WHO Guidelines on hepatitis B and C testing

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World Health Organization

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Outline of presentation

- Key recommendations of 2017 WHO testing guidelines
  - **Who to test** for chronic HBV and HCV?
  - **How to test** for chronic HBV and HCV?
  - Interventions to **promote testing uptake + linkage to care**

- Implementation
  - **Ten take-home messages** – country examples
  - Future directions – Diagnostic innovations and demonstration projects
Viral hepatitis testing is at core of entry to treatment and prevention cascade

Hepatitis testing is at core of entry to treatment and prevention cascade

Source: Modified from Frits van Griensven, 2014 Thailand
Global elimination strategy
We are a long way from achieving 2020 testing targets

Prevention
- HBV- Vaccination
- HBV- PMTCT
- Blood safety
- Injection safety
- Harm reduction

Care and treatment
- HBV - Diagnosis
- HCV - Diagnosis
- HBV- Treatment
- HCV- Treatment

Coverage (%)
## Barriers to testing and linkage to care

<table>
<thead>
<tr>
<th>Process</th>
<th>Patient</th>
<th>Healthworker</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Screening</strong></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
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<tr>
<td>Lack of awareness, knowledge, understanding</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Stigma and discrimination</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Lack of testing infrastructure</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Rapid diagnostic tests</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>(varying quality, lack of quality approved choice)</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Nucleic acid tests</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>(Expensive, complex, limited availability)</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Financial</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>(Expensive tests/treatments)</td>
<td>✔️</td>
<td>✔️</td>
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</tbody>
</table>
## Hepatitis testing guideline recommendations 2017

<table>
<thead>
<tr>
<th>Topic</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td><strong>Who to test?</strong></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>* 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</td>
</tr>
<tr>
<td><strong>How to test?</strong></td>
<td>A single serological assay (EIA or RDT) that meets minimum performance standards with prompt NAT testing + linkage to care</td>
</tr>
<tr>
<td><strong>Confirmation of HCV viraemia</strong></td>
<td>Nucleic acid testing (NAT) (quantitative or qualitative RNA) or core HCV antigen assay, with comparable clinical sensitivity</td>
</tr>
</tbody>
</table>
| **Promoting uptake and linkage** | Use of DBS specimens for virology ± serology  
|                               | On-site or immediate RDT testing with same day results  
|                               | Trained peer and lay health workers  
|                               | Clinician reminders to prompt provider initiated, facility-based testing  
|                               | Testing as part of integrated services at a single facility |

* 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
Ten key messages on hepatitis testing
Message #1
Success is possible ...... Increasing HIV Testing access + uptake

Increasing Access to HIV Testing
+33% growth in 4 years; 21m more tests

Source: WHO Global Reporting 2014

Increasing Uptake of HIV Testing
% of women age 15-49 yrs ever tested for HIV & received results

Source: DHS data (Staveig, 2013)

Rapid scale up of HCV Testing in Brazil

Source: WHO Global Reporting 2014

Numbers tested
- Egypt (4m)
- Georgia (1.2m)
- Mongolia (277,000)
- Rwanda (250,000)
Message #2
The WHO “5 C’s” and “E”quity in access

• **Consent** – verbal consent sufficient

• **Confidentiality** – but not secrecy – sharing result often highly beneficial

• **Counselling** – Appropriate pre-test information + post-test counselling

• **Correct** – provide high-quality testing services

• **Connection** – Linkage to prevention, treatment and care services.

> *Providing hepatitis testing where there is no access to care, or poor linkage to care, including prevention and treatment has limited benefit.*

• **Equity in access** – Accessible to populations most affected and delivered in environment that minimizes stigma
Message #3

Accuracy of RDTs can be good, but not always......

As high as 99% sensitivity and 100% specificity, but depends on RDT used, populations and settings

Lower for HBsAg and HIV co-infection

**SENS** = 99% (95% CI: 98–100)

**SPEC** = 100% (95% CI: 100–100)

**SENS** = 90.0% (95% CI: 89.1-90.8)

**SPEC** = 99.5% (95% CI 99.4-99.5)
Message #4
Single RDT followed by NAT

• **A single initial rapid diagnostic test or EIA** in health-facility or community-based testing if prevalence >0.4%

• **Prioritize** NAT testing *(reflex where possible)* and linkage following testing

**HBV:** In low HBsAg prevalence settings (≤0.4%), confirmation of HBsAg with a neutralisation step or a second different RDT assay.
Message #6
Assuring quality of hepatitis diagnostics and testing

 Twelve Quality Assessment Essentials (QAEs)

Key points
1. Choose a testing strategy (high/low prevalence)
2. Select products and validate testing algorithm
3. Ensure post-market surveillance of assays used
WHO prequalified HBV and HCV diagnostics

<table>
<thead>
<tr>
<th>HCV EIAs</th>
<th>HCV RDTs</th>
<th>HCV NAT</th>
</tr>
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<tbody>
<tr>
<td>Murex anti-HCV 4.0</td>
<td>SD Bioline HCV (Korean)</td>
<td>Gene Expert HCV</td>
</tr>
<tr>
<td>Bioelisa HCV 4.0</td>
<td>OraQuick HCV Rapid Test Kit</td>
<td></td>
</tr>
<tr>
<td>4 in process</td>
<td>3 in process</td>
<td>1 in process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HBsAg EIAs</th>
<th>HBsAg RDTs</th>
<th>HBV NAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioelisa HBsAg 3.0</td>
<td>1 in process</td>
<td>None</td>
</tr>
<tr>
<td>DS-EIA-HBsAg-0,01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enzygnost HBsAg 6.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Murex HBsAg 3.0 + Confirmatory 3.0</td>
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Failure to meet WHO PQ requirements or withdrew from PQ: 11 HBsAg RDTs, 6 HBsAg EIAs, 12 HCV RDTs, 12 HCV EIA
Message # 7
Build on substantial existing lab and diagnostics capacity: Multiplatform testing

Rwanda National distribution of lab capacity

- Existing 15 ELISA test sites
- 9 VL test sites with Roche platform
- Discussions to upgrade 47 GeneXpert platforms for HCV testing

Also, Indonesia, Georgia, Cameroon, Myanmar
Message # 8
Simplified testing algorithms
Message #9 - Service Delivery
Where to test? Learning from evolution in HIV testing approaches

TESTING SITES

<table>
<thead>
<tr>
<th>TESTING APPROACHES</th>
<th>Routinely offered</th>
<th>Focused (Risk-based)</th>
</tr>
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</table>

**HEALTHCARE FACILITY TESTING**
- Primary care settings
- Antenatal clinics
- HIV clinics
- TB clinics
- STI clinics
- Drug treatment and harm reduction services
- Inpatient and outpatient hospital settings
- Paediatric and adolescent clinics

**COMMUNITY-BASED TESTING**
- Mobile/outreach testing for priority populations
- Mobile/outreach for the general population (for example young people)
- National testing campaigns/camps
- Testing of family members
- Partner testing (for all partners of people with viral hepatitis)
- Mass media and social media
- Home-based/door-to-door testing
- Workplace testing
- School/educational institution testing

- **Use existing health facility or community-based testing services and opportunities**
- Focussed testing in health facilities/outreach
  - High acceptance (HIV, antenatal & TB)
  - But still many missed opportunities for testing
- **Moving Testing Out of Health Center into community**
  - Home-based (house to house), Campaigns, Outreach (mobile)

General pop testing: Egypt (village based programme), Mongolia and Georgia (PHC)
Evidence is limited, but promising

- **Integration of services** at a single facility, especially within mental health/drug treatment services
- **On-site or immediate RDT testing** with same day results
- **Trained Peer and lay health worker support** to identify and reach people lost to follow-up
- **Clinician reminders** to prompt provider initiated, facility-based testing plus **reflex NAT**
- **DBS specimens** for NAT ±serology in some settings

For the future…
Decentralised viraemic testing and treatment
Future directions

**Diagnostic innovations**
- POC NAT or core Ag
- DBS (manufacturers protocols)
- Single NAT or core Ag in high prevalence populations
- Multiplex/multiplatform testing
- Enhancing connectivity

**Demonstration projects**
Generating evidence for scale-up

**FIND-WHO UNITAID funded**
- **6 countries**: Myanmar, India, Georgia, Vietnam, Cameroon, Malaysia
- Implement demonstration projects with national programmes + partners
- Generate evidence for WHO guidelines
- Support country national testing policy development based on evidence
Conclusions

• Large burden of undiagnosed HBV and HCV infection, but limited hepatitis testing services.
• Public health response lags behind public need and demand — we need to catch up.
• New WHO guidance on hepatitis testing
• Need for operational/implementation research agenda for different testing approaches
  - Innovative approaches – community, new technologies
  - Multi country experience of scale up of testing