017
HCV and HBV Deaths will Surpass Deaths from HIV, TB and Malaria by 2040

Global Burden of Disease
HBV and HCV are Under-diagnosed and Under-treated Infections

HBV 257 million
Global: Diagnosed 9%; On treatment 1%

HCV 71 million
Global: Diagnosed: 20%; Treated 4%

cdc.gov/hepatitis
Elimination Programs Improve Access in Country of Georgia

- ~150,000 HCV RNA+ persons; 5.4% prevalence
- Goal: 90% diagnosed; 95% treated; 95% cured by 2020
- >50,000 HCV RNA+ persons treated
- Key tools
  - National planning
  - Data to guide and evaluate program
  - Health system strengthening
  - Political support
  - Partnerships – Gilead, Abbott, CDC, State, WHO,
Strategies to Improve Access to HBV and HCV Testing and Treatment

Medicine access –
- Ensure priority for HBV and HCV treatment
- Access generics where available - HCV ($75-900/course); HBV (<$50/year)
- Consider compulsory licensing for countries that cannot access generics
- Ensure access policies (by originator companies) for low/low-middle income settings (WHO Essential Medicines List, Treatment guidelines)
- Companies use WHO prequalification program and access collaborative registration process

Medicine delivery
- Simplify care algorithms to promote task shifting from specialist to primary care
- Implement care models that promote adherence and engage marginalized populations
- Remove policy barriers to treatment (e.g. stage of disease, drug use)

“Develop investment cases for viral hepatitis, demonstrating the returns on investment by achieving elimination”
Other Elimination Efforts in Progress

- Other national programs
  - Iceland, India, Mongolia, Morocco, Rwanda

- Sub-national programs
  - Punjab India
  - US (Washington state, San Francisco)

- Pilot projects (“micro-elimination”)
  - HIV
  - Incarcerated
  - PWID
  - Clinical care systems

- Various implementers  CHAI, MSF, PIH, Unitaid, CDC

“Sharing these experiences will help all countries make progress towards elimination”
A Coalition for Global Hepatitis Elimination

• Rationale
  • Elimination programs are new and often disconnected from others
  • No primary external funding resource
  • Internal resources for service integration within existing health systems
  • Coalitions function as technical hubs for other global health initiatives

• Recommended
  • International Task Force for Disease Eradication- 2017
  • WHO Meeting of Global Partners for Viral Hepatitis Elimination  -2019
  • The Lancet Commission to Accelerate Progress toward Viral Hepatitis Elimination  - 2019
Coalition for Global Hepatitis Elimination

Launch by June 2019

<table>
<thead>
<tr>
<th>Community of Practice</th>
<th>HEPEXPERT Evidence base</th>
<th>Technical Assistance</th>
<th>Operational Research</th>
<th>Awareness and Advocacy</th>
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</thead>
<tbody>
<tr>
<td>• Contact</td>
<td>• Compile</td>
<td>• Connect</td>
<td>• Convene</td>
<td>• Engage</td>
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<tr>
<td>• Share</td>
<td>• Assess</td>
<td>• Respond</td>
<td>• Coordinate</td>
<td>• Inform</td>
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Summary

• HBV and HCV elimination are rare opportunities for major improvements in health

• The progress toward elimination is substantial

• Model programs provide examples of best practices

• Collaboration and information sharing can help current and new program achieve elimination goals
VHPB
Vilnius Lithuania

- Hepatitis C treatment non-responders, reinfection, relapse
  - Failures; frequency, risks, options for retreatment
  - Reinfection: Testing and treatment for persons who inject drugs, men who have sex with men
- Hepatitis B Vaccine Non-Responders
  - Populations at risk
  - Policies for re-vaccination and post vaccination testing
- Occult Hepatitis B and reactivation
  - Detection and management
  - Implication for vaccination