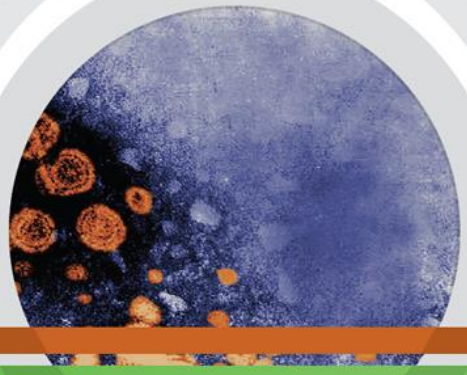

SURVEILLANCE REPORT

Hepatitis B surveillance in Europe

2013

Hepatitis B virus infection

Key facts

- In 2013, 19 101 cases of hepatitis B virus infection were reported in 28 EU/EEA Member States, a crude rate of 4.4 per 100 000 population.
- 2 896 (15.2%) were classified as acute infection and 13 629 (71.4%) were chronic.
- The most affected age group for both acute and chronic infections was the group of 25–34-year-olds, accounting for 34.5% of cases; the male-to-female rate ratio was 1.5 to 1.
- In 2013, data on transmission were complete for only 21.3% of cases. Among cases with complete information, heterosexual transmission (30.5%), nosocomial transmission (18.9%), injecting drug use (13.2%) and transmission among men who have sex with men (9.4%) were most commonly reported for acute infections. Mother-to-child transmission was the most common route (43.5%) for chronic cases.
- There has been a steady downward trend in the reported rate of acute cases, which is most likely related to the impact of vaccination campaigns. However, geographical and time trends are difficult to interpret because of differences in the application of local case definitions and reporting practices.

Methods

This summary includes data on newly diagnosed cases of hepatitis B reported to ECDC by EU/EEA countries for 2013. Countries were requested to follow the EU 2012 case definition for hepatitis B reporting at the European level[1], 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.

Erratum: The following change was made on 4 December 2015 – the heading for Figure 4 was amended to include acute and chronic hepatitis B cases.

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EU 2012 case definition for hepatitis B

Clinical criteria: not relevant for surveillance purposes

Laboratory criteria: Positive results of at least one of the following tests or combination of tests:

- IgM hepatitis B core antibody (anti-HBc IgM)
- Hepatitis B surface antigen (HBsAg)
- Hepatitis B e antigen (HBeAg)
- Hepatitis B nucleic acid (HBV-DNA)

Epidemiological criteria: not relevant for surveillance purposes

Case classification:
Possible case – N/A
Probable case – N/A
Confirmed case – Any person meeting the laboratory criteria

Note: The following combination of laboratory tests shall not be included or reported:
i) Resolved hepatitis – hepatitis B total core antibody (anti-HBc) positive and hepatitis B surface antibody (anti-HBs) positive
ii) Immunity following vaccination – hepatitis B total core antibody (anti-HBc) negative and hepatitis B surface antibody (anti-HBs) positive
iii) Anti-HBc IgG positivity only

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

Table 1. Criteria for differentiating acute and chronic hepatitis B

Stage	Definition
Acute	Detection of IgM antigen-specific antibody (anti-HBc IgM) *or* Detection of hepatitis surface antigen (HBsAg) *and* previous negative HBV markers less than six months ago *or* Detection of hepatitis B nucleic acid (HBV-DNA) *and* previous negative HBV markers less than six months ago Any of the above *with or without* symptoms and signs (e.g. jaundice, elevated serum aminotransferase levels, fatigue, abdominal pain, loss of appetite, intermittent nausea, vomiting, fever)
Chronic	Detection of HBsAg or HBeAg or HBV-DNA *and* No detection of anti-HBc IgM (negative result) *or* Detection of HBsAg or HBeAg or HBV-DNA on two occasions that are six months apart*
Unknown	Any newly diagnosed case which cannot be classified in accordance with the above definition of acute or chronic infection

** In the event that the case was not notified the first time.*

Case-based data are collected annually but aggregate format is also accepted. Liechtenstein never reported cases. A few countries submitted 'probable' cases using alternative case definitions. In the data analysis, alternative definitions were accepted and cases based on these definitions are included in the total count.

Data are validated with data providers in Member States. Annual notification rates were calculated per 100 000 population for countries with comprehensive surveillance systems using Eurostat population data[2]. For hepatitis B infections in the United Kingdom, population data from the Office for National Statistics were used in order to exclude the country of Scotland which was unable to provide any hepatitis B data.

Surveillance systems across the EU/EEA countries are heterogeneous (Annex 2). Eighteen countries submitted national data in 2013 based on the 2012 EU case definition, six countries used the 2008 or 2002 EU case definitions and four countries (Denmark, Germany, Luxembourg and Romania) used national case definitions. The 2002 and 2008 case definitions only include acute hepatitis B cases whereas the 2012 case definition includes both acute and chronic cases of hepatitis B. Only a small number of countries changed to the new 2012 case definitions between 2006 and 2012. All reported cases were included in the analysis, regardless of which case definition was used to classify the cases.

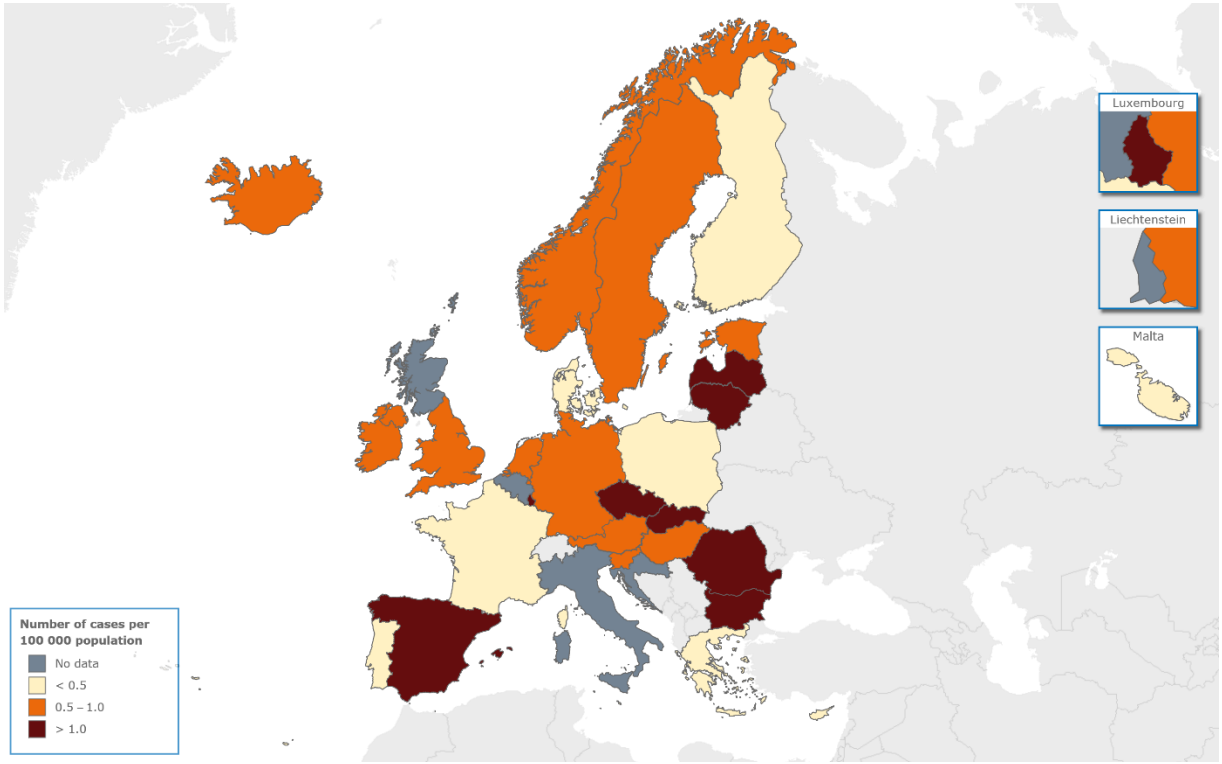
Epidemiology

In 2013, 28 EU/EEA Member States reported 19 101 cases of hepatitis B virus infection (no national data from Belgium, Italy and Liechtenstein), a crude rate of 4.4 per 100 000 population. Of these cases, 2 896 (15.2%) were reported as acute, 13 629 (71.4%) as chronic, 2 138 (11.2%) as 'unknown', and 438 cases (2.3%) could not be classified due to an incompatible data format.

[2] Eurostat database. Available from: http://epp.eurostat.ec.europa.eu

In 2013, 24 countries were able to provide data on acute cases (Annex). The rate of acute cases ranged from 0.1 cases per 100 000 in France and Portugal to 4.3 in Latvia (Figure 1).

Figure 1. Rate of acute* hepatitis B per 100 000 population in EU/EEA countries, 2013

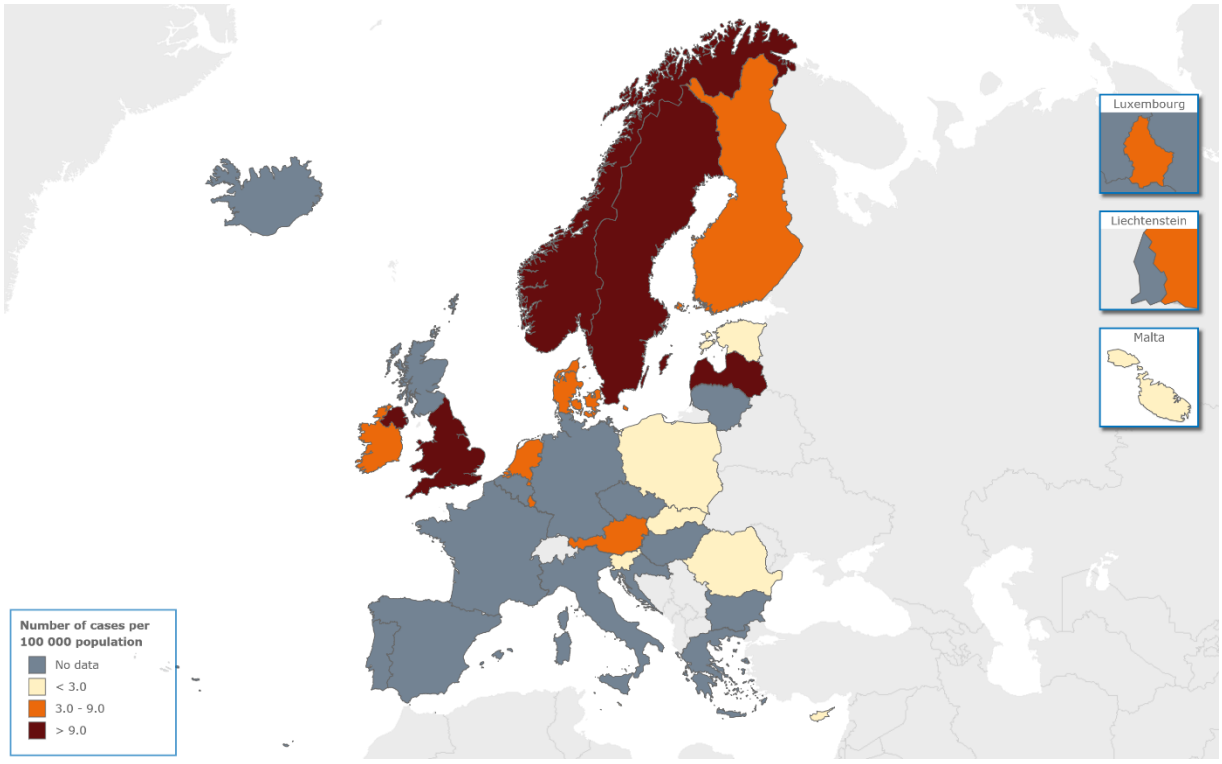


Source: Country reports. Note that UK data exclude Scotland.

** Countries were included if they were able to present data by disease status or they used a case definition that included only acute cases (e.g. EU 2008).*

In 2013, 17 countries submitted data on chronic infections, ranging from 0.1 cases per 100 000 in Romania to 15.2 in Sweden (Figure 2).

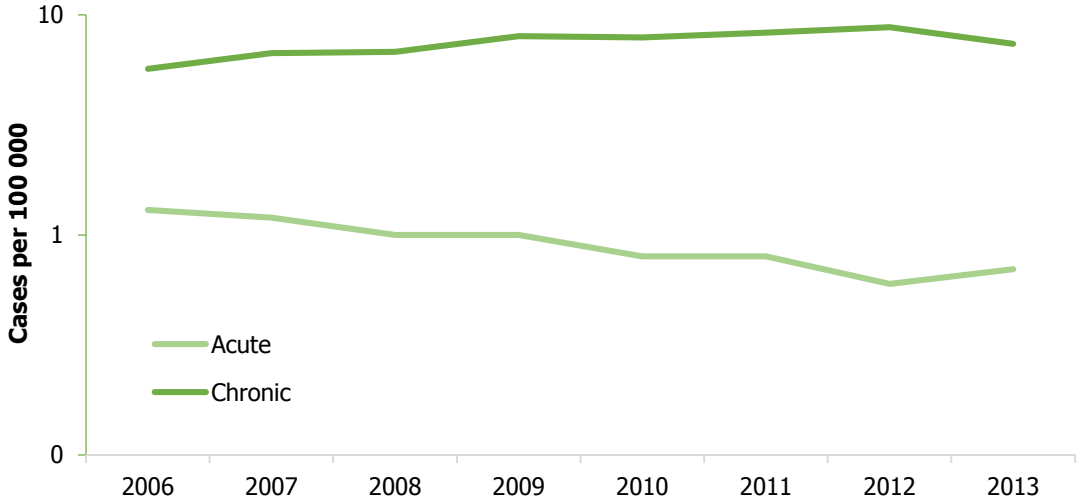
Figure 2. Rate of chronic hepatitis B per 100 000 population in EU/EEA countries, 2013



Source: Country reports. Note that UK data exclude Scotland.

The reporting rate for acute cases of hepatitis B (0.7 per 100 000) was considerably lower than the rate for chronic cases and has shown a steady decline since 2006 (1.3 per 100 000) (Figure 3). The rate of reported chronic infections has increased from 5.7 per 100 000 in 2006 to 7.4 in 2013.

Figure 3. Case numbers per 100 000 population of acute and chronic hepatitis B cases, by year, EU/EEA countries, 2006–2013

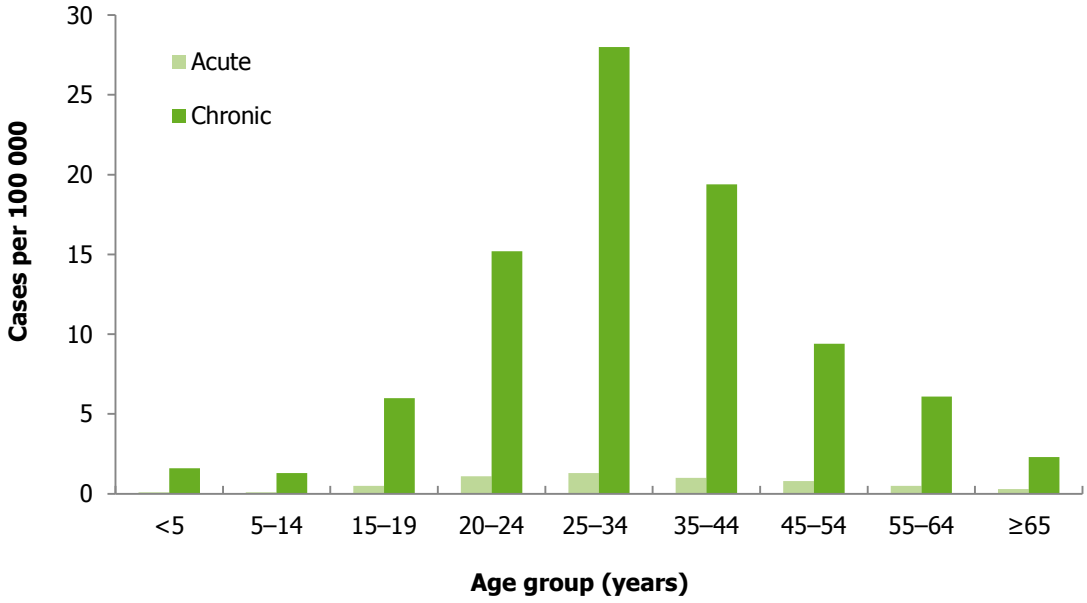


Note: Logarithmic scale

Source: Country reports from Austria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom (excluding Scotland)

In 2013, 10 149 cases were reported in males (4.7 per 100 000) and 7 208 cases were in females (3.2 per 100 000). This represents a male-to-female rate ratio of 1.5 to 1. The male-to-female ratio was higher among acute cases (2.2) than among chronic cases (1.3). One third of cases were in the 25–34-year age group (34.5%). The age distributions among reported cases of acute and chronic infections were similar (Figure 4), with 16.4% of acute cases and 15.0% of chronic cases in people under 25 years of age.

Figure 4. Case numbers per 100 000 population of acute and chronic hepatitis B cases, by age group, EU/EEA countries, 2013



Source: Country reports from Austria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, the Netherlands, Norway, Romania, Slovakia, Slovenia, Sweden, and the United Kingdom (excluding Scotland)

In 2013, data on transmission were complete for 21.3% of cases. For documented acute cases, heterosexual transmission was most commonly reported (30.5%), followed by nosocomial transmission (18.9%), injecting drug use (13.2%), and transmission among men who have sex with men (9.4%). Mother-to-child transmission was the most common (43.5%) for chronic cases, followed by nosocomial transmission (21.3%) and transmission through 'other'

routes (10.6%). Among chronic cases, 17.1% of cases attributed to mother-to-child transmission were under 25 years of age. Italy, Poland and Romania accounted for 87.2% of cases attributed to nosocomial transmission.

Of 7 604 documented cases in 2013, 3 781 (49.7%) cases were reported by 21 countries as imported; most of these cases (3 488 or 92.3%) were also chronic.

Discussion

The data indicate high numbers of hepatitis B infections across Europe. Cases of acute and chronic hepatitis B appear to be unevenly distributed between countries, which may be related to the fact that several countries can only provide data on acute cases, while the majority of all notified cases are chronic. The reporting rate for acute cases has continued to decline over time which is most likely related to the impact of vaccination programmes across Europe [1]. For chronic cases, there has been a rise in the number and rate over time. This increase is likely to be related to changes in reporting methods over the period, but it may also reflect increases in local testing and screening practices among key populations [2]. A further explanation could be the influx of chronic cases from countries with a high prevalence of hepatitis B, as migration has been reported to have an impact on the epidemiology of hepatitis B in several European countries [3].

The geographical variation in cases reflects both the differences in reporting and testing as well as underlying epidemiological differences between countries. Acute hepatitis B infections correlate fairly closely with what may be expected based on the results from prevalence surveys, i.e. that the rates of reported cases are highest in east and south-east European countries where the prevalence is highest (4). The geographical trends in reported chronic hepatitis B cases are contrary to what may be expected based on the results from prevalence surveys. This observed mismatch highlights the problem of interpreting routine surveillance data for chronic hepatitis B, which is largely asymptomatic until a late stage of disease, so notifications are mostly driven by local testing policies. Indeed, many of the countries with the highest reported burden of chronic cases, the Netherlands and the UK for example, are those with low prevalence but comprehensive testing programmes for key risk groups [2].

Although data regarding transmission are incomplete and no firm conclusions can be drawn, there are differences in reported transmission routes between countries. While nosocomial transmission is now an uncommon route of transmission in most European countries, it is reported to be a major route of transmission in a small number of countries, which highlights the importance of robust infection control practices across healthcare settings.

Conclusions

The interpretation of hepatitis B data remains challenging due to continued differences in surveillance practices between countries and the largely asymptomatic nature of chronic infections. Indeed, geographical and time trends are difficult to interpret due to differences in the application of local case definitions and reporting practices. Despite the steady downward trend in the reported rate of acute cases, which is most likely related to the impact of local vaccination campaigns, there is no room for complacency: with evidence of ongoing transmission and the continuing importation of cases, vaccination programmes are essential, as are improved surveillance data which should include information on local screening practices and vaccination policies.

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Annex

Table A-1. Numbers and rates of reported hepatitis B cases in EU and EEA countries, 2010–2013†

Country	2013*								2012*		2011*		2010*	
	Total		Acute		Chronic		Unknown		Total		Total		Total	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Austria	658	7.8	80	0.9	432	5.1	146	1.7	816	9.7	735	8.8	711	8.5
Belgium														
Bulgaria	302	4.1							322	4.4	344	4.7	387	5.2
Croatia	136	3.2							136	3.2				
Cyprus	9	1	3	0.3	3	0.3	3	0.3	14	1.6	10	1.2	7	0.9
Czech Republic	133	1.3	132	1.3			1	<0.1	154	1.5	191	1.8	244	2.3
Denmark	283	5.1	19	0.3	264	4.7			298	5.3	264	4.7	170	3.1
Estonia	35	2.7	11	0.8	24	1.8			51	3.8	44	3.3	58	4.4
Finland	268	4.9	20	0.4	248	4.6			250	4.6	247	4.6	278	5.2
France††	82	0.1	82	0.1					101	0.2	101	0.2	86	0.1
Germany	674	0.8	556	0.7			118	0.1	689	0.8	806	1	762	0.9
Greece	32	0.3	32	0.3					50	0.4	38	0.3	35	0.3
Hungary	62	0.6	62	0.6					53	0.5	67	0.7	60	0.6
Ireland	421	9.2	31	0.7	385	8.4	5	0.1	571	12.5	523	11.4	649	14.3
Italy									243	0.4	679	1.1	709	1.2
Latvia	327	16.2	87	4.3	240	11.9			357	17.5	332	16	326	15.4
Lithuania	35	1.2	35	1.2					23	0.8	60	2	71	2.3
Luxembourg	37	6.9			37	6.9			26	5	16	3.1	18	3.6
Malta	17	4			7	1.7	10	2.4	18	4.3	35	8.4	20	4.8
Netherlands	1304	7.8	143	0.9	1144	6.8	17	0.1	1525	9.1	1735	10.4	1794	10.8
Poland	1541	4	81	0.2	699	1.8	761	2	78	0.2	104	0.3	128	0.3
Portugal	24	0.2	8	0.1			16	0.2	28	0.3	26	0.3	16	0.2
Romania	302	1.5	283	1.4	19	0.1			69	0.3	412	2.1	486	2.4
Slovakia	191	3.5	73	1.3	118	2.2			159	2.9	171	3.2	209	3.9
Slovenia	52	2.5	20	1	32	1.6			41	2	71	3.5	42	2.1
Spain	645	1.4	645	1.4					525	1.1	522	1.1	662	1.4
Sweden	1628	17	76	0.8	1450	15.2	102	1.1	1590	16.8	1380	14.7	1583	16.9
United Kingdom**	9149	15.6	384	0.7	7819	13.3	946	1.6	8761	15	7876	13.6	6036	10.5
EU total	**18347**	**4.3**	**2863**	**0.7**	**12921**	**7.2**	**2125**	**0.9**	**16948**	**3.5**	**16789**	**3.5**	**15547**	**3.2**
Iceland	16	5	3	0.9			13	4	20	6.3	25	7.9	29	9.1
Liechtenstein														
Norway	738	14.6	30	0.6	708	14			706	14.2	763	15.5	764	15.7
EU/EEA total	**19101**	**4.4**	**2896**	**0.7**	**13629**	**7.4**	**2138**	**0.9**	**17674**	**3.6**	**17577**	**3.6**	**16340**	**3.4**

Source: Country reports and Eurostat data for all populations except UK (for the UK population, Office for National Statistics population figures were used excluding the population for Scotland).

† Due to the significant differences in surveillance systems between countries and over time, comparisons between individual Member States and over time should be made with caution.

†† Underreporting of cases occurs in many countries and was estimated to be as high as 85% in France in 2010.

** Data defined by year according to date included in 'date of diagnosis' variable. Note that case numbers might differ from those reported in national bulletins due to use of different date variables.*

*** Excludes data from Scotland.*

Table A-2. Data source, type of surveillance data and surveillance period

Country	Data source	Type *	Enhanced data	Period	Case definition(s) used
Austria	AT-Epidemiegesetz	C	Yes	2006–2013	EU 2008
Belgium	BE-FLA_FRA	A	No	2006–2009	National
Bulgaria	BG-NATIONAL_SURVEILLANCE	A	No	2007–2011	EU 2002
	BG-NATIONAL_SURVEILLANCE	A	No	2011–2013	EU 2008
	BG-MOH	A	No	2006	EU 2002
Croatia	HR-CNIPH	A	No	2012–2013	EU 2012
Cyprus	CY-NOTIFIED_DISEASES	C	No	2007–2013	EU 2008
Czech Republic	CZ-EPIDAT	C	Yes	2007–2013	EU 2012
Denmark	DK-MIS	C	Yes	2006–2013	National
Estonia	EE-HBV/GIARDIASIS**	C	Yes	2007–2012	EU 2012
	EE-NAKIS	C	Yes	2013	EU 2012
	EE-HEP_CHRONIC	A	No	2006–2009	EU 2012
	EE-HBV/GIARDIASIS	A	No	2006	EU 2012
Finland	FI-NIDR	C	Yes	2006–2013	EU 2012
France	FR-MANDATORY_INFECTIOUS_DISEASES	C	Yes	2006–2013	EU 2012
Germany	DE-SURVNET@RKI-7.1/6	C	Yes	2006–2013	National
Greece	GR-NOTIFIABLE_DISEASES	C	Yes	2006–2013	EU 2008
Hungary	HU-EFRIR	C	Yes	2006–2013	EU 2012
Iceland	IS-SUBJECT_TO_REGISTRATION	C	Yes (2010–2012)	2007–2013	EU 2012
Ireland	IE-CIDR	C	Yes	2006–2013	EU 2012
Italy	IT-SEIEVA***	C	Yes	2006–2013	EU 2012
	IT-NRS	C	No	2007–2012	National
Latvia	LV-BSN	C	Yes	2006–2013	EU 2012
Liechtenstein	[No data]	-	No	-	-
Lithuania	LT-COMMUNICABLE_DISEASES	A	No	2006–2009	EU 2012
	LT-COMMUNICABLE_DISEASES	C	Yes	2010–2013	EU 2012
Luxembourg	LU-SYSTEM1	C	No	2007–2013	National
Malta	MT-DISEASE_SURVEILLANCE	C	Yes	2007–2013	EU 2012
Netherlands	NL-OSIRIS	C	Yes	2007–2013	EU 2012
Norway	NO-MSIS_A	C	Yes	2006–2013	EU 2012
Poland	PL-NATIONAL_SURVEILLANCE	C	Yes	2010–2013	EU 2008
	PL-NATIONAL_SURVEILLANCE	A	No	2006–2009	EU 2008
Portugal	PT-HEPATITISB	C	Yes (2010–2013)	2007–2013	National (2007–2009)
					EU 2012 (2010–2013)
Romania	RO-RNSSy	C	Yes	2006–2013	National
Slovakia	SK-EPIS	C	Yes	2006–2013	EU 2012
Slovenia	SI-SURVIVAL	C	Yes	2006–2013	National (2006–2007)
					EU 2012 (2008–2012)
Spain	ES-STATUTORY_DISEASES	C	No	2007–2013	EU 2008
Sweden	SE-SMINET	C	Yes	2006–2013	EU 2012
United Kingdom	UK-HEPATITISB	C	Yes	2006–2013	EU 2012

** Legend: type: aggregated (A); case-based (C)*

*** Acute data only 2007–2009; acute and chronic data 2010–2013*

**** IT-SEIEVA data source used for epidemiological variables only.*

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