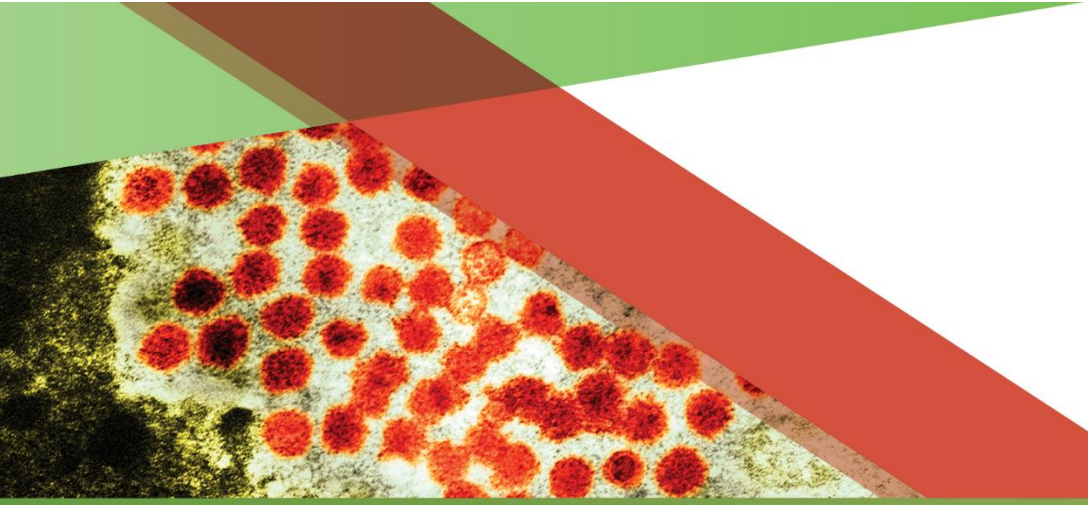

SURVEILLANCE REPORT

Hepatitis A

Annual Epidemiological Report for 2022

Key facts

- In 2022, 30 EU/EEA countries reported 4 548 cases of hepatitis A.
- The EU/EEA notification rate was one case per 100 000 population. Twenty EU/EEA countries had notification rates below one case per 100 000 population. The countries with the highest notification rates were Hungary (5.5), Croatia (5.3) Romania (4.8), and Bulgaria (4.4).
- The reported number of cases and the EU/EEA notification rate in 2022 were similar to 2020 and 2021, but remained lower than the years preceding the COVID-19 pandemic.
- Similar to previous years, children between 5–14 years of age accounted for a large proportion of cases (20%) and had the highest notification rate (2.0 cases per 100 000 population).
- In 2022, six multi-country clusters of hepatitis A were reported to EpiPulse. Five clusters were caused by hepatitis A sub-genotype IB virus and one cluster was caused by hepatitis A sub-genotype IA virus.

Introduction

Hepatitis A is an inflammation of the liver caused by the hepatitis A virus. In children, hepatitis A virus infection is often asymptomatic or mild. In adults, the onset of illness is usually abrupt, characterised by fever, malaise, and abdominal discomfort. Jaundice is the predominant symptom. Very severe disease is unusual, but the infection can lead to acute liver failure and death, particularly in the elderly and patients with liver disease. Symptoms may last from one or two weeks or for months.

The hepatitis A virus is highly transmissible and has an average incubation period of four weeks, ranging from two to six weeks. Transmission most often occurs via the faecal–oral route through contaminated food and water or via person-to-person contact (e.g. among household contacts, sexual contacts, daycare centres or schools). A vaccine against Hepatitis A infection is available.

Methods

This report is based on data for 2022 retrieved from The European Surveillance System (TESSy) on 11 October 2023. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of methods used to produce this report, please refer to the Methods chapter [1].

An overview of the national surveillance systems is available online [2].

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Stockholm, February 2024

A subset of the data used for this report is available through ECDC's online Surveillance atlas of infectious diseases [3].

For 2022, 30 EU/EEA countries reported hepatitis A data to ECDC. Twenty-five countries used EU case definitions: 15 countries used the EU 2018 case definition; three countries used the EU 2012 case definition, and six countries used the EU 2008 case definition. The remaining four reporting countries used unspecified or other case definitions. The only difference between the three case definitions is that the 2018 case definition considers laboratory confirmation as sufficient for a confirmed case when information on clinical symptoms is missing.

Reporting hepatitis A was compulsory in all 30 reporting countries. Twenty-nine countries have a comprehensive surveillance system, and Belgium has a sentinel surveillance. In 29 countries, surveillance was based on either laboratory or physician reporting or a combination of the two. Romania reported only hospitalised cases. Twenty-eight countries reported case-based data and two countries (Belgium and Bulgaria) reported aggregated data [2].

In 2020, Spain did not receive data from all regions that normally report cases, and case numbers were therefore lower than expected, with the rate not calculated. No data for 2020–2022 were reported by the United Kingdom due to its withdrawal from the EU on 30 January 2020.

In addition to TESSy reporting, information from event-based surveillance for hepatitis A clusters or outbreaks with a potential EU dimension was collected through the European surveillance portal for infectious diseases (EpiPulse).

Epidemiology

In 2022, 30 EU/EEA countries reported 4 548 cases of hepatitis A (Table 1). The EU/EEA notification rate was one case per 100 000 population. In 2022 the EU/EEA notification rate and the number of reported cases were considerably lower than the years preceding the COVID-19 pandemic (Table 1). This is similar to 2020 and 2021.

Hungary reported 5.5 cases per 100 000 population - the highest notification rate - followed by Croatia (5.3), Bulgaria (4.4), and Romania (4.8). Romania reported the highest number of cases overall followed by Germany and Hungary. Two thirds of EU/EEA countries (20 out of 30; 67%) had a notification rate of less than one case per 100 000 population (Figure 1).

In the 23 countries reporting information on travel history for all or part of their cases, 16.7% (564 of 3 375 cases with available information) were travel-associated in 2022. France (n=185), Germany (n=120) and Spain (n=54) accounted for two thirds (63.7%) of all travel-related cases. Among 527 cases with available information, the most commonly reported countries cases visited were Morocco (50 cases; 9.5%), Pakistan (48 cases; 9.1%) and Algeria (28 cases; 5.3%). Among cases with available information, 55.2% (1 065 out of 1 928) were hospitalised and ten deaths were reported.

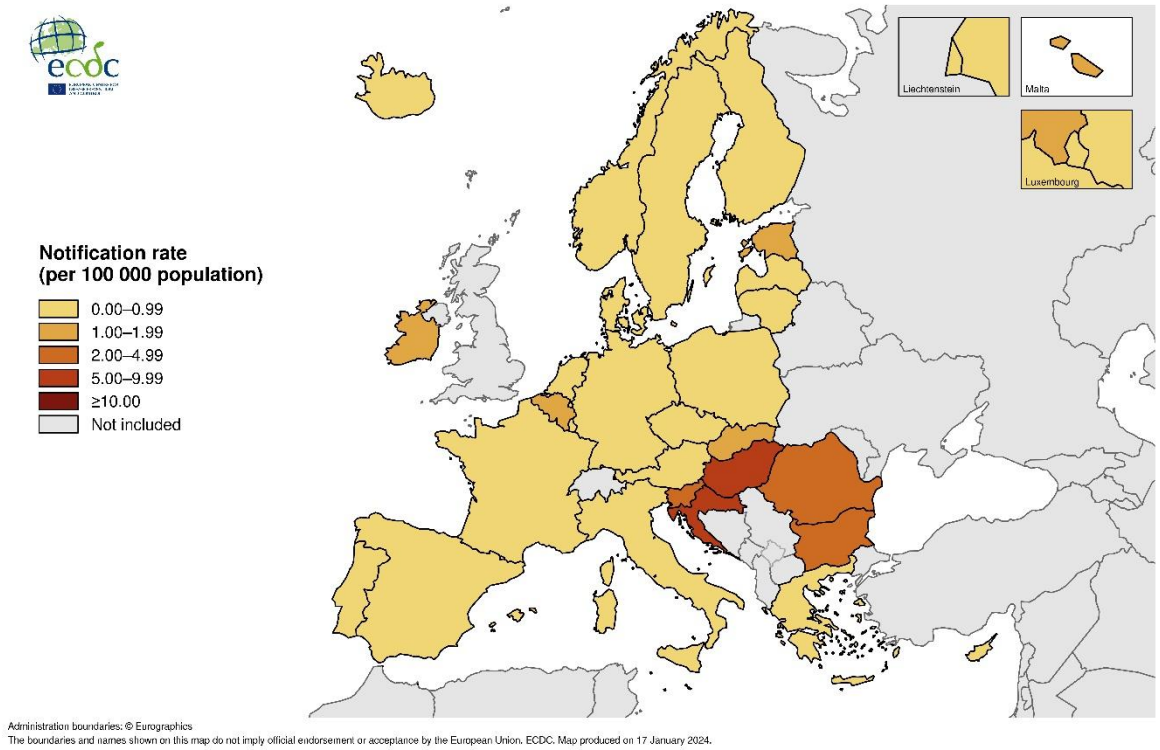
Table 1. Confirmed hepatitis A cases and rates per 100 000 population by country and year, EU/EEA, 2018–2022

Country	2018		2019		2020		2021		2022	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Austria	80	0.9	76	0.9	35	0.4	32	0.4	65	0.7
Belgium	241	2.1	219	1.9	124	1.1	121	1.0	133	1.1
Bulgaria	1 347	19.1	1 512	21.6	1 297	18.7	723	10.5	303	4.4
Croatia	96	2.3	9	0.2	5	0.1	5	0.1	206	5.3
Cyprus	9	1.0	0	0.0	1	0.1	4	0.4	6	0.7
Czechia	209	2.0	240	2.3	183	1.7	210	2.0	70	0.7
Denmark	65	1.1	34	0.6	53	0.9	22	0.4	23	0.4
Estonia	15	1.1	20	1.5	30	2.3	7	0.5	19	1.4
Finland	27	0.5	18	0.3	12	0.2	15	0.3	15	0.3
France	1 525	2.3	1 375	2.0	411	0.6	423	0.6	448	0.7
Germany	1 038	1.3	871	1.0	558	0.7	587	0.7	705	0.8
Greece	104	1.0	28	0.3	8	0.1	7	0.1	7	0.1
Hungary	177	1.8	104	1.1	28	0.3	75	0.8	533	5.5
Iceland	1	0.3	2	0.6	1	0.3	2	0.5	1	0.3
Ireland	35	0.7	51	1.0	33	0.7	71	1.4	64	1.3
Italy	1 077	1.8	528	0.9	130	0.2	167	0.3	112	0.2
Latvia	67	3.5	37	1.9	21	1.1	15	0.8	13	0.7
Liechtenstein	NDR	NRC	NDR	NRC	NDR	NRC	2	5.1	0	0.0
Lithuania	13	0.5	8	0.3	9	0.3	5	0.2	24	0.9
Luxembourg	2	0.3	4	0.7	11	1.8	10	1.6	5	0.8
Malta	4	0.8	11	2.2	2	0.4	9	1.7	7	1.3

Country	2018		2019		2020		2021		2022	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Netherlands	180	1.0	146	0.8	38	0.2	68	0.4	81	0.5
Norway	32	0.6	37	0.7	14	0.3	33	0.6	31	0.6
Poland	1 440	3.8	1 054	2.8	110	0.3	92	0.2	233	0.6
Portugal	82	0.8	42	0.4	20	0.2	13	0.1	30	0.3
Romania	4 527	23.2	3 351	17.3	1 010	5.2	873	4.5	917	4.8
Slovakia	173	3.2	99	1.8	11	0.2	12	0.2	61	1.1
Slovenia	16	0.8	12	0.6	4	0.2	11	0.5	68	3.2
Spain	2 294	4.9	974	2.1	189	NRC	208	0.4	304	0.6
Sweden	123	1.2	90	0.9	57	0.6	97	0.9	64	0.6
EU/EEA (30 countries)	**14 999**	**3.3**	**10 952**	**2.4**	**4 405**	**1.0**	**3 919**	**0.9**	**4 548**	**1.0**
United Kingdom	681	1.0	418	0.6	NDR	NRC	NA	NA	NA	NA
EU/EEA (31 countries)	**15 680**	**3.0**	**11 370**	**2.2**	**4 405**	**1.0**	**NA**	**NA**	**NA**	**NA**

Source: Country reports.
NDR: No data reported.
NRC: No rate calculated.
NA: Not applicable.
For 2020–2022, no data were reported by the United Kingdom due to its withdrawal from the EU on 31 January 2020.

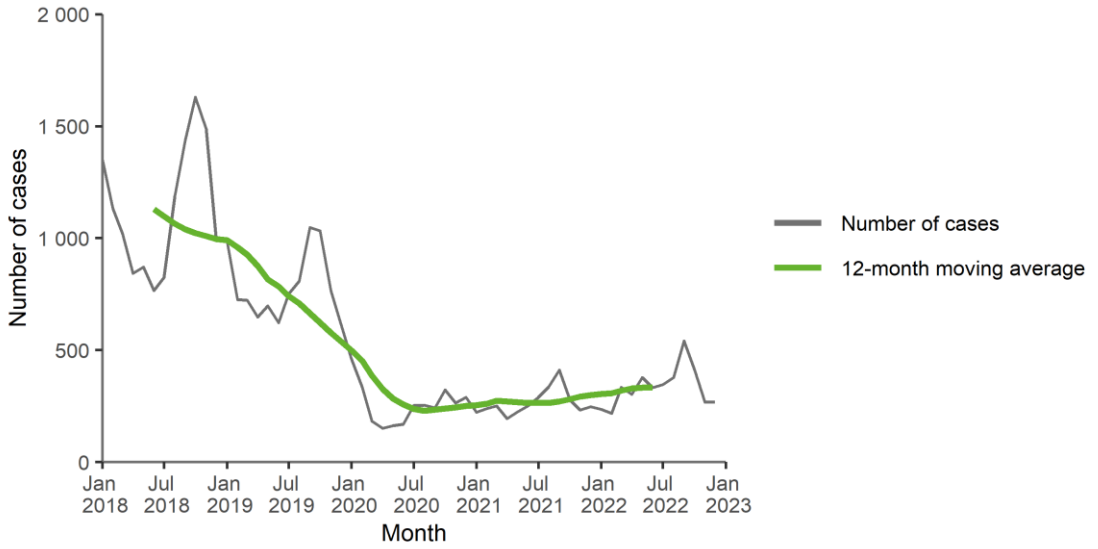
Figure 1. Confirmed hepatitis A cases per 100 000 population by country, EU/EEA, 2022



Source: Country reports.

The average number of cases per month in the EU/EEA noticeably decreased from a peak of 1 128 cases per month in 2018 to 257 cases per month in 2020 (Figure 2). Between 2020 and 2022, the average number of cases was stable at 285 cases per month.

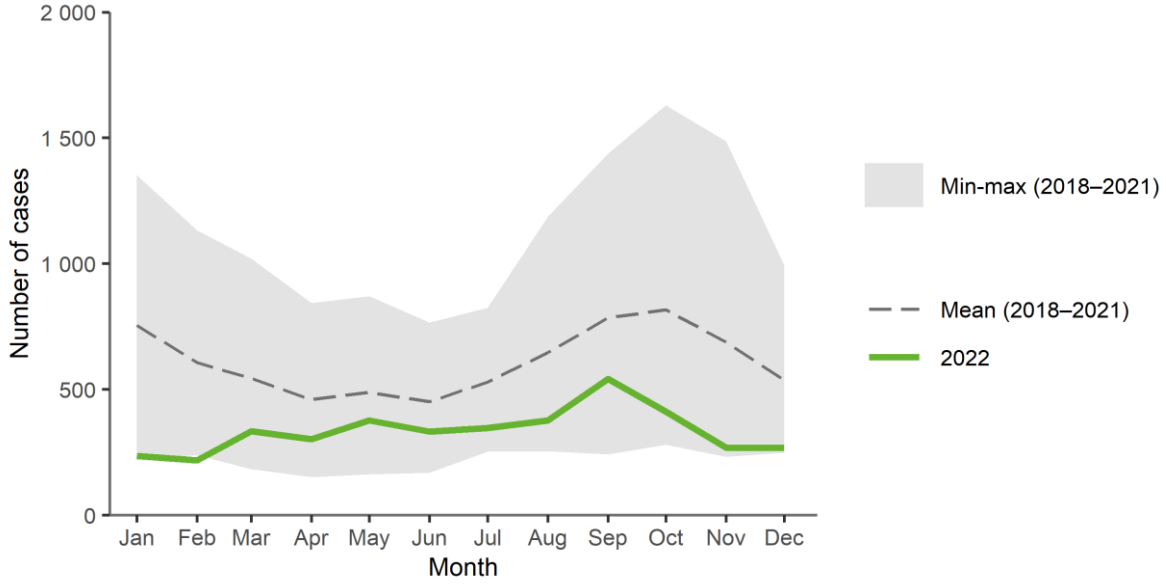
Figure 2. Confirmed hepatitis A cases by month, EU/EEA, 2018–2022



Source: Country reports from Austria, Belgium, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Hepatitis A typically has a seasonal pattern of transmission in EU/EEA countries, with cases frequently peaking between September and November. In 2022, a slight increase in case numbers was evident in September. However, the monthly number of cases reported were consistently lower for each month when compared to the mean number of cases reported between 2018–2021 (Figure 3).

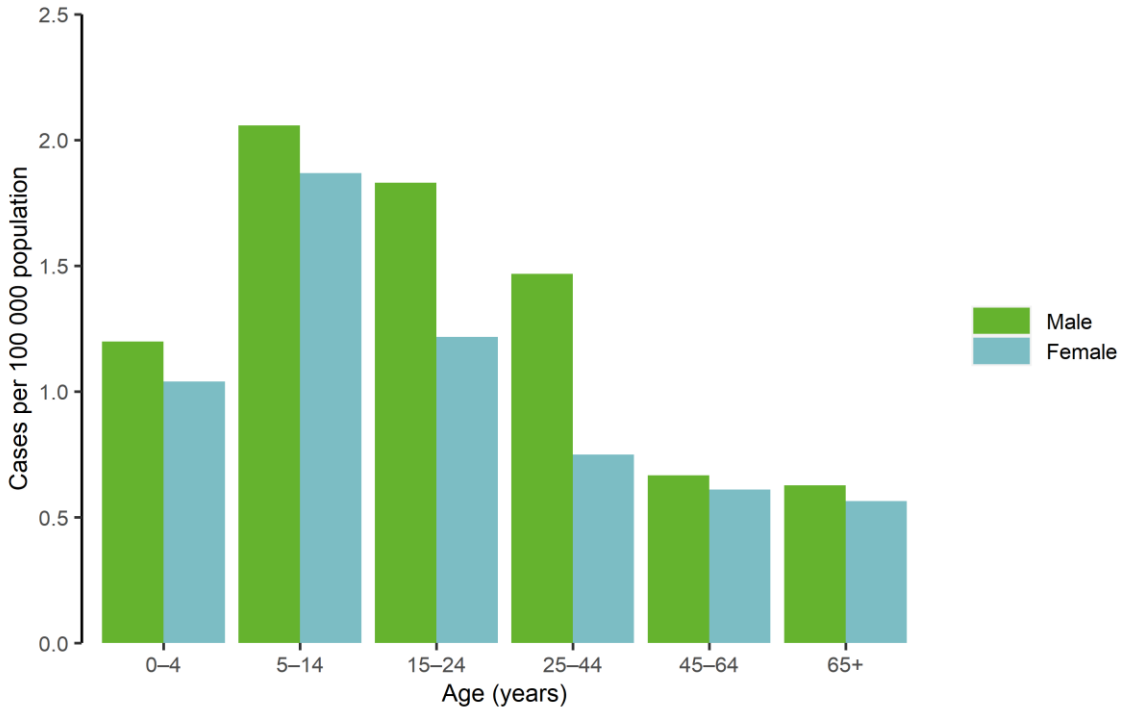
Figure 3. Confirmed hepatitis A cases by month, EU/EEA, 2022 and 2018–2021



Source: Country reports from Austria, Belgium, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Gender was reported for 4 541 (99.8%) hepatitis A cases; 57.3% were males and 42.7% were females, with a male-to-female ratio of 1.3:1. Almost one-third of cases (30%) were aged 45 years and above. Similar to previous years, children between the ages of 5–14 years accounted for a large proportion of cases (20%) and the highest notification rate (2.0 cases per 100 000 population). Males had slightly higher notification rates than females in all age groups, particularly in the age groups 15–24 years and 25–44 years (Figure 4).

Figure 4. Confirmed hepatitis A cases per 100 000 population, by age and gender, EU/EEA, 2022



Source: Country reports from Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Microbial surveillance

In 2022, information on sub-genotype was reported by four countries (Hungary, Ireland, Norway and Sweden) for 236 cases (5.1%) in the EU/EEA. Ten cases were of sub-genotype IA, 207 cases were of sub-genotype IB, and 19 cases were of sub-genotype IIIA.

Outbreaks and other threats

Six multi-country clusters of hepatitis A virus infection were reported through EpiPulse in 2022. Phylogenetic analysis of the sequences and information submitted are presented in Figure 5.

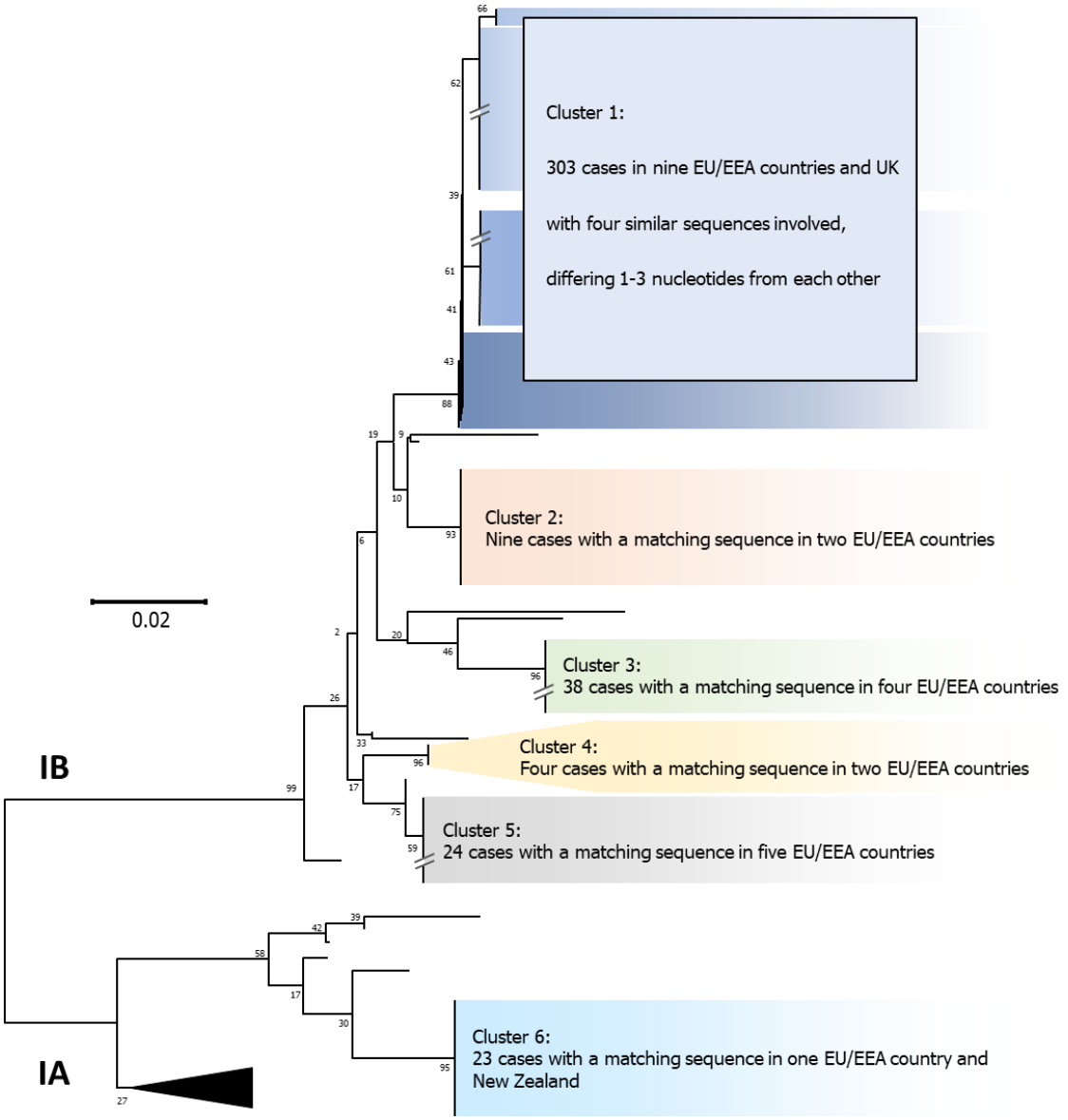
One cluster (Cluster 1 in Fig. 5) involved cases infected with four closely-related hepatitis A sub-genotype IB virus strains. Epidemiological and microbiological data suggested human-to-human transmission, and possibly also transmission via contaminated food (frozen berries). The signal was initially reported by Hungary in EpiPulse in February 2022 [4]. Over 160 Hungarian cases (86% males) were reported between December 2021 and September 2022, a number of which were hospitalised. Several cases identified themselves as men who have sex with men (MSM), indicating likely sexual transmission. Foodborne transmission was also suspected as a proportion of cases were linked to consumption of a cold soup made with frozen berries at a restaurant in Hungary. By September 2022, over 300 cases with identical or closely-related virus strains were identified in six EU/EEA countries, and the UK [5].

Two further clusters, both caused by hepatitis A sub-genotype IB virus, were also linked to consumption of frozen fruit, possibly berries. One cluster (Cluster 2 in Fig. 5) was reported in two EU/EEA countries and was involved in at least nine cases in 2022. Additional historical cases possibly linked to this cluster were also identified in 2019 in four other countries. The other cluster (Cluster 5 in Fig. 5) was reported in five EU/EEA counties and involved at least 24 cases.

The source of infection for two multi-country clusters of hepatitis A sub-genotype IB virus infections was not identified, but foodborne transmission was suspected. These included one cluster (Cluster 3 in Fig. 5) of 38 hepatitis A cases in four countries, and a second cluster (Cluster 4 in Fig. 5) of four hepatitis A cases in two countries.

Another cluster (Cluster 6 in Fig. 5) involving at least 23 hepatitis A sub-genotype IA virus infections in one EU/EEA country and New Zealand was reported. Information from patient interviews and traceback investigations identified frozen berries as the suspected vehicle of infection.

Figure 5. Phylogenetic analysis of hepatitis A sub-genotype IA- and IB virus clusters reported in EpiPulse during 2021



The phylogenetic tree was constructed using information reported by countries in EpiPulse during 2022 on sequences matching the VP1/2A outbreak sequences with the Neighbour-joining method in MEGA11, using the Tamura Nei as evolutionary model, and a bootstrapping approach for the statistical analysis (1 000 replicates). The scale bar indicates the number of nucleotide substitutions per site.

Discussion

In 2022, hepatitis A was the fifth most commonly reported infectious disease in the EU/EEA [3]. Despite this, the number of reported hepatitis A cases in 2022 remained as low as the numbers reported during the COVID-19 pandemic years of 2020 and 2021. The number of hepatitis A cases in the EU/EEA has remained stable between 2020 and 2022. Measures implemented during the COVID-19 pandemic, such as improved hand hygiene and reduced international travel, notably impacted hepatitis A surveillance data resulting in considerably fewer cases reported. Other factors contributing to the reduced number of cases in 2020–2022 include the increased natural immunity in at-risk groups following the large multi-country outbreak of hepatitis A genotype IB in 2017 and 2018 which disproportionally affected MSM [6, 7].

This is in addition to heightened awareness of hepatitis A transmission and preventive measures such as practising good hygiene, and increased vaccine uptake among at-risk groups [6, 7]. It should also be noted that data for the UK has not been reported since 2019, and case numbers are not complete for Spain in 2020 as data were not received from all regions.

In 2022, the highest notification rates were reported by Hungary (5.5 cases per 100 000 population), Croatia (5.3 cases per 100 000 population), Romania (4.8 cases per 100 000 population) and Bulgaria (4.4 cases per 100 000 population); these countries accounted for slightly more than one third (36%) of all cases reported that year. In Croatia, there was a notable increase in the notification rate and the reported number of cases in 2022 compared to previous years. Most cases were reported among males, in those ages 25–44 years and occurred in the first four months of 2022. This is linked to a prolonged hepatitis A sub-genotype IA outbreak between January and October 2022 in the population of MSM living with HIV and those who use pre-exposure prophylaxis (PrEP)[8]. The outbreak report highlights that MSM, including individuals living with HIV and MSM PrEP users, are vulnerable to hepatitis A virus infection and may be a potential source for more widespread virus transmission [8]. The increase in cases reported in Hungary in 2022 relates to a multi-country outbreak of hepatitis A genotype IB virus infections (see above section *Outbreaks and other threats*). Even though Romania reported one of the highest notification rates among all reporting countries in 2022, it was one of the lowest ever reported by Romania since 2007 (when the EU-level surveillance in the country began) [3].

The proportion of travel-associated cases observed in 2022 (16.7%) represented an increase compared to 2020 (11.7%) and 2021 (8.4%) but was consistent with numbers reported in 2019 (14.6%). This trend appears correlated to the withdrawal of travel restrictions implemented during the COVID-19 pandemic. As travel restrictions were gradually withdrawn during 2021 and 2022 there was a resumption of international travel, resulting in a greater number of travel-related hepatitis A cases.

Similar to previous years, children aged 5–14-years accounted for 20% of all cases in 2022 and also had the highest notification rate. Compared to adults, children are more likely to develop mild or very mild disease. Therefore, it can be difficult to capture the true number of cases in this population group, possibly leading to an underestimation [9]. In 2022, adults older than 44 years of age accounted for almost one-third of cases in the EU/EEA. Older adults are at increased risk of severe disease, hospitalisations and, rarely, death [10].

In 2022, 236 cases were reported with information on sub-genotype. Most cases were sub-genotype IB (59%); this is related to the outbreak of hepatitis A cases in Hungary and other countries in the spring and summer of 2022. Indeed, molecular characterisation and sharing of sequences at the international level offers the opportunity to rapidly link seemingly sporadic cases and detect diffuse cross-border outbreaks. ECDC recommends that molecular characterisation of hepatitis A viruses and sharing of sequences at the European level is prioritised.

Public health implications

The World Health Organization (WHO) sets out the following vaccination recommendations to reduce the incidence of hepatitis A towards its eventual elimination. In countries at very low and low hepatitis A virus endemicity, like most EU/EEA countries, WHO recommends vaccinating MSM, travellers to endemic areas and people who inject drugs [11]. The same groups should be targeted by communication campaigns to increase awareness of the infection and on the mode(s) of transmission. In very low and low hepatitis A virus endemicity areas, WHO also recommends vaccinating susceptible individuals at risk of a severe outcome (i.e. immunocompromised individuals and the elderly). In countries of intermediate endemicity (seroprevalence ≥50% by age 15 years, with <90% by age 10 years), WHO recommends universal childhood vaccination [11].

Measures aiming to improve hygiene and sanitation, and rapid implementation of outbreak response are essential to reduce hepatitis A virus transmission. This includes timely contact tracing to reduce the likelihood of secondary and tertiary transmission. Further, collaboration between the public health and food safety sectors is important to help reduce food-borne infections.

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