

Annual Epidemiological Report

December 2023

Hepatitis E in Ireland, 2022

Key Facts

Number of cases, 2022:	42
Number of clinical cases:	18
Crude notification rate clinical cases, 2022:	0.35/100,000 population
Number of cases detected through blood donor screening:	24
Percentage of blood donors HEV positive, 2022:	0.023% (23/100,000 donors)

The number of notifications of hepatitis E decreased by 40% in 2022 compared to 2021 (42 compared to 70 cases) and was the lowest number of cases reported annually to date. Forty three percent of hepatitis E notifications in 2022 were clinical cases, detected because they presented with clinical symptoms or had liver function test results consistent with viral hepatitis. The remaining 57% of cases were blood donors detected through routine screening of blood donations. Notification rates for clinical cases were highest in males aged 40 years or older.

The percentage of blood donors testing positive for HEV infection was similar across all age groups in 2022, with a slightly higher proportion of female donors testing positive (0.03%) compared to males (0.02%).

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Background

Hepatitis E infection is a disease of the liver caused by the hepatitis E virus (HEV). Most HEV infections are asymptomatic or mildly symptomatic.^{1,2} In most cases infection is self-limiting and resolves in one to five weeks without any treatment. However, hepatitis E can be associated with severe disease and liver failure in a small number of at risk individuals and chronic hepatitis E infection may develop in people who have a suppressed immune system. Hepatitis E has also been reported in association with neurological symptoms such as Guillain-Barré syndrome and peripheral neuropathies.^{1,2}

Four main hepatitis E genotypes associated with human infection have been identified. The genotypes have different geographic distribution and epidemiology. Genotypes 1 and 2 are restricted to humans and are mainly transmitted via faecally contaminated water in developing countries.

HEV genotypes 3 and 4 can infect humans, pigs and other mammals. Genotype 3 is the dominant genotype in Europe. The majority of genotype 3 infections are foodborne and likely to be acquired through consumption of undercooked pig and game meat, processed pork or shellfish.^{1,2} Direct spread of hepatitis E from person to person is rare, although transmission associated with blood transfusion has been reported in some countries.⁴ Most cases of hepatitis E in developed countries are sporadic, but clusters of cases associated with common food sources have been identified.²

In 2015, the Irish Blood Transfusion Service (IBTS) carried out a research study to determine the incidence and prevalence of HEV in Irish blood donors. They found that 5% of those who had donated blood between September and December 2012 had evidence of past HEV infection and that from December 2013 to June 2014, 0.02% (5/24,985) of blood donors were infected at the time of blood donation. As a result of this study, the IBTS requested funding from the Department of Health for universal screening of blood donors for HEV. This was granted and commenced on January 4th 2016.⁵

Growing evidence of the risk of indigenous hepatitis E in Europe led to it becoming a notifiable disease in Ireland on December 15th 2015 (Amendment to the Infectious Diseases Regulations, SI 566 2015). Clinical cases and asymptomatic cases detected through blood donor screening are notifiable in Ireland.

Methods

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) System on 21st December 2023. These figures may differ from those published previously due to ongoing updating of notification data on CIDR.

HEV notification rates for clinical cases are expressed per 100,000 population and were calculated using the 2022 census for cases notified 2019 to 2022 and using the 2016 census for cases notified 2016-2018 (www.cso.ie). The IBTS provided data on the total number of blood donors in addition to the number who tested positive for current HEV infection, by age group, sex and year. These data were used for calculating the percentage of blood donors in Ireland who tested positive for HEV.

Epidemiology

Number of notifications and notification rates

Forty two cases of hepatitis E were reported in 2022 (0.8/100,000 population). This was a decrease of 40% compared to 2021 (n=70) and was the lowest number of cases reported annually to date (figures 1 and 2).

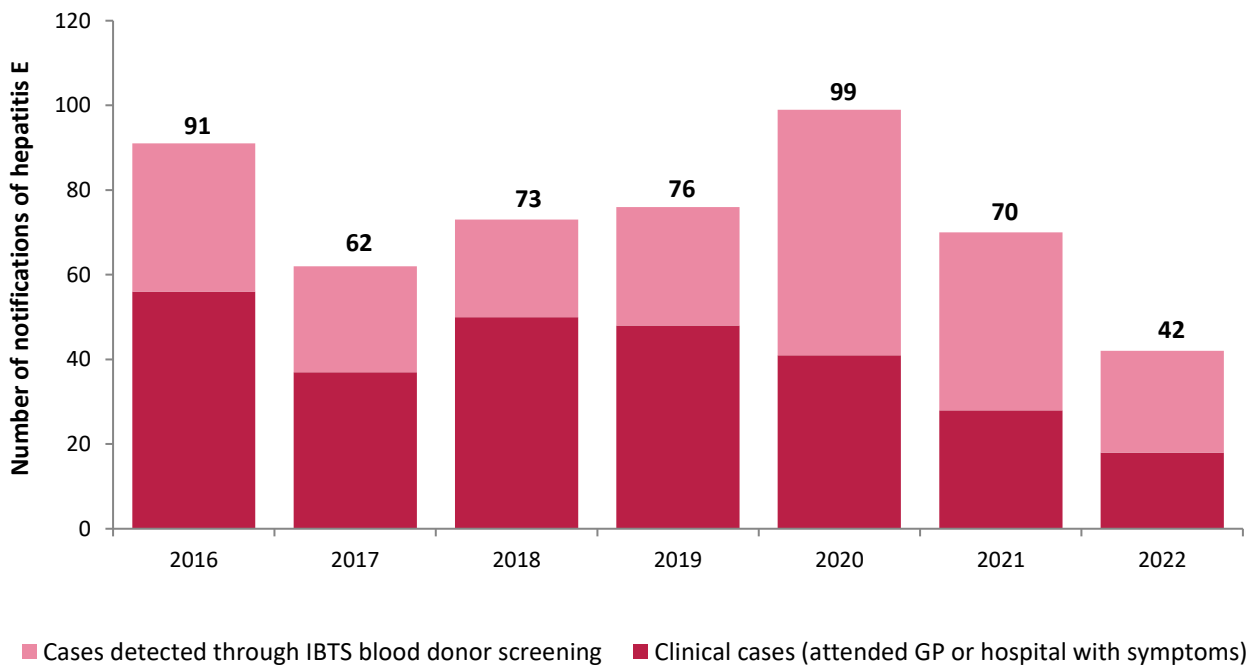


Figure 1. Number of notifications of clinical cases of HEV in Ireland, and number of HEV cases detected by the IBTS through donor screening, 2016-2022

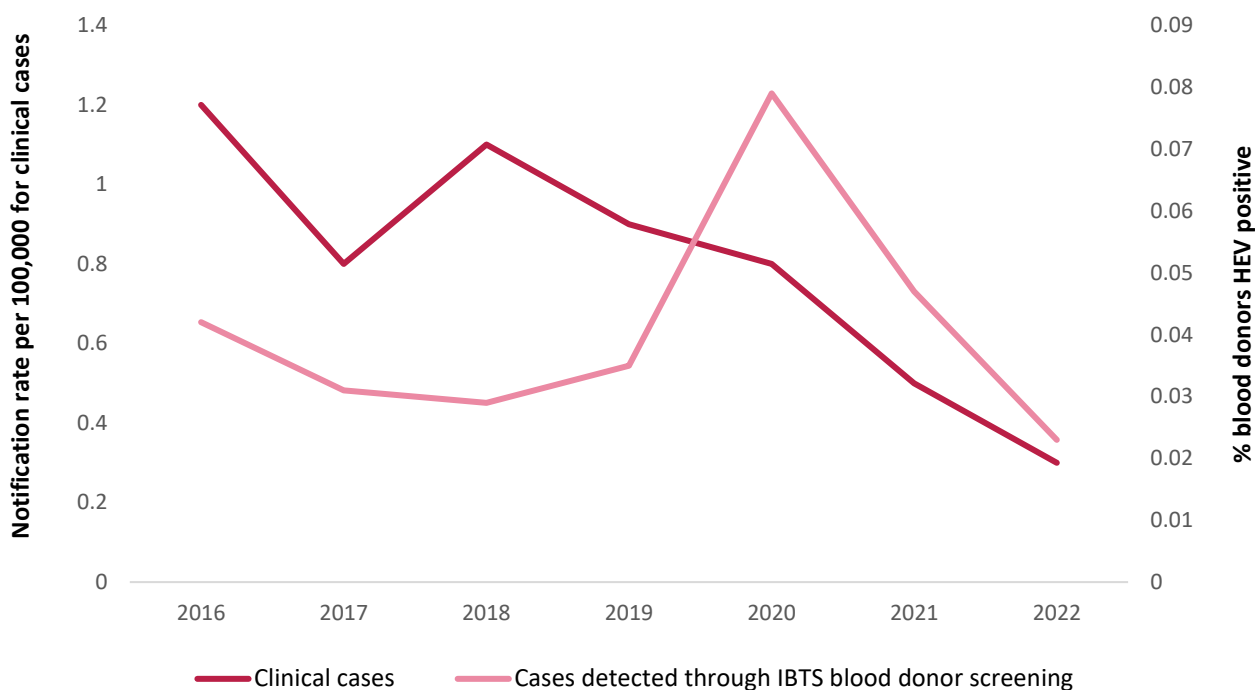


Figure 2. Notification rate per 100,000 population for clinical cases of HEV in Ireland, and percentage of blood donors who tested positive for HEV, 2016-2022

Clinical cases (n=18)

Forty three percent (n=18, 0.35/100,000 population) of HEV notifications in 2022 were clinical cases. These cases were detected because they had laboratory investigations for symptoms consistent with Hepatitis E infection. Patient type was reported for 56% of clinical cases and 40% (n=4) of these were hospitalised.

All clinical cases reported in 2022 were aged 40 years or older and the median age at notification was 49 years (50 years for males and 48 years for females). Seventy two percent (n=13) of clinical cases were male and the notification rate for males (0.5/100,000 population) was two and half times that for females (0.2/100,000 population) (figure 3). Cases were distributed across most regions in Ireland. Figures 4 and 5 shows trends in notification rates for clinical cases of HEV by age group and sex between 2016 and 2022.

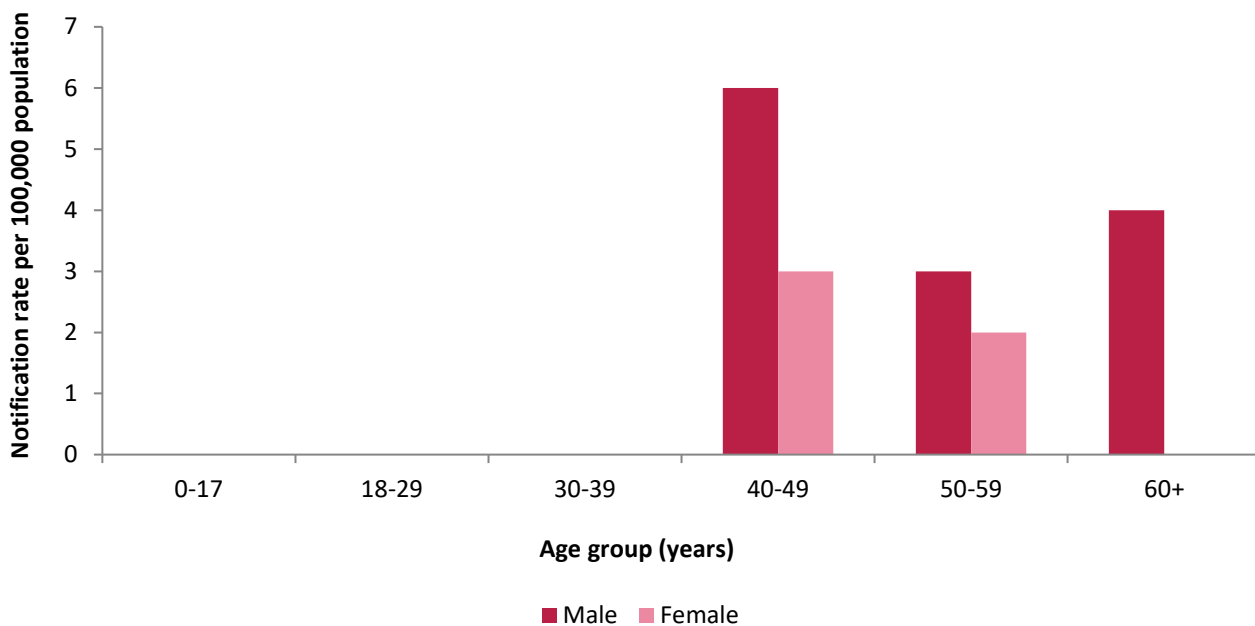


Figure 3. Age and sex specific notification rates per 100,000 population for clinical cases of HEV in Ireland, 2022

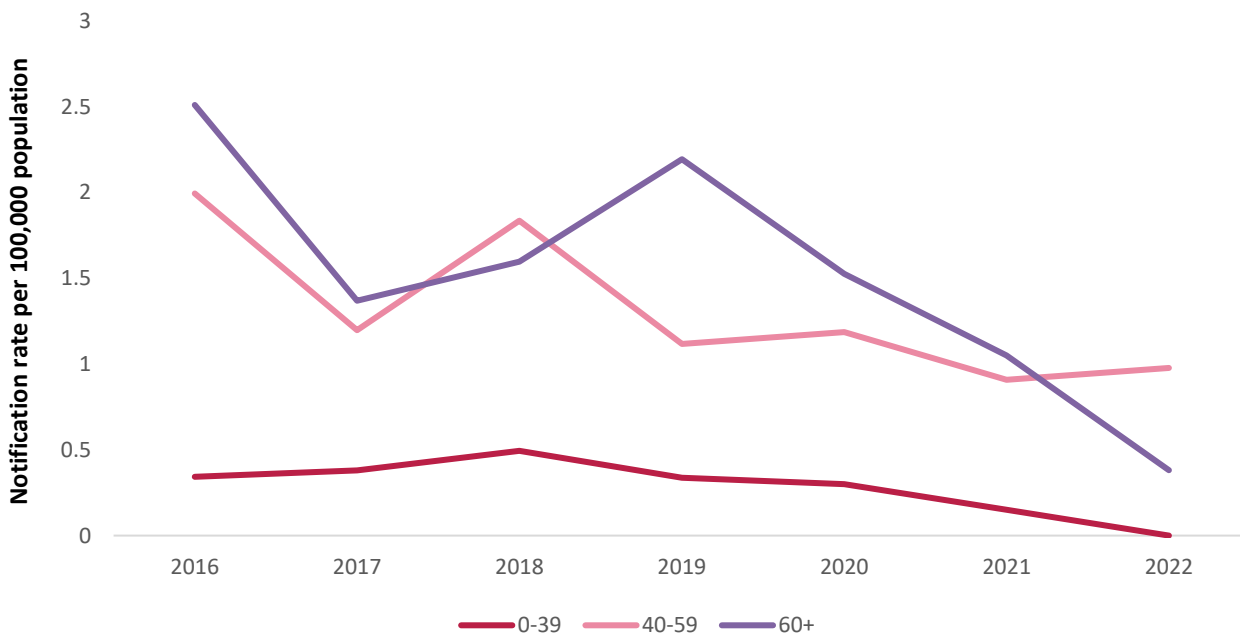


Figure 4. Age specific notification rates per 100,000 population for clinical cases of HEV in Ireland, 2016-2022

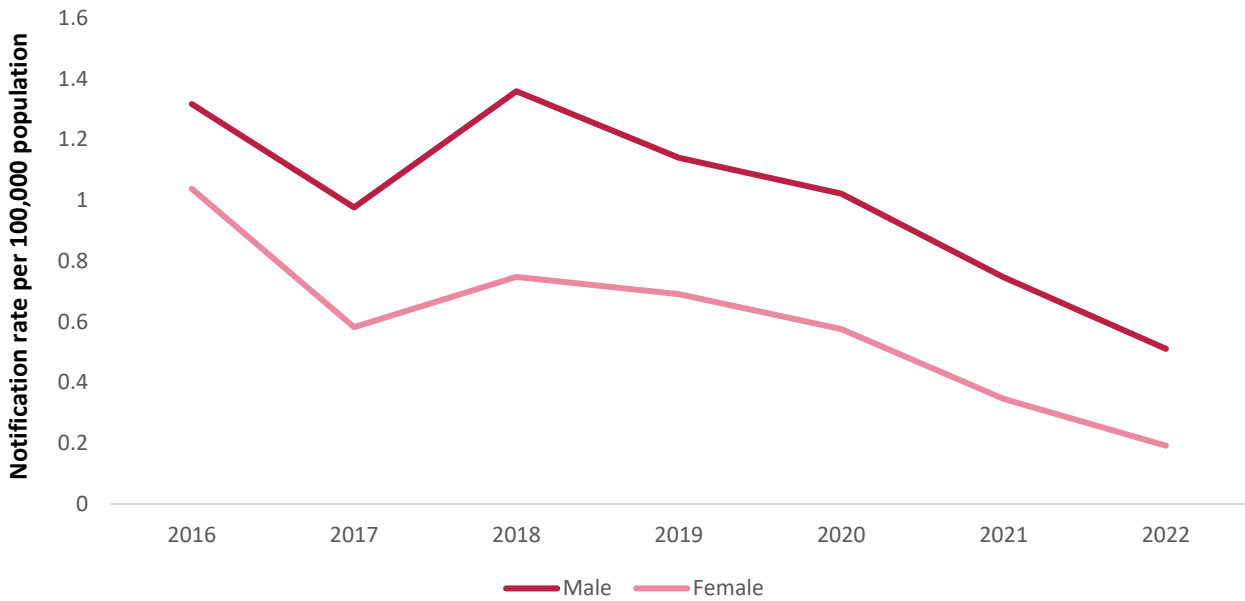


Figure 5. Sex specific notification rates per 100,000 population for clinical cases of HEV in Ireland, 2016-2022

Cases diagnosed through IBTS blood donor screening (n=24)

Fifty seven percent (n=24) of HEV cases in 2022 were reported by the IBTS (figure 1). Cases diagnosed through blood donor screening are largely asymptomatic. However, enhanced data collected in 2016 and 2017 indicated that about one third of such cases had experienced mild symptoms.⁷ HEV cases diagnosed through blood donor screening in 2022 were younger overall than clinical cases with a median age at notification of 43 years.

The IBTS provided denominator data on the number of blood donors in 2022 so that the percentage of donors testing positive for current HEV infection by age and sex could be calculated. Although the age and sex profile of blood donors is not the same as that of the general population, the percentage of blood donors who test positive for HEV provides a useful estimate of the incidence and prevalence of current HEV infection in the general population in Ireland. The overall prevalence of current HEV infection in blood donors in 2022 was 0.023%, which was a decrease compared to 2020 and 2021 (0.08% and 0.05%) (figure 2). HEV prevalence in blood donors in 2022 did not vary significantly by age, but was higher in females compared to males (0.03% compared to 0.02%) (figure 6). Figures 7 and 8 show trends in the % of blood donors who tested positive for HEV by age group and sex between 2016 and 2022.

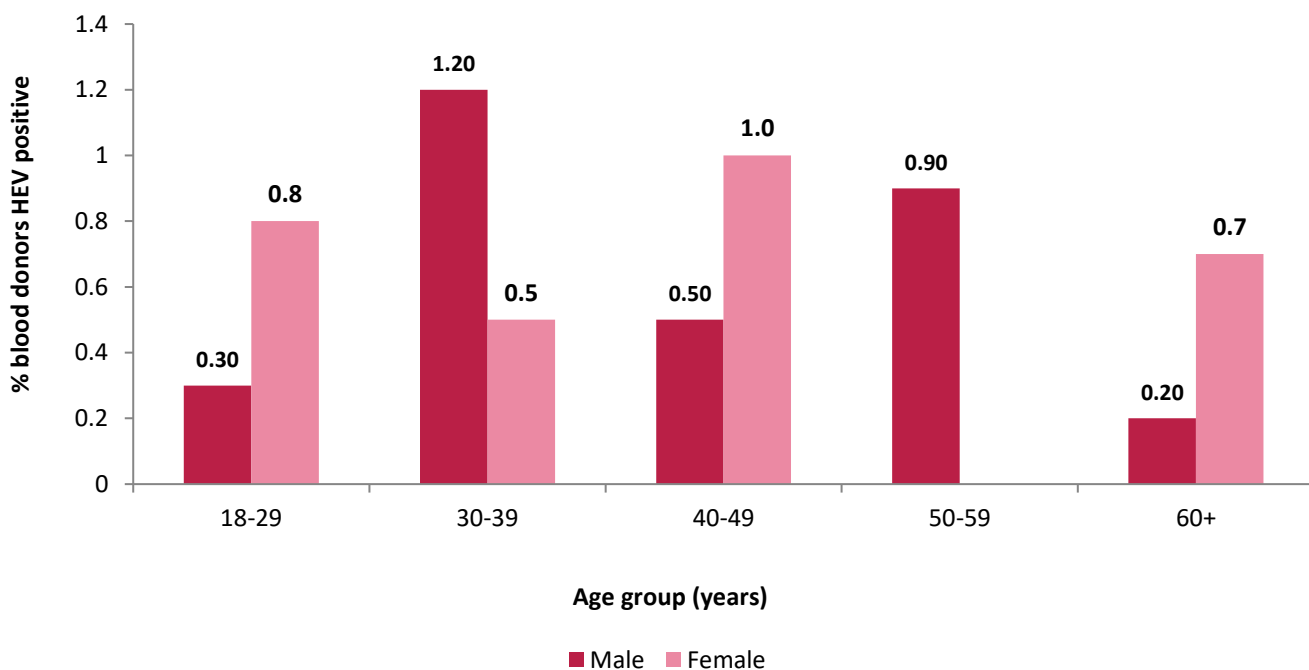


Figure 6. Percentage of blood donors who tested positive for HEV, by age group and sex, in Ireland, 2022 (Source: IBTS)

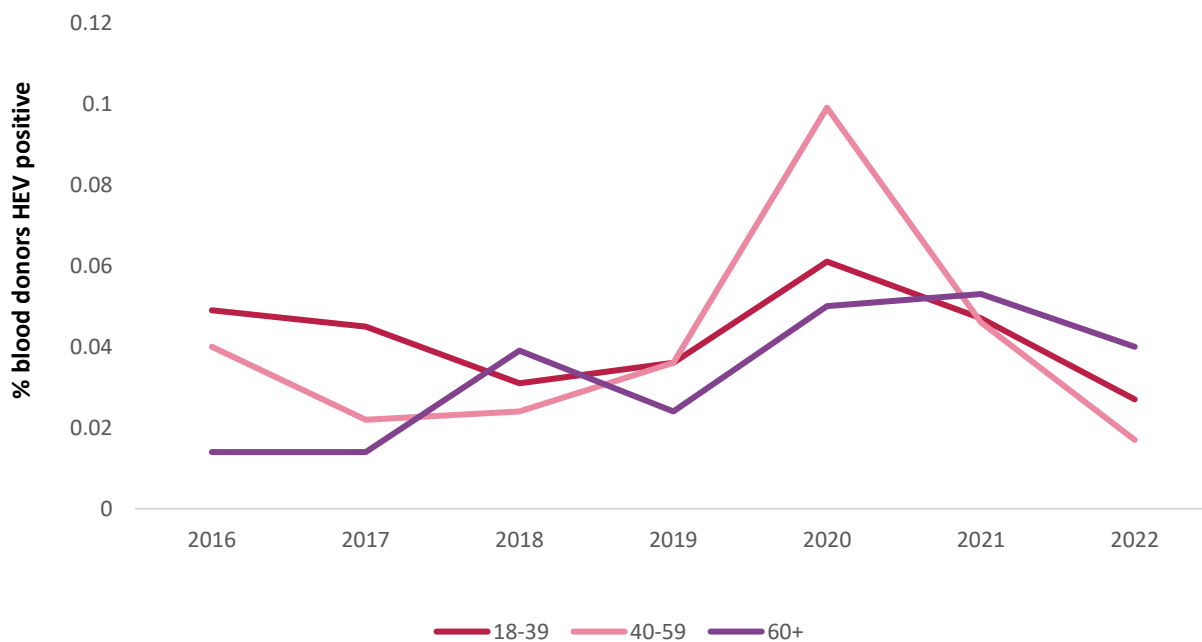


Figure 7. Percentage of blood donors who tested positive for HEV, by age group, in Ireland, 2016-2022 (data source: IBTS)

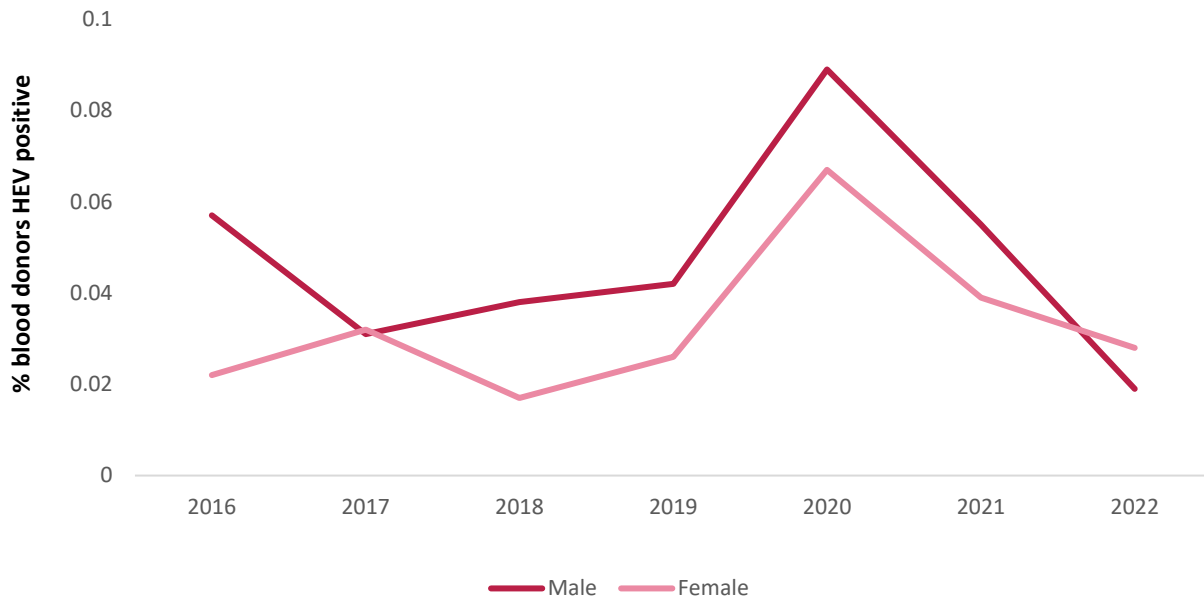


Figure 8. Percentage of blood donors who tested positive for HEV, by sex, in Ireland, 2016-2022 (data source: IBTS)

Discussion

The number of notifications of HEV in Ireland decreased by 40% in 2022 compared to 2021. Notification rates for clinical cases of HEV were highest in males aged 40 years and older. The age profile of cases diagnosed through blood donor screening differed to that of clinical cases, with IBTS cases being younger on average. Overall indications in Ireland are that HEV infection can occur at all ages but that older males are more likely to present with clinical symptoms.

Enhanced surveillance of HEV in Ireland was carried out between January 2016 and June 2017. This was discontinued due to the consistency of the responses and the added burden it was placing on Departments of Public Health and the IBTS to collect the data. Pork consumption was almost universal amongst cases of HEV in Ireland for whom enhanced surveillance forms were completed.⁶

Similarly high levels of pork consumption have been found in other studies of hepatitis E in European countries. A large matched case control study in Germany compared the food consumption habits of 270 non travel-related clinical cases of HEV to those of 1,159 matched controls. Consumption of pork, undercooked wild boar meat, ready to eat sausages and raw vegetables were all independently associated with an increased risk of

infection. Six percent of controls followed a diet avoiding consumption of pork compared to 0.4% of cases. The population attributable fraction for dietary exposure to pork was 94%.⁷

An Irish study carried out between 2018 and 2019 assessed the prevalence of HEV in pork products at the point of retail. One hundred and eighty eight pork products (high pork content sausages, pork liver and raw fermented sausages) were tested and low level HEV RNA was detected in 5% of samples. The highest incidence of HEV RNA was in pork liver, with 24% of samples (6/25) testing positive.⁸

To protect against hepatitis E infection, the Food Safety Authority of Ireland recommends cooking pork, and other meats, thoroughly to a minimum of 75°C in the thickest part of the meat.⁹ Normally grilling or frying of sausages until they are well browned with no traces of pink meat inside is usually sufficient to achieve this.

Further information

<https://www.hpsc.ie/a-z/hepatitis/hepatitise/>

<https://www.efsa.europa.eu/en/efsajournal/pub/4886>

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