Lessons for viral hepatitis elimination

– The Romanian experience –

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# Disclosures

<table>
<thead>
<tr>
<th>Disclosure of speaker’s interests</th>
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<td><strong>(Potential) conflict of interest</strong></td>
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Viral hepatitis

ELIMINATED
Where are we on the track to elimination? (B)

Figure 1a. HBsAg prevalence in the adult general population, EU/EEA, 2005–2015

4.4% HBsAg prevalence
newborn vaccination
coverage >90%

ECDC. Systematic review on hepatitis B and C prevalence in the EU/EEA.
HBV numbers and facts

• **1995**: Incidence of HBV in Romania is 25/100,000 population

• **1996**: Romania implements national vaccination against HBV in children (first dose at birth), healthcare workers

• Subsequent catch-up immunization campaigns:
  - **1999**: 9 y/o → 1990
  - **2004**: 18 y/o → 1986

• **2015**: Incidence of HBV in Romania is 0.7/100,000 population

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HBV numbers and facts

Number of cases / 100,000 population

- **HBV**
- **HCV**

However...

- Chronic HBV – 4.4% HBsAg prevalence
- Diagnosing the undiagnosed – nationwide campaign
  - Raising awareness regarding risk factors
  - Voluntary testing for HBsAg, anti-HCV, anti-HIV

- 12 000 persons screened:
  - median age 46 (IQR: 36, 57) years
  - 62.7% females
HBsAg testing
HBV hotspots
Positive HBV tests

- 7.7% positive tests
- 1 county in Romania was “HBV-free”
Call to action

• Involvement of GPs

• Screening for HBsAg, HCV, HIV

• Linkage to care
Plan for elimination

• Prevent

• Diagnose the undiagnosed

• Treat & (functional?) cure
Double trouble – HBV+HDV

- Prevalence of HDV: 23.1% of patients with HBV infection

Table I. Prevalence of anti-HDV co-infection by demographic characteristics in chronically HBV infected patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>HDV+/Patients tested, N</th>
<th>Prevalence, % (95%CI)</th>
<th>P&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Crude OR (95%CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>639/2761</td>
<td>23.1 (21.4 - 25.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age group (years)</td>
<td></td>
<td></td>
<td>0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 29</td>
<td>110/592</td>
<td>18.6 (15.3 - 22.4)</td>
<td>1</td>
<td>0.91 (0.66 - 1.24)</td>
<td>0.539</td>
</tr>
<tr>
<td>30 - 39</td>
<td>82/486</td>
<td>16.9 (13.4 - 21.0)</td>
<td></td>
<td>1.24 (0.92 - 1.67)</td>
<td>0.155</td>
</tr>
<tr>
<td>40 - 49</td>
<td>107/488</td>
<td>21.9 (18.0 - 26.5)</td>
<td></td>
<td>1.89 (1.47 - 2.43)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>50 - 59</td>
<td>259/896</td>
<td>28.9 (25.5 - 32.6)</td>
<td></td>
<td>1.47 (1.06 - 2.03)</td>
<td>0.021</td>
</tr>
<tr>
<td>≥ 60</td>
<td>81/326</td>
<td>24.8 (19.7 - 30.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romanian</td>
<td>593/2608</td>
<td>22.7 (20.9 - 24.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungarian</td>
<td>8/55</td>
<td>14.5 (6.3 - 28.7)</td>
<td></td>
<td>0.58 (0.27 - 1.24)</td>
<td>0.161</td>
</tr>
<tr>
<td>Roma</td>
<td>18/47</td>
<td>38.3 (22.7 - 60.5)</td>
<td></td>
<td>2.08 (1.15 - 3.77)</td>
<td>0.016</td>
</tr>
<tr>
<td>Other</td>
<td>20/51</td>
<td>39.2 (23.9 - 60.6)</td>
<td></td>
<td>2.16 (1.22 - 3.82)</td>
<td>0.008</td>
</tr>
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- Periodic screening for HDV in all patients with HBV infection

Where are we on the track to elimination? (C)

Figure 1b. Anti-HCV prevalence in the adult general population, EU/EEA, 2005–2015

- 3.2% anti-HCV prevalence

ECDC. Systematic review on hepatitis B and C prevalence in the EU/EEA.
HCV numbers and facts

anti-HCV testing
HCV hotspots

![Map of HCV hotspots in Romania](image)

- Yellow: <2%
- Orange: 2-7%
- Red: >=8%
Positive HCV tests

- 3.3% positive anti-HCV tests  =>  1.9%
- 60.7% of the positive tests had negative HCV-RNA
- 9 counties in Romania were “HCV-free”
Special considerations

- Special patient populations: PWID
- After successful treatment, switch screening to HCV-Ag
- Involvement of GPs
- Microelimination: patients with hemophilia
Approach – cure cascade
**Approach to elimination**

- Test and treat – access to DAAs

<table>
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<tr>
<th>Years</th>
<th>Reimbursement</th>
<th>Number treated</th>
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<tr>
<td>2015</td>
<td>F₄, F₃+comorbidities</td>
<td>5860</td>
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<tr>
<td>2017</td>
<td>F₄, F₃, F₂+comorbidities</td>
<td>12 000:</td>
</tr>
<tr>
<td></td>
<td>- 2050 decompensated cirrhosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 9950 compensated or no cirrhosis</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>F₄, F₃, F₂, F₁</td>
<td>13 000</td>
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<td>Target</td>
<td>All patients</td>
<td>All patients</td>
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Approach to elimination

- Test and treat
- Access to DAAs

- Diagnose the undiagnosed
  - Special (closed) populations
  - Targeted outreach programs in the identified hotspots

- Awareness campaigns – prevention
Viral hepatitis