Closing the gaps in the hepatitis C care cascade

4th August 2021

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Global Hepatitis Programme
Global HIV, Hepatitis and STIs Programmes
World Health Organization
Elimination of viral hepatitis as a major public health threat by 2030
New WHO Elimination Guidance for country validation of viral hepatitis elimination

<table>
<thead>
<tr>
<th>Option</th>
<th>Options for validation of elimination</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>HBV EMTCT (as part of triple elimination of syphilis and HBV, or HIV/HBV)*</td>
</tr>
<tr>
<td>B</td>
<td>HCV as a public health problem</td>
</tr>
<tr>
<td>C</td>
<td>HBV as a public health problem (including HBV EMTCT)</td>
</tr>
<tr>
<td>D</td>
<td>Elimination of both HBV and HCV a public health problem (including HBV EMTCT)</td>
</tr>
</tbody>
</table>

**Elimination targets**

<table>
<thead>
<tr>
<th>HBV- and HCV-specific absolute prevalence, incidence and mortality targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030 GHSS relative reduction reference targets (compared to 2015)</td>
</tr>
<tr>
<td>HBV EMTCt</td>
</tr>
<tr>
<td>HCV EMTCt</td>
</tr>
</tbody>
</table>

**Programmatic targets**

<table>
<thead>
<tr>
<th>Countries with universal HBV vaccine birth dose (BD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;90% HepB3 vaccine coverage</td>
</tr>
<tr>
<td>&gt;90% HepB timely hepatitis B BD (HepB-BD) coverage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Countries with targeted HBV vaccine birth dose (BD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;90% HepB3 vaccine coverage</td>
</tr>
<tr>
<td>&gt;90% coverage of those infants at risk with targeted HepB-BD</td>
</tr>
<tr>
<td>&gt;90% coverage of maternal antenatal HBsAg testing</td>
</tr>
<tr>
<td>&gt;50% coverage with antivirals for those eligible</td>
</tr>
</tbody>
</table>

**Elimination of chronic HBV infection as a public health problem**

<table>
<thead>
<tr>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% reduction</td>
<td>65% reduction</td>
</tr>
</tbody>
</table>

**Elimination of chronic HCV infection as a public health problem**

<table>
<thead>
<tr>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% reduction</td>
<td>55% reduction</td>
</tr>
</tbody>
</table>

**Annual mortality (HBV)**

- ≤4/100,000

**Annual incidence (HCV)**

- ≤5/100,000
- ≤2/100,000 (PWID)

**Testing and treatment**

- >90% of people with HBV diagnosed
- >80% of people diagnosed with HBV and eligible for treatment are treated

**Prevention**

- 0% unsafe injections
- 100% blood safety
- 300 needles/syringes/PWID/year

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*https://www.who.int/publications/i/item/9789240028395*
New WHO Global Progress Report (Hepatitis B and C)

New 2019 data on Incidence, burden, mortality, testing/treatment cascade

**Highlights**

- **1.1 million deaths in 2019** mainly due to HBV, with initial signs of HCV decline (299,000 deaths)

- **3 million new infections** (1.5 m HBV and 1.5 m HCV)

- Note decrease in HCV burden

- **9.4 million people received HCV treatment** (9-fold increase from 1 million baseline in 2015)

- **21% HCV diagnosed** (62% of diagnosed received treatment)

- **10% HBV diagnosed** (22% of diagnosed on treatment)

**HCV GLOBAL**

58 million

[46 million–76 million]

Burden of chronic hepatitis C viraemic infection by WHO Region, 2019
Improved data on major gaps in path towards universal health access and public health elimination

HEPATITIS C

<table>
<thead>
<tr>
<th>Region</th>
<th>Diagnosed to end 2019</th>
<th>Treated to end 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>21%</td>
<td>13%</td>
</tr>
<tr>
<td>African Region</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Region of the Americas</td>
<td>22%</td>
<td>18%</td>
</tr>
<tr>
<td>South-East Asia Region</td>
<td>7%</td>
<td>5%</td>
</tr>
<tr>
<td>European Region</td>
<td>24%</td>
<td>8%</td>
</tr>
<tr>
<td>Eastern Mediterranean Region</td>
<td>37%</td>
<td>33%</td>
</tr>
<tr>
<td>Western Pacific Region</td>
<td>25%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Percentage of hepatitis C infected persons diagnosed to end 2019
Percentage of hepatitis C infected persons treated to end 2019
What will it take to achieve elimination?
The need for Simplified Service Delivery and promoting access to testing

Good service delivery health practice principles (WHO 2018)

- Simplified and standardized algorithms across continuum of care
- Strategies to strengthen Linkage from testing to care, treatment and prevention
- Decentralisation of testing and treatment to primary care/harm reduction sites to promote access
- Task-sharing: Training and mentorship of non-specialists and nurses
- Integrated testing, care and treatment with other services (eg. HIV and harm reduction services)
- Engagement with community

Service delivery in specific populations

- Persons who inject drugs
- People in prisons and other closed settings
- MSM and sex workers
- Adolescents and Children
- Migrant/indigenous populations
- Pregnant women
# Hepatitis testing guideline recommendations 2017

<table>
<thead>
<tr>
<th>Topic</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who to test?</td>
<td><strong>Focused testing</strong> for most affected populations*, those with a clinical suspicion of chronic viral hepatitis, family members/children, and sexual partners (HBV), healthcare workers.</td>
</tr>
<tr>
<td></td>
<td><strong>General population testing</strong>: In settings with ≥2% or ≥5% (intermediate/high) HBsAg or HCV Ab prevalence.</td>
</tr>
<tr>
<td></td>
<td><strong>Birth Cohort testing (HCV)</strong>: where specific identified birth cohorts of older persons at higher risk of HCV infection</td>
</tr>
<tr>
<td></td>
<td><strong>Routine antenatal clinic testing (HBV)</strong></td>
</tr>
<tr>
<td>How to test?</td>
<td>A single serological assay (<strong>EIA or RDT</strong>) that meets minimum performance standards with prompt NAT testing + linkage to care</td>
</tr>
<tr>
<td>Confirmation of HCV viraemia</td>
<td><strong>Nucleic acid testing (NAT) (quantitative or qualitative RNA)</strong> or core HCV antigen assay, with comparable clinical sensitivity</td>
</tr>
<tr>
<td>Promoting uptake and linkage</td>
<td>Use of DBS specimens for virology ± serology</td>
</tr>
<tr>
<td></td>
<td>On-site or immediate RDT testing with same day results</td>
</tr>
<tr>
<td></td>
<td>Trained peer and lay health workers</td>
</tr>
<tr>
<td></td>
<td>Clinician reminders to prompt provider initiated, facility-based testing</td>
</tr>
</tbody>
</table>

### * PWID, people in prisons, MSM, sex workers, HIV-infected, tattoos, transfusions, some migrant pops from endemic countries, some indigenous populations, children of HBV/HCV +ve mothers

## FOR UPDATE in 2021

- **Linkage to care**
  - Decentralised HCV test and treat
  - Integrated HCV testing and treatment at harm reduction site
  - Task-shifting for HCV care

- **How to test - serologic**
  - HCV self-testing ✓
  - Dried blood spots (HCV serology and virology) Manufacturers protocols

- **Confirmation of HCV VL**
  - Use of point of care VL (5 projects)
  - LoD for test of cure
Moving treatment out of speciality clinics
De-centralised testing and treatment “one-stop shops” and
Task-shifting to non-specialists to support decentralisation

New WHO Evidence:
• Full decentralization of testing and treatment increased uptake of testing, linkage and treatment, and achieved comparable SVR12
• Task-shifting of treatment to trained non-specialists achieves similar SVR12 compared to specialist care.

Decentralisation, integration, and task-shifting in hepatitis C virus infection testing and treatment: a global systematic review and meta-analysis

Eoin Dev, Adam Thakur, Rohena Shingal, Steven Karande, Philippe Fontanet

Summary
Background Increasing access to hepatitis C virus (HCV) care and treatment will require simplified service delivery models. We aimed to evaluate the effects of decentralisation and integration of testing, care, and treatment with harm-reduction and other services, and task-shifting to non-specialists on outcomes across the HCV care continuum.

Methods For this systematic review and meta-analysis, we searched PubMed, Embase, WHO Global Index Medicus, and conference abstracts for studies published between Jan 1, 2008, and Feb 26, 2018, that evaluated uptake of HCV testing, linkage to care, treatment, cure assessment, and sustained virological response at 12 weeks (SVR12) in people who inject drugs, sex in sex networks, monogamous partners with HIV, and the general population. Randomised controlled

140 studies; 33 countries. High Income countries- 120 (86%), LMIC- 20 (14%)
Opportunities for Integration

Integration with other testing settings or opportunities eg. HIV, antenatal or TB

Integrated combo serology (HIV/HBV/HCV RDTs), including self-testing

Build on and integrate existing multi-disease platforms (HIV, HCV RNA and HBV DNA)

HCV care at harm reduction sites

HIV, HCV and HBV care in prisons

HCV and HBV care at HIV, and TB clinics

COMMUNITY EXAMPLE: Integration of harm reduction with treatment - Medicins du Monde

Through the Medicins du Monde program in Kenya, PWID are able to receive HCV testing and treatment at a drop-in center, promoting a client-centered approach.

High retention and adherence are bolstered by

- Pre-treatment counselling
- Treatment navigation by peer-educators
- Psychosocial support
Develop a Case-Finding Plan
Who to test and Where to test?

The Community Network for Empowerment’s (CONEs) HCV program among prison inmates includes:
- Awareness training on disease and prevention
- Pre and post test counselling
- Free antibody testing, HCV RNA and liver disease staging (APRI) and DAA treatment

Lessons learned
- Testing + treatment is feasible in prison
- Community of PLHIV/PWID can play vital role in mobilizing people for testing
- Need for ongoing follow-up after release

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COMMUNITY PARTNER EXAMPLE:
CONE adaptation of service delivery for HCV testing and treatment in prisons (MANIPUR INDIA)
Diagnostic Innovations and Opportunities

- Role of point-of-care HCV viral load in improving linkage
- Diagnostic integration - Use of integrated multi-disease platforms (HIV, HCV RNA and HBV DNA)
- Dried blood spots specimens for viral load ± serology
- HCV self-testing

<table>
<thead>
<tr>
<th>Egypt</th>
<th>China</th>
<th>Vietnam</th>
<th>Georgia</th>
<th>Kenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Pop</td>
<td>MSM</td>
<td>PWID</td>
<td>MSM</td>
<td>PWID</td>
</tr>
<tr>
<td>OBSERVED SELF-TESTING</td>
<td>n=11</td>
<td>n=10</td>
<td>n=10</td>
<td>n=10</td>
</tr>
<tr>
<td>Completed all testing steps correctly</td>
<td>102 (88%)</td>
<td>55 (55%)</td>
<td>48 (46%)</td>
<td>70 (67%)</td>
</tr>
<tr>
<td>Completed all testing steps correctly without difficulties</td>
<td>54 (47%)</td>
<td>43 (43%)</td>
<td>30 (29%)</td>
<td>56 (54%)</td>
</tr>
<tr>
<td>Assistance provided</td>
<td>14 (12%)</td>
<td>4 (4%)</td>
<td>70 (67%)</td>
<td>18 (17%)</td>
</tr>
<tr>
<td>Inter-reader agreement</td>
<td>86%</td>
<td>97%</td>
<td>88%</td>
<td>99%</td>
</tr>
<tr>
<td>Inter-operator agreement</td>
<td>93%</td>
<td>98%</td>
<td>85%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Elimination models for rural population
Community-based “Educate, test and treat” approach in Egypt – feasible and effective

A village without hepatitis C in Egypt: will micro-elimination lead to macro-elimination?

An educate, test, and treat programme towards elimination of hepatitis C infection in Egypt: a community-based demonstration project

Summary
Background: Egypt has one of the highest prevalences and burdens of hepatitis C virus (HCV) worldwide, and a large-scale national programme has been established, including outreach programmes to isolated rural villages. This study reports on a community-based country-wide programme (the Egyptian Programme for Elimination of Hepatitis C in Egypt, EPEHEC) to identify, assess, treat, and prevent HCV infection in rural populations.

Methods: A community-based education and treatment project was established in Shiha village. The programme consisted of a series of community-based initiatives, including: education of villagers on the importance of testing and treatment; education of health care providers on diagnosis and treatment; and a system of peer-to-peer testing and treatment. All participants were tested for HCV antibodies and RNA, and those who tested positive were treated with interferon-based therapy. The programme was evaluated using a before-and-after design, with baseline and follow-up surveys conducted in 2019 and 2021, respectively.

Findings: The programme resulted in a 90% reduction in the incidence of new infections and a 90% treatment coverage and cure of 85% of estimated 17137 infected villagers aged 12-80 years across 73 villages. Shiha et al., J Hepatol 2019 and 2020

- Treatment coverage and cure of 85% of estimated 17137 infected villagers aged 12-80 years across 73 villages. And
- >90% reduction in incidence of new infections

Reduced incidence of hepatitis C in 9 villages in rural Egypt: Progress towards national elimination goals

Shiha et al, J Hepatol 2019 and 2020
Comprehensive Simplified Models for hard-to-reach populations
Mobile testing, One-stop shop Decentralised test+treat, task-shifting and PoC viral load

A same day ‘test and treat’ model for chronic HCV and HBV infection: Results from two community-based pilot studies in Egypt
Gamal Shiha, Reham Soliman, Abdalhamed Serwa, Nabil N. H. Mikhail, Tarik Asselah, Philippa Easterbrook

Flow and time of work for HCV patients:
- Arrive and register + Start of screening by RDT for HCV-Ab
- Finger stick for HCV-Ab positive individuals to be used for GeneXpert system HCV RNA

- Negative
- Positive

- AFP, AST, ALT, S. Bilir, S. Alb, S. Creat, and S. Alb
- Lab. Investigations
- Abdominal U/S
- Complete clinical evaluation
- Prescription of Therapy

Time:
- 9:00
- 9:20
- 10:20
- 12:00

Finger Prick
Anti-HCV POCT
POC HCV RNA
Exclude cirrhosis
Linkage to DAA treatment

5-20 min
60 min
What are the next steps on the road to elimination of viral hepatitis by 2030?

- **Simplified care pathways:** Support countries in introducing simplified, decentralized test and treat care pathways, integrated into primary care and harm reduction service
- **Diagnostics and testing:** Combo testing, HCV Self-testing, Use of PoC viral load
- **Gaps in prevention:** Gaps in access to harm reduction services
- **New 2022–2030 Global Strategy** for viral hepatitis
- **Conduct country pilots** of criteria for the validation of elimination
- Develop and expand country, regional and global capacity to monitor progress towards elimination