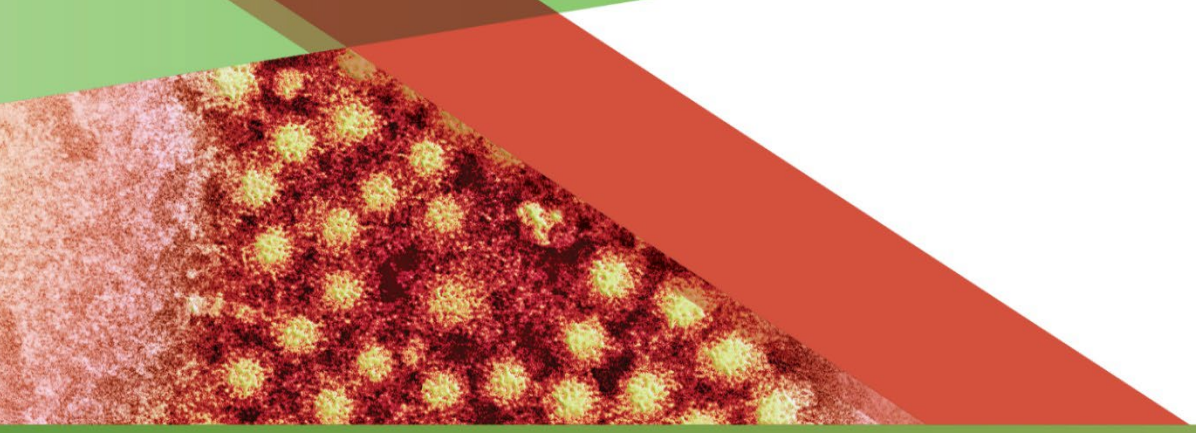

SURVEILLANCE REPORT

Hepatitis C

Annual Epidemiological Report for 2022

Key facts

- In 2022, 23 273 cases of hepatitis C were reported in 29 EU/EEA countries. Excluding countries that only reported acute cases, 23 249 cases were notified, corresponding to a crude rate of 6.2 cases per 100 000 population.
- Of the cases reported, 6% were acute, 34% chronic, and 57% were unknown. Three percent could not be classified due to an incompatible data format.
- Hepatitis C was more commonly reported among men than women, with a male-to-female ratio of 1.6:1. The most affected age group among males was 35–44 years, and among females 55–64 years.
- The most common transmission mode was injecting drug use, which accounted for 53% of acute cases and 64% of chronic cases with complete information on transmission route.
- The interpretation of hepatitis C notification data across countries remains problematic, with differences in surveillance systems, various testing/screening policies, and difficulties in differentiating acute and chronic cases in some countries. Improvements in data quality are needed to better describe the progress towards eliminations goals.
- Recent estimates showed that the number of people living with undiagnosed hepatitis C remain substantial in the EU/EEA. The effort undertaken by some countries to reduce the number of undiagnosed infections through various testing/screening interventions should be highlighted and replicated for vulnerable populations in other areas.
- Prevention and control programmes, including comprehensive harm reduction programmes, need further scaling up to achieve the elimination of hepatitis C in European countries.

Introduction

Hepatitis C is a liver infection caused by the hepatitis C virus (HCV) [1–3]. The virus enters the body through infected blood or other bodily fluids. The transmission can occur via the use of contaminated needles or medical equipment, contaminated blood transfusions, unsafe sex with an infected person, and vertically from a mother to her child during the pregnancy or the delivery [1,3].

The HCV causes commonly a short-term and asymptomatic infection, but some up to 70% of people can develop chronic hepatitis C (CHC) [1]. CHC is a leading cause of severe liver damages, including cirrhosis and liver cancer [1,2,4–6].

Hepatitis C is a major public health threat worldwide, with a global prevalence estimated at 0.7% corresponding to 56.8 million people living with HCV infection in 2020, an incidence of 1.4 million new cases per year, and 290 000

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Stockholm, April 2024

attributable deaths in 2019 [25,7,8]. The disease burden is also high in the European Union and European Economic Area (EU/EEA), with an estimated 1.8 million people living with HCV (0.5%) and 64 000 deaths attributed to viral hepatitis in 2015 [1,8,9].

Methods

This report is based on 2022 data retrieved from The European Surveillance System (TESSy) on 23 February 2024.

For a detailed description of the methods used to produce this report, refer to the Methods chapter of the 'Introduction to the ECDC Annual Epidemiological Report' [10].

An overview of national surveillance systems is available on the ECDC website [11].

A subset of the data used for this report is available through ECDC's online 'Surveillance atlas of infectious diseases' [12].

EU/EEA countries reported data on newly diagnosed cases of hepatitis C to ECDC according to the EU 2018 case definition of acute and chronic hepatitis C or other definitions (Table 1)[13].

Table 1. Case definition for acute and chronic hepatitis C

Stage	Definition
Acute	Recent HCV seroconversion (prior negative test for hepatitis C in last 12 months) or Detection of hepatitis C virus nucleic acid (HCV RNA) or hepatitis C virus core antigen (HCV-core) in serum/plasma and no detection of hepatitis C virus antibody (negative result)
Chronic	Detection of hepatitis C virus nucleic acid (HCV RNA) or hepatitis C core antigen (HCV-core) in serum/plasma in two samples taken at least 12 months apart*
Unknown	Any newly diagnosed case which cannot be classified in accordance with the above description of acute or chronic infection

**: in the event that the case was not notified the first time.*

Surveillance systems across EU/EEA countries are heterogeneous. Twenty-one countries submitted national data for 2022 based on the 2012 or 2018 EU case definitions, four countries used the 2008 EU case definition, and four countries used national case definitions.

All reported cases were included in the analysis regardless of which case definition was used. Data collected represent confirmed cases. Hungary only submitted data on acute cases of hepatitis C. Two countries (Belgium and Bulgaria) submitted aggregate data only and did not differentiate between stages of infection. No data have been reported by the United Kingdom (UK) since 2019 due to its withdrawal from the EU on 1 February 2020.

Annual notification rates were calculated per 100 000 population for countries with comprehensive surveillance systems using Eurostat population data [14].

Epidemiology

For 2022, 29 EU/EEA countries reported 23 273 cases of HCV infection. Excluding Hungary, which only reported acute cases, the number of cases was 23 249, corresponding to a crude rate of 6.2 cases per 100 000 population. No data were reported from France. Of all cases reported, 1 308 (6%) were reported as acute, 7 842 (34 %) as chronic, 13 377 (57%) as 'unknown' (Table 2), and 746 (3%) could not be classified because of an incompatible data format.

The overall rate increased from 6.7 per 100 000 in 2013 to 7.6 per 100 000 in 2014, then decreased progressively to 6.6 in 2019. In 2020 and 2021, a substantial decline was observed, with the rate between 4.6 and 4.7 per 100 000, followed by a 38% increase to 6.5 per 100 000 in 2022 (Figure 1).

Country-specific rates ranged from 0.1 cases per 100 000 population in Italy to 63.7 cases per 100 000 population in Luxembourg (Table 2, Figure 2).

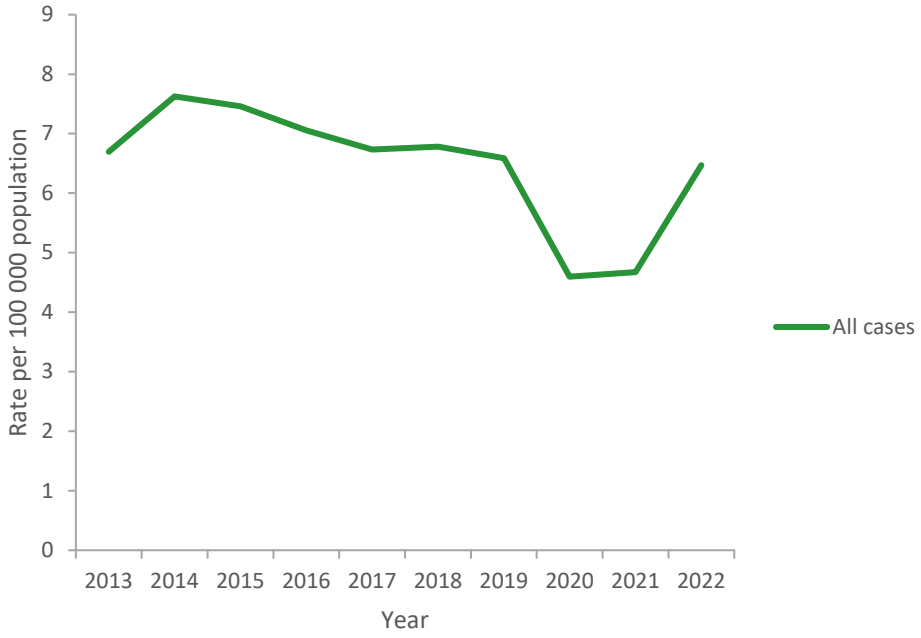
Nineteen countries were able to provide data on acute cases (Table 2). The rate of reported acute cases was 0.4 per 100 000 population, ranging from <0.1 in Croatia, Cyprus, Greece, and Poland, to 1.7 per 100 000 in Sweden. Nineteen countries submitted data on chronic infections. The notification rate of chronic cases was 3.2 per 100 000 population, ranging from <0.1 in Luxembourg and Poland to 36.7 in Latvia. The rate of cases classified as unknown ranged from 0.0 cases per 100 000 population in Greece to 63.7 in Luxembourg. Overall notification rates were mostly higher in northern and eastern European countries (Figure 2).

Table 2. Hepatitis C cases and rates per 100 000 population by country and year, EU/EEA, 2018–2022

Country	2018		2019		2020		2021		2022							
	All[I]		All[I]		All[I]		All[I]		All		Acute		Chronic		Unknown	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	1 195	13.5	1 119	12.6	847	9.5	848	9.5	911	10.1	62	0.7	275	3.1	574	6.4
Belgium	1 350	NRC	1 209	NRC	701	NRC	468	NRC	695	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Bulgaria	83	1.2	88	1.3	44	0.6	25	0.4	51	0.7	NDR	NRC	NDR	NRC	NDR	NRC
Croatia	212	5.2	209	5.1	95	2.3	112	2.8	42	1.1	0	0.0	14	0.4	28	0.7
Cyprus	40	4.6	27	3.1	8	0.9	7	0.8	9	1.0	0	0.0	7	0.8	2	0.2
Czechia	1 050	9.9	1 138	10.7	771	7.2	762	7.3	820	7.8	93	0.9	727	6.9	NDR	NRC
Denmark	183	3.2	122	2.1	161	2.8	149	2.6	205	3.5	11	0.2	194	3.3	NDR	NRC
Estonia	149	11.3	141	10.6	135	10.2	134	10.1	113	8.5	6	0.5	107	8.0	NDR	NRC
Finland	1 166	21.1	1 180	21.4	1 143	20.7	1 063	19.2	1 148	20.7	NDR	NRC	NDR	NRC	1 148	20.7
France	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC
Germany	5 880	7.1	5 967	7.2	4 538	5.5	4 768	5.7	7 914	9.5	679	0.8	3 052	3.7	4 183	5.0
Greece	125	1.2	119	1.1	54	0.5	43	0.4	104	1.0	0	0.0	99	0.9	5	0.0
Hungary	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	24	0.2	NDR	NRC	NDR	NRC
Iceland	69	19.8	111	31.1	88	24.2	66	17.9	122	32.4	NDR	NRC	NDR	NRC	122	32.4
Ireland	588	12.2	468	9.5	327	6.6	419	8.4	477	9.4	17	0.3	69	1.4	391	7.7
Italy	156	0.3	188	0.3	48	0.1	22	0.0	44	0.1	NDR	NRC	NDR	NRC	44	0.1
Latvia	1 473	76.1	1 394	72.6	1 056	55.4	937	49.5	708	37.7	20	1.1	688	36.7	NDR	NRC
Liechtenstein	NDR	NRC	NDR	NRC	NDR	NRC	4	10.2	2	5.1	NDR	NRC	1	2.5	1	2.5
Lithuania	NDR	NRC	NDR	NRC	73	2.6	59	2.1	847	30.2	14	0.5	833	29.7	NDR	NRC
Luxembourg	69	11.5	29	4.7	526	84.0	368	58.0	411	63.7	NDR	NRC	0	0.0	411	63.7
Malta	18	3.8	31	6.3	26	5.1	32	6.2	61	11.7	NDR	NRC	NDR	NRC	61	11.7
Netherlands	NDR	NRC	738	4.3	428	2.5	474	2.7	450	2.6	28	0.2	NDR	NRC	422	2.4
Norway	781	14.7	661	12.4	469	8.7	382	7.1	475	8.8	NDR	NRC	NDR	NRC	475	8.8
Poland	3 442	9.1	3 343	8.8	955	2.5	1 244	3.3	2 528	6.7	9	0.0	0	0.0	2 519	6.7
Portugal	188	1.8	220	2.1	147	1.4	166	1.6	168	1.6	11	0.1	73	0.7	84	0.8
Romania	87	0.4	22	0.1	NDR	NRC	NDR	NRC	1 234	6.5	12	0.1	2	0.0	1 220	6.4
Slovakia	225	4.1	247	4.5	204	3.7	183	3.4	322	5.9	13	0.2	309	5.7	NDR	NRC
Slovenia	112	5.4	70	3.4	96	4.6	95	4.5	113	5.4	6	0.3	35	1.7	72	3.4
Spain	1 502	3.2	1 394	3.0	699	1.5	1 263	2.7	2 137	4.5	121	0.3	595	1.3	1 421	3.0
Sweden	1 610	15.9	1 397	13.7	1 023	9.9	1 131	10.9	1 138	10.9	182	1.7	762	7.3	194	1.9
EU/EEA (30 countries)	**21 753**	**5.9**	**21 632**	**5.7**	**14 662**	**4.0**	**15 224**	**4.3**	**23 249**	**6.2**	**1 308**	**0.4**	**7 842**	**2.9**	**13 377**	**4.1**
United Kingdom	18 145	27.4	17 738	26.6	NDR	NRC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EU/EEA (31 countries)	**39 898**	**9.4**	**39 370**	**8.9**	**14 662**	**4.0**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

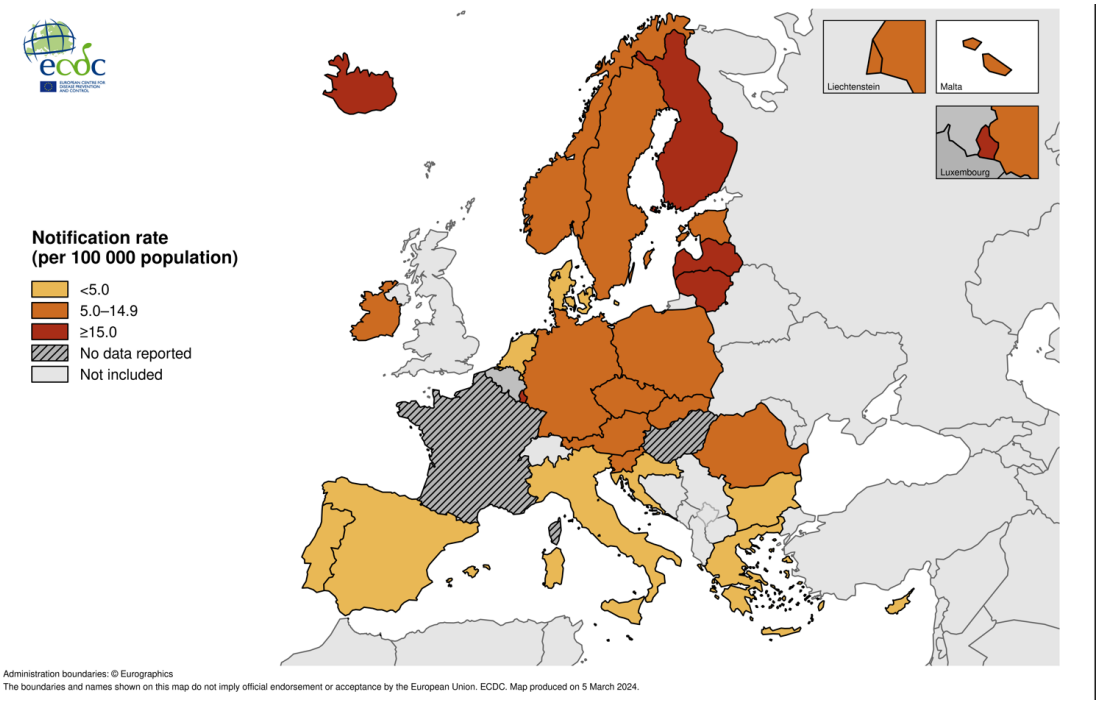
Sources: country reports; NDR: no data reported; NRC: no rate calculated; [†]: data presented by date of diagnosis; [I]: includes cases reported by countries as acute, chronic or unknown using differentiation criteria. Countries reporting aggregate data only (Bulgaria and Belgium) were not able to classify cases into acute, chronic, or unknown; [II]: 'All cases' not displayed for countries that only report acute cases. No data from 2020 onwards were reported by the United Kingdom, due to its withdrawal from the EU on 31 January 2020.

Figure 1. Notification rates of hepatitis C per 100 000 population by year, EU/EEA countries reporting consistently, 2013–2022



Sources: country reports from Austria, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Malta, Norway, Poland, Portugal, Slovakia, Slovenia, and Sweden.

Figure 2. Notification rate of hepatitis C cases per 100 000 population by country*, EU/EEA, 2022



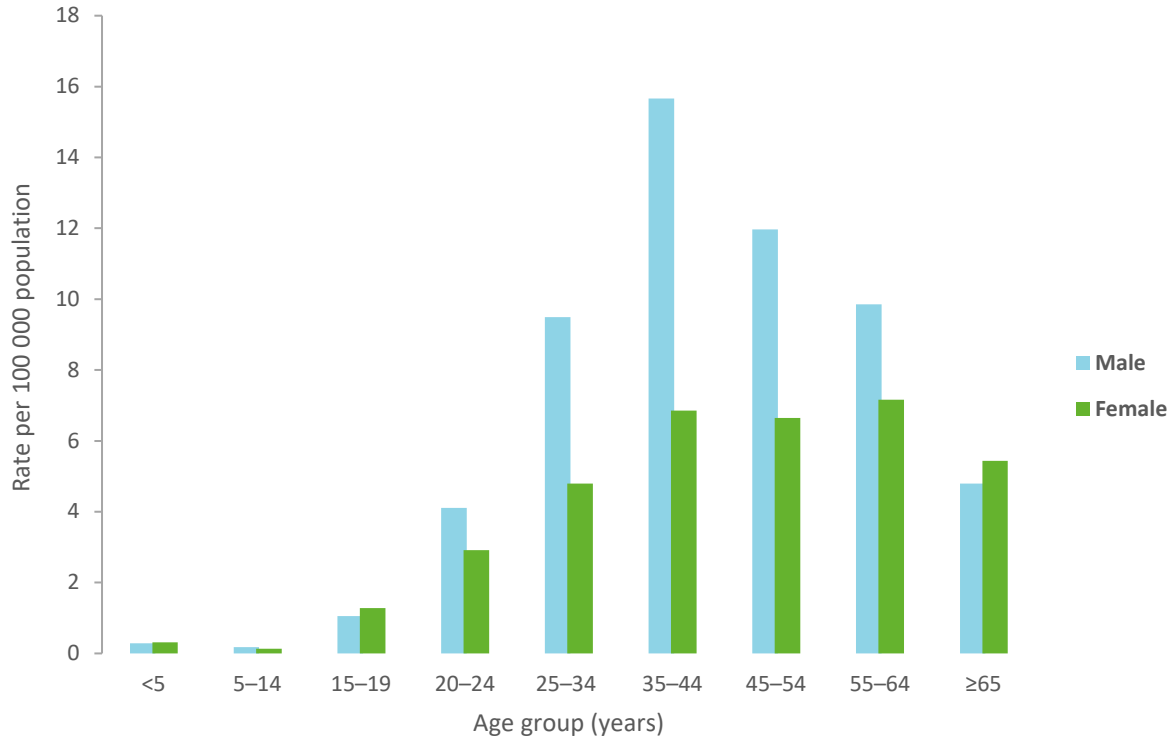
*: *Countries with comprehensive surveillance systems.*

Sources: country reports from Austria, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Age and gender

In 2022, 13 969 cases were reported in males (7.6 cases per 100 000 population) and 9 199 in females (4.8 cases per 100 000 population), excluding countries that only reported acute cases. The male-to-female ratio was 1.6:1. Rates were higher among males than females for all age categories between 20 and 64 years (Figure 3). The most affected age groups were 35–44 years males (15.7 cases per 100 000 population) and females aged 35–44, 45–54 and 55–64 years (between 6.6 and 7.2 cases per 100 000 population). Four percent of all cases were reported in people under 25 years. Among countries reporting consistently since 2013, the proportion of cases under 25 years declined from 13% in 2012 to 4% in 2022.

Figure 3. Notification rate of newly diagnosed hepatitis C cases per 100 000 population by age and sex, EU/EEA, 2022

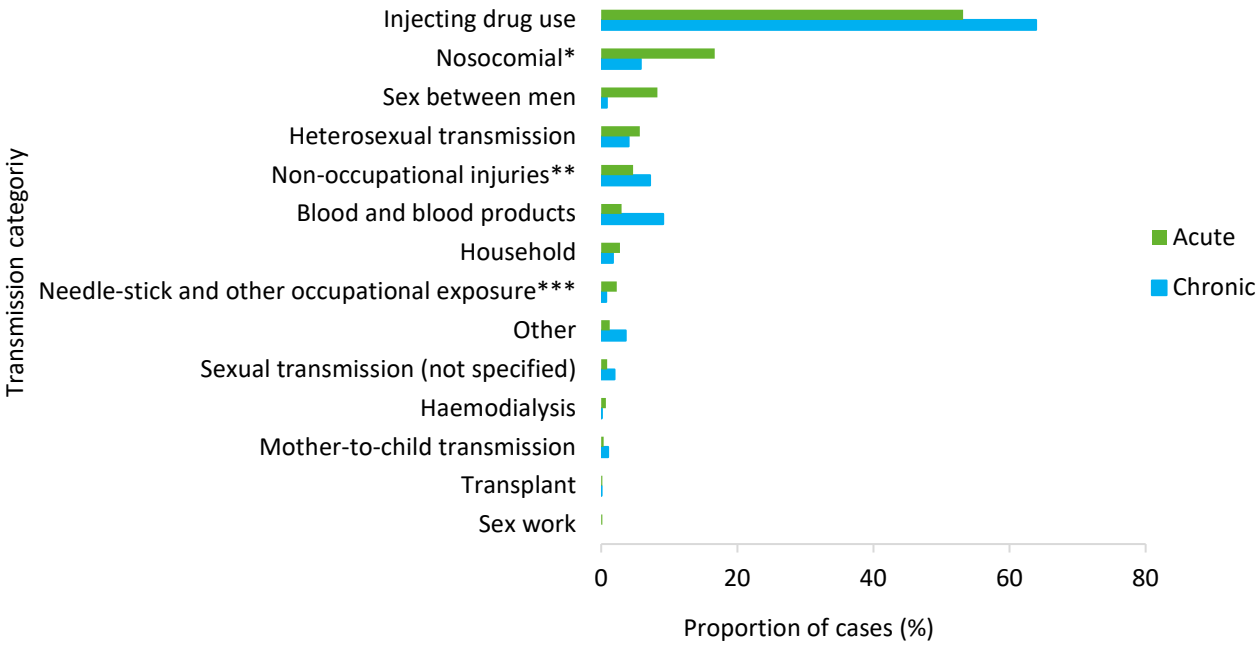


Sources: country reports from Austria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Route of transmission

Data regarding the most likely route of transmission of hepatitis C were complete for only 40% for all cases in 2022, 45% of acute, 34% of chronic cases and 40% in cases with unknown disease status. The most reported route of transmission across all disease categories was injecting drug use, accounting for 40% of cases with known transmission route. The percentage of transmission attributable to injecting drug use was 53% among acute cases, 64% among chronic cases, and 25% among unknown cases (Figure 4). The second route of transmission among acute cases was nosocomial transmission (17%) followed by sex between men (8%). Nosocomial transmission was reported in 49% of unknown cases.

Figure 4. Transmission category of hepatitis C cases by acute and chronic disease status, EU/EEA, 2022[1]



*[1]: Cases with known transmission status; *: 'Nosocomial transmission' includes hospitals, nursing homes, psychiatric institutions, and dental clinics. This category refers mainly to patients exposed through healthcare settings, distinct from 'needle-stick and other occupational exposure', which refers to staff; **: 'Non-occupational injuries' include needle-sticks that occur outside a healthcare setting, bites, tattoos and piercings; ***: 'Needle-stick and other occupational exposure' refers to occupational injuries.*
Sources: acute reports from Austria, Croatia, Cyprus, Denmark, Estonia, Germany, Greece, Hungary, Ireland, Italy, Latvia, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, and Sweden; chronic reports from Austria, Croatia, Denmark, Estonia, Germany, Ireland, Latvia, Liechtenstein, Luxembourg, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

Importation status

In 2022, 25 countries provided data for 11 171 cases (41%) on whether a case was considered 'imported' from outside the reporting country or acquired in the country itself. Of those cases, 2 079 (19%) were reported as imported.

Discussion

The burden of hepatitis C in the EU/EEA remains high, with an estimated 1.8 million people (0.5%) infected with HCV. Considerable variation was observed between EU/EEA countries, with national estimates of prevalence in the general population ranging from 0.04% to 2.26% [8]. While the incidence of new infections declined in many European countries thanks to prevention strategies, including harm reduction programmes, infection prevention and control (IPC) interventions in healthcare setting and treatments using direct-acting antiviral (DAA) drugs for diagnosed cases, modelling studies suggests that the attributable mortality will remain substantial [5,8,9,15–18].

The notification rate decreased progressively from 2014 to 2019, reflecting the effect of the prevention and control interventions across EU/EEA countries [4,8,17]. In 2020 and 2021, this rate substantially dropped compared to previous years, reflecting the impact of the COVID-19 pandemic [19–21]. Disruption in prevention services and behavioural changes were reported to have hampered case detection and reports [20,22,23]. Additionally, COVID-19 restrictions also limited migration whereas the attributable stress and isolation possibly increased addictive behaviour in some people, including drug use [24–30]. A study in the Netherlands describes a 40% reduction in the number of diagnosed chronic cases in 2020 compared to 2019, with a weekly decrease in new HBV and HCV diagnoses mirroring the intensity of COVID-19 [31,32]. Since 2021, the increasing number of notifications might be explained by the end of restrictions, the recovery of health systems, testing initiatives, changes in surveillance, an increase in migrant populations in some countries and possible increases in transmission [23,33–37]. Recent estimates showed that the number of diagnosed hepatitis cases largely underestimated the global picture of the epidemic in the populations [1,5,8].

A marked variation in the notification rates between countries was observed. These geographical variations reflect differences in testing policies, reporting practices and underlying epidemiological differences [11,17,33,34,37].

Northern and western European countries with extensive testing programmes and countries conducting testing initiatives such as Lithuania reported the highest notification rates, whereas highest prevalence rates were estimated in eastern and south-eastern countries [8,34]. This discrepancy highlights the need for additional information, such as testing practices, number of persons tested, positivity rates, reinfections and seroprevalence rates to better interpret hepatitis C surveillance data [17,38].

Despite representativeness issues, the surveillance data remain crucial to guide the response strategies and policies by identifying key populations and most affected areas. Notifications showed that men aged 25–44 years were substantially affected by hepatitis C. This is consistent with the demographic profile of injecting drug use, the main route of transmission reported for chronic cases [39]. Estimates of hepatitis C seroprevalence in the EU/EEA highlight the high prevalences of hepatitis C among people who inject drugs (PWID) in most countries [8,40,41]. Harm reduction programmes and, more recently, treatment with DAA drugs may have contributed to reducing transmission in many countries. However, the burden of infection remains high among PWID and evidence of ongoing transmission emphasises the need for comprehensive and integrated harm reduction interventions tailored for the most vulnerable populations [6,39,42].

Nosocomial transmission and transmission among men who have sex with men (MSM) are other frequent routes of transmission. Reports of hepatitis C infections among MSM, and especially HIV positive persons, in several European countries resulted in scaling up specific prevention and control responses [43,44]. Although nosocomial transmission remains uncommon in most European countries, reported cases highlight the importance of maintaining efficient IPC measures within healthcare systems. The high proportion of nosocomial transmission among cases reported without information on the duration of the hepatitis C infection is problematic. This might be due to insufficient connection between health events management systems and hepatitis C surveillance systems in some countries. This situation also partially results from the impact of various testing initiatives conducted by a wide range of stakeholder in some countries (e.g. non-governmental organizations, private sector) in some countries that are reducing the number of undiagnosed infections across Europe. Effort to integrate these data sources will help to better describe the global picture of the epidemics.

Public health implications

The World Health Assembly adopted the first 'Global Health Sector Strategy on Viral Hepatitis' aimed at eliminating viral hepatitis as a public health threat [7] by reducing the incidence of chronic infections by 90% and the associated mortality by 65% by 2030. Achieving these targets will require a significant scaling up of key interventions, including preventing transmission among PWID [45], and increasing testing with linkage to care and treatment [42].

To achieve the elimination goals as defined in the Global Strategy, robust epidemiological information is essential to plan and monitor effective prevention and control programmes. Surveillance data alone do not provide a clear epidemiological picture and should be analysed carefully alongside information on local screening policies and practices, testing and positivity rates, and seroprevalence data. Further improvements to the quality of hepatitis C surveillance data are important to increase data utility; ECDC is working closely with EU/EEA countries to develop complementary surveillance systems, such as the collection of monitoring data, ongoing prevalence estimates, and sentinel surveillance.

Despite the limitations of routine surveillance for hepatitis C, the data clearly indicate that a high proportion of reported cases are attributed to injecting drug use, highlighting the importance of harm reduction measures [45]. Evidence-based interventions are crucial to address the risks attributable to injecting drug use, and best practices implemented in some countries should be widely promoted and shared across the EU/EEA [45,46]. Ongoing nosocomial transmission and transmission among MSM in the region emphasise the need to implement targeted and comprehensive public health programmes tailored to the local epidemiology.

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