

Epidemiology and phylotype dynamics of hepatitis E viral disease in Belgium, 2010-2017

V. Suin¹ • S. Klamer^{2,3} • V. Hutse¹ • M. Wautier¹ • M. Jacques¹ • M. Abady¹ • S. Lamoral¹ • V. Verburgh¹ • I. Thomas¹ • B. Brochier¹ • L. Subissi^{1,3} • S. Van Gucht¹.

1. Viral diseases, Sciensano, Brussels 2. Epidemiology of infectious diseases, Sciensano, Brussels • 3. EPIET/EUPHEM program, Stockholm

CONTEXT: Hepatitis E disease is due to infection with hepatitis E virus (HEV), typically presenting as self-limiting acute hepatitis. Transmission is zoonotic (contact with pigs, consumption of pork meat, wild boar, ...) and incubation time is 4-6 weeks.

In many European countries, the numbers of reported cases of domestic hepatitis E disease are increasing, however denominators are lacking.

AIM: We aim to identify epidemiological trends of hepatitis E cases in Belgium during 2010 – 2017 and to describe HEV-3 subtype proportions.

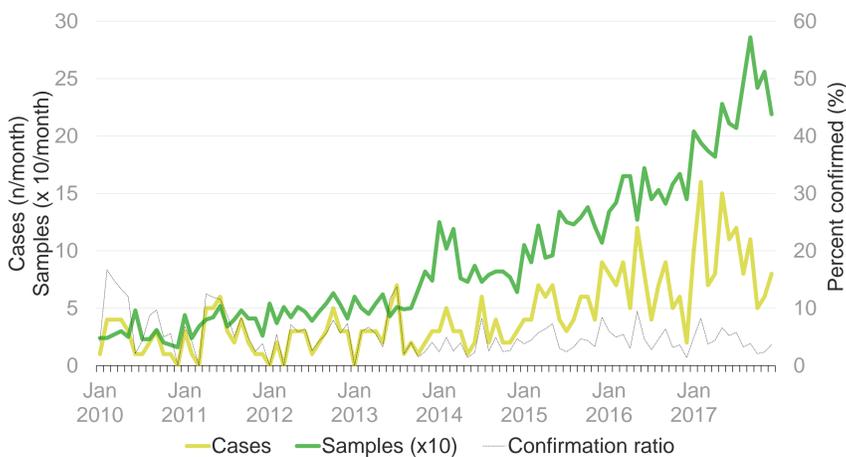
Results

Identified hepatitis E cases, 2010-2017:

- The NRC identified:
 - 8941 suspected cases
 - 417 confirmed cases
 - 264 PCR positive cases
 - 223 cases were genotyped

Trends and characteristics:

- Confirmed cases increased from 25 in 2010 towards 117 in 2017.
- Suspected cases increased from 309 in 2010 towards 2663 in 2017.
- 92% of genotyped isolates were genotype HEV-3.
- 82% of confirmed cases were ≥ 40 years.
- 67% of confirmed cases were men.
- More confirmed cases (HEV-3) per population in Wallonia (1.2) & Brussels (1.2) compared to Flanders (0.8/100,000 inhabitants, 2017).



Monthly suspected and confirmed cases and the percentage of confirmed samples, Belgium, 2010-2017 (n=8941).

Methods

Data source and laboratory methods:

- Data collected by national reference center (NRC) of hepatitis
- Serology (IgG, IgM) analysed for about all received samples.
- PCR for all IgM positive samples, and on specific demand.
- Genotyping for all PCR positive samples.

Case definitions:

- Suspected cases: any sample received at NRC for HEV diagnostics.
- Confirmed cases: IgM and/or PCR positive sample.

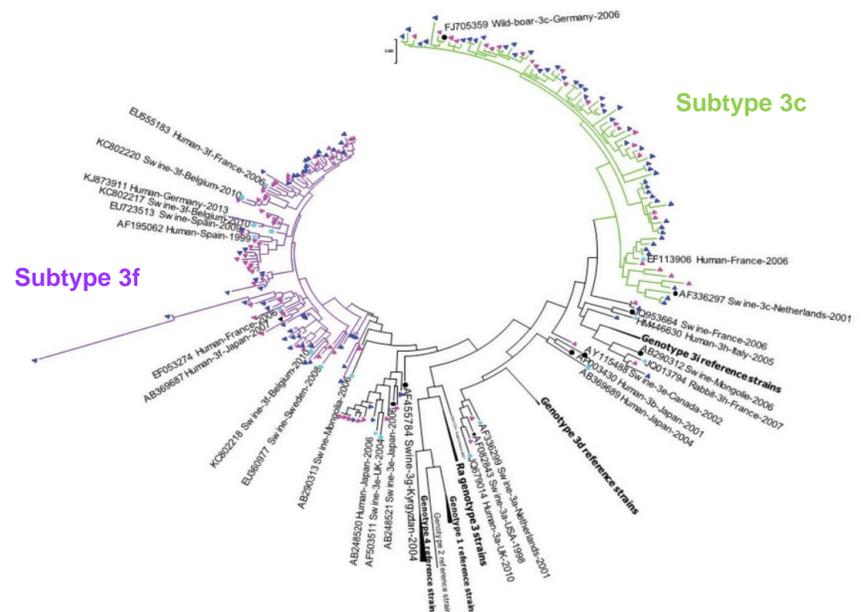
Data analysis

- Proportion confirmed: #confirmed cases/ #suspected cases.
- Data analysis was performed in SAS 7.1, Excel 2016 and STATA 14.1.

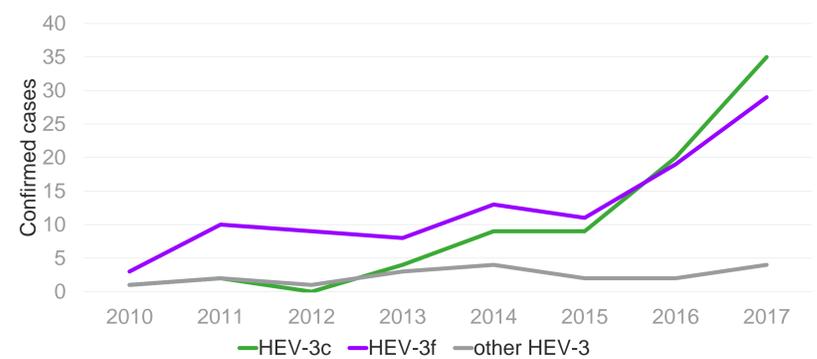
Conclusions



- Increase in confirmed cases at NRC
- Similar increase in received samples at NRC
- Confirmed cases per population below the EU average (2014)
- Increasing proportion of HEV-3c: subtype shift
- Rising awareness among physicians in Belgium
- Underdiagnosis of hepatitis E likely still exists, but is declining.



Phylogenetic tree of HEV-3 isolates, Belgium 2010-2017 (n=186). Triangles indicate human samples. Rose triangles originate from 2010-2015; blue triangles originate from 2016-2017.



Proportions of HEV subtype 3c and 3f during 2010-2017. Subtype 3c became the most identified from 2016 onwards (n=217).

Recommendations

- Physicians should continue to test for HEV to further reduce the underdiagnosis.
- Dietary recommendations for immunosuppressed persons may reduce the number of cases.
- Food safety interventions in production processes may reduce the volume of contaminated food products.

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