Dossier of Evidence

Why is it necessary to scale up hepatitis B and hepatitis C testing in Europe?
Content

- **Hepatitis B virus and hepatitis C virus: The Basics**
- **Know Your Epidemics: The Situation of HBV and HCV in Europe**
- **Late presentation for viral hepatitis**
- **The Importance of Timely Diagnosis of HBV and HCV**
- **Barriers to HBV and HCV Testing**
- **Creating More Testing Opportunities**
- **Conclusions**
Hepatitis B virus and hepatitis C virus: The Basics
What are HBV and HCV?

- **Hepatitis B virus (HBV)** and **hepatitis C virus (HCV)** are both **viruses that attack the liver**

- **HBV and HCV cause:**
  - Scarring of the liver tissue (*cirrhosis*)
  - Liver cancer
  - Liver failure
  - Death

- **HBV and HCV disease can progress** **unnoticed** **over many years**
  - Increasingly worse liver damage without any outward signs
  - People might not feel ill until they have advanced disease
Hepatitis B Virus - HBV

- May cause short-term (acute) illness followed by full recovery
- May cause incurable chronic disease
- Correlation between age of infection and likelihood of chronic disease:
  - Infected early in life = high risk of chronic disease
  - Infected in adulthood = low risk of chronic disease
- **Chronic HBV cannot be cured** but there are treatments that slow disease progression and improve health outcomes
HBV

- An effective HBV vaccine exists!
  - Many Member States of the World Health Organization European Region have universal infant HBV vaccination
    - Some do not, including in high-income countries of the European Union

Countries without universal infant HBV vaccination:
How is HBV spread?

- HBV is spread through exposure to **infected blood and other body fluids**
- Children born to HBV-infected mothers are at high risk if they do not receive timely vaccination
- Other modes of transmission:
  - Sexual contact
  - Re-use of needles and syringes
  - Contaminated objects such as razors and tattooing equipment
Hepatitis C Virus - HCV

- May cause short-term (acute) illness followed by full recovery
- May cause long-term chronic disease
- Chronic HCV:
  - Occurs in 55% – 85% of cases of infection
  - Is much more likely to occur in adults than in children
  - Persists for life unless treated successfully with anti-viral drugs
- There is no vaccine against HCV
HCV Treatment

• Has greatly improved in recent years
• Newest drugs are all-oral and have very high cure rates (>90%)
Global Impact of HBV and HCV

- **Cirrhosis:**
  - 26% of cirrhosis deaths in 2013 from HBV
  - 29% of cirrhosis deaths in 2013 from HCV

- **Liver cancer:**
  - 37% of liver cancer deaths in 2013 from HBV
  - 42% of liver cancer deaths in 2013 from HCV

HBV and HCV together caused more deaths than HIV in 2013

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Know Your Epidemics:
The Situation of HBV and HCV in Europe
HBV in Europe

- In the WHO European Region, it is estimated that **1.8% of adults are HBsAg positive** (usually indicates chronic infection)
- Two-thirds of cases are in non-EU/EFTA countries
- HBsAg prevalence varies greatly across the Region

### HBV in Europe

HBsAg prevalence in countries with data representing the general population

<table>
<thead>
<tr>
<th>Country</th>
<th>HBsAg prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>9.0</td>
</tr>
<tr>
<td>Belgium</td>
<td>0.7</td>
</tr>
<tr>
<td>Cyprus</td>
<td>0.9</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.6</td>
</tr>
<tr>
<td>Finland</td>
<td>0.2</td>
</tr>
<tr>
<td>Germany</td>
<td>0.6</td>
</tr>
<tr>
<td>Greece</td>
<td>2.1</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.1</td>
</tr>
<tr>
<td>Italy</td>
<td>1.4</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>3.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>HBsAg prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>0.1</td>
</tr>
<tr>
<td>Romania</td>
<td>5.6</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>1.5</td>
</tr>
<tr>
<td>Serbia</td>
<td>2.4</td>
</tr>
<tr>
<td>Slovakia</td>
<td>0.6</td>
</tr>
<tr>
<td>Spain</td>
<td>1.0</td>
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<tr>
<td>Sweden</td>
<td>0.2</td>
</tr>
<tr>
<td>Turkey</td>
<td>3.4</td>
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<tr>
<td>Ukraine</td>
<td>1.3</td>
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<tr>
<td>Uzbekistan</td>
<td>13.3</td>
</tr>
</tbody>
</table>

HBV in Europe

22,442 cases of hepatitis B virus infection were reported in 30 EU/EEA Member States in 2014. 11.9% were acute infections and 64% were chronic infections.

Rate of acute hepatitis B per 100 000 population in EU/EEA countries, 2014
HBV in Europe

Populations disproportionately affected:

- People who inject drugs
- Sex workers
- Men who have sex with men
- Migrant and refugee populations
  - Some European countries receive high numbers of migrants from regions with higher HBV prevalence
  - Data from 18 European countries showed chronic HBV prevalence levels among migrants ranging from 4% – 7% (Rossi et al 2012)

HCV in Europe

- In the WHO European Region, it is estimated that **2.0% of adults are HCV RNA-positive** (usually indicates chronic infection)
- Two-thirds of cases are in non-EU/EFTA countries
- In 2004, 23% of liver transplants in 25 European countries were attributable to HCV
- HCV RNA prevalence varies greatly across the Region


HCV in Europe

HCV RNA prevalence in countries with data representing the general population

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<tr>
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<td>3.0</td>
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<td>Belgium</td>
<td>0.6</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>1.3</td>
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<tr>
<td>France</td>
<td>1.3</td>
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<tr>
<td>Georgia</td>
<td>6.7</td>
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<td>Germany</td>
<td>0.4</td>
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<tr>
<td>Greece</td>
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<tr>
<td>Kazakhstan</td>
<td>1.0</td>
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<tr>
<td>Kyrgyzstan</td>
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<tr>
<td>Netherlands</td>
<td>0.4</td>
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</tr>
<tr>
<td>Ukraine</td>
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</tr>
<tr>
<td>United Kingdom</td>
<td>0.7</td>
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35,321 cases of hepatitis C virus infection were reported in 28 EU/EEA Member States in 2014. 1.3% were acute infections and 13.3% were chronic infections (74.7% were ‘unknown and 10.7% were not classified).

Rate of reported acute hepatitis C cases per 100,000 population, 2014
HCV in Europe

Injecting drug use: a major driver of European HCV epidemics

- In several European countries, more than 80% of people who inject drugs are estimated to be HCV antibody-positive (indicating current or past HCV infection)
- Across 13 European countries, people who inject drugs found to have on average 47 times higher HCV antibody prevalence levels than the general population
- 44% of people who inject drugs (PWIDs) in WHO European Region estimated to be HCV RNA-positive


HCV in Europe

Other European populations thought to be at elevated risk include: (limited data)

- Migrants
- Prisoners
- Homeless people
- Sex workers
- People living with HIV
- Men who have sex with men
Know your HBV epidemic
Template slide for your national data

Populate this slide with the below:

- Number of new acute and chronic diagnoses per year
- Total number of people living with chronic HBV
- Key populations at higher risk of HBV
- Geographical spread
- Time trends
- National HBV testing guidelines (if available)
- Useful resources:
  - ECDC technical report: Assessing the burden of key infectious diseases affecting migrant populations in the EU/EEA (2014)
  - ECDC, Annual Epidemiological Report – Hepatitis C (2016)
  - Epidemiological assessment of hepatitis B and C among migrants in the EU/EEA (2016)
Know your HCV epidemic
Template slide for your national data

Populate this slide with the below:

- Number of new acute and chronic diagnoses per year
- Total number of people living with chronic HCV
- Key populations at higher risk of HCV
- Geographical spread
- Time trends
- National HCV testing guidelines (if available)

Useful resources:
- ECDC technical report: Assessing the burden of key infectious diseases affecting migrant populations in the EU/EEA (2014)
Late presentation for viral hepatitis
Late Presentation for Viral Hepatitis

A better understanding of the testing policies and strategies is needed. In October 2015, a consensus definition of late presentation for viral hepatitis was reached:

**Definition 1:**

**Advanced HBV, HCV or HDV associated liver disease** is clinically defined by presence of hepatocellular carcinoma or decompensated cirrhosis (jaundice, hepatic encephalopathy, clinically detectable ascites, variceal bleeding).

**Definition 2:**

**Late presentation of HBV or HCV associated liver disease** is defined as a patient with chronic hepatitis B or C and significant fibrosis (≥F3 assessed by APRI score >1.5, FIB-4 >3.25, Fibrotest > 0.59 or alternatively a FibroScan >9.5 kPa) with no previous antiviral treatment.

This definition, if implemented by policy makers, health authorities and researchers, will contribute to understanding the magnitude of the proportion of late presenters for viral hepatitis.
The Importance of Timely Diagnosis of HBV and HCV
Underdiagnosis of HBV and HCV in the WHO European Region

In spite of data limitations, there is widespread recognition that underdiagnosis of HBV and HCV is a major problem

- Czech Republic, 2012:
  - 42,000 people estimated to be HCV RNA-positive
  - 13,000 diagnosed cases
- Germany, 2012:
  - 275,000 people estimated to be HCV RNA-positive
  - 160,000 diagnosed cases
- Study comparing reported and estimated HCV cases in seven EU countries concluded that more than half of people with HCV may be unaware of their infection


Why should more people be encouraged to learn their HBV and HCV status?

The public health rationale:

1. **Effective treatments exist!**
   - HBV treatments slow the development of cirrhosis, reduce liver cancer and improve long-term survival
   - Newest HCV treatments can cure the vast majority of cases of chronic HCV


Why should more people be encouraged to learn their HBV and HCV status?

The public health rationale:

2. **People with chronic HBV and HCV will not access treatment if they do not know it is needed**
   - HBV and HCV both can remain asymptomatic while causing progressively worse liver damage over many years
   - Learning about chronic infection early may enable people to initiate treatment in time to interrupt this process
Why should more people be encouraged to learn their HBV and HCV status?

The public health rationale:

3. **Prevention benefit**
   - People who are aware that they have chronic HBV and HCV may be more likely to take measures to prevent onward transmission of the infection
Timely Diagnosis of HBV: Economic Considerations

- **HBV treatment is cost-effective** even though it needs to be taken indefinitely
- This conclusion is supported by studies from numerous countries:
  - Belgium
  - Brazil
  - China
  - Italy
  - Poland
  - Spain
  - United Kingdom
  - United States
  - Others …

Timely diagnosis of HCV: economic considerations

• The newest HCV drugs are expensive – but this does not mean they are entirely inaccessible to people who need them

• The newest HCV drugs are highly effective – and curing HCV means reducing costly health problems such as liver cancer and liver transplant

• Many people are advocating for prices to be lowered

• Meanwhile, even at current prices, analyses from several countries demonstrate cost-effectiveness


  • **Switzerland** (Pfeil, Alena M., Oliver Reich, Ines M. Guerra, Sandrine Cure, Francesco Negro, Beat Müllhaupt, Daniel Lavanchy, and Matthias Schwenkglenks. 2015. “Cost-Effectiveness Analysis of Sofosbuvir Compared to Current Standard Treatment in Swiss Patients with Chronic Hepatitis C.” PloS One 10 (5): e0126984. doi:10.1371/journal.pone.0126984.)

  • **United Kingdom** (Cure, S., I. Guerra, and G. Dusheiko. 2015. “Cost-Effectiveness of Sofosbuvir for the Treatment of Chronic Hepatitis C-Infected Patients.” Journal of Viral Hepatitis, April. doi:10.1111/jvh.12409.)
Barriers to HBV and HCV Testing
Barriers to HBV and HCV Testing

- Factors affecting a person’s willingness to present for testing:
  - Absence of recognised symptoms of illness
  - Belief that personal risk of infection is low
  - Perceptions of stigma
  - Fear of having blood drawn
  - Cultural values and beliefs


Barriers to HBV and HCV Testing

- Factors affecting a person’s decision-making around testing:
  - Lack of information about where to go for testing
  - Reluctance or inability to miss work for a medical appointment
  - Inability to communicate in the health care provider’s language
  - Uncontrolled drug addiction
  - Legal barriers


Barriers to HBV and HCV Testing

- **Other factors:**
  - Physicians may not test patients for hepatitis C because of time constraints or because they forget to offer the test
  - Testing costs
  - Distance to testing facilities


Barriers to HBV and HCV Testing

Template slide on country situation

Populate this slide with the below, using any available evidence from the national or local level

- What are the barriers to patients asking for an HBV or HCV test?

- What are the barriers to healthcare providers offering an HBV or HCV test?

- What are other barriers?
Creating More Testing Opportunities
Creating More Testing Opportunities
Emerging Evidence Regarding Effective Approaches

Review of community-based HBV testing programmes
- Targeted community awareness and education
- Using community networks and grassroots work to promote programmes
- Ethnic and language-specific programme promotion
- Bilingual or culturally aware staff delivering interventions
- Making effective use of ethnic media to publicise events and resources
- Offering flexible and varied screening options at suitable times and places

Creating More Testing Opportunities
Emerging Evidence Regarding Effective Approaches

- Review of interventions to increase uptake of HCV testing among high-risk groups showed:
  - Promotion of HCV testing in primary care
  - Offering dried blood spot testing as an alternative to venipuncture
  - Integration of testing services within non-specialist community settings

Creating More Testing Opportunities
Emerging Evidence Regarding Effective Approaches

- HCV testing reviews showed evidence that:
  - Pre-screening assessment of HCV risk factors may *increase* programme efficiency in low-prevalence populations
  - Targeted interventions have the potential to increase HCV diagnosis and treatment uptake


Creating More Testing Opportunities: Key Principles

Until best practices are developed to guide HBV and HCV testing programmes, the World Health Organization best practices for HIV testing may be beneficial to also apply to HBV/HCV.

Key principles:
• Testing should be voluntary and with the informed consent of the person being tested
• Testing should protect the confidentiality of the person being tested
• Testing should include adequate pre-test and post-test counselling
• Testing should be linked to broader efforts to achieve universal access to prevention, treatment, care and support
• Testing should be tailored to different settings, populations and client needs
• Testing should meet the needs of vulnerable populations at higher risk
• Testing should expand beyond clinical settings to involve civil society and community-based organizations in providing testing services
• Testing should be accompanied by efforts to ensure supportive social, policy and legal environments

World Health Organization Regional Office for Europe. 2010. “Scaling up HIV Testing and Counselling in the WHO European Region.”
Conclusions
Conclusions

Rationale for HBV and HCV testing

- HBV and HCV are **major health problems** in many European countries
- **Effective treatment exists!**
- **People will not access treatment if they do not know they need it** – they **must** learn their HBV and HCV status
- Knowing may also encourage people to **avoid onward transmission**
Conclusions

Increasing HBV and HCV testing

- Barriers to HBV and HCV testing must be overcome
- There are practical measures that governments, healthcare providers and communities can take to make HBV and HCV testing more accessible to a wider range of people