

Hepatitis C

Annual Epidemiological Report for 2018

Key facts

- In 2018, 37 527 cases of hepatitis C were reported in 29 EU/EEA Member States. The number is 37 427 when countries that only reported acute cases are excluded, which corresponds to a crude rate of 8.8 cases per 100 000 population.
- Of the cases reported, 4% were classified as acute, 26% as chronic and 67% as 'unknown'.
- Hepatitis C was more commonly reported among men than women, with a male-to-female ratio of 2.1:1. The most affected age group among males was between 35–44 years and for females between 25–34 years.
- Mode of transmission was reported for just 21% of cases. The most commonly reported mode was injecting drug use, which accounted for 46% of cases with complete information on transmission status.
- The interpretation of hepatitis C notification data across countries remains problematic, with ongoing differences in surveillance systems and difficulties in defining reported cases as acute or chronic. With hepatitis C, a largely asymptomatic disease until its late stages, surveillance based on notification data is challenging, with data reflecting testing practices rather than true occurrence of disease.

Methods

This report is based on 2018 data retrieved from The European Surveillance System (TESSy) on 4 December 2019. 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, refer to the *Methods* chapter [1].

An overview of the national surveillance systems is available on the ECDC website [2].

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

This report includes data on newly diagnosed cases of hepatitis C virus (HCV) infection reported to ECDC by EU/EEA countries. Countries were requested to apply the EU 2012 case definition for reporting at the European level¹, but other case definitions were also accepted.

¹ 2012/506/EC: Commission Implementing Decision of 8 August 2012 amending Decision 2002/253/EC laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council.

Acute and chronic hepatitis C infections were differentiated by countries using defined criteria (Table 1).

Table 1. Criteria for differentiating 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 the EU/EEA countries are heterogeneous. Twenty countries submitted national data for 2018 based on the 2012 EU case definition¹, five countries used the 2008 EU case definition and four countries used national case definitions. The EU 2012 case definition is similar to the EU 2008 case definition but includes detection of hepatitis C core antigen as an additional diagnostic criterion. Both case definitions capture all acute and chronic laboratory-diagnosed cases of hepatitis C. All reported cases were included in the analysis regardless of which case definition was used. Data collected represent confirmed cases. Three countries, Hungary, Lithuania and the Netherlands, only submitted data on acute cases of hepatitis C. Two countries (Belgium and Bulgaria) submitted aggregate data only and did not differentiate stages of infection.

Hepatitis C data are presented by the 'date of diagnosis' or, if not available, 'date used for statistics'.

Italy reported using two data sources. One had national coverage, but included only a limited number of variables and was used for the calculation of national rates and analysis by age and gender. The other was a voluntary reporting system of acute cases and covered 79.5% of the population in 2018. The sentinel population is considered representative of the wider population and data were therefore scaled up to 100%. This data source contained information on a range of variables and was used for certain epidemiological analyses, including the route of transmission and importation status. The data source for Belgium was a sentinel system with unidentified population coverage. National rates were therefore not calculated for Belgium.

Epidemiology

Overall trends

For 2018, 29 EU/EEA Member States reported 37 527 cases of HCV infection. Excluding the three countries that only reported acute cases (Hungary, Lithuania and the Netherlands) lowered the total number of cases to 37 427 which represents a rate of 8.8 per 100 000 population. No data were reported from France or Liechtenstein. Of all cases reported, 1 325 (4%) were reported as acute, 9 648 (26%) as chronic, 25 121 (67%) as 'unknown' (Table 2) and 1 433 cases (4%) could not be classified due to an incompatible data format. From 2009–2018, the overall number of cases diagnosed and reported across the 22 EU/EEA Member States that reported data consistently over this time, excluding those who only reported acute cases, showed year-to-year fluctuations with no clear long term trend (Figure 1).

Country-specific rates ranged from 0.3 cases per 100 000 population in Italy to 59 cases per 100 000 population in Latvia (Table 2, Figure 2). The United Kingdom accounted for 44% of all reported cases.

Table 2. Number and rate per 100 000 of reported hepatitis C cases in the EU/EEA by country and year, 2014–2018[†]

Country	2014		2015		2016		2017		2018							
	All		All		All		All		All		Acute ¹		Chronic ¹		Unknown ¹	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	1 579	18.6	1 231	14.3	1 181	13.6	939	10.7	843	9.6	54	0.6	395	4.5	394	4.5
Belgium	1 062	-	1 356	-	1 603	-	1 519	-	1 350	-	-	-	-	-	-	-
Bulgaria	90	1.2	85	1.2	81	1.1	84	1.2	83	1.2	-	-	-	-	-	-
Croatia	144	3.4	155	3.7	186	4.4	213	5.1	203	4.9	1	0.0	31	0.8	171	4.2
Cyprus	30	3.5	2	0.2	1	0.1	21	2.5	40	4.6	1	0.1	39	4.5	0	0.0
Czech Republic	887	8.4	972	9.2	1 069	10.1	932	8.8	1 050	9.9	122	1.1	928	8.7	-	-
Denmark	242	4.3	321	5.7	240	4.2	192	3.3	183	3.2	8	0.1	175	3.0	-	-
Estonia	334	25.4	257	19.5	178	13.5	121	9.2	131	9.9	5	0.4	126	9.6	-	-
Finland	1 224	22.5	1 164	21.3	1 147	20.9	1 115	20.3	1 170	21.2	-	-	-	-	1 170	21.2
Germany ^{II}	5 854	7.2	4 960	6.1	4 423	5.4	4 840	5.9	5 827	7.0	586	0.7	2 280	2.8	2 961	3.6
Greece	18	0.2	14	0.1	80	0.7	152	1.4	125	1.2	1	0.0	124	1.2	-	-
Hungary ^{III}	-	-	-	-	-	-	-	-	-	-	11	0.1	-	-	-	-
Iceland	38	11.7	44	13.4	91	27.4	95	28.1	69	19.8	0	0.0	0	0.0	69	19.8
Ireland	703	15.2	675	14.4	643	13.6	614	12.8	585	12.1	16	0.3	105	2.2	464	9.6
Italy	200	0.3	207	0.3	194	0.3	182	0.3	156	0.3	-	-	-	-	156	0.3
Latvia	1 820	90.9	1 977	99.5	1 824	92.6	1 654	84.8	1 142	59.0	55	2.8	1 087	56.2	-	-
Lithuania ^{III}	-	-	-	-	-	-	-	-	-	-	25	0.9	-	-	-	-
Luxembourg	68	12.4	58	10.3	58	10.1	95	16.1	69	11.5	-	-	69	11.5	0	0.0
Malta	14	3.3	10	2.3	13	2.9	18	3.9	18	3.8	0	0.0	0	0.0	18	3.8
Netherlands ^{III}	-	-	-	-	-	-	-	-	-	-	64	0.4	-	-	-	-
Norway	1 213	23.7	1 186	23.0	771	14.8	656	12.5	639	12.1	-	-	-	-	639	12.1
Poland	3 552	9.3	4 285	11.3	4 261	11.2	4 010	10.6	3 442	9.1	14	0.0	585	1.5	2 843	7.5
Portugal	86	0.8	261	2.5	344	3.3	271	2.6	155	1.5	1	0.0	53	0.5	101	1.0
Romania	104	0.5	60	0.3	73	0.4	70	0.4	87	0.4	84	0.4	3	0.0	-	-
Slovakia	397	7.3	334	6.2	268	4.9	156	2.9	224	4.1	18	0.3	206	3.8	-	-
Slovenia	64	3.1	65	3.2	115	5.6	117	5.7	112	5.4	4	0.2	108	5.2	-	-
Spain	-	-	756	1.6	790	1.7	892	1.9	1 493	3.2	66	0.1	762	1.6	665	1.4
Sweden	1 830	19.0	1 902	19.5	1 831	18.6	1 664	16.6	1 610	15.9	173	1.7	1 084	10.7	353	3.5
United Kingdom	14 024	21.8	13 552	20.9	12 991	19.9	12 147	18.4	16 621	25.1	16	0.0	1 488	2.2	15 117	22.8
Total EU/EEA	35 577	9.6	35 889	8.5	34 456	8.1	32 769	7.6	37 427	8.8	1 325	0.4	9 648	2.9	25 121	7.3

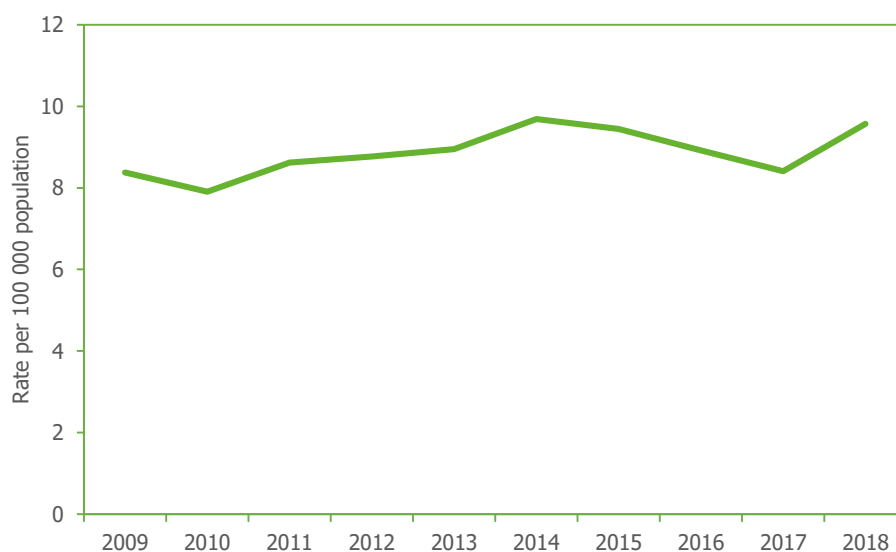
..: data not reported

-: rate not calculated

[†]: data presented by date of diagnosis^I: includes cases reported by countries as acute, chronic or unknown using differentiation criteria^{II}: Germany used national case definition that changed in 2015, likely explaining recent decrease in cases.^{III}: 'All cases' not displayed for countries that only report acute cases.

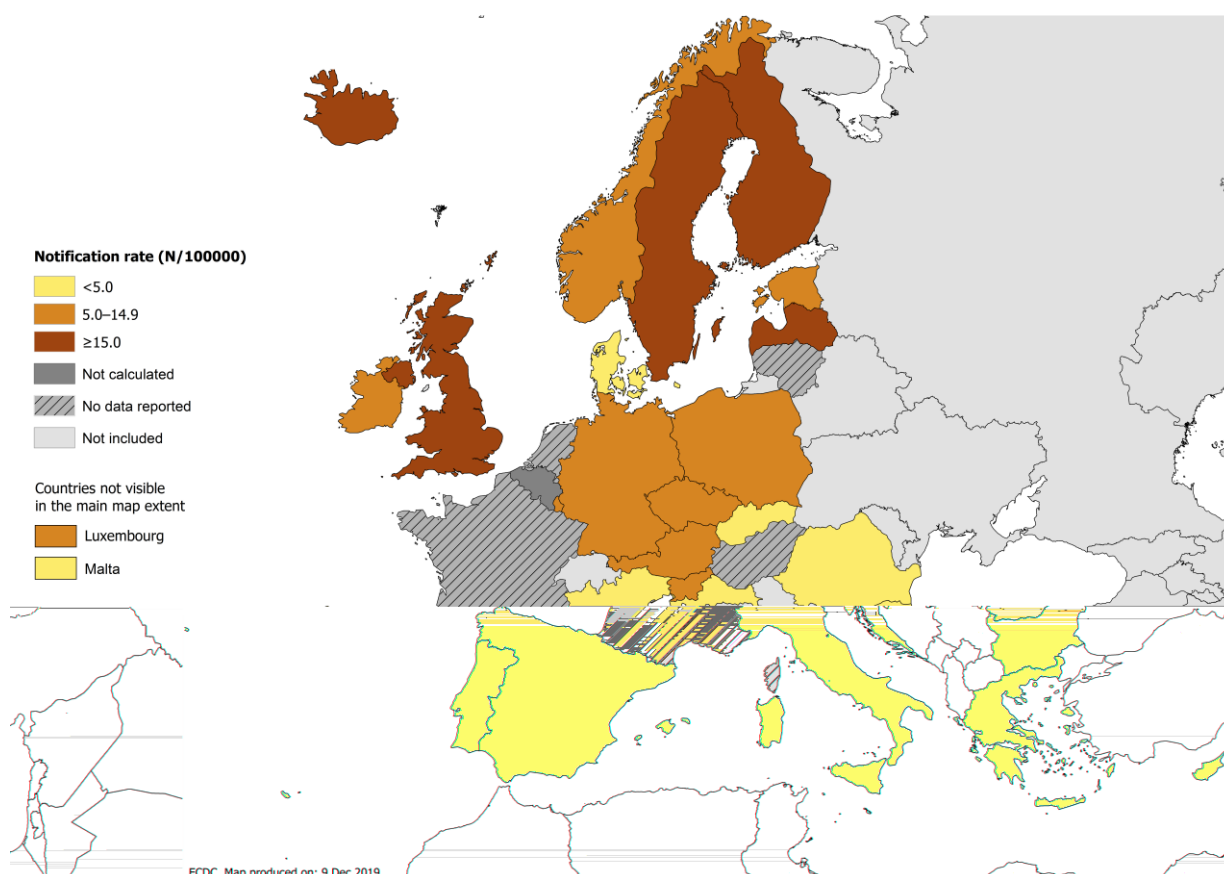
Twenty-three countries were able to provide data on acute cases (Table 2). The rate of reported acute cases was 0.4 per 100 000 population, ranging from <0.1 in Croatia, Greece, Iceland, Malta, Poland, Portugal and the United Kingdom to 2.8 per 100 000 in Latvia. Twenty-one countries submitted data on chronic infections. The notification rate of chronic cases was 2.9 per 100 000 population, ranging from <0.1 in Iceland, Malta and Romania to 56.2 in Latvia. The rate of cases classified as unknown ranged from <0.1 cases per 100 000 population in Cyprus and Luxembourg to 22.8 in the United Kingdom. Overall notification rates were mostly higher in northern and western European countries than in southern European countries (Figure 2).

Figure 1. Notification rate of hepatitis C cases per 100 000 population by year, EU/EEA, 2009–2018, among countries reporting consistently and excluding countries that only reported acute cases



Source: Country reports from Austria, Bulgaria, Cyprus, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden and the United Kingdom.

Figure 2. Notification rate of newly diagnosed hepatitis C cases per 100 000 population by country*, EU/EEA, 2018



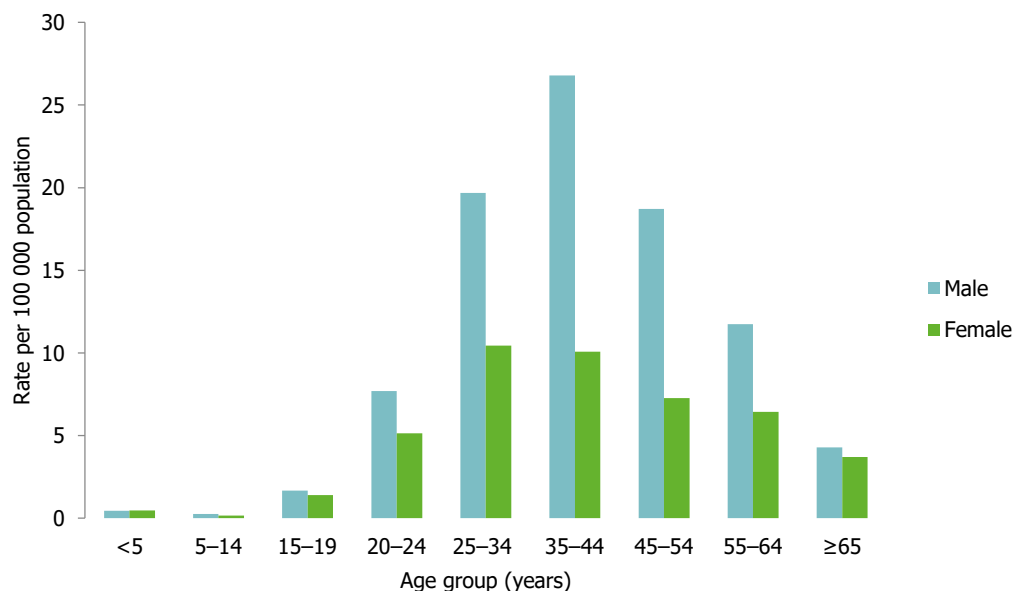
*: Countries not reporting any data or reporting data only on acute cases are excluded from this map.

Source: Country reports from Austria, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

Age and gender

In 2018, 24 815 cases were reported in males (12.6 cases per 100 000 population) and 12 285 in females (5.9 cases per 100 000 population), excluding countries that only reported acute cases. This corresponds to a male-to-female ratio of 2.1:1. Rates were higher among males than females for almost all age categories (Figure 3). The age distributions among males and females were similar. The most affected age group among males was from 35 to 44 years (27 cases per 100 000 population) and for females from 25 to 34 years (10 cases per 100 000 population). Eleven percent of acute cases and 6% of chronic cases were reported in people under 25 years. The proportion of all cases under 25 years declined from 12% in 2009 to 6% in 2018.

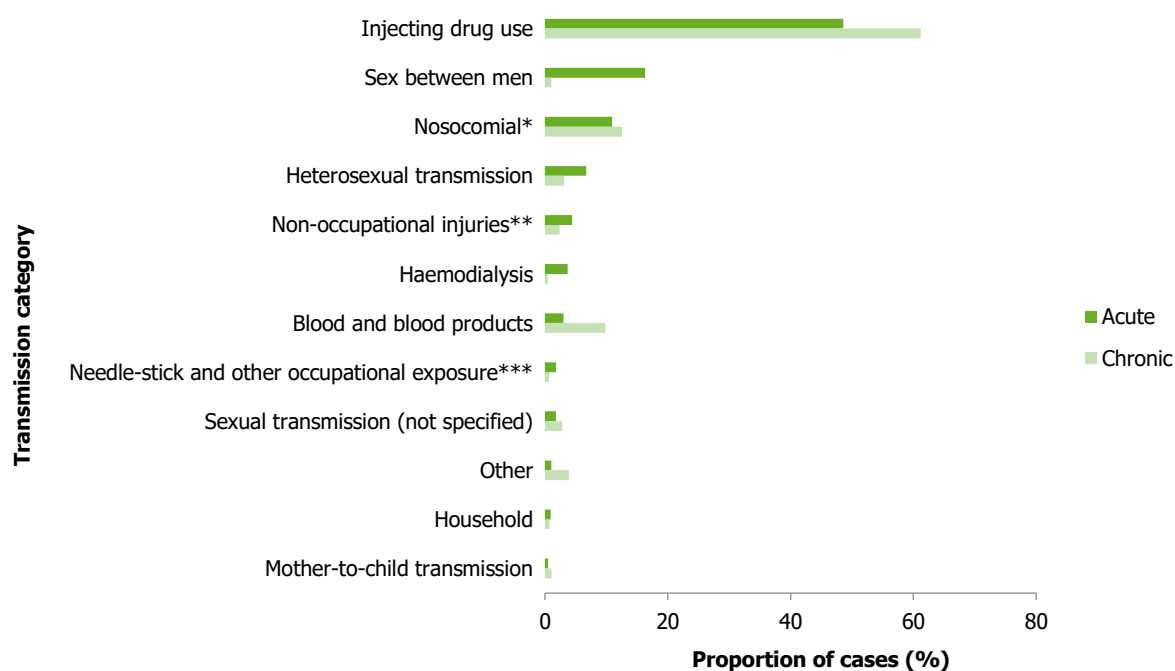
Figure 3. Notification rate of newly diagnosed hepatitis C cases per 100 000 population by age and gender, EU/EEA, 2018



Source: Country reports from Austria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Latvia, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

Route of transmission

Data regarding the most likely route of transmission of hepatitis C were complete for only 21% of cases in 2018. The most commonly reported route of transmission across all disease categories was injecting drug use, which accounted for 46% of cases with complete information. The percentage of transmission attributable to injecting drug use among cases with a known transmission route was lower among acute cases (49%) than among those classified as chronic (61%; Figure 4). The second most common route of transmission among acute cases was sex between men, accounting for 16% of acute cases, followed by nosocomial transmission (11%).

Figure 4. Transmission category of hepatitis C cases by acute and chronic disease status, EU/EEA, 2018¹

¹: cases with known transmission status.

*: 'Nosocomial transmission' includes hospital, nursing home, psychiatric institutions and dental. 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.

Source: Acute reports from Austria, Croatia, Cyprus, Denmark, Estonia, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Romania, Slovakia, Spain and Sweden.

Chronic reports from Austria, Croatia, Cyprus, Denmark, Estonia, Germany, Ireland, Latvia, Luxembourg, Poland, Portugal, Slovakia, Slovenia, Spain and Sweden.

Importation status

In 2018, 21 countries provided data for 12 761 cases (34%) on whether a case was considered 'imported' from outside the reporting country or acquired in the country itself. Of those cases, 1 252 (10%) were reported as imported.

Discussion

The number of newly diagnosed hepatitis C cases reported from countries across Europe remains at a high level, with considerable variation between country-specific rates. According to a recent systematic review, an estimated 3.9 million individuals are chronically infected with HCV in EU/EEA countries, with national estimates of anti-HCV prevalence in the general population ranging from 0.1%–5.9% [4]. The burden of disease presents a serious public health challenge for national health systems. While the incidence of new infections has declined in many European countries due to implementation of prevention strategies targeting transmission through injecting drug use, healthcare and possibly also the impact of the rolling out of treatment programmes to cure the infection, modelling suggests that morbidity and mortality will continue to increase [5,6].

The number of countries reporting hepatitis C surveillance data has increased in recent years, but data analysis and interpretation remain challenging on account of the incompleteness of data and heterogeneity in national surveillance systems and practices. While the number of countries using the 2012 EU case definition has increased, nine countries still do not use the updated definition, which hampers the ability to compare data across countries. Germany uses a national case definition that changed in 2015, likely explaining the recent decrease in their reported cases of hepatitis C. Data completeness for several variables improved in 2018 but remains low. Countries still have difficulties defining cases as acute or chronic and the majority of cases reported are classified 'unknown'. It is likely that most 'unknown' cases are chronic infections as acute hepatitis C is difficult to diagnose and most cases are identified through screening. The variation in notification rates between countries is likely related to differences in local testing practices as hepatitis C is mostly asymptomatic. Indeed, many northern and western European countries, such as the United Kingdom which has extensive testing programmes targeting populations at risk, report the highest notification rates in the EU/EEA but they are also known, from serosurveys, to have low prevalence estimates [4,7]. In the UK, which accounts for 44 percent of reported cases, one laboratory has recently undertaken HCV dried blood spot testing alongside hepatitis C routine laboratory testing. Many of these samples have come from people who inject drugs which has led to an increase in the overall number of positive HCV reports².

Countries in eastern and south-eastern Europe have the lowest reported rates of cases but some of the highest prevalence estimates. This discrepancy highlights the challenge of interpreting hepatitis C surveillance data and the importance of considering other sources of information, such as local testing practices and seroprevalence estimates.

Reported data indicate that hepatitis C is an infection which predominantly affects men aged 25–44 years. This profile is consistent with the demographic profile of injecting drug use, the main route of transmission reported for chronic cases. Data are consistent with the findings of the recent systematic review of hepatitis C seroprevalence, which found that prevalence among people who inject drugs (PWID) in most EU/EEA countries is high (>50%) [4]. Harm reduction programmes and, more recently, treatment with new direct-acting antiviral drugs may have contributed significantly to reducing transmission in many countries. However, the burden of infection remains high among PWID and evidence of ongoing transmission emphasises the ongoing need for comprehensive harm reduction measures targeted at this at-risk population [8,9].

Among acute cases, the other main reported routes of transmission included nosocomial transmission and transmission through sex between men. Reports of hepatitis C infections among HIV-positive men who have sex with men in several European countries since 2000 have resulted in many countries scaling up targeted prevention and control responses [10]. Nosocomial transmission remains uncommon in most European countries, but is still a key route of transmission among newly diagnosed cases in a few countries, highlighting the importance of comprehensive infection prevention and control systems within healthcare.

The World Health Assembly recently adopted the first 'Global Health Sector Strategy on Viral Hepatitis' aimed at eliminating viral hepatitis as a public health threat [11]. The concept of elimination for hepatitis C is based on reducing the incidence of chronic infections by 90% and the associated mortality by 65% by 2030 compared to 2015 levels. Achieving these targets will require a significant scaling-up of key interventions, including those aimed at preventing transmission among PWID and increased testing with linkage to care and treatment.

² Personal communication, Koye Balogun, Public Health England.

Public health implications

Hepatitis C is a public health priority across Europe with a high burden of infection and high levels of associated morbidity and mortality. To achieve the goal of elimination as defined in the Global Strategy (above), it is essential that countries have access to robust epidemiological information 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 practices and available seroprevalence data. Further improvements to the quality of hepatitis C surveillance data are important to increase data utility and ECDC is working closely with Member States to improve local surveillance systems. ECDC is also developing alternative epidemiological data sources, including the generation of prevalence estimates using standardised methodologies. Despite the limitations of routine surveillance for hepatitis C, data clearly indicate that a high proportion of reported cases are attributed to injecting drug use, highlighting the importance of harm reduction measures. Ongoing nosocomial transmission and transmission among men who have sex with men in the region underscore the need to implement targeted and comprehensive public health programmes tailored to the local epidemiology.

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