Epidemiology of viral hepatitis in Hungary

Dr. Cecília Müller
Chief Medical Officer
National Public Health Center
Overview of the surveillance of communicable diseases in Hungary

- Mandatory by law
- Comprehensive (nation-wide)
- Passive
- Case-based
- Clinical information is available
- Laboratory confirmation is obligatory for reported cases
- EU case definitions are used
Main characteristics of the general surveillance system

**Mandatory:** the legal basis of the surveillance is 13. § and 15.§ (1) a) of Act XLVII of 1997 on the Management and Protection of Health and Related Personal Data (and 1st Annex with the list of compulsory notifiable communicable diseases), and 1-4 § of decree 1/2014. (I.16.) of the Minister of Human Capacities on the regulation of notification of communicable diseases.

The notification system is **partly syndrome-based** (e.g. gastroenteritis, meningitis, encephalitis, hepatitis), and **partly etiology-based**. The reported syndrome-based diagnosis is modified to an etiology-based diagnosis in the national database, when the etiology is confirmed by laboratory investigations.
Infectious hepatitis cases
1950-2018
Etiology of viral hepatitis
2001-2018

Hepatitis A
Hepatitis B (acute)
Hepatitis C (acute)
Hepatitis E
Hepatitis infectiosa
Reported total viral hepatitis cases and Hepatitis A cases
1993-2018
Hepatitis A megbetegedések 100 000 lakosra 2011-2013.

2011.
(n = 82)

2012.
(n = 331)

Országos morb.: 0,8‰

2013.
(n = 1132)

Országos morb.: 11,4‰

Országos morb.: 3,3‰

Országos morb.: 52,5‰
Reported Hepatitis A cases per 100,000 inhabitant

2014.
(n = 1556)

Morbidity: 15.8‰

130.2
8.5
What happened in 2012?

Hepatitis A cases increased significantly in 2012 in Budapest. First documented HAV outbreak largely affecting also MSM population in Hungary.

Outbreak occurred between March and August in Budapest affecting a small population group.

From August cases occurred among a wider range of population groups affecting:

- Homless people
- Social workers in homeless shelters
- Adult people living in poor social conditions
- Students, adolescents
- Penitentiary institute
- Sex workers
Firstly confirmed food-borne Hepatitis A outbreak
Budapest, 2015.

A megbetegedések a tünetek kezdete szerint,
Hai Nam étterem, 2015. augusztus - szeptember (N=43)

Epidemiological and food safety inspection:
-- many hygienical malpractice (absence of cleaning, dishwashing and hand sanitising problems)

Statistical analitical study
Case-control study
Due to interrogating 38 ill and 184 healthy people
- relation between eating in the Vietnamese restaurant and falling ill
-OR: 12,66 [CI: 2,96 – 54,20]

Stratified statistical analysis
- consuming summer roll
OR: 15,33 [CI: 3,45 – 67,98]
- pho soup with slowly cooked beef shank
OR: 6,04 [CI: 1,59 – 22,89]

Molecular virology results of the patients:
The detected genotype was already previously documented in Hungarian patients – 1a genotype
Confirmed food-borne Hepatitis A outbreak
Suburban railway station cantine
Gödöllő, 2016.

Cases as first symptoms started
September - November 2016. (N=73)
Reported Hepatitis A cases per 100,000 inhabitant

**2018.**
(n = 182)

Morbidity: 1.86 %000

Map showing the distribution of hepatitis A cases across different regions.
Reported Hepatitis E cases
2001 - 2018
„Viral hepatitis complex programme”


1. Decentralising viral serological testing
2. Improving epidemiological surveillance
3. Preventing vertical transmission of HBV
4. Immunising healthcare workers against HBV
5. Immunising individuals in risk groups
6. Anti-HCV screening of donor blood
Decentralising viral serological testing

In 1993, access to viral serological testing was established in the Budapest office and each of the county offices of the public health authority (National Public Health and Medical Officer Service, NPHMOS):

• appropriate laboratories were established
• the ELISA technique was introduced
• new instruments and equipment were procured
• staff received training
From 1 January 1993 onwards, in order to further develop the epidemiological information system, a specific, case-based data collection was introduced on cases of acute viral hepatitis.

Cases were reported on individual notification forms including demographic, clinical, laboratory and epidemiological data.
Preventing vertical transmission of HBV

NPHMOS: epidemiological investigation, education, HBsAg screening: vaccination of exposed non-immune persons, hepatological care of HBV carriers

Screening around 16th week of pregnancy,
Prenatal care: Obstetrician/Gynecologist, health visitor

Maternity wards: HBIG + HBV I. vaccination
General practitioner: HBV II. –III. vaccination control at 15 months

Screening around 16th week of pregnancy,
Prenatal care: Obstetrician/Gynecologist, health visitor
Screening of donor blood

From 1 July 1992 onwards, in order to prevent cases of post-transfusion hepatitis, a ministerial decree requires all donated blood, tissue and solid organ transplants to be screened for anti-HCV
Reported acute HBV cases
Hungary, 1993-2018
# Shift of age-stratified acute HBV cases 1998-2018

<table>
<thead>
<tr>
<th>Age in years</th>
<th>1998</th>
<th>2008</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reported cases</td>
<td>Age-specific incidence (%ooo)</td>
<td>Reported cases</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>3.0</td>
<td>0</td>
</tr>
<tr>
<td>1 - 2</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>3 - 5</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>6 - 9</td>
<td>2</td>
<td>0.4</td>
<td>3</td>
</tr>
<tr>
<td>10 - 14</td>
<td>4</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td>15 - 19</td>
<td>18</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>20 - 29</td>
<td>36</td>
<td>2.3</td>
<td>10</td>
</tr>
<tr>
<td>30 - 39</td>
<td>23</td>
<td>1.8</td>
<td>27</td>
</tr>
<tr>
<td>40 - 49</td>
<td>18</td>
<td>1.1</td>
<td>13</td>
</tr>
<tr>
<td>50 - 59</td>
<td>17</td>
<td>1.4</td>
<td>17</td>
</tr>
<tr>
<td>60 -</td>
<td>44</td>
<td>2.2</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>166</td>
<td>1.6</td>
<td>88</td>
</tr>
</tbody>
</table>
Acute HBV among health care workers
1993-2018
Reported acute HCV cases
Hungary, 1993-2018
Main epidemiological characteristics of acute HCV infections, Hungary, 2018

- Reported cases: 11 cases [Budapest (1), Baranya county (2), Borsod-Abaúj-Zemplén county (3) Pest county (5)]

- Notification rate per 100,000 persons: 0.1

- Distribution by age
  - 15-59 years: 8 cases
  - 60+ years: 3 cases

- Risk groups/transmission route:
  - 1 healthcare worker (HCW) and 3 IDU
Acute HCV among health care workers
Acute HCV among injecting drug users
Efforts towards a harmonised European surveillance of viral hepatitis

- 15 April 2012: Case definitions for acute infections included into the Ministerial Decree 18/1998., 1st Annex, but not for the newly diagnosed, chronic HBV, HCV infections.
- In the epidemiological information system (EFRIR), a “disease case” could be reported based on confirmed, positive laboratory result of HBV, HCV, without providing a date of disease onset.
- Limitations:
  - The stage of infection was not known,
  - Not all HBV, HCV results made it into the laboratory part of EFRIR
Further steps (2013)

• The method of reporting infectious hepatitis cases has not changed.

• Monitoring the trends of acute HBV, HCV infections has continued.

• The reporting method and the epidemiological information system itself was not suitable to operate as a comprehensive „HBV, HCV register” in the country.

• In 2013, once the legal regulations were renewed, circumstances had to be created for a national surveillance of hepatitis B and C as per the EU requirements, with special focus on the IT background and support.

• Without direct reporting by health care providers, the public health authority cannot manage the data collection and assessment of HB and HC cases on its own.
Data collection on HBV, HCV infections

Communicable disease reports from health care providers

- acute hepatitis B
- acute hepatitis C

OSZIR

Reports of laboratory results

**Hepatitis B**
- HBsAg (confirmed)
- Anti-HBc IgM
- **HBV-DNS**

**Hepatitis C**
- Anti-HCV antibody (confirmed)
- **HCV-nucleid acid**

- acute
- chronic
- unknown

Reporting to ECDC: newly diagnosed HCV infection
Plans for reporting and assessing cases in 2016

• Establishing links between laboratories performing HCV diagnostics and the new epidemiological information system (OSZIR)
• Ensuring reporting of HCV PCR-positive results
• Circular to hospitals and hepatology centers
• Facilitating case reporting by hepatology centers via interface, creating link between HEPREG and OSZIR
• Developing a methodological guide for the district/county government offices to support the reporting of HBV, HCV cases

Obstacle: 2 waves of institutional reorganisation
Current situation

• Consolidating institutional environment following the reorganisations
• The National Public Health Center, as the surveillance centre in Hungary, continues the work started
• Aim: to create a national database on viral hepatitis cases including data on both acute and chronic infections
• Collaboration with clinicians, particularly Hepatologists, and support from the ministry is indispensable
THANK YOU FOR YOUR ATTENTION!