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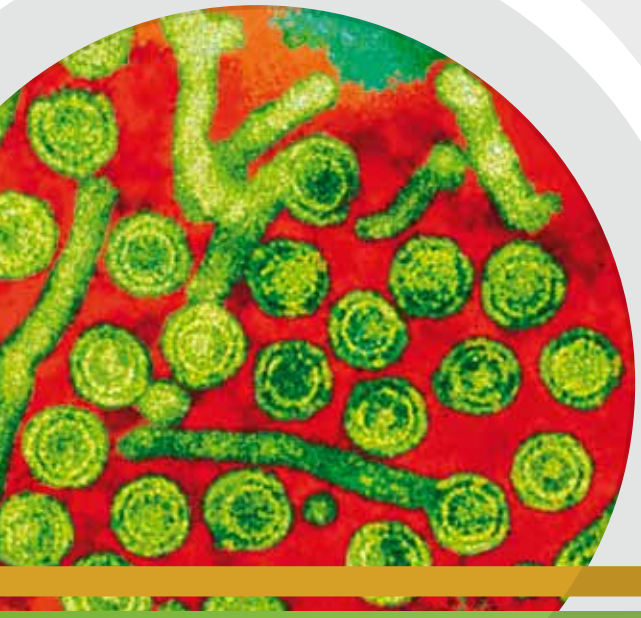

TECHNICAL REPORT

Surveillance and prevention of hepatitis B and C in Europe

Stockholm, October 2010

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Surveillance and prevention of hepatitis B and C in Europe

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Suggested citation: European Centre for Disease Prevention and Control. Surveillance and prevention of hepatitis B and C in Europe. Stockholm: ECDC; 2010.

Stockholm, October 2010

ISBN 978-92-9193-216-0

doi 10.2900/3321

Contents

Abbreviations

AER	Annual Epidemiological Report on Communicable Diseases in Europe 2009. Stockholm: ECDC; 2009
ANC	Antenatal care
DU	Drug user
HBV	Infection with hepatitis B virus
HCC	Hepatocellular carcinoma
HCV	Infection with hepatitis C virus
ICER	Incremental cost-effectiveness ratio
IDUs	Injecting drug users
LYG	Life years gained
MSM	Men who have sex with men
n/a	not available; not applicable
QALY	Quality-adjusted life year
STD	Sexually transmitted disease
STI	Sexually transmitted infection

Executive summary

Scope

This survey was carried out to map existing national surveillance systems and prevention programmes for hepatitis B and C in the EU/EEA.

Hepatitis B

Surveillance in Europe

All countries indicated that they maintain a passive mandatory reporting system for hepatitis B. In 15 countries there was only one specific surveillance system, whereas four countries had multiple surveillance systems. The national objectives of surveillance are very similar in different countries but the case definitions were not always in line with the objectives; eight countries indicated that they implemented the EU-2008 case definition, and three were using the EU-2002 case definition. In total, 21 countries were using a case definition that closely resembled the EU definition. Based on the various case definitions, 28 countries report confirmed cases, and 27 include acute hepatitis B cases. Chronic cases are included in the reports of 17 countries; asymptomatic cases are often omitted. Twenty-six countries reported to collect case-based data at the national level, but the frequency of analysis varies between countries. A basic data set (age, gender, place of residence, date of onset of disease, date of reporting) is collected in 26 countries, but detailed data on epidemiological risk and impact of the disease are often missing.

Epidemiology in Europe

The number of newly reported cases per 100 000 population in 2007 as reported by 27 countries ranges from 0 to 15.0, with an average of 1.5 (Annual Epidemiological Report on Communicable Diseases in Europe 2009. Stockholm: ECDC; 2009). The number of reported HBV cases in the EU/EEA countries per 100 000 population has declined from 6.7 to 1.5 between 1995 and 2007. Tracking trends and making comparison between countries can be challenging, as surveillance systems differ considerably and recent changes may impact the presented data.

Prevalence of HBV in the general population varies widely between countries, with low to intermediate HBsAg carrier rates in Slovakia (1.6%), Italy (1%), Belgium and France (around 0.6 %), Finland, Hungary, the United Kingdom (all below 0.5%), and Bulgaria (3.8%). Screening for HBV in pregnant women is conducted in 24 countries, but not in Belgium, Bulgaria, Lithuania, Luxembourg and Romania. Prevalence in pregnant women varies between 1.15% in Greece and 0.14% in Finland. There are also screening programmes for injecting drug users (15 out of 29 countries), prisoners (11 countries), STI clinic attendees (nine countries), and persons with multiple sex partners (two countries). HBV prevalence in IDU reported by eight countries was higher than in the general population. The prevalence in IDU varies widely, ranging between 0.5% in Norway and 50% in Denmark. Prevalence among healthcare workers in Denmark and Germany was shown to be similar to the general population.

Screening and vaccination

Universal vaccination programmes for infants, children or adolescents were implemented in 22 countries. Seven countries (Denmark, Finland, Iceland, Norway, Sweden, the Netherlands, and the United Kingdom) have implemented selective vaccination programmes targeted at risk groups. Additional prevention programmes for different risk groups were usually targeted at those at increased risk for HBV due to occupational exposure. In addition, there is a wide variety of risk-group vaccination programmes. Only half of the countries with a routine vaccination programme indicated heterogeneous coverage rates, but the coverage rate in infants (one to two years) seems to be above 95% (except in Austria, Malta, and France).

Hepatitis C

Surveillance in Europe

All EU/EEA countries indicated that they have implemented a reporting system for hepatitis C (either national or targeted at one specific population). In 14 countries there was one specific surveillance system, but 15 countries indicated that they use multiple surveillance systems to monitor hepatitis C. The national objectives of surveillance are very similar in the different countries but it appears that case definitions were not always in line with the objectives. Eleven countries indicated that they have implemented the EU-2008 case definition, and four countries apply the EU-2002 case definition. Despite this, there is a wide variety in the implementation of case definitions in the Member States, especially in the case classification. All countries included confirmed acute cases in their

surveillance systems[1], and 18 countries also included chronic cases. Some countries indicated that they collected a mixture of cases, and no serological markers were available to differentiate between acute and chronic hepatitis C. This hampers the interpretation of available data across countries. Twenty-six countries reported to collect case-based data at the national level, but the frequency of analysis varies between countries. In addition to clinical reporting, 19 countries collect data from laboratories as a part of their surveillance system; 10 countries do not include laboratory reporting. A basic data set (age, gender, place of residence, date of onset of disease, date of reporting) is collected in 26 countries, but information on detailed epidemiological risk and impact of the disease are often missing. Underreporting seems to be common, due to the asymptomatic character of the disease.

Epidemiology in Europe

The number of newly reported cases per 100 000 population in 2007, as reported by 27 Member States, range between 0 and 36, with an average incidence of 6.9 cases per 100 000 (AER, ECDC 2009). The number of reported HCV cases in the EU/EEA countries per 100 000 population has increased from 4.5 to 6.9 between 1995 and 2007. Plotting trends and comparing data between countries is difficult and needs to be done with caution, as surveillance systems differ considerably and recent changes may impact the presented data. For HCV, the interpretation is further hampered by the asymptomatic nature of infection so that reported numbers may reflect testing practices rather than true incidence and because no distinction can be made between acute and chronic disease.

Prevalence data on HCV for the general population are rather scarce; prevalence ranges from 2.6% in Italy in 2007 to 0.12% in Belgium in 2003. A relative high prevalence was reported by Bulgaria (1.2%) and Slovakia (1.56%). Eleven Member States reported prevalence data in IDU ranging from 25% to 75%. In 2006–07, Italy reported the lowest prevalence (10.8%–25.6%) and Norway the highest (70%). The HCV prevalence data are based on serological markers for hepatitis C, but this does not indicate which part of the population are carriers and thus infective.

Prevention in Europe

Half of the countries indicated that they have implemented screening programmes for risk groups: 16 countries have programmes for IDUs, 11 for prisoners. It remains unclear whether many countries have implemented programmes to monitor the infection rate in healthcare workers. There appears to be a need for more screening programmes for risk groups, hard-to-reach populations, and the general population, but before implementing any measure a thorough investigation should be carried out, based on a cost-effectiveness analysis and the availability of effective treatment.

Conclusion

This report collected and analysed data from 29 EU/EEA countries in regard to hepatitis B and C surveillance and prevention programmes. Although all countries have systems in place that collect data at the national level, these systems differ in the way they apply case definitions and make use of collected data.

As viral hepatitis is a frequent and often underreported disease, this report tries to summarise the latest available prevalence data at EU level. Harmonising the available surveillance data in order to improve comparability of data among countries will be a major challenge in the next few years.

[1] Acute confirmed cases of hepatitis C in France were surveyed only in 2006 and 2007 and for a specific population, e.g. HIV-infected men who have sex with men.

1 Introduction

Hepatitis B (HBV) and C (HCV) are viral infections which can cause acute and chronic hepatitis and are the leading causes for hepatic cirrhosis and cancer, thus creating a significant burden to healthcare systems due to the high morbidity/mortality and costs of treatment. According to the World Health Organization (WHO), one third of the world's population has been infected with HBV, and more than 350 million suffer from chronic infection [i]. Approximately 15–40% of infected patients will develop cirrhosis, liver failure or hepatocellular carcinoma. HBV accounts for an estimated 600 000 deaths each year, mainly due to the consequences of chronic hepatitis, such as cirrhosis and liver cancer [ii]. The risk of developing a chronic form depends on age at infection: the younger the patient, the higher the risk of developing chronic hepatitis: chronic infection is seen in 90% of infants infected at birth, 30 to 50% of children infected between the age of one to four years, and 1 to 10% of those infected at older age or as adults.

HBV can effectively be prevented by vaccination [iii]. A safe and effective HBV vaccine has been available since the 1980s and can prevent acute and chronic infection with an estimated effectivity of 95% [iv]. In 1992, the WHO recommended to implement universal vaccination against hepatitis B for newborns in all countries with an HBV prevalence rate higher than 5% in 1995. All other countries were recommended to implement universal vaccination in 1997 [v].

With regard to HCV, it has been estimated that 170 million persons have chronic infection and that three to four million new cases occur each year [vi]. Initial infection is frequently asymptomatic or mild (70%–90% of cases). Of those infected, 50–80% later develop chronic infection, and cirrhosis (up to 50%) and liver cancer (1%–5%) over a period of 20 to 30 years. Although other studies show a somewhat lower percentage of cirrhosis and liver cancer [vii], HCV is a major public health problem. A person with HCV can infect others from one to several weeks before symptoms. In case of chronic infections, infectivity may persist indefinitely.

There is no vaccine against HCV infection [viii]. Research is in progress but the high mutability of the HCV genome complicates vaccine development. The greatest impact on HCV disease burden will likely be achieved by focusing efforts on reducing the risk of HCV transmission from nosocomial exposures (e.g. screening of blood, rigorous implementation of infection control, reducing unsafe injection practices) and high risk behaviours (e.g. injection drug use). Relevant measures to reduce transmission are early diagnosis, effective prevention and screening programmes, as well as appropriate treatment [ix, x]. It is known that a large number of people carrying the HCV virus are not aware of being infected due to high proportion of asymptomatic infections [vi, xi].

HBV is transmitted by either percutaneous or mucous membrane contact with infected blood or other body fluid. The virus is found in highest concentrations in blood and serous exudates. The primary routes of transmission are perinatal, early childhood exposure, sexual contact, and percutaneous exposure to blood or body fluids (i.e. injections, needle stick, blood transfusion). Most perinatal infections occur among infants of pregnant women with chronic HBV infection. The distribution patterns and risk groups differ widely across the EU. Sexual transmission has been estimated to account for 30% to 50% of new infections among adults in industrialised countries. The most common risk factors include multiple sex partners and history of a sexually transmitted infection. Finally, unsafe injections and other unsafe percutaneous procedures are a major source of blood-borne pathogen transmission (HBV, HCV, HIV) in many countries: the risk of HBV infection from needle stick exposure to HBsAg-positive blood is ~30%. Worldwide, unsafe injection practices account for ~8 to 16 million HBV infections each year [iv]. In the past, HBV was frequently transmitted via blood transfusion, but due to improved testing of blood donors the estimated residual risk of acquiring HBV infection via this route ranges from 0.49 to 10 per million transfusions in Europe [xxii, xiii, xiv, xv, xvi].

In the second half of the 20th century, HCV was transmitted widely through the use of parenteral injections, invasive medical and surgical procedures, and transfusion of blood products. An epidemic explosion in IDUs followed and for two decades has remained the main transmission route accounting for the majority of new HCV infections. The risk for perinatal infections ranges from 3% to 10% in different populations. Sexual transmission is thought to be relatively infrequent. However, in many cases, no recognisable transmission factor or route can be identified. In Europe, HCV is mainly associated with injecting drug use (blood-to-blood contact, sharing syringes and needles), nosocomial transmission, or other parenteral exposure such as needle stick injuries, body piercing or tattooing [xi, xvii, xviii]. In most countries, injecting drug use accounts for 30% to 60% of all reported HCV cases. Another common risk factor is having had a blood transfusion before 1991. In 10% to 54% of cases, the risk factor is undetermined or unknown [xix]. It has been observed that high-risk sexual behaviour among (predominantly HIV-positive) men who have sex with men (MSM) may predispose to HCV infection probably via permucosal route (and mucosal damage rather than by sexual contact) [xx, xxi, xxii]. The implementation of effective anti-HCV testing methods and virus inactivation procedures in the late 1980s and early 1990s, as well as recent introduction of HCV-RNA tests significantly improved blood transfusion safety [xiv]. The estimated residual risk for acquiring HCV via blood products ranges from 1 to 40 per 10 million transfusions [x, xiii, xiv, xvi]. Regardless of this improvement,

nosocomial transmission of HCV via other routes, such as contaminated substances or multiple dose vials as well as via haemodialysis, is still a concern and should be further investigated [xxiii].

In the European Union (EU), the European Economic Area (EEA) and neighbouring countries, the occurrence of HBV and HCV is known to differ across countries [xxiv]. Between 1995 and 2007, around 83 000 cases of HBV were reported at EU/EEA level, but the number of reporting countries varies (AER, ECDC 2009). During this period, a steady decrease was observed (see Table 1 below).

Table 1. Number of confirmed cases of hepatitis B reported at EU/EEA level, 2005–07

Reporting year	Number of HBV cases	Reporting countries
2005	6977	25
2006	7494	28
2007	6481	27

Source: Annual Epidemiological Report on Communicable Diseases in Europe 2009. Stockholm: ECDC; 2009.

In 2007, 6 481 confirmed cases of hepatitis B virus infections were reported by 27 EU/EEA Member States, giving an overall notification rate of 1.5 per 100 000 inhabitants (ECDC 2009). Between 1995 and 2007, almost 310 000 HCV cases were reported in EU/EEA countries, but it needs to be noted that the number of reporting countries varies from one year to another. During this period, a steady increase in the incidence of reported HCV cases was observed. In 2007, 27 591 cases of hepatitis C virus infections were reported by 27 EU/EEA Member States and 26 840 of these were confirmed, giving an overall notification rate of 6.9 per 100 000 inhabitants (ECDC 2009) [xxiv]. Over the last few years, HBV incidence has been decreasing while HCV incidence rates have been rising [xxv]. At the country level, the incidence of reported cases is variable, and abrupt changes in incidence can be seen. These trends probably reflect changes in surveillance systems or prevention activities rather than true changes in incidence.

The prevalence of HBV and HCV infection varies markedly in different populations. Both diseases are concentrated in certain subpopulations such as injecting drug users who have a prevalence rate ten times higher than the general population. The prevalence is also higher in men who have sex with men as compared with the heterosexual population. In 1999, WHO estimated the worldwide prevalence of HCV at 3%. Most affected areas are Africa (5%) and the Eastern Mediterranean region (4.6%), followed by the Western Pacific region (3.9%), and South-East Asia (2%). The Americas and Europe had the lowest prevalence estimates, 1.7% and 1%, respectively [xxvi]. According to national estimates, 8.8 million (1.3%) people are infected in 22 European countries [xxvii]. In Europe, the prevalence of HCV can be roughly divided in three patterns: in Northern Europe, the epidemic is mainly transmitted by IDU, with overall prevalence rates between 0.1 and 1%. In Central Europe, the HCV prevalence is intermediate, ranging from 0.2% to 1.2%. In Southern Europe, the overall prevalence ranges between 2.5% and 3.5% [xix].

It is obvious that good surveillance data are essential for public health action and planning, as well as policy making. In 2006, the harmonisation process of surveillance of viral hepatitis in the EU was identified by the European Parliament as one of the priorities for the European Centre for Disease Prevention and Control (ECDC). Currently, data is collected by several national surveillance systems but the comparison of these surveillance data is hampered by differences in surveillance systems, the population under surveillance, the data sources, and the unknown proportion of unreported infections. Also, there is no agreement on practice, need, and usefulness of reporting chronic and asymptomatic cases. All in all, there is a clear need to strengthen and harmonise the many surveillance systems in Europe.

ECDC has carried out a survey to map existent national surveillance systems and prevention programmes among EU/EEA countries as this would provide an ideal foundation for the development of a protocol for enhanced surveillance of hepatitis B and C in the European Union.

The major objectives of the survey were:

- to gather detailed information on national surveillance systems and screening programmes for HBV and HCV; and
- to collect information on the national prevention programmes targeting hepatitis B and C.

The main objective of this study is to provide an overview of existing surveillance systems by not only showing the diversity that exists between the countries but also by indicating the potential for ensuring harmonisation and consistency.

2 Scope and method

2.1 Survey method and limitations

All 27 EU Member States and Iceland, Liechtenstein, and Norway were invited to participate in a web-based survey on surveillance and prevention of hepatitis B and C. The link to this survey was sent to the nominated contact points for hepatitis B and C of the Member States' competent bodies for surveillance. The survey included separate parts for hepatitis B and C. Each questionnaire was divided into four sections: a) general aspects, b) source of data collected, c) other questions related to surveillance, and d) prevention. The questionnaires are included in the annex to this report.

Questionnaires were sent in September 2008, and by October 2009 the collected data had been extracted and entered in a database. In December 2009, after analysis of the data in Microsoft Excel, the countries' correspondents were asked to update and validate the country-specific data (see Annex 2). All data are available at the country level and in an accumulated EU/EEA format. Data collected on vaccination programmes was validated and completed with data from the VENICE Project Work Package 1–3 report (www. venice.cineca.org) and EUVAC (www.EUVAC.net).

Also collected were prevalence data on hepatitis B and C in the general population, pregnant women, and IDUs. The following limitations of the study must be taken into account:

- Not all countries answered all questions.
- Despite an explanatory wordlist issued by ECDC ('ECDC definitions of some attributes of the surveillance systems'), participants understood and interpreted definitions and terminology differently.
- Blank fields or missing data can only be interpreted as 'Respondent did not provide requested information in the questionnaire' (unless specified otherwise). This does not necessarily mean that the information is not available.
- Questionnaires that cover a wide range of topics, e.g. surveillance systems, burden of disease, and vaccination policies, often generate questions that cannot always be answered.
- Screening programmes were not defined in detail.

2.2 Response

All countries completed both surveys, with the exception of the Czech Republic (only HCV questionnaire) and Liechtenstein (only HBV questionnaire). This resulted in a high response rate of 29/30 for each disease. This response rate allows us to analyse the collected survey data at the European level. As no overall validation was performed, any appraisal of the presented review or inter-country comparison should be performed with caution. The respondents and non-respondents by country and disease are shown in Annex 1, Table A1.

To facilitate the analysis and the comparison between countries, the data for each country is presented in a country overview (Annex 2). These profiles consist of two parts: 1) surveillance system, and 2) prevention, and are present in a consistent page layout which reflects the questionnaire's content and wording. A third part on burden of disease and epidemiology might be added later, once the surveillance data have been submitted and validated.

3 Surveillance systems for HBV and HCV

All countries have systems for the surveillance and prevention of hepatitis B and C in place, but there are major differences in methodology (Table 2). Hepatitis B and hepatitis C surveillance systems are part of the national surveillance in all participating countries (29/29). Almost all countries have a mandatory reporting system for HBV (93%; 27/29) and HCV (90%; 26/29). Hepatitis C reporting is voluntary in France, Italy, and the United Kingdom; hepatitis B reporting is voluntary in Italy and the United Kingdom .

3.1 Description of surveillance systems

The vast majority of countries have a passive surveillance system: 90% (25/29) for HBV and 83% (24/29) for HCV.

There are doubts whether ECDC's definition of an active surveillance system[2] was taken into account when the respondent described their national 'active surveillance systems' in the questionnaire: in Austria, the Czech Republic and Liechtenstein, active surveillance is described as a system which stipulates that physicians or laboratories report all suspected or confirmed cases directly to the office of public health; in Slovakia, epidemiologists investigate all reported cases (suspected or laboratory-confirmed) and follow up with the patient and his direct contacts; and in the United Kingdom, the active surveillance systems for HBV and HCV are described as including information from multiple sources.

A more detailed analysis of the surveillance systems shows that almost half of the countries (52% or 15/29 for HBV, and 48% or 14/29 for HCV) have a country-specific surveillance system in place[3]. Several countries report more than one HBV/HCV surveillance system for their countries; three countries report that, although they have several parallel surveillance systems, there is one system that is considered the most comprehensive (HBV in France, Spain and the United Kingdom; HCV in Finland, Spain and the United Kingdom). Two countries report that several surveillance systems exist, but that none can be seen as dominant (HBV and HCV systems in Belgium; HCV systems in France). In five countries (Hungary, Italy, Latvia, Romania and Slovakia), the HBV and HCV reporting systems are part of a syndromic surveillance system, which makes it possible to differentiate the reported cases according to the aetiology. Seven countries report to collect data on HBV in STI clinics, four report HCV data in STI clinics, and seven countries collect data for both HBV and HCV through a laboratory network. Five countries perform sero-surveillance in the general population, while only four countries collect data from sentinel surveillance systems (Table 3).

Sero-surveillance in the general population was reported for six different countries: combined hepatitis B and C sero-surveillance was organised in Belgium (one region), France, Slovakia and the United Kingdom; in Germany, samples were only tested for hepatitis B, and in the Czech Republic only for hepatitis C (there was no additional information available for the United Kingdom). Sero-surveillance studies can contribute to assess the burden of disease, as they account for asymptomatic infections as well as chronic infections. Asymptomatic infections are often not included in the national surveillance systems.

Other country-specific surveillance or screening programmes focusing on risk groups are performed, on a more or less regular basis, in Denmark (pregnant women), Finland (IDUs and prisoners), Iceland (alcohol and drug addicts), and the United Kingdom (IDUs). Hungary, Iceland and Ireland also consider their national databases for blood and blood-borne products as a special surveillance programme for HBV and HCV. In France, the surveillance system for HBV and HCV is based on a combination of different screening programmes and sero-surveys. Although other HBV/HCV reporting systems are rather rare in the participating countries, they are an important source of data to measure the burden of disease in a given country.

[2] A surveillance system based on a public health officials initiative to contact physicians, laboratory or hospital staff or other relevant sources to report data

[3] 'Own surveillance system' is considered 'country-specific'.

Table 2. Summary of information on national surveillance systems for Hepatitis B and C

Information on the national surveillance system according to responses from 29 countries, by disease		Number of countries	
		HBV	HCV
Type of surveillance			
	Mandatory	27	26
	Voluntary	2	3
	Passive	25	24
	Active	4	5
Type of surveillance system			
	Own system	15	14
	Several surveillance systems, one of which is the most comprehensive	3	3
	Several surveillance systems, none is the most comprehensive	1	2
	Syndromic surveillance of viral hepatitis	5	5
	Other	5	5
Objectives			
	Monitor trends	29	29
	Detect outbreaks	26	25
	Monitor changes in disease distribution	28	27
	Evaluate and plan control measures	28	28
	Improve knowledge of epidemiology	27	28
	Other	5	2
Case definitions			
	EU 2002/253/EC	3	4
	EU 2008/426/EC	8	11
	Possibly EU (lack of information)	5	5
	Extended EU	5	4
	No case definition	3	2
	Other	5	3
Case classification			
	Possible	1	1
	Probable	15	6
	Confirmed	28	28
	Acute	29	27
	Chronic	17	18
	Asymptomatic	9	12
	Suspected	1	1
Data collection			
Source of data	Physicians	28	28
	Laboratory	19	19
	Hospital	19	19
	Other	4	4
Availability	Case-based	26	26
	Aggregated	8	9
Format	Electronic	23	25
	Paper	13	14
Including duplicates		4	9
Underreporting	No	3	2
	Exists	26	27
Frequency of data analysis			
	Daily	5	4
	Weekly	8	6
	Biweekly	1	1

Information on the national surveillance system according to responses from 29 countries, by disease		Number of countries	
		HBV	HCV
	Monthly	10	10
	Biannually	2	3
	Yearly	18	19
Screening programmes			
	Pregnant women	24	3
	Military recruits	3	1
	Injecting drug users	15	16
	STI clinic patients	9	6
	Multiple sex partners	1	1
	Prisoners	11	10
	Haemodialysis patients	20	20
	Long-term healthcare facilities	2	0
	Healthcare workers	7	7
	Workers who are occupationally exposed to the virus	11	9
	Blood and organ donors	26	27
Link to other registers			
	Liver transplant	5	5
	Liver cancer	6	6
	Mortality	8	8
	Hospital registers	8	8
Prevention			
Universal vaccination		22	n/a
	Infants	11	n/a
	Adolescents	8	n/a
	Both	12	n/a
Risk group vaccination			
	Neonates born to HBsAg+ mothers	21	n/a
	Individuals at risk for HBV due to occupation	26	n/a
	Haemodialysis patients	22	n/a
	Chronic liver disease patients	12	n/a
	STI clinic patients	10	n/a
	Multiple sex partners	10	n/a
	Injecting drug users	17	n/a
	Household contacts of HBsAg+ patients	22	n/a
	Contacts of infected persons	17	n/a
	Other risk groups	12	n/a

Note: Detailed information on all surveillance systems by country and disease is available in Table A2 (Annex 1).

Table 3. Sources for other HBV/HCV surveillance systems

Number of countries	STI clinic	Laboratory network	Sentinel surveillance	Sero-surveys in general population	Others
HBV	9	7	4	5	5
HCV	6	7	4	5	5

3.2 Objectives for hepatitis surveillance

The national objectives for hepatitis surveillance seem to be very similar in all countries. Almost all predefined surveillance objectives in the questionnaires were confirmed by the countries.

A few countries identified additional surveillance objectives (might be applicable to other countries as well), for instance the screening of pregnant women to prevent mother-to-child transmission. Romania added as an additional objective 'to monitor the impact of the universal vaccination programme', and Slovakia added 'to evaluate existing preventive measures'. Other surveillance objectives identified by Ireland ('to facilitate resource allocation and healthcare planning'; 'to guide public health action') and by Luxembourg ('monthly publication of statistics required by law') are included in the category of country-specific objectives.

Table 4. Number of countries which have identified objectives for national surveillance

		Monitoring trends	Detect Outbreaks	Monitoring changes in disease distribution	Evaluation and planning of control measures	Improve knowledge of epidemiology	Other
HBV	Yes	29	26	28	28	27	5
	No	0	3 (DK, FR, RO)	1 (HU)	1 (LI)	2 (LI, RO)	24
HCV	Yes	29	26	27	28	29	2
	No	0	3 (DK, FR, RO)	2 (HU,ES)	1 (ES)	0	27

Note: The Czech Republic did not participate in the HBV survey; Liechtenstein did not take part in the HCV survey.

In some countries, surveillance-related activities (organisation of surveillance, case definitions, data collection, data format, and frequency of analysis) were not always in line with the official surveillance objectives. For instance, the objective 'outbreak detection' is very difficult to meet if data are only analysed once a year. Also, 'planning and evaluating control measures' will be flawed if chronic cases are not included in the surveillance of hepatitis and in the case definitions.

Based on the above results only limited efforts from the countries are needed to harmonise the national surveillance objectives with the ECDC long-term surveillance objectives of communicable diseases, 2008–2013 [xxviii]:

- Provision of relevant public health data, information and reports to decision-makers, professionals and healthcare workers, in an effort to ensure informed decision-making for actions
- Monitoring of trends in communicable diseases
- Detection and monitoring of multi-state infectious disease outbreaks
- Evaluation and monitoring of prevention and control programmes
- Identification of population groups at risk
- Contributions to the assessment of the burden of communicable diseases
- Generation of hypotheses on (new) sources, modes of transmission, and groups most at risk

3.3 Case definitions

Although most countries run (national) surveillance systems for HBV and HCV, major differences exist between case definitions. It must be noted that the survey was performed in a period when the new EU case definitions[4] replaced the previous cases definitions (2002/253/EC), effective 1 January 2009. During the validation round for country profiles from December 2009 to January 2010, a number of countries took the opportunity to update the information on case definitions.

An analysis of the case definitions used in the surveyed countries shows that 16/29 countries have implemented one of the European case definitions for hepatitis B; 20/29 have done so for hepatitis C. Some of them have extended the case definitions with extra laboratory criteria; in Romania, France and Ireland not only acute hepatitis B cases are reportable but chronic cases with HBsAg persistence in more than six months are included. Portugal included probable hepatitis C cases if epidemiologically linked to Laboratory-confirmed cases. The case definition for hepatitis C seems to be more harmonised than for hepatitis B; 12/29 countries have implemented the EU 2008 case definition. In Luxembourg, no case definitions are in place for both hepatitis B and C surveillance; in Lithuania, no case definition is in place for hepatitis B. Detailed information on national case definitions is provided for hepatitis B (Annex 1, Table A3a) and hepatitis C (Annex 1, Table A3b).

Two-thirds of the surveyed countries (21/29) use an EU-related case definition for hepatitis B (EU 2002, EU2008, possibly EU, EU extended). Over 75% (24 /29) of the countries are using an EU-related case definition for hepatitis C, including 11/29 which use the EU 2008 case definition.

[4] 2008/426/EC: Commission Decision of 28 April 2008 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

3.4 Cases included in hepatitis B reporting

Case classifications (possible, probable, and confirmed) and stage of infection (chronic and acute) were also addressed in the survey. All other countries reported that confirmed cases were included in the surveillance (in Belgium, cases are collected based on IgM and/or HBe antigen); half of them also include probable cases. In addition to the surveillance based on EU-case definitions, Austria includes 'suspected' cases in their national surveillance (definition is part of the Austrian approach). All countries reported that they include acute hepatitis B cases in their surveillance systems. National systems were historically based on newly acquired infections in patients with clinical symptoms compatible with acute hepatitis. Laboratory reporting made it possible to also include asymptomatic individuals with newly acquired infections or newly diagnosed chronic infections. More than half of the countries (17/29) reported that they include chronic hepatitis B cases, and about one third (9/29) also include asymptomatic cases.

The majority of the countries that include acute, chronic or asymptomatic cases in the reporting system can also distinguish the different stages of infection (14/17). Only Belgium, Iceland and Luxembourg, who only distinguish between acute and chronic and/or asymptomatic case, cannot differentiate different stages among confirmed cases. Reporting is not always compliant with the national case definition, particularly in respect to case classification and stage of infection. This can be illustrated by comparing the results of those countries that report data based on EU case definitions (Table 5). Estonia has implemented the EU 2008 case definitions on 1 January 2009. Although Germany and Romania (Romania has started to implement the EU 2008 case definitions) both use the EU 2002 case definition, they do not include probable cases. Among the countries using the EU 2008 case definitions, Austria, Latvia, Lithuania and Slovenia also include chronic and/or asymptomatic cases, although these cases are not defined in the case definitions. Only Malta, Portugal and Spain (three out of 11 countries that use the EU case definitions) report the case classification or stage of infection according to EU case definitions.

3.5 Cases included in hepatitis C reporting

All countries report confirmed hepatitis C cases through their national surveillance systems (in Belgium, cases are collected based on PCR+). Latvia, Malta, Portugal and Spain include probable cases; in addition to the surveillance based on EU-case definitions, Austria includes 'suspected' cases in their national surveillance. All countries include acute hepatitis C in the national surveillance system except Finland, Norway, Romania (all cases are included, but not the different stages of infection) and France (national surveillance was implemented in 2006 and 2007 only, targeting a specific population (HIV-infected MSM). Two-thirds (18/29) of the countries reported that they include chronic cases of hepatitis C. Although there are no serological markers currently available to accurately differentiate between acute and chronic infections, a number of countries indicated that they can differentiate these types of infection.

Hepatitis C reporting is not always compliant with the national case definition, particularly when the EU case definitions are used as the basis of national case definitions and for case classification and stage of infection: Austria, Latvia, Malta, Poland, Portugal and Spain report probable cases, although they are not mentioned in the EU case definitions. Austria also reports possible cases. Lithuania includes asymptomatic cases in its surveillance reporting, despite the fact that the EU 2002 case definition is based on clinical symptoms. Half of the countries use the EU case definitions (15/29), but in eight countries the reported case classification and stage of infection shows discrepancies with the used definition.

Table 5. Overview of case classification and the stage of infection used in HBV surveillance system compared with EU case definition

	Probable	Confirmed	Acute	Chronic	Asymptomatic	Differentiated
2002/253/EC						
2008/426/EC						
Austria						
Belgium[5]						
Bulgaria						
Cyprus						
Czech Republic						
Denmark						
Estonia[6]						
Finland						
France[7]						
Germany						
Greece						
Hungary						
Iceland						
Ireland						
Italy						
Latvia						
Liechtenstein						
Lithuania						
Luxembourg						
Malta						
Netherlands						
Norway						
Poland						
Portugal						
Romania						
Slovakia						
Slovenia						
Spain						
Sweden						
United Kingdom						
Number of countries	15	28	29	17	9	

Included
Not included
Information not available

[5] Cases are collected based on IgM and/or HBe antigen.

[6] EU 2008 case definition was implemented on 1 January 2009.

[7] Since the early 2000s, several HBV surveillance systems have been implemented at the national level in France, but none is based on the EU 2008 acute HBV infection case definition. These systems included the overall and newly diagnosed HBsAg screening activity (anonymous screening, laboratory sentinel survey, blood donations) and the surveillance of newly referred chronic hepatitis B infected patients in reference centres. Prevalence studies on specific populations (e.g. MSM, drugs users) are implemented.

Table 6. Overview of the case classification and stage of infection used in HCV surveillance system, compared with the EU case definitions

	probable	confirmed		Acute	chronic	asymptomatic	differentiated
2002/253/EC							
2008/426/EC							
Austria							
Belgium[8]							
Bulgaria							
Cyprus							
Czech Republic							
Denmark							
Estonia[9]							
Finland							
France[10]							
Germany							
Greece							
Hungary							
Iceland							
Ireland							
Italy							
Latvia							
Liechtenstein							
Lithuania							
Luxembourg							
Malta							
Netherlands							
Norway							
Poland							
Portugal							
Romania							
Slovakia							
Slovenia							
Spain							
Sweden							
United Kingdom							
Number of countries	5	29		27	18	10	9

Included
Not included
Information not available

It can be concluded that there is a significant heterogeneity between the national surveillance systems for hepatitis B and hepatitis C with respect to case definitions and case classification, the reporting of acute and chronic cases, and the inclusion of asymptomatic cases. However, a majority of countries already report confirmed case for hepatitis B and C, and all countries include acute cases. More than half of the countries (17/29 for hepatitis B, 18/29 for hepatitis C) include chronic cases although in some cases no differentiation can be made between acute and chronic cases.

[8] Cases are collected based on PCR+.

[9] Implemented EU 2008 case definition since 1 January 2009.

[10] Surveillance on confirmed acute cases of hepatitis C at the national level was implemented only among HIV-infected MSM and only in 2006 and 2007.

3.6 Data collection

Source of data

Surveillance data for HBV and HCV can originate from multiple and different data sources, like clinicians, laboratories, hospitals, municipal health services, and blood banks. In all countries, the clinicians are the most important source of data; in the Netherlands, the physicians report their cases to the municipal health services that report to the central level. Two-thirds of the countries (19/29) also collect data from laboratories and hospitals. In Finland, a parallel system exists for blood banks and antenatal screening (carried out by the same clinicians and laboratories): duplicates are later eliminated by means of a unique personal identifier at the national level. Germany included additional data from another source but provided no details. Detailed information for every country is available in Table A4.

Collected data

A 'basic' data set is collected in most countries, recording age, gender, place of residence, date of reporting, etc. Some countries add variables such as 'country of birth' (included by 16 countries) and 'probable country of infection' (19 countries) (Table 7). Additional epidemiological information is available for a considerable number of countries (sexual transmission, drug use, family details, and healthcare-related information). Although some countries included 'changes in disease distribution' and 'improved knowledge of epidemiology' on their list of objectives for surveillance, the data needed to meet these objectives (e.g. transmission routes, risk factors and the impact of the disease: hospitalisation data, length of hospitalisation, ICD) are not included in the set of variables. Detailed information is available in Table A5a for HBV and in Table A5b for HCV.

Ten countries can link their hepatitis surveillance data to other databases to import or compare data on liver transplantations, liver cancer, mortality, and hospital register information (Table 8). Most of these countries reported that links are technically possible but not established regularly.

Format of data

The majority of countries (90%) collect and provide the surveillance data as individual case based data at central level. Only three countries (Bulgaria, Poland and Romania[11]) have aggregated data on central level. The majority of countries (80%) have implemented electronic disease surveillance systems. Four countries (Bulgaria, Norway, Poland and Romania) collect hepatitis C data using a traditional paper-based system, three do the same for hepatitis B (Poland, France and Liechtenstein). More information on data formats used in national surveillance systems is available in Table A4.

Duplicates and underreporting

Five countries (Belgium, Ireland, Luxembourg, Spain, United Kingdom) have indicated that there is a possibility that duplicate datasets exist in the national surveillance of hepatitis B and C. An additional four countries also mention possible duplicates for hepatitis C (Czech Republic, France, Germany, and Norway). All these countries, with the exception of Belgium and France, include the patient ID in the collected surveillance data. In almost all countries (HBV 26/29, HCV 27/29) underreporting is a problem in the national surveillance system. The extent of underreporting remains unknown for the majority of countries (21 for HBV, 24 for HCV). Two countries report that there is probably no underreporting for hepatitis B and C (Iceland, Slovakia). The provided estimates for underreporting range from 5% to 6% (Hungary: HBV/HCV) up to 50% (Denmark: HBV/HCV) [xxix]. Ireland and the UK estimate a 25% underreporting for HBV, and France calculates underreporting at 23% for HBV. No further details on the estimates were provided; the differences in underreporting due to the methodology of the surveillance or the asymptomatic character of the disease were not addressed.

Frequency of analysis

More than 60% (HBV 18/29, HCV 19/29) of the countries analyse and report surveillance data at the central and national level annually; fewer than half of the countries produce monthly statistics. Portugal, Ireland and the United Kingdom provide a quarterly analysis of the data. Austria, Bulgaria, Cyprus, Denmark, Latvia, Slovenia and Slovakia have the ability to analyse surveillance data more frequently, even on a daily basis, if need be, for example in case of an outbreak. Depending on disease surveillance objectives, the frequency of analysis may have to be increased and harmonised across Europe. Detailed information is available in Table A4.

[11] Started to implement case-based data collection since 2009

Table 7. Set of variables in national surveillance systems for hepatitis B and C

		HBV (number of countries)	HCV (number of countries)
Basic data	Patient ID	24	22
	Date of birth or age	29	29
	Gender	29	29
	Country of birth	16	16
	Place of residence	28	27
	Date of onset of the disease	26	23
	Date of diagnosis	21	21
	Date of reporting/notification	27	28
	Date used for statistics	19	18
	The country where infection most likely acquired	19	19
	Immunisation status	24	11
	Outcome	18	15
Clinical and case classification information	Clinical symptoms	16	13
	Laboratory results	23	24
	Epidemiological information	21	22
Transmission route/risk factors	Homosexual contact	16	14
	Heterosexual contact	16	13
	Injecting drug use	21	21
	Mother HBsAg/HCV positive	19	15
	Close family member HBsAg/HCV positive	20	17
	Sex partner HBsAg+	17	17
	Blood or blood product transfusion	21	21
	Invasive healthcare procedure/dental treatment	18	20
	Organ transplantation	16	17
	Haemodialysis	18	19
	Needle injury or other occupational exposure	18	19
	Tattooing/body piercing	18	19
	Other	8	8
Other factors	Hospitalisation	19	17
	Length of hospitalisation	8	8
	ICD code diagnosis	8	10
	Genotype information	1	3

Table 8. Links of surveillance database to at least one other register, by country

	Liver transplant	Cancer of the liver	Mortality	Hospital register
Bulgaria			✓	✓
Denmark	✓	✓	✓	✓
Finland	✓	✓	✓	✓
Iceland	✓	✓	✓	✓
Lithuania				✓
Malta		✓	✓	
Romania				✓
Slovakia	✓	✓	✓	✓
Sweden			✓	
United Kingdom	✓	✓	✓	✓

3.7 Summary

Below is a summary of the information provided on national surveillance systems for hepatitis B and C in the EU and EEA countries.

Major similarities:

- All countries have surveillance in place for both hepatitis B and C.
- A majority of surveyed countries operates a passive mandatory hepatitis surveillance system.
- National objectives for surveillance are very similar in all countries.
- Although there is a wide variety in case definitions, most Member States include confirmed and acute cases in their reporting system.
- Clinicians are the major source of data for the surveillance systems.
- 80% of the surveyed countries have case-based data available, at the national level and in an electronic database.
- A basic set of data (age, gender, place of residence, date of onset of disease, and date of reporting) is collected in most countries.
- Underreporting is common, but to an unknown extent. Duplicates are rather uncommon.

Major differences:

- The administration of disease surveillance for hepatitis B and C varies widely across countries, e.g. there is a wide range of case definitions and case classifications. It needs to be noted that the EU case definitions are not consistently implemented.
- Chronic and asymptomatic cases are often not included in the surveillance data.
- The frequency of data analysis and data reporting varies across countries.
- There is a wide variety in the set of variables collected, particularly in respect to epidemiological risk factors and the impact of the disease (length of hospitalisation, ICD code).
- A number of Member States have the possibility to link hepatitis surveillance to other registers of morbidity and mortality.

The surveillance of hepatitis B and hepatitis C is mostly mandatory in EU/EEA countries; more countries tend to use the EU 2008 case definition for hepatitis C than for hepatitis B.

4 Prevention programmes for HBV and HCV

4.1 Screening programmes

In all countries except Luxembourg at least one screening programme is in place for HBV or HCV. Screenings for hepatitis B virus infections in pregnant women are conducted in more than 80% (24/29) of the countries, while in Bulgaria, Lithuania, Luxembourg, and Romania this programme is not implemented; in Belgium[12] the programme is not implemented at the national level.

Blood and organ donors and haemodialysis patients are also screened in most countries, except for Iceland (HBV in blood and organ donors), Liechtenstein (HBV, HCV), Luxemburg (HBV, HCV) and Finland (HBV in haemodialysis patients). In Austria, Denmark, Estonia, Netherlands, and Romania, haemodialysis patients are not screened for HBV and HCV. Half of the countries conduct hepatitis B screening programmes for specific groups at risk, e.g. injecting drug users (15/29), STI clinic patients (9/29), and prisoners (11/29). Two countries operate a programme for persons with multiple sex partners (2/29)[13].

Table 9. Antenatal screening programmes for hepatitis B and C in Europe, 2009

	HBV	HCV
Austria	■	
Belgium[12]	■	
Bulgaria		
Cyprus	■	
Czech Republic		
Denmark	■	
Estonia	■	
Finland	■	
France	■	
Germany	■	
Greece	■	
Hungary	■	
Iceland	■	
Ireland	■	
Italy	■	
Latvia	■	
Liechtenstein	■	
Lithuania		
Luxembourg		
Malta	■	
Netherlands	■	
Norway	■	■
Poland	■	
Portugal	■	
Romania		
Slovakia	■	
Slovenia	■	
Spain	■	■
Sweden	■	
United Kingdom	■	

■ Programme implemented
No programme
Not applicable

[12] Belgium: Screening for HBV among pregnant women is recommended; a vaccination programme for neonates born from HBsAg-positive mothers exists.

[13] Ireland: Only if the person attended as a patient of an STI clinic.

Specific screening programmes target multiple risk groups. Screening of healthcare workers for hepatitis B is implemented in six countries (Belgium, France, Germany, Italy, Malta, and Romania). An additional eight countries (Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Spain, and the United Kingdom) indicated that they run a screening programme for 'workers who are occupationally exposed to the virus'.

Screening programmes which target injection drug users (IDUs) or prisoners usually include both hepatitis B and C infections, except in France where IDUs are only screened for hepatitis C. Cyprus, Germany, Malta, Romania, Slovakia, and Spain have an HCV screening programme in STI clinics; Germany operates an HCV screening programme for persons with multiple sex partners. Detailed information on all screening programmes is provided in Table A6a for hepatitis B and Table A6b for hepatitis C.

4.2 Immunisation programmes for hepatitis B

Hepatitis B vaccination has shown to be effective in the reduction of new infections. The vaccine is 95% effective in preventing infection and its chronic consequences and has an outstanding record of safety and effectiveness [iv].

Universal HBV vaccination

In 1991, WHO advised all countries to add Hepatitis B inoculation to in all universal vaccination programmes. A number of countries have not complied with this recommendation, based on their national epidemiological situation. Seven countries (Denmark, Finland, Iceland, the Netherlands, Norway, Sweden, and the United Kingdom) have opted for a selective hepatitis B vaccination programme targeting risk groups. 22 out of 29 EU/EEA countries have implemented a universal vaccination programme for infants and adolescents or both, in addition to a selective immunisation programme (Table 9). In Slovenia, a universal vaccination programme exists for children before entering primary education.

Table 10. Universal vaccination programmes for HBV in 29 EU/EEA countries

	Universal vaccination programmes				
	Universal	Infants	Adolescents	Other	Adolescents (catch up)
Austria	■	■	■		■
Belgium	■	■	■		■
Bulgaria	■	■			
Cyprus	■			■	■
Czech Republic	No information available				
Denmark					
Estonia	■				
Finland					
France	■	■	■		■
Germany	■	■	■		■
Greece	■	■	■		■
Hungary	■		■		■
Iceland					
Ireland	■	■			
Italy	■	■	■		■
Latvia	■	■	■	■	■
Liechtenstein	■		■		■
Lithuania	■	■	■		
Luxembourg	■	■			
Malta	■	■			
Netherlands					
Norway					
Poland	■	■	■	■	
Portugal	■	■			
Romania	■	■			
Slovakia	■	■	■		

	Universal vaccination programmes				
	Universal	Infants	Adolescents	Other	Adolescents (catch up)
Slovenia					
Spain					
Sweden					
United Kingdom					

Vaccination programme (as of 2009)

No vaccination programme

No universal vaccination programme

Although the majority of countries have included hepatitis B in their universal vaccination programmes, the programmes are heterogeneous and show a wide variation in immunisation schedules (timing and number of doses) and vaccine formulation (monovalent, hexavalent) exists. Countries with a neonatal vaccination programme integrated in the universal vaccination programme have comparable schedules. In addition to the routine childhood vaccination programme for newborns or infants, catch-up programmes for older children and adolescents were also carried out in Austria, Belgium, Cyprus, France, Germany, Greece, Hungary, Italy, Latvia, Liechtenstein, Romania, and Slovenia.

Risk group vaccination

In addition to their universal vaccination programmes, most countries have implemented additional programmes for risk groups, usually for those at increased risk of acquiring HBV via occupational exposure (26/29). Vaccination programmes for neonates born to HBsAg-positive mothers (21/29), haemodialysis patients (22/29), and household contacts of HBsAg-positive patients (22/29) are implemented in at least 70% (23/29) of the countries. 23 countries (79%) also have vaccination programmes for HBV among IDUs.

Table 11. Risk group vaccination programmes for HBV in 29 EU/EEA countries

		Risk group vaccination									
	universal	Neonates born to HBsAg + mothers	Individuals at risk for HBV due to occupation	Haemodialysis patients	Chronic liver disease patients	STI clinic patients	Persons with multiple sex partners	Injecting drug users	Household contacts of HBsAg+ patients	Contacts with infected persons	Other risk groups
Austria											
Belgium		✓	✓	✓		✓	✓	✓	✓		✓
Bulgaria			✓	✓	✓	✓	✓	✓	✓		✓
Cyprus		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Czech Republic		No information available									
Denmark		✓	✓	✓	✓			✓	✓	✓	✓
Estonia			✓								
Finland		✓	✓					✓	✓		✓
France		✓	✓	✓			✓	✓	✓	✓	✓
Germany		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Greece		✓	✓	✓	✓	✓		✓	✓	✓	
Hungary		✓	✓	✓					✓	✓	
Iceland		✓	✓	✓					✓	✓	
Ireland		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Italy		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Latvia		✓	✓	✓							
Liechtenstein											
Lithuania			✓	✓							
Luxembourg			✓								
Malta		✓	✓	✓		✓		✓	✓	✓	
Netherlands		✓	✓	✓			✓	✓	✓		✓
Norway		✓	✓	✓	✓			✓	✓	✓	✓

		Risk group vaccination									
	universal	Neonates born to HBsAg + mothers	Individuals at risk for HBV due to occupation	Haemodialysis patients	Chronic liver disease patients	STI clinic patients	Persons with multiple sex partners	Injecting drug users	Household contacts of HBsAg+ patients	Contacts with infected persons	Other risk groups
Poland[14]		✓	✓	✓	✓				✓	✓	✓
Portugal		✓	✓	✓	✓	✓		✓	✓	✓	
Romania			✓						✓		
Slovakia		✓	✓	✓	✓				✓	✓	✓
Slovenia		✓	✓	✓	✓			✓	✓	✓	
Spain		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Sweden		✓	✓	✓			✓	✓	✓	✓	
United Kingdom		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
No countries		22	27	23	14	11	11	18	23	18	12

Universal vaccination programme (as of 2009)

No universal vaccination programme

Countries without universal vaccination programmes (Denmark, Finland, Iceland, Netherlands, Norway, Sweden, and the United Kingdom) or countries which recently added hepatitis B vaccination to their routine vaccination programme (Ireland) for the most part have extensive vaccination programmes for risk groups. All countries have at least one hepatitis B prevention programme (Table 11). Exceptions are Austria and Liechtenstein, where vaccination is offered only in universal programmes.

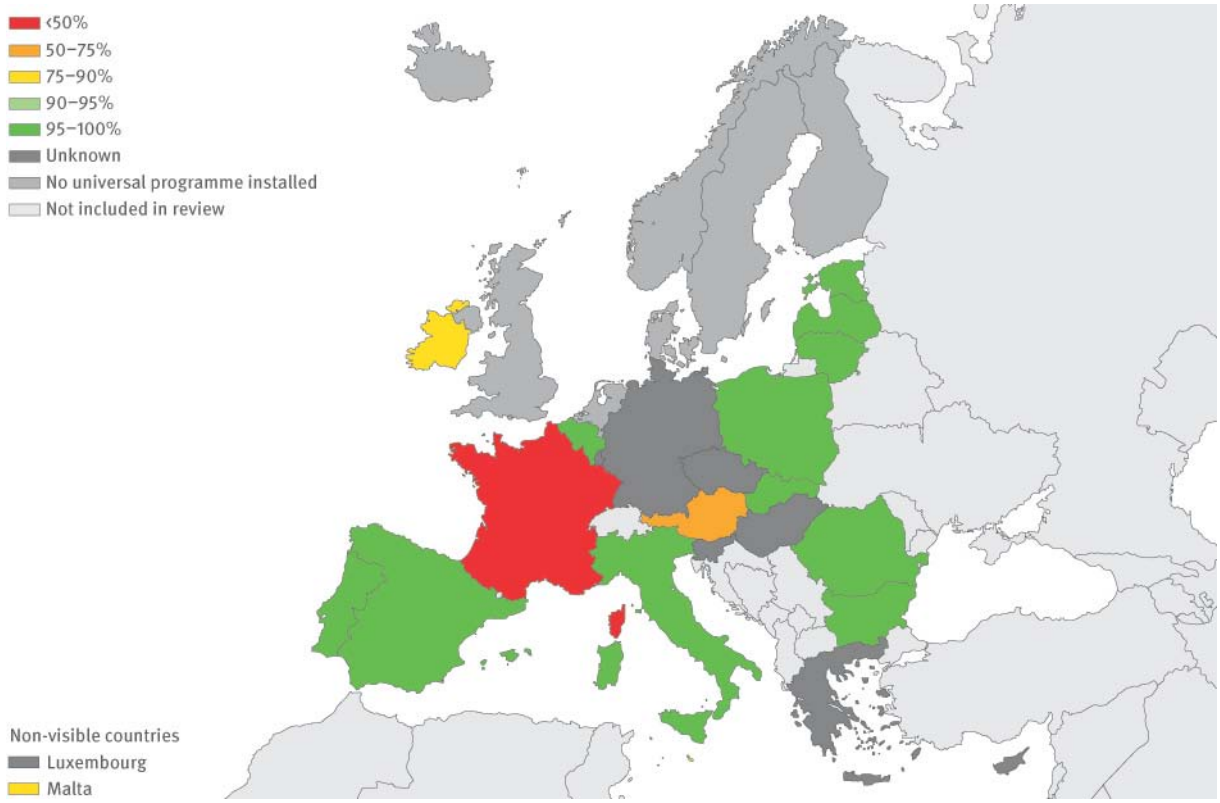
Specific risk group vaccination programmes focus on thalassaemia (Belgium), blood and organ transplantation (Belgium), mentally disabled people or Down's syndrome (Belgium, France, Netherlands), HIV infection (Bulgaria, Poland), MSM (Denmark, Norway, Netherlands, United Kingdom), prisoners (France, Ireland, United Kingdom), social workers (Netherlands), newborns with at least one parent from an HBV-endemic country (Netherlands, Norway), migrants from countries with medium to high endemicity (Norway), sex workers (Norway), patients infected with other types of hepatitis (Slovakia). Most frequently mentioned are travellers to countries with a high prevalence of hepatitis B (Belgium, Bulgaria, France, Germany, Ireland, United Kingdom).

Vaccination coverage

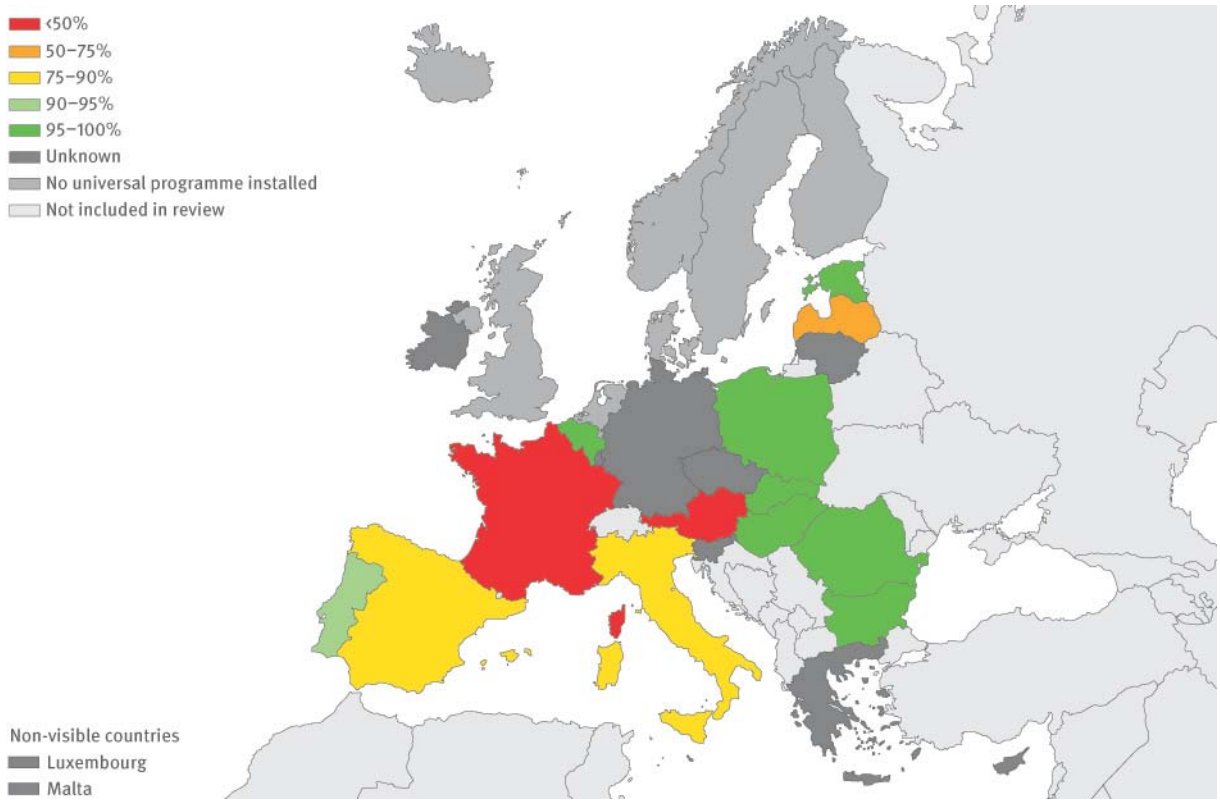
More than half of the countries with a universal vaccination programme calculated and reported vaccine coverage. In general, the coverage for infant vaccination programmes is rather high (on average above 90%). Belgium, Bulgaria, Estonia, Italy, Latvia, Lithuania, Poland, Romania, Slovakia, and Spain report coverage rates in infants younger than two years that surpass 95%. Austria, Malta and Portugal report a coverage rate of 30%, 76% and 97%, respectively, in one-year-old infants. In Austria, the coverage rate in infants of two years is 83%, France reports 35% for the same age group.

[14] Vaccination recommended for STI clinic patients, persons with multiple sex partners, injecting drug users.

Map 1. Reported hepatitis B vaccination coverage rate in infants of one to two years



Map 2. Reported hepatitis B vaccination coverage rate in adolescents 10 to 15 years



The coverage rate in adolescents is generally lower than in infants, except for Estonia, Poland, Romania and Slovakia. Hungary, which includes the inoculation of 14-year-olds in the routine vaccination programme, reports a coverage rate between 95% and 98%. Despite the catch-up programmes in France, Italy, and Latvia, the coverage rates in the 14- to 15-year-olds are considerably lower at 42%, 80%, and 74%, respectively. In Austria, the coverage rates in adolescents vary between 24% for 11-year-olds and 43% for 14-year-olds. In Greece and Spain, the coverage rates are below 90%: 87% (15-year-olds, Greece) and 78% (14-year-olds, Spain).

Summary

Prevention programmes for hepatitis B and C in the surveyed EU/EEA countries can be summarised as follows:

- Most countries have at least one screening programme in place for HBV or HCV.
- Blood and organ donor screening programmes are implemented in most Member States, as this is required by EU legislation.
- Almost all countries recommend the screening of pregnant women, except for some countries which have included the vaccination of neonates in their routine vaccination programmes.
- 22 out of 29 Member States included hepatitis B in the routine childhood vaccination programme. Seven countries do not vaccinate children routinely and use selective immunisation programmes instead.
- Hepatitis B vaccination is recommended in almost all Member States for those individuals at increased occupational risk.
- Risk group vaccination programmes vary widely across countries.
- The reported coverage rates are heterogeneous, but for most countries with a routine vaccination programme the coverage rate in infants is above 95%.

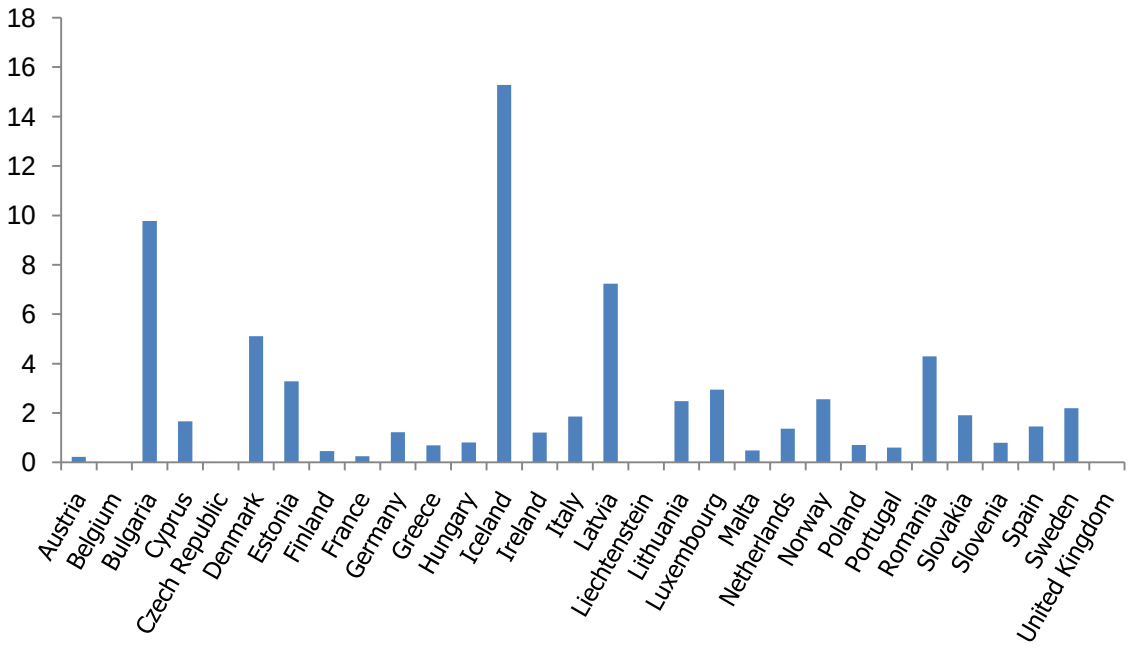
5 Epidemiology

5.1 Hepatitis B

The number of reported cases per 100 000 population varies widely across countries. In 2007, Denmark, Finland, France, Greece, Malta, Poland, Portugal, and Slovenia reported an incidence lower than 1 per 100 000 (Slovenia included chronic cases in the data). Cyprus, Germany, Ireland, Italy, Lithuania, the Netherlands, Slovakia, Spain, and Sweden reported a slightly higher incidence rate: 1 to 2.5 cases per 100 000. Relatively high incidence rates were reported by Latvia (7.2), Austria (7.8), and Bulgaria (9.8). The highest incidence rate was reported by Iceland (15/100 000), which can partly be explained by the fact that Iceland included chronic hepatitis B cases.

The difference in hepatitis B incidence rates across Europe could be partly due to differences in case definitions and classifications, and requires further investigations. Comparability can be improved through harmonisation of datasets, e.g. by distinguishing between acute and chronic hepatitis, or using a uniform case definition for laboratory-confirmed cases. A major challenge is the possibility to distinguish between acute and chronic cases, as the current data for most countries represent a mixture of acute and chronic cases.

Figure 1. Number of reported hepatitis B cases per 100 000 population in the 29 EU/EEA countries, 2007



Acute and chronic cases included for AT, BE, IS, LU, PL, SL

Source: ECDC Annual Epidemiological Report 2009

Prevalence data on HBsAg in the general population were limited, ranging from 3.8% in Bulgaria to 0.01% in Denmark: Slovakia (1.6%); Italy (1%); Belgium and France (around 0.6 %); Finland, Hungary and the United Kingdom (>0.5%) (Table 12). According to the predefined HBsAg prevalence ranges for HBV infection – high (>8%), intermediate (2-8%), and low (<2%) – all reporting countries can be classified as low-prevalence countries, with the exception of Bulgaria which ranks as intermediate.

The variation in HBsAg prevalence in pregnant women is less distinct and varies between 1.15% (Greece) and 0.15% (Finland), while the prevalence in IDUs is higher and ranges between 0.5% in Norway and 50% in Denmark (2007 data). In most countries, the trend in reported hepatitis B cases seems to be decreasing, except for Cyprus, Iceland, Luxembourg, and Sweden. Abrupt changes in the number of reported HBV cases may have several causes: a change in the surveillance system (Lithuania) or an outbreak among IDUs (Latvia 1999–2002). Further investigations of the trends in connection with changes in surveillance systems are needed. Most European countries seem to have a low incidence, below 5 cases per 100 000 population. The inclusion or exclusion of chronic cases in the reported surveillance data affects trends noticeably, as can be seen in Bulgaria, the Netherlands, Poland, and Sweden. The implementation of enhanced surveillance for hepatitis B will further improve the comparability of reported cases across EU/EEA countries.

Table 12. HBV prevalence (HBsAg) per 100 000 population, 29 EU/EEA countries: general population, pregnant women, and IDUs

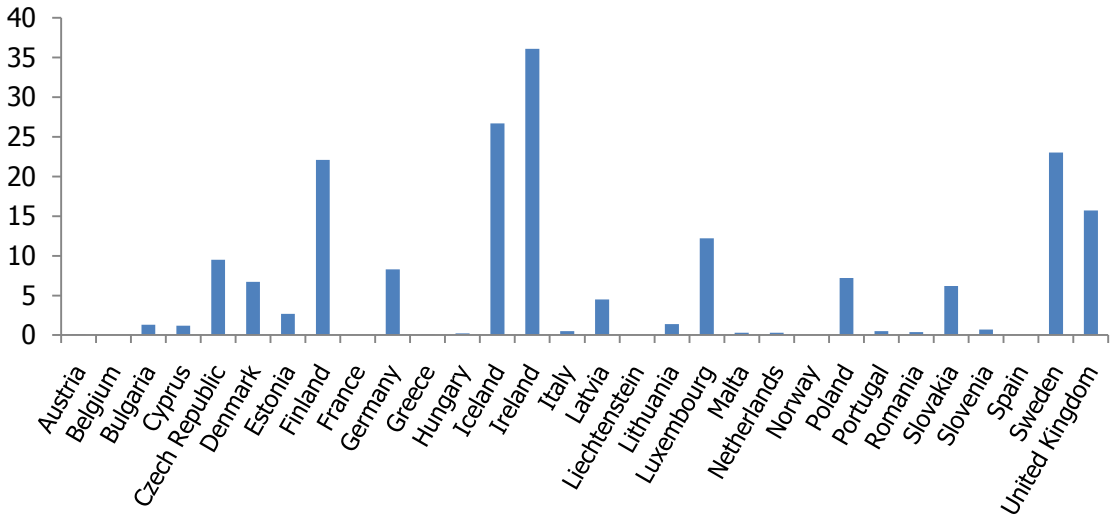
HBV	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
General population										
Belgium					0.66%					
Bulgaria			3.80%							
Denmark									0.01%	0.01%
Finland							0.23%			
France						0.65%				
Hungary		0.30%								
Italy									1.00%	
Slovakia				1.60%						
Sweden	0.03%	0.04%	0.04%	0.05%	0.03%	0.03%	0.05%	0.04%	0.03%	0.02%
United Kingdom	0.37%									
Pregnant women										
Czech Republic			0.20%							
Denmark									0.26%	0.26%
Estonia								0.30%	0.20%	
Finland							0.10%	0.14%		
Greece						1.15%				
Italy									0.86%	
Netherlands								0.40%	0.34%	0.33%
United Kingdom									0.31%	0.35%
Injecting drug users										
Bulgaria								5.63%		
Cyprus								2.08%	7.80%	
Denmark									50.00%	50.00%
France						1.91%				
Greece					2.3%-5.8%					
Italy										13.70%
Norway				3.00%	4.00%	3.00%	0.80%	0.90%	0.50%	1.20%
Poland									5.00%	
Slovenia					10.40%					
Sweden										1%

5.2 Hepatitis C

There is a wide variety in reported data since hepatitis C is often asymptomatic and no clear diagnostic criteria are available to differentiate between acute and chronic cases. The diversity in reported data was higher than for hepatitis B. The HCV incidence rate in 2007 varies between 36.7 cases per 100 000 (Ireland) and 0.05 (Greece). Countries which reported only acute hepatitis C cases in 2007, had an incidence rate below 1.4 cases/100 000; with Estonia as the sole exception (2.7/100 000). Countries which included chronic cases displayed much higher incidence rates: Iceland (31), Ireland (36.7), and Sweden (20.6) report incidences above 20/100 000.

As is the case with hepatitis B, the presented data for hepatitis C are difficult to interpret because of differences in surveillance systems, case definitions, etc., and any interpretation or comparison should be conducted with caution. Trends in HCV incidence data suggest an increasing trend over time.

Figure 2. Number of reported hepatitis C cases per 100 000 population in the 29 EU/EEA countries, 2007



Acute and chronic cases included for AT, DE, IS, LI, MT, NO, SL, ES

Source: ECDC Annual Epidemiological Report 2009

HCV prevalence data are available for the general population (nine countries) and injection drug users (11 countries) (Table 13). The prevalence in the general population ranges from 2.6% in Italy (2007) to 0.12% in Belgium (2003). In 2001, the Czech Republic and the Netherlands reported prevalence below 0.5%, while Bulgaria reported a prevalence of 1.2% in the general population. There is a wide variety in the reported HCV prevalence in IDUs, ranging from 25% to 70%. Of the seven countries reporting HCV prevalence in IDUs between 2006 and 2008, Italy reported the lowest prevalence (10.8–25.6%), and Norway the highest (70%).

HCV prevalence among national samples of injecting drug users vary from around 10% to 95%, with half of the countries reporting levels in excess of 40%. Slovenia reported prevalence below 25% in national samples of injecting drug users. HCV prevalence levels can vary considerably within a given country, reflecting both regional differences and the characteristics of the sampled population. For example, in the United Kingdom local studies report levels between 29% and 60%, while in Italy different regional estimates range from around 36% to 92%.

For 2006–08, three of the ten countries providing data on injecting drug users report a HCV prevalence of more than 40% ([xxx]).

Table 13. HCV prevalence per 100 000 population, 29 EU/EEA countries: general population, pregnant women, and IDUs

HCV	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
General population											
Belgium						0.12%					
Bulgaria				1.20%							
France							0.84%				
Hungary			0.70%								
Italy										2.60%	
Netherlands				0.40%							
Slovakia					1.52%						
Sweden		0.13%	0.13%	0.09%	0.09%	0.08%	0.06%	0.08%	0.05%	0.07%	0.04%
United Kingdom						0.50%					
Injecting drug users											
Belgium								50.00%			
Bulgaria										57.01%	

HCV	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Cyprus									29.59%	34.31%	
Denmark										70.00%	70.00%
Finland								53.00%		57.00%	
France							59.80%				
Greece					43.3%-61.7%						
Italy											10.8–25.6%
Norway					79.00%	74.00%	68.00%	69.00%	70.00%	64.00%	68.40%
Slovenia					21.00%	22.50%					
Sweden											83%
United Kingdom	41.00%	35.00%	35.00%	36.00%	39.00%	42.00%	41.00%	42.00%	41.00%	39.00%	40.00%

6 Discussion and conclusion

Viral hepatitis has a significant impact on national healthcare systems. Without monitoring hepatitis B and C it would be impossible to contribute to the various prevention and control programmes, or gain an understanding of the magnitude of the problem. This report presents a broad overview of national surveillance systems and prevention programmes for hepatitis B and C in EU/EEA Member States.

All countries have national surveillance systems for HBV and HCV in place, with very similar objectives but the attributes of the surveillance systems are very heterogeneous. Differences exist with respect to case definitions; the inclusion of possible, probable and confirmed cases; the inclusion of acute, chronic and asymptomatic cases; and on the question whether a distinction can be made between these types. Ideally, a case definition for hepatitis should include a clinical description, laboratory criteria, and a case classification – possible, probable and confirmed. This issues need to be addressed when developing an enhanced surveillance protocol.

Most countries collected a basic set of data (patient ID, date of birth, gender, place of residence, date of reporting, immunisation status), but detailed data on risk factors or the source of infection are missing. This type of information is crucial for informing and guiding prevention policies, and should be added soon.

Data on the impact of the disease (hospitalisation data, length of hospitalisation, and ICD) are crucial for burden of disease and healthcare studies and should be discussed as well. The interpretation of incidence and prevalence data for hepatitis B and C is hampered by the many differences between the current surveillance systems, which use different case definitions, survey different population segments, obtain data from different sources, and leave an unknown percentage of infections unreported. An inter-country comparison of these data is difficult and should be conducted with caution and preferably only on data on trends.

Enhanced surveillance of hepatitis B and C at the EU level should provide added value by collecting more reliable and comparable data across countries, in order to accurately compare trends in hepatitis B and C and monitor risk groups across countries. A major challenge is the case-based surveillance of hepatitis C. It is currently not possible to differentiate between acute and chronic cases, which will hamper the correct interpretation of future surveillance data.

Hepatitis B vaccination programmes are conducted in all countries. 22 countries have included HBV vaccination in their routine vaccination programmes, and a further seven countries have implemented selective vaccination programmes targeted at risk groups. Vaccination coverage could be improved in some countries, ranging from 30% to 100% in infants. To evaluate vaccination strategies, studies on surveillance, sero-epidemiology and coverage need to be harmonised and thus become comparable. In general, prevention strategies at the European level would benefit from further harmonisation.

We conclude that harmonisation of EU surveillance represents an added value as it makes it possible to assess the disease burden, evaluate prevention and control strategies, and define epidemiological trends or transmission patterns. The results of this survey will be used to strengthen the enhanced surveillance of hepatitis B and C at the EU level.

Annex 1. Tables

Table A1. Overview of participating EU/EEA countries in the HBV and HCV surveillance and prevention survey

		HBV	HCV
Austria	AT	✓	✓
Belgium	BE	✓	✓
Bulgaria	BG	✓	✓
Cyprus	CY	✓	✓
Czech Republic	CZ		✓
Denmark	DK	✓	✓
Estonia	EE	✓	✓
Finland	FI	✓	✓
France	FR	✓	✓
Germany	DE	✓	✓
Greece	GR	✓	✓
Hungary	HU	✓	✓
Iceland	IS	✓	✓
Ireland	IE	✓	✓
Italy	IT	✓	✓
Latvia	LV	✓	✓
Liechtenstein	LI	✓	
Lithuania	LT	✓	✓
Luxembourg	LU	✓	✓
Malta	MT	✓	✓
Netherlands	NL	✓	✓
Norway	NO	✓	✓
Poland	PL	✓	✓
Portugal	PT	✓	✓
Romania	RO	✓	✓
Slovakia	SK	✓	✓
Slovenia	SI	✓	✓
Spain	ES	✓	✓
Sweden	SE	✓	✓
United Kingdom	UK	✓	✓

Table A2. Summary of existing surveillance systems in the 29 EU/EEA countries

	HBV					HCV				
	In national surveillance system	Man-da-tory	Passive or other	Surveillance system		In national surveillance system	Man-da-tory	Passive or other	Surveillance system	
Austria	Yes	Yes	Active: Every physician has to report suspected and confirmed cases and deaths. Laboratories are included in the mandatory reporting system.	Other	Laboratory-confirmed cases	Yes	Yes	Active: Every physician has to report suspected and confirmed cases and deaths. Laboratories are included in the mandatory reporting system.	Other	Laboratory-confirmed cases
Belgium	Yes	Yes	Passive	Several surveillance systems for HBV, of which no single system is the major one (please describe below)	Mandatory notification Sentinel laboratory	Yes	Yes	Passive	Several surveillance systems for HCV, of which no single system is the major one (please describe below)	Mandatory notification Sentinel laboratory
Bulgaria	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Cyprus	Yes	Yes	Passive	Other	(*)	Yes	Yes	Passive	Other	(*)
Czech Republic	No results available					Yes	Yes	Active: Physicians report to PHC	Own system for HCV	
Denmark	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Estonia	Yes	Yes	Passive	Other	HBV is a notifiable disease. Information is provided by GPs, hospitals, and microbiological laboratories. Surveillance of HBV is a part of the national surveillance system.	Yes	Yes	Passive	Other	HCV is a notifiable disease. Information is provided by GPs, hospitals and micro-biological laboratories. Surveillance of HCV is a part of the national surveillance system.
Finland	Yes	Yes	Passive	Own system for HBV	Part of the general surveillance system for infectious diseases; part of the screening programme for expecting mothers	Yes	Yes	Passive	Several surveillance systems for HCV, one of which is the major and most comprehen sive one.	The main system is the National Infection Register, which is the mandatory system for notifiable diseases. The secondary system is a sampling-based, anonymous prevalence estimation system for injecting drug users which functions as a sentinel surveillance system. This is carried out every one to two years

	HBV					HCV				
	In national surveillance system	Mandatory	Passive or other	Surveillance system		In national surveillance system	Mandatory	Passive or other	Surveillance system	
France	Yes	Yes	Passive	Several surveillance systems for HBV, one of which is the major and most comprehensive one	Mandatory reporting of acute hepatitis B Chronic cases: seroprevalence surveys, lab and reference sentinel systems, blood donor surveillance	Yes	Voluntary	Active: Depends on surveys	Several surveillance systems for HCV, of which no single system is the major one (please describe below)	Lab activity for HCV screening HCV prevalence surveys (drug users, HIV+, MSM, general population) HCV sero-conversion surveys: blood donors, occupationally acquired infections in HCW, accidental exposures in HC settings Newly referred HCV+ patients in hepatology centres
Germany	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Greece	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Hungary	Yes	Yes	Passive	HBV reporting is included in syndromic surveillance of viral hepatitis		Yes	Yes	Passive	HCV reporting is included in syndromic surveillance of viral hepatitis	
Iceland	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Ireland	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Italy	Yes	Voluntary	Passive	HBV reporting is included in syndromic surveillance of viral hepatitis	(**)	Yes	Voluntary	Passive	HCV reporting is included in syndromic surveillance of viral hepatitis	(**)
Latvia	Yes	Yes	Passive	HBV reporting is included in syndromic surveillance of viral hepatitis		Yes	Yes	Passive	HCV reporting is included in syndromic surveillance of viral hepatitis	
Liechtenstein	Yes	Yes	Active: The laboratories report every positive HBV-test to the Office for Public Health and the office makes further inquiries.	Own system for HBV		No results available				
Lithuania	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Luxembourg	Yes	Yes	Passive	Other	HBV notified via mandatory notification system	Yes	Yes	Passive	Other	HBC notified via mandatory notification system

	HBV					HCV				
	In national surveillance system	Mandatory	Passive or other	Surveillance system		In national surveillance system	Mandatory	Passive or other	Surveillance system	
Malta	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Netherlands	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Norway	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Poland	Yes	Yes	Passive	Own system for HBV	System is integral part of the national communicable disease surveillance system	Yes	Yes	Passive	Own system for HCV	System is integral part of the national communicable disease surveillance system
Portugal	Yes	Yes	Passive	Other	Included in the national mandatory surveillance system for communicable diseases	Yes	Yes	Passive	Other	One mandatory surveillance system for several communicable diseases, including acute hepatitis C. Hepatitis C reporting system is called PT-HCV
Romania	Yes	Yes	Passive	HBV reporting is included in syndromic surveillance of viral hepatitis		Yes	Yes	Passive	HCV reporting is included in syndromic surveillance of viral hepatitis	
Slovakia	Yes	Yes	Active: Slovak epidemiologists investigate each reported suspect case or each laboratory positive result directly with patient and her or his direct contacts	HBV reporting is included in syndromic surveillance of viral hepatitis		Yes	Yes	Active: Any suspect case of viral hepatitis is investigated by epidemiologists	HCV reporting is included in syndromic surveillance of viral hepatitis	
Slovenia	Yes	Yes	Passive	Own system for HBV		Yes	Yes	Passive	Own system for HCV	
Spain	Yes	Yes	Passive	Several surveillance systems for HBV, one of which is the major and most comprehensive one		Yes	Yes	Passive	Several surveillance systems for HCV, one of which is the major and most comprehensive one	HCV is included in the syndromic surveillance of viral hepatitis. In addition, data on HCV are collected through a voluntary reporting system based on reports sent by the microbiology laboratories in hospitals (see supplementary information at the end of the questionnaire)
Sweden	Yes	Yes	Passive	Own system for HBV	SmiNet	Yes	Yes	Passive	Own system for HCV	SmiNet

	HBV					HCV				
	In national surveillance system	Mandatory	Passive or other	Surveillance system		In national surveillance system	Mandatory	Passive or other	Surveillance system	
United Kingdom	Yes	Voluntary	Active: Includes information from multiple sources (primarily the laboratory carrying out the testing) to detect changing patterns in hepatitis B. Blood specimens are tested to determine acute hepatitis B infection.	Several surveillance systems for HBV, one of which is the major and most comprehensive one.		Yes	Voluntary	Active: Includes information from multiple sources, including the microbiology laboratory, to detect changing patterns of hepatitis C infection. Blood specimens are tested to determine hepatitis C exposure.	Several surveillance systems for HCV, one of which is the major and most comprehensive one.	

(*) Cyprus: 57 communicable diseases are mandatorily notified to the Director of Medical and Public Health Services (MPHS) by all practising medical doctors (See Quarantine Law and its amendments.) Reporting is done by completion of a specific form which is submitted to the District Medical Officer who forwards it to the Unit for Surveillance and Control of Communicable Diseases (MPHS Central Offices). For a number of diseases (i.e. plague, yellow fever, cholera, meningococcal meningitis) notification is within 24 hours and simultaneously to the District Medical Officer and the Director of Medical and Public Health Services. Data are entered in a database (EPI-INFO) and analysed.

(**) Italy: The national surveillance system for acute viral hepatitis infection (SEIEVA, Sistema Epidemiologico Integrato dell'Epatite Virale Acuta), coordinated by the National Centre for Epidemiology, Surveillance and Health Promotion of the Istituto Superiore di Sanità, has as the main goal to promote the monitoring and control of acute viral hepatitis infection at the local and national levels. Epidemiological data are combined with laboratory data to estimate the impact of various risk factors, allowing prevention programmes to be defined and evaluated. Specific goals of the surveillance are:

- *to determine the number of cases of acute viral hepatitis infection, by specific type of infection;*
- *to calculate the incidence of acute viral hepatitis infection, by type of infection, date and place of disease onset, age, and gender;*
- *to identify outbreaks in a timely manner;*
- *to calculate the proportion of cases exposed to specific risk factors, by type of infection;*
- *to study variations over time in the relative and attributable risks associated with specific types of exposure, by type of infection; and*
- *to develop control strategies based on the identification of risk factors at the local level.*

The general method of SEIEVA is:

- *to interview infected persons using an individual questionnaire (SEIEVA form) which includes information on socio-demographic and risk factors; questionnaire is administered before results of serological tests are obtained;*
- *to provide information on the results of serological tests;*
- *to contact the transfusion centre and record information obtained on a specific form if the infected person reports that he/she had received a blood transfusion in the six months prior to disease onset;*
- *to conduct, when applicable (mainly when outbreaks are identified), case control and cohort studies.*

Table A3a. Details on case definitions used by the 29 EU/EEA countries in their HBV surveillance systems

Country	Classification	Content	Hepatitis B case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels.	IgM antibody to hepatitis B core antigen (anti-HBc) positive Detection of HBV nucleic acid in serum	Possible: n/a	Probable: A case that is HBsAg+ and has a clinical picture compatible with acute hepatitis	Confirmed: A case that is laboratory confirmed
	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	Possible case: n/a	Probable case: Any person meeting the clinical criteria and having an epidemiological link	Confirmed case: Any person meeting the clinical and the laboratory criteria
Austria	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	no definition available	Any person meeting the clinical criteria and having an epidemiological link	Any person meeting the clinical and the laboratory criteria
Belgium	No official case definition			IgM+ and/or HBe antigen			
Bulgaria	Extended EU case definition	Acute hepatitis B	Cases with clinical symptoms compatible with hepatitis, e.g. gradual development of the symptoms and jaundice or elevated serum aminotransferase levels	Detection of IgM antibodies against Hepatitis B virus core antigen (anti-HBc IgM +) Demonstration of HBV nucleic acid in the serum	n/a	A case that is HBsAg+ and has a clinical picture compatible with an acute hepatitis	Confirmed lab test
		Chronic hepatitis B	A case with a clinical presentation compatible with chronic hepatitis and laboratory findings	Presence of hepatitis B virus surface antigen (HBsAg) over a period of more than 6 months. Demonstration of HBV nucleic acid in the serum over a period of more than 6 months	n/a	A case clinically compatible with chronic hepatitis	A case clinically compatible with chronic hepatitis that is laboratory confirmed
Cyprus	Possibly an EU case definition	Acute hepatitis B			n/a	n/a	HBsAg+ and compatible clinical presentation
Denmark	Possibly an EU case definition	Acute hepatitis B	clinical symptoms	HBsAg+ or only specific lab test	n/a	n/a	According to clinical signs and laboratory confirmation
		Chronic hepatitis B		Confirmed laboratory signs for more than 6 months	n/a	n/a	Confirmed lab test
Estonia	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	Yes, but no definition available	Any person meeting the clinical criteria and having an epidemiological link	Any person meeting the clinical and the laboratory criteria
Finland	Other	Acute hepatitis B		Acute hepatitis B case. EITHER 1. laboratory-reported HBV core-antigen IgM antibody positive case; OR 2. physician-reported case with clinical symptoms compatible with acute hepatitis or fresh HBV infection AND (simultaneously) laboratory-verified HBV surface antigen positivity OR simultaneously laboratory-verified HBV DNA/RNA +	n/a	n/a	n/a

Country	Classification	Content	Hepatitis B case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
		Chronic hepatitis B		All reported HBsAg+ cases not meeting the acute hepatitis case definition	n/a	n/a	n/a
France	Extended EU case definition	Acute hepatitis B	Acute symptomatic (Missing definition)	IgM + OR (if IgM unknown) anti-HBc+ and HbsAg+ in clinical context	n/a	n/a	
		Chronic hepatitis B		HBsAg carriage >6 months	n/a	n/a	n/a
Germany	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels.	Laboratory case definition: At least one of the following three criteria: detection of hepatitis B virus nucleic acid in serum (e.g. PCR), HBsAg+ (e.g. ELISA) confirmed by a different HBsAg test (e.g. HBsAG-NT) OR HBsAg+ and anti-HBc+, IgM anti-HBc+ (e.g. ELISA). Confirmed: laboratory criteria and clinical criteria are fulfilled.	n/a	n/a	Confirmed lab test
Greece	Extended EU case definition	Acute hepatitis B	An acute illness with discrete onset of symptoms (e.g. jaundice) or elevated serum aminotransferase level	IgM anti-HBc+ or HBV DNA+	n/a	Meets clinical criteria and HBsAg+	Meets clinical criteria and is laboratory confirmed
		Asymptomatic hepatitis B		HbsAg+, asymptomatic infants <12 m/o: should be notified, other asymptomatic case, anti-HBc IgM+ or HbsAg+: should not be notified			
Hungary	Possibly an EU case definition	Acute hepatitis B		Lab confirmation: hepatitis B core antigen (IgM anti-HBc+) or HBV DNA in the blood	n/a	HBsAg-positive patient with clinical symptoms	Lab confirmed
Iceland	Other	Acute hepatitis B	n/a		n/a	n/a	All newly lab-confirmed HBV cases are reportable, both acute and chronic cases, regardless of symptoms
		Chronic hepatitis B	n/a	Laboratory-confirmed cases with serological tests and medical history compatible with previous HBV infection	n/a	n/a	No data
Ireland	Extended EU case definition	Acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels.	IgM antibody to hepatitis B core antigen (IgM anti-HBc+) Detection of HBV nucleic acid in serum	n/a	Probable: A case that is HBsAg+ and has a clinical picture compatible with an acute hepatitis	Confirmed: A case that is laboratory confirmed
		Chronic hepatitis B		HBsAg+ and antibodies to hepatitis B, anti-HBc+ and IgM to Hbc, persistence of more than 6 months of either HBsAg or HBV nucleic acid in serum	n/a	n/a	Confirmed: A case that is laboratory confirmed
Italy	Possibly an EU case definition	Acute hepatitis B		IgM anti-HBc+ and HBsAg+.	n/a	n/a	Lab confirmed
Latvia	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	n/a	Any person meeting the clinical criteria and having an epidemiological link	Any person meeting the clinical and the laboratory criteria
Liechtenstein	No case definition						
Lithuania	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: Fever, Jaundice, Elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	n/a	Any person meeting the clinical criteria and having an epidemiological link	Any person meeting the clinical and the laboratory criteria
Luxembourg	No case definition						

Country	Classification	Content	Hepatitis B case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
Malta	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	IgM anti-HBc+ Detection of HBV nucleic acid in serum.	n/a	A case that is HBsAg+ and has a clinical picture compatible with an acute hepatitis	A case that is laboratory confirmed
Netherlands	Extended EU case definition	Acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Heaptitis B virus core IgM or HBsAg+	n/a	n/a	Any person meeting the clinical and the laboratory criteria
		Chronic hepatitis B		HBsAg+	n/a	n/a	Confirmed lab test
Norway	Other	Acute hepatitis B	Person with clinical acute hepatitis (not specified)	Any person with clinical acute hepatitis and presence of HbsAg and presence of at least one of the following laboratory criteria: HbeAg, HBV-RNA, anti-Hbc (IgG or IgM) OR any person with confirmed anti-Hbc seroconversion during the last 12 months and the presence of at least one of the following laboratory criteria: HbsAg, HBV-RNA, anti-HbsAb (with no history of previous vaccination)	n/a	n/a	Confirmed lab test
		Chronic hepatitis B	n/a	Detection of HBsAg and HBcAb over more than 6 months and no clinical picture of acute hepatitis	n/a	n/a	Confirmed lab test
Poland	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	IgM antibody to hepatitis B core antigen (IgM anti-HBc+) Detection of HBV nucleic acid in serum	n/a	A case that is HBsAg+ and has a clinical picture compatible with an acute hepatitis	Confirmed lab test
Portugal	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	Yes, but no definition available	Person with disease compatible with the case definition for clinical HBV, epidemiologically related to a confirmed case 30 to 180 days before onset of symptoms	Any person meeting the clinical and the laboratory criteria
Romania	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	IgM antibody to hepatitis B core antigen (IgM anti-HBc+) Detection of HBV nucleic acid in serum	n/a	A case that is HBsAg+ and has a clinical picture compatible with an acute hepatitis	Confirmed lab test
Slovakia	Possibly an EU case definition	Acute hepatitis B	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	Laboratory confirmed (not specified)	n/a	Not specified	Any person meeting the clinical and the laboratory criteria
Slovenia	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	n/a	Any person meeting the clinical criteria and having an epidemiological link	Any person meeting the clinical and the laboratory criteria
Spain	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting communicable diseases to the Community network – acute hepatitis B	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever, jaundice, elevated serum aminotransferase levels	Hepatitis B virus core IgM antigen-specific antibody response	n/a	Any person meeting the clinical criteria and having an epidemiological link	Any person meeting the clinical and the laboratory criteria

Country	Classification	Content	Hepatitis B case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
Sweden	Other	Acute hepatitis B	No data	HBsAg+ OR HBV-DNA+ AND anti-HBc IgM+ OR HBV-DNA+ with or without detectable HBsAg AND not detectable anti-HBc	n/a	Any case meeting the clinical criteria and having an epidemiological link	Any case meeting the clinical and the laboratory criteria
		Chronic hepatitis B	n/a	HBV chronic infection: HBsAg+ AND anti-HBcIgG+ AND not detectable or low levels of HBV anti-core IgM (anti-HBc IgM)	n/a	n/a	Confirmed lab test
United Kingdom	Other	Acute hepatitis B	Not specified	HBsAg+ and anti-HBc IgM+ AND abnormal liver function tests showing a pattern consistent with acute viral hepatitis.	n/a	n/a	Confirmed lab test
		Chronic hepatitis B		Chronic HBV case definition Hepatitis B surface antigen (HBsAg+) twice, at least 6 months apart OR HBsAg+ and anti-HBc IgM2, negative and anti-HBc+.	n/a	n/a	Confirmed lab test

Table A3b. Details on case definitions used by the 29 EU/EEA countries in their HCV surveillance systems

Country	Classification	Content	Hepatitis C case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting to the Community – hepatitis C	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	• Detection of HCV-specific antibodies • Detection of HCV nucleic acid from clinical samples	Possible: n/a	Probable: n/a	Confirmed: A symptomatic case that is laboratory confirmed
	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	At least one of the following two: Detection of hepatitis C virus nucleic acid in serum OR hepatitis-C-virus-specific antibody response confirmed by a different antibody test	Possible case: n/a	Probable case: n/a	Confirmed case: Any person meeting the laboratory criteria
Austria	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	At least one of the following two: Detection of hepatitis C virus nucleic acid in serum OR hepatitis-C-virus-specific antibody response confirmed by a different antibody test	Possible case: n/a	Probable case: n/a	Confirmed case: Any person meeting the laboratory criteria
Belgium	No case definition			PCR +			PCR positive patient
Bulgaria	Extended EU case definition	Acute hepatitis C	Cases with clinical symptoms compatible with hepatitis, e.g. gradual development of the symptoms and jaundice or elevated serum aminotransferase levels	Demonstration of HCV-specific antibodies and HCV nucleic acid in clinical specimens	n/a	n/a	A clinical case that is laboratory confirmed
		Chronic hepatitis C	A case with a clinical presentation compatible with chronic hepatitis and laboratory findings	Demonstration of HCV-specific antibodies for a long period (years) and nucleic acid in clinical specimens for a long period (years)	n/a	n/a	A case clinically compatible with chronic hepatitis that is laboratory confirmed
Cyprus	Possibly an EU case definition	Hepatitis C (acute and chronic)	Compatible clinical picture (not specified)	Not specified	n/a	n/a	According to clinical signs and laboratory confirmation
Czech Republic	Other	Hepatitis C (acute and chronic)	Compatible clinical picture (not specified)	Anti-HCV Ab positive	n/a	n/a	According to clinical signs and laboratory confirmation
Denmark	Possibly an EU case definition	Acute hepatitis C	Clinical signs (not specified)	Specific lab test for microbiological agent	n/a	n/a	According to clinical signs and laboratory confirmation
		Chronic hepatitis C	n/a	Confirmed laboratory signs for over 6 months	n/a	n/a	Confirmed lab test
Estonia	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting to the Community – hepatitis C	Viral hepatitis: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	Detection of HCV-specific antibodies Detection of HCV nucleic acid from clinical samples	n/a	n/a	Any person meeting the laboratory criteria
Finland	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	n/a	Anti HCV + OR HCV RNA +	n/a	n/a	Any person meeting the laboratory criteria
France	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	n/a	Anti HCV + OR HCV RNA + OR HCV seroconversion	n/a	n/a	Any person meeting the laboratory criteria
Germany	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	HCV RNA (e.g. PCR); anti-HCV + (e.g. ELISA), confirmed by a different antibody test (e.g. immunoblot).	n/a	n/a	Confirmed cases: newly laboratory-confirmed hepatitis C, regardless whether acute or chronic

Country	Classification	Content	Hepatitis C case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
Greece	Extended EU	Hepatitis C (acute)	An acute illness with discrete onset of symptoms (e.g. jaundice) or elevated serum aminotransferase level	Anti-HCV + AND IgM anti-HAV – AND anti-HBC IgM – OR HCV RNA +	n/a	n/a	According to clinical signs and laboratory confirmation
Hungary	Possibly an EU case definition	Acute hepatitis C	Clinical signs (not specified)	Anti-HCV + OR HCV RNA +	n/a	n/a	According to clinical signs and laboratory confirmation
Iceland	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	HCV RNA + (in serum) OR Anti-HCV + (confirmed by a different antibody test	n/a	n/a	Any person meeting the laboratory criteria
Ireland	Extended EU	Hepatitis C (acute and chronic)	In symptomatic cases, clinical picture compatible with hepatitis, i.e. discrete onset of symptoms and/or jaundice or elevated serum aminotransferase levels. Asymptomatic cases are common.	Anti-HCV + OR HCV RNA +	n/a	n/a	Any person meeting the laboratory criteria
Italy	Possibly an EU case definition	Acute hepatitis C	Not relevant for surveillance purposes	Lab confirmation (not specified)	n/a	n/a	Any person meeting the laboratory criteria
Latvia	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	HCV RNA + (e.g. PCR); anti-HCV + (e.g. ELISA), confirmed by a different antibody test	n/a	n/a	Any person meeting the laboratory criteria
Liechtenstein	No information						
Lithuania	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	HCV RNA + (e.g. PCR); anti-HCV + (e.g. ELISA), confirmed by a different antibody test	n/a	n/a	Any person meeting the laboratory criteria
Luxembourg	No case definition				n/a	n/a	C
Malta	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting to the Community – hepatitis C	In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	Anti-HCV + OR HCV RNA +	n/a	n/a	Symptomatic case that is laboratory confirmed.
Netherlands	Other	Hepatitis C (Acute)	Having symptoms (like icterus or increased liver function disorder) or exposure to relevant risks if present in recent period, including medical treatment	Appearance of antibodies against HCV or increase in laboratory reactivity	n/a	n/a	Every new diagnosis of HCV must be notified, suspecting a recent infection (previous year)
Norway	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	HCV RNA + (e.g. PCR); anti-HCV + (e.g. ELISA), confirmed by a different antibody test	n/a	n/a	Any person meeting the laboratory criteria
Poland	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	HCV RNA + (e.g. PCR); anti-HCV + (e.g. ELISA), confirmed by a different antibody test	n/a	n/a	Any person meeting the laboratory criteria
Portugal	Extended EU	Hepatitis C (acute)	Acute disease with insidious initial symptoms (fever, malaise, anorexia, nausea, asthenia) and elevation of serum transaminases, with or without icterus	Lab confirmation (not specified)		Case with clinical symptoms and epidemiologically linked to confirmed cases during the incubation period	Symptomatic cases with laboratory confirmation
Romania	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting to the Community – hepatitis C	In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase levels	Anti-HCV + OR HCV RNA +	n/a	n/a	Symptomatic case that is laboratory confirmed.
Slovakia	Possibly an EU case definition	Hepatitis C (acute and chronic)	Not specified	Not specified	n/a	n/a	Symptomatic case that is laboratory confirmed
Slovenia	2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC	Case definitions for reporting to the Community – hepatitis C	Not relevant for surveillance purposes	HCV RNA + (e.g. PCR); anti-HCV + (e.g. ELISA), confirmed by a different antibody test	n/a	n/a	Any person meeting the laboratory criteria

Country	Classification	Content	Hepatitis C case definition				
			Clinical description	Laboratory criteria for diagnosis	Case classification		
					Possible	Probable	Confirmed
Spain	2002/253/EC: Commission Decision of 19 March 2002	Case definitions for reporting to the Community – hepatitis C	An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g. anorexia, abdominal discomfort, nausea, vomiting and jaundice) and increase in transaminase (ALT, AST)	Anti-HCV + OR HCV RNA +	n/a	Not specified	Symptomatic case that is laboratory confirmed
Sweden	Other	Case definitions for reporting to the Community – hepatitis C (Acute)	Not relevant for surveillance purposes	HCV acute infection: seroconversion to anti-HCV within 6 months between samples	n/a	n/a	Any person with recent seroconversion
		Case definitions for reporting to the Community – hepatitis C (Chronic)	Not relevant for surveillance purposes	HCV RNA + anti-HCV +	n/a	n/a	Any person meeting the laboratory criteria
United Kingdom	Other	Hepatitis C (acute)	Not relevant for surveillance purposes	Recent seroconversion OR HCV RNA +or antigen + and anti-HCV - or equivocal in immune-competent individual OR anti-HCV + and anti-HAV IgM – AND anti-HBc IgM – AND abnormal liver function tests with a pattern consistent with acute viral hepatitis in someone with recent exposure to HCV, e.g. needle-stick injury, dialysis, recent injecting drug use.	n/a	n/a	Any person meeting the laboratory criteria
		Hepatitis C (chronic)	Not relevant for surveillance purposes	Anti-HCV+ or HCV RNA + AND not meeting case definition for acute HCV	n/a	n/a	Any person meeting the laboratory criteria

Table A4. Characteristics of HBV/HCV surveillance systems: data sources, type and format of database, and frequency of analysis

		Source of data					Format		Type		Frequency						
Country	Disease	Physicians	Laboratory	Hospital	Other	Comments	Electronic	Paper	Case based	Aggregated	Daily	Weekly	Biweekly	Monthly	Biannually	Yearly	Other
Austria	HBV	✓	✓				✓		✓					✓		✓	If necessary a daily analysis is possible.
	HCV	✓	✓				✓		✓					✓		✓	If necessary, a daily analysis is possible.
Belgium	HBV	✓	✓				✓	✓	✓		✓					✓	
	HCV	✓	✓				✓	✓	✓		✓					✓	
Bulgaria	HBV	✓	✓	✓				✓		✓				✓		✓	Immediately in case of outbreak
	HCV	✓	✓	✓				✓		✓				✓		✓	Immediately in case of outbreak
Cyprus	HBV	✓					✓		✓					✓			Opportunistic
	HCV	✓					✓		✓					✓			Opportunistic
Czech Republic	HBV	No Information provided							✓								
	HCV	✓					✓		✓							✓	
Denmark	HBV	✓		✓			✓	✓	✓	✓						✓	Ad hoc
	HCV	✓		✓			✓	✓	✓	✓						✓	Ad hoc
Estonia	HBV	✓	✓	✓			✓		✓			✓		✓		✓	
	HCV	✓	✓	✓			✓		✓			✓		✓		✓	
Finland	HBV	✓	✓		✓	*	✓		✓		✓					✓	**
	HCV	✓	✓		✓	Blood bank screening	✓		✓		✓					✓	Idem
France	HBV	✓	✓			Source of data and format are related to the comprehensive system on acute HBV infection		✓	✓							✓	
	HCV	✓	✓	✓	✓	National health insurance database	✓	✓	✓	✓						✓	3 to 10 years, depending on surveys
Germany	HBV	✓	✓	✓	✓	Physicians and laboratory	✓		✓			✓					
	HCV	✓	✓	✓	✓	Physicians and laboratory	✓		✓			✓					
Greece	HBV	✓	✓	✓			✓		✓			✓					
	HCV	✓	✓	✓			✓		✓			✓					
Hungary	HBV	✓	✓	✓			✓	✓	✓			✓				✓	
	HCV	✓	✓	✓			✓	✓	✓			✓				✓	
Iceland	HBV	✓	✓	✓			✓		✓						✓		
	HCV	✓	✓	✓			✓		✓						✓		
Ireland	HBV	✓	✓	✓			✓		✓			✓				✓	Quarterly
	HCV	✓	✓	✓			✓		✓			✓				✓	Quarterly
Italy	HBV	✓		✓			✓	✓	✓							✓	
	HCV	✓		✓			✓	✓	✓							✓	
Latvia	HBV	✓		✓	✓		✓	✓	✓	✓				Y		✓	As often as necessary
	HCV	✓		✓	✓	Laboratories – detection of hepatitis C virus nucleic acid in serum	✓	✓	✓	✓				✓		✓	As often as necessary
Liechten-stein	HBV	✓	✓	✓				✓	✓			✓				✓	
	HCV	No information provided	✓	✓													
Lithuania	HBV	✓	✓	✓			✓	✓	✓	✓						Y	
	HCV	✓	✓	✓			✓	✓	✓	✓						Y	
Luxem-bourg	HBV	✓		✓			✓		✓					✓			
	HCV	✓		✓			✓	✓	✓					✓			
Malta	HBV	✓	✓	✓			✓	✓	✓							✓	
	HCV	✓	✓	✓			✓	✓	✓							✓	
Nether-lands	HBV	✓	✓				✓		✓			✓				✓	

		Source of data					Format		Type		Frequency						
Country	Disease	Physicians	Laboratory	Hospital	Other	Comments	Electronic	Paper	Case based	Aggregated	Daily	Weekly	Biweekly	Monthly	Biannually	Yearly	Other
	HCV	✓	✓				✓		✓			✓				✓	
Norway	HBV	✓	✓	✓				✓	✓		✓						
	HCV	✓	✓	✓				✓	✓		✓						
Poland	HBV	✓	✓					✓		✓			✓			✓	
	HCV	✓						✓		✓			✓			✓	
Portugal	HBV	✓					✓		✓		✓	✓		✓		✓	
	HCV	✓					✓	✓	✓					✓	✓	✓	Quarterly
Romania	HBV	✓		✓		Case-based reporting since 2009		✓		✓				✓			
	HCV	✓		✓		Case-based reporting since 2009		✓		✓				✓			
Slovakia	HBV	✓	✓	✓			✓		✓	✓				✓	✓	✓	Determined by professional needs, regardless of time
	HCV	✓	✓	✓			✓		✓	✓				✓	✓	✓	Determined by needs
Slovenia	HBV	✓	✓	✓			✓		✓	✓				✓			More frequently in case of clusters or outbreaks
	HCV	✓	✓	✓			✓		✓	✓				✓			More frequently in case of clusters or outbreaks
Spain	HBV	✓					✓		✓							✓	
	HCV	✓	✓				✓		✓							✓	
Sweden	HBV	✓	✓				✓		✓		✓						
	HCV	✓	✓				✓		✓		✓						
United Kingdom	HBV	✓	✓	✓			✓		✓								Quarterly
	HCV	✓	✓	✓			✓		✓								Quarterly

* There are separate parallel systems for blood bank and maternity screening, although these are covered by the physician and laboratory reporting, too. National personal identifier use allows for elimination of duplicate reports

** Annually produced comprehensive reports. Large healthcare facilities have access to regional data with identifiers, the National Public Health Institute (register maintenance) has access to all data with full identifiers.

Table A5a. Information collected in HBV surveillance systems in the 29 EU/EEA countries

		AT	BE	BG	CY	DK	EE	FI	FR	DE	GR	HU	IS	IE	IT	LV	LI	LT	LU	MT	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
Basic data	Patient ID	X			X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X
	Date of birth or age	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Gender	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Country of birth	X		X	X	X		X					X	X	X		X		X	X	X	X		X			X		X	
	Place of residence	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Date of onset of the disease	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Date of diagnosis	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X				X			X	X
	Date of reporting/notification	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X		X	X
	Date used for statistics	X	X	X	X	X	X	X		X	X		X			X			X	X	X	X	X			X		X	X	X
	Country where infection most likely acquired	X			X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X				X			X	
	Immunisation status	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
	Outcome	X		X	X		X		X		X	X		X		X	X	X		X		X	X	X	X	X	X	X	
Classification information	Clinical symptoms	X		X		X			X	X	X	X	X		X	X	X			X		X	X	X		X				
	Laboratory results	X	X	X		X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X			X	X
	Epidemiological information	X		X	X	X	X			X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X				X
Transmission route risk factors	Homosexual contact			X		X	X		X	X			X	X	X	X	X	X		X	X					X			X	X
	Heterosexual contact			X		X	X		X	X			X	X	X	X	X	X		X	X					X			X	X
	Injecting drug use			X		X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X	X			X	X
	Mother HBsAg+			X		X	X	X	X	X	X	X	X	X	X	X		X		X		X			X	X			X	X
	Close family member HBsAg+			X		X	X		X	X	X	X	X	X	X	X	X	X		X		X	X		X	X				X
	Sex partner HBsAg+			X		X	X		X	X	X	X	X	X	X	X		X		X		X			X	X				X
	Blood or blood product transfusion			X		X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X		X	X			X	X
	Invasive healthcare procedure/dental treatment			X		X	X		X	X	X	X	X	X	X	X		X		X		X			X	X			X	X
	Organ transplantation			X		X	X		X	X		X	X		X	X		X		X		X			X	X				X
	Haemodialysis			X		X	X		X	X	X	X	X	X	X	X	X	X		X		X			X	X				X
	Needle injury or other occupational exposure			X		X	X		X	X	X	X	X	X	X	X		X		X	X	X				X			X	X
	Tattooing/body piercing			X		X	X		X	X	X	X	X	X	X	X		X		X		X			X	X			X	X
	Other					X		X		X	X		X	X		X		X			X									
Other	Hospitalisation	X		X	X		X		X	X		X		X	X	X	X	X		X	X	X	X	X	X	X				X
	Length of hospitalisation									X	X	X				X				X			X		X	X				
	ICD code diagnosis				X		X	X					X			X		X					X	X		X				
	Genotype information													X																

Table A5b. Information collected in HCV surveillance systems in the 29 EU/EEA countries

		AT	BE	BG	CY	CZ	DK	EE	FI	FR	DE	GR	HU	IS	IE	IT	LV	LT	LU	MT	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
Basic data a	Patient ID	X			X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X			X	X		X	X
	Date of birth or age	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Gender	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Country of birth	X		X	X		X		X	X				X	X	X			X	X	X	X		X					X	
	Place of residence	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Date of onset of the disease	X		X	X		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X		X	
	Date of diagnosis	X		X			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X
	Date of reporting/notification	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
	Date used for statistics	X	X	X	X		X	X	X		X	X		X			X		X	X		X	X			X			X	X
	Country where infection most likely acquired	X			X	X	X	X	X			X	X	X	X		X	X	X	X	X	X				X			X	X
	Immunisation status	X			X			X		X		X				X	X		X	X			X	X						
	Outcome	X		X	X			X				X	X				X	X		X		X		X	X	X		X		
Classification information	Clinical symptoms	X		X			X				X	X	X	X		X	X			X		X	X			X				X
	Laboratory results	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X			X	X
	Epidemiological information	X		X		X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X				X
Transmission route risk factors	Homosexual contact			X			X	X		X	X			X		X	X	X		X	X					X			X	X
	Heterosexual contact			X			X	X			X			X		X	X	X		X	X					X			X	X
	Injecting drug use			X		X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X		X	X			X	X
	Mother HCV +			X			X	X			X	X		X	X	X	X	X		X		X				X			X	X
	Close family member HCV +			X			X	X			X	X	X	X		X	X	X		X		X	X		X	X				X
	Sex partner HCV positive			X			X	X			X	X	X	X	X	X	X	X		X		X			X	X			X	X
	Blood or blood product transfusion			X		X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X		X	X			X	X
	Invasive healthcare procedure/dental treatment			X		X	X	X		X	X	X	X	X	X	X	X	X		X		X	X		X	X			X	X
	Organ transplantation			X		X	X	X			X		X	X	X	X	X	X		X		X			X	X				X
	Haemodialysis			X		X	X	X		X	X	X	X	X	X	X	X	X		X		X			X	X				X
	Needle injury or other occupational exposure			X		X	X	X		X	X	X	X	X	X	X	X	X		X	X	X				X			X	X
	Tattooing/body piercing			X		X	X	X		X	X	X	X	X	X	X	X	X		X		X			X	X			X	X
	Other						X				X	X		X	X			X			X					X				
Other	Hospitalisation	X		X	X	X		X			X		X			X	X	X		X	X	X	X	X	X	X				X
	Length of hospitalisation										X	X	X				X			X			X		X	X				
	ICD code diagnosis				X	X		X	X					X			X	X					X	X		X				
	Genotype information									X					X			X												

Table A6a. Screening programmes for hepatitis B in 29 EU/EEA countries

	AT	BE	BG	CY	DK	EE	FI	FR	DE	GR	HU	IS	IE	IT	LV	LI	LT	LU	MT	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
Pregnant women	X			X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X	X	X	X	X
Military recruits																			X				X		X				
Injecting drug users			X	X	X				X	X	X	X	X						X		X		X	X	X	X		X	
STI clinic patients				X				X	X	X			X						X				X	X	X				
Multiple sex partners									X																				
Prisoners				X		X		X	X				X						X		X		X		X	X		X	
Haemodialysis patients		X	X	X				X	X	X	X	X	X	X	X				X		X	X	X		X	X	X	X	X
Long-term healthcare facilities				X									X																
Healthcare workers		X						X	X				X	X					X					X					
Workers who are occupationally exposed to the virus								X	X		X			X	X		X		X			X	X				X		X
Blood and organ donors	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X		X	X	X	X	X	X	X	X	X	X	X

Comments:

- *Austria: Several scientific projects on HBV-screening, but no national prevention programmes;*
- *France: Anonymous testing centres for HBV and HCV;*
- *Germany: For example, HIV-positives which attended an STI clinic;*
- *Ireland: screening of healthcare workers for hepatitis B applies only to healthcare workers involved in exposure-prone procedures; screening for persons with multiple sex partners would only take place if the person attended an STI clinic;*
- *Latvia: 'Expanding Network for Comprehensive and Coordinated Action on HIV/AIDS Prevention Among IDUs and Bridging Population', ENCAP No. 2005305 'Prevalence of HIV and other infections; risk behaviour among injecting drug users and bridging populations in Latvia, Lithuania, Estonia'. Anti-HBc prevalence among IDUs in Latvia: 55.8% (2007);*
- *Netherlands: behavioural high risk groups for HBV are screened when receiving the first vaccination;*
- *Slovenia. Screening of prisoners. Most screenings are conducted for risk groups. Slovenia does not have a mandatory military service, the Slovenian armed forces are professional soldiers who are vaccinated against many communicable diseases. They are vaccinated against HBV according to risk assessments connected to their working places and the standards of peacekeeping missions;*
- *Sweden. No complete mandatory screening, except for blood and organ donors. Other groups are offered tests, but extent differs in different counties.*

Table A6b. Screening programmes for hepatitis C in 29 EU/EEA countries

	AT	BE	BG	CY	CZ	DK	EE	FI	FR	DE	GR	HU	IS	IE	IT	LV	LT	LU	MT	NL	NO	PL	PT	RO	SK	SI	ES	SE	UK
Pregnant women																			X		X						X		
Military recruits																									X				
Injecting drug users			X	X		X			X	X	X	X	X	X					X		X		X	X	X	X		X	
STI clinic patients				X						X									X					X	X		X		
Multiple sex partners										X																			
Prisoners				X					X	X				X					X		X	X	X		X	X		X	
Haemodialysis patients		X	X	X	X			X	X	X	X		X	X	X	X			X		X	X	X		X		X	X	X
Long-term healthcare facilities																													
Healthcare workers		X							X	X				X	X				X								X		X
Persons occupationally exposed to the virus									X	X		X			X	X	X		X			X							X
Blood and organ donors	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X

Comments:

- *France: Anonymous testing centres for HBV and HCV*
- *Ireland: Since July 2008, all new healthcare workers who are involved in exposure-prone procedures are offered screening for HCV*
- *Latvia: 'Expanding Network for Comprehensive and Coordinated Action on HIV/AIDS Prevention among IDUs and Bridging Population', ENCAP No. 2005305. 'Prevalence of HIV and other infections; risk behaviour among injecting drug users and bridging population in Latvia, Lithuania, Estonia'. Anti-HCV positive prevalence among IDUs in Latvia (2007): 74.2%.*
- *Slovenia: Prisoners are screened if they are injecting drug users or otherwise suspected of being infected.*
- *Sweden: No complete mandatory screening, except for blood and organ donors. Other groups are offered tests, but extent differs in different counties.*

Annex 2. Country overview on HBV and HCV surveillance and prevention

The following tables provide a comprehensive overview of HBV and HCV surveillance and prevention in EU/EEA countries.

Austria

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Every physician has to report suspected and confirmed cases and deaths. Laboratories are included in the Mandatory reporting system.	Every physician has to report suspected and confirmed cases and deaths. Laboratories are included in the Mandatory reporting system.
Surveillance system	Other, see below:	Other, see below:
Comments	Laboratory-confirmed cases	Laboratory-confirmed cases

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	EU case definition 2008		EU case definition 2008	
Chronic	EU case definition 2008		EU case definition 2008	
Other				
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	Since 1 January 2009 it is possible to distinguish between acute and chronic.	Acute	Since 1 January 2009 it is possible to distinguish between acute and chronic.
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	Austria has an electronic reporting system with many relevant variables which can be analysed ad hoc if necessary.	Other:	Austria has an electronic reporting system with many relevant variables which can be analysed ad hoc if necessary.
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification	Clinical symptoms		Classification	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Trans-mission route risk factors	Homosexual contact		Trans-mission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer		Liver transplant	Liver cancer	
	Hospital register	Mortality		Hospital register	Mortality	
	Other:	It is currently not allowed to link personal data across different registers, e.g. through social security number, unless there are scientific reasons. There are plans for cross-linking data through ELGA, the Electronic Patient Report.		Other:	Note: It is currently not allowed to link personal data across different registers, unless there are scientific reasons. See note in HBV.	
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	If necessary, daily analysis is possible		Other:	If necessary, daily analysis is possible	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	Network of hepatologists (hospital and patient data)					

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg + mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners Injecting drug users Household contacts of HBsAg+ patients Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme	Infants up to 6 years: three doses Adolescents from 7 to 18 years: three doses		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		
	Immunisation coverage (infants): under 1 year: 30%; 1 year: 83%; 2 years: 80% Immunisation coverage (adolescents): under 11 years: 31%; 11 years: 24%; 12 years: 24%; 13 years: 33%; 14 years: 43%		

Belgium

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Several surveillance systems for HBV, none of which can be characterised as the major one, please describe below	Several surveillance systems for HCV, none of which can be characterised as the major one, please describe below
Surveillance system	Other, see below:	Other, see below:
Comments	Mandatory notification; sentinel laboratory	Mandatory notification; sentinel laboratory

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	IgM+ and/or HBe antigen		PCR+	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	Yes		yes	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification	Clinical symptoms		Classifi-cation	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Trans-mission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer		Liver transplant	Liver cancer	
	Hospital register	Mortality		Hospital register	Mortality	
	Other:	Data linking could be done in theory, but never actually carried out		Other:	Data linking possible, but was never actually carried out	
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	If necessary, daily analysis is possible		Other:	If necessary, daily analysis is possible	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	Sero-prevalence study in 1993, 2003. May be repeated in 2011			Sero-prevalence study in 1993, 2003. May be repeated in 2011		

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Haemophiliac patients, thalassaemia, organ transplant, patients who will receive massive transfusion, mentally disabled people, travellers to HBV endemic area	
Catch-up programme	Infants up to 6 years: three doses Adolescents from 7 to 18 years: three doses		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		
	98%		

Bulgaria

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Clinical description: • Cases with clinical symptoms compatible with hepatitis, e.g. gradual development of the symptoms and jaundice or elevated serum aminotransferase levels Laboratory criteria for diagnosis: • Detection of IgM antibodies against Hepatitis B virus core antigen (anti-HBc IgM positive) • Demonstration of HBV nucleic acid in the serum Case classification: • Possible: n/a • Probable: A case that is HBsAg+ and a clinical picture compatible with acute hepatitis. • Confirmed: A case that is laboratory confirmed.		Clinical description: • Cases with clinical symptoms compatible with hepatitis, e.g. gradual development of the symptoms and jaundice or elevated serum aminotransferase levels Laboratory criteria for diagnosis: • Demonstration of HCV specific antibodies • Demonstration of HCV nucleic acid in clinical specimens Case classification: • Possible: n/a • Probable: n/a • Confirmed: A clinical case that is laboratory-confirmed.	
Chronic	Clinical description: • A case with a clinical presentation compatible with chronic hepatitis and laboratory findings • Hepatitis B, chronic Laboratory criteria for diagnosis: • Presence of hepatitis B virus surface antigen (HBsAg) over a period longer than six months • Demonstration of HBV nucleic acid in the serum over a period longer than six months Case classification: • Possible: N/A • Probable: A case clinically compatible with chronic hepatitis • Confirmed: A case clinically compatible with chronic hepatitis that is laboratory confirmed		Clinical description: • A case with a clinical presentation compatible with chronic hepatitis and laboratory findings Laboratory criteria for diagnosis: • Demonstration of HCV-specific antibodies over a long period (years) • Demonstration of nucleic acid in clinical specimens over a long period (years) Case classification: • Possible: N/A • Probable: N/A • Confirmed: A case clinically compatible with chronic hepatitis that is laboratory-confirmed	
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Information is available only at regional level, not at central level. Laboratory results: anti-HBc IgM ; anti-HBc IgG ; anti-HBe ; HBe Ag ; anti-HBs; HBsAg			Information is available only at regional level and is not reported at central level. Laboratory results: anti-HCV; HCV RNA in some cases		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Immediately in case of outbreak		Other:	Immediately in case of outbreak	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	■ Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		■ Chronic liver disease patients	
		■ STI clinic patients	
		■ Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		■ Other risk groups**	
	Other:	■ HIV infected, persons travelling to countries with high HBV incidence	
Catch-up programme	–		
Vaccination coverage	■ Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		
	■ Universal newborn immunisation: 2001: 93,33; 2002: 88.28; 2003: 95.85; 2004: 93.8; 2005: 96.0; 2006: 95.9; 2007: 95.4; 2008: 95.7; 2009: 95.6		

Cyprus

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Other, see below:	Other, see below:
Comments	57 communicable diseases are notifiable to the Director of Medical and Public Health Services (MPHS) by all practising medical doctors (Quarantine Law and its amendments). Reporting is done by completion of a specific form which is submitted to the District Medical Officer who forwards it to the Unit for Surveillance and Control of Communicable Diseases (MPHS Central Offices). Data are entered in a database (EPI-INFO) and analysed.	See comment to the left.

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	**no**	**no**

Case definition

Definition	HBV		HCV	
Clinical	Probable: n/a Possible: HBsAg+ and compatible clinical presentation Confirmed: Laboratory confirmation and compatible clinical picture		Probable and possible: n/a Confirmed: Clinically compatible case that is laboratory-confirmed	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible		Possible	
	Probable		Probable	
	Confirmed	with classification	Confirmed	with classification
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	1. TRRF are covered by an opened-ended question: Risk factors/risk predisposition. 2. ICD-10 coding is used			1. TRRF are covered by an opened-ended question: Risk factors/risk predisposition 2. ICD-10 coding is used		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Opportunistic		Other:	Opportunistic	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients	■	■
	Multiple sex partners		
	Prisoners	■	■
	Haemodialysis patients	■	■
	Long-term healthcare facilities	■	
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme	–		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		
	17–24 years of age: 12% 2006: HBV1, 98.6% ; HBV2, 97.8%; HBV3, 93.2%		

Czech Republic

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)		Mandatory
Type of surveillance		Physicians report to primary health care
Surveillance system		Own system for HCV
Comments		

Objectives

		HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other		**no**

Case definition

Definition			**HCV**	
Clinical			According to the clinical signs and laboratory confirmation, based on anti-HCV Ab	
Chronic			No case definition	
Other				
Cases included in surveillance (highlighted in green)			Possible	with classification
			Probable	
			Confirmed	
			Unknown classification	
Type of cases			Acute	with classification
			Chronic	
			Asymptomatic	
			Suspected	
			Other:	
Including duplicates			Yes	
Underreporting			Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

		HCV
Source of data		Physicians / Laboratory / Hospital
		Other:
Collected data		Basic data: Patient ID
		Date of birth or age
		Gender
		Country of birth
		Place of residence
		Date of onset of the disease
		Date of diagnosis
		Date of reporting/notification
		Date used for statistics
		Country where infection was acquired
		Immunisation status
		Outcome
		Classification information: Clinical symptoms
		Laboratory results
		Epidemiological information
		Transmission route risk factors: Homosexual contact
		Heterosexual contact
		Injecting drug use
		Mother HCV positive
		Close family member HCV- positive
		Sex partner HCV positive
		Blood or blood-product transfusion
		Invasive healthcare procedure/dental treatment
		Organ transplantation
		Haemodialysis
		Needle injury or other occupational exposure
		Tattooing/body piercing
		Other
		Other: Hospitalisation
		Length of hospitalisation
		ICD code diagnosis
		Genotype information
Data linked to		Liver transplant / Liver cancer / Mortality
		Hospital register
		Other:
format		Electronic / Paper
Type		Case-based / Aggregated / Other:
Frequency		Daily / Weekly / Biweekly
		Monthly / Biannually / Yearly
		Other: Immediately in case of outbreak
Other surveillance systems		STI clinic surveillance / Laboratory network / Supplementary sentinel surveillance
		Regular sero-surveys in general population / Other

Prevention

				HCV
Screening programme	Pregnant women			
	Military recruits			
	Injecting drug users			
	STI clinic patients			
	Multiple sex partners			
	Prisoners			
	Haemodialysis patients			
	Long-term healthcare facilities			
	Healthcare workers			
	Workers who are occupationally exposed to the virus			
	Blood and organ donors			
	Other groups**			
Vaccination programme (only HBV)	No information received			

Denmark

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks	no	no
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Clinical symptoms AND (HBsAg+ OR any other specific lab test for microbiological agent)		Clinical symptoms AND specific lab test for microbiological agent	
Chronic	Confirmed laboratory markers that has existed for more than six months		Confirmed laboratory markers that has existed for more than six months	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other: Acute hepatitis data collected since 1970s; chronic hepatitis data since 2000s		Other: Acute hepatitis data collected since 1970s; chronic hepatitis data since 2000s	
Including duplicates	No		No	
Underreporting	Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.		Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.	
Rate underreporting	50%		50%	

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Epidemiological link					
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:	Difficult and not carried out on a regular basis		Other:	Difficult and not carried out on a regular basis	
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Ad hoc		Other:	Ad hoc	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	General screening of pregnant women.					

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		■ Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		■ Other risk groups**	
	Other:	■ MSM in Copenhagen municipality	
Catch-up programme	–		
Vaccination coverage	■ Infants 0 to 2 years		
	■ Adolescents 10 to 14 years		
	Adults		
	Other groups		
	■ Not known		
	Coverage:		

Estonia

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Other, see below:	Other, see below:
Comments	HBV is notifiable disease. Information is provided by GPs, hospitals and microbiological labs. Surveillance of HBV is part of the national surveillance system.	HCV is notifiable disease. Information is provided by GPs, hospitals and microbiological labs. Surveillance of HCV is part of the national surveillance system.

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	EU 2008 case definition. Confirmed case: Any person who meets clinical and laboratory criteria. Laboratory criteria: Hepatitis B virus core IgM antigen-specific antibody response or HBsAg+ or Hepatitis B virus NA in serum.		EU 2008 case definition (as of 1 January 2009)	
Chronic	Confirmed case: a case that meets either laboratory criteria for diagnosis and does not meet the case definition for acute hepatitis B. Laboratory criteria: IgM antibodies to hepatitis B core antigen (anti-HBc) negative and a positive result on one of the following tests: hepatitis B surface antigen (HBsAg), hepatitis B e-antigen (HBeAg), hepatitis B virus (HBV) DNA or HBsAg+ or HBV DNA positive or HBeAg positive two times at least six months apart.		No case definition	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
				0		

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners	■	
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		■ Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg+ mothers	
		■ Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme	–		
Vaccination coverage	■ Infants 0 to 2 years		
	■ Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	■ Coverage (2007, estimated): Infants, 2 years of age: 95.8%; Adolescents, 14 years of age: 95.1%		

Finland

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Several surveillance systems for HCV, one of which is the major and most comprehensive one.
Comments	Part of the general surveillance system for Infectious diseases; one of the infections screened from expecting mothers.	The main system is the National Infectious Disease Register, which is the mandatory system for notifiable diseases. The secondary system is a sampling-based anonymous prevalence estimation system for injecting drug users which serves as a sentinel surveillance system. This is performed every one to two years.

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	To prevent mother-to-child transmission through pregnant women screening	no

Case definition

Definition	HBV		HCV	
Clinical	No case definition		No case definition	
Chronic	All reported HBV surface antigen-positive cases not fulfilling the acute hepatitis B infection case definition		No case definition	
Other	Acute hepatitis B case. 1. Laboratory reported HBV core-antigen IgM antibody positive case; OR 2. Physician reported case with clinical symptoms compatible with acute hepatitis or fresh HBV infection AND (simultaneous laboratory verified HBV surface antigen positivity OR simultaneous laboratory verified HBV DNA/RNA positivity)		HCV case: Anti-HCV antibody positivity OR HCV RNA positivity	
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	Only included HCV case: Anti-HCV + OR HCV RNA +
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:	Separate parallel system for blood bank and maternity screening covered by the physician and laboratory reporting. National personal identifier allows for elimination of duplicate reports.		Other:	Blood bank screening	
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Nationality is collected as basic data Classification: HBV anti-core IgM antibody status (+/-/not done), HBV surface antigen status (+/-/not done), HBV DNA/RNA status (+/-/not done), histology as part of clinical diagnosis (positive/empty) Transmission risk factors: sexual contact (to be split in homosexual/heterosexual in 2009); Perinatal transmission; open ended Other: ICD-10			Nationality is collected as basic data Classification:anti-HCV antibody status (+/-/not done), HCV DNA/RNA status (+/-/not done), histology as part of clinical diagnosis(positive/empty) Transmission risk factors: sexual contact (to be split in Homosexual/Heterosexual in 2009); Perinatal transmission; open ended Other: ICD-10		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
				Cross-sectional cohort prevalence data		
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly

	Other:	Annually comprehensive reports include a review of the situation; all data is online (without identifiers). Large healthcare facilities have access to regional data with identifiers; the National Public Health Institute (register maintenance) has access to all data with full identifiers.		Other:	Annually comprehensive reports include a review of the situation; data is online (without identifiers). Large healthcare facilities have access to regional data with identifiers; the National Public Health Institute (register maintenance) has access to all data with full identifiers.	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	Very active test-offering (but participation voluntary) at needle-exchange sites, prisons and addiction treatment centres. The two former are actively monitored.			Sampling-based anonymous prevalence estimation system for injecting drug users which serves as a sentinel surveillance system (every one to two years).		

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg + mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	1. Blood clotting disorder patients requiring regular blood product treatment 2. Household contacts of injecting drug users 3. Healthcare trainees practicing in a country with high HBV prevalence 4. Sex workers 5. Sex partners of acute and chronic carrier cases	
Catch-up programme	Injecting drug users, continuous activity at needle exchange and low-threshold health service sites.		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Coverage Not known		

France

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Voluntary
Type of surveillance	Passive	Depends on surveys
Surveillance system	Several surveillance systems for HBV, one of which is the major and most comprehensive one.	Several surveillance systems for HCV, one of which is the major and most comprehensive one.
Comments	Mandatory reporting of acute hepatitis B (main system) Chronic cases: seroprevalence surveys, lab and reference sentinel systems, blood donor surveillance	Lab activity for HCV screening; HCV prevalence surveys (drug users, HIV+, MSM, general population); HCV seroconversion surveys: blood donors, occupationally acquired infections in HCW, accidental exposures in HC settings; Newly referred HCV+ patients in hepatology centres

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks	no	no
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Acute symptomatic hepatitis B defined as a patient with positive IgM antibodies, or (if IgM unknown) positive anti-HBc and HbsAg in clinical context of hepatitis		No case definition	
Chronic	HBsAg carriage > 6 months		No case definition	
Other			Confirmed cases: anti-HCV positivity, HCV RNA positivity; anti-HCV seroconversion	
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	Classification: depends on survey
Including duplicates	No		Yes	
Underreporting	Underreporting is possible; see below for rate of underreporting (number of reported cases/estimated number of actual cases)		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting	23.4%			

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Jaundice only; lab: qualitative results (HbsAg, anti-HBc antibodies (IgM and total) Quantitative results: ALAT			Data collection depends on surveys: HIV and HBV co-infections; Socio-economic data, level of education, etc.		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:	3-10 years depending on surveys	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	For chronic cases only: Network of hepatology reference centres; laboratory network; 10-year intervals between surveys			Sero surveys (drug users, HIV+, MSM, general population) every 6 to 10 years; HCV seroconversion surveys: blood donors, occupationally acquired infections in HCW, accidental exposures in HC settings; Newly referred HCV+ patients in hepatology centres, 2001–07		

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		Acute confirmed cases of hepatitis C in France: implemented in 2006 and 2007 only, targeted a specific population (HIV-infected men who have sex with men)
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg+ mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Prisoners; residents in psychiatric institution; travellers to high-endemic countries	
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: 0-2-year-olds: 35% 10-year-olds: 39% 15-year-olds: 42% Adults: 32%		

Germany

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	At least one of the following three criteria: jaundice, elevated serum aminotransferase levels, abdominal pain. A known chronic infection is excluded.		At least one of the following three criteria: jaundice, elevated serum aminotransferase levels, abdominal pain.	
Chronic			Same as above.	
Other	Laboratory case definition: At least one of the following three criteria: detection of hepatitis B virus nucleid acid in serum (e.g. PCR); HBsAg positive (e.g. ELISA), confirmed by a different HBsAg test (e.g. HBsAG-NT); OR HBsAg positive and anti-HBc positive, anti-HBC-IgM positive (e.g. ELISA). Confirmed: laboratory criteria and clinical criteria are fulfilled.		Laboratory case definition: At least one of the following two criteria: detection of hepatitis C virus nucleic acid in serum (e.g. PCR); hepatitis C virus-specific antibody response (e.g. ELISA), confirmed by a different antibody test (e.g. immunoblot). Confirmed cases: newly laboratory confirmed hepatitis C, regardless whether acute or chronic.	
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		Yes	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:	Physicians and laboratory		Other:	Physicians and laboratory	
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	Last population sero-survey in 1998, next one planned for 2011.					

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**	HIV positives	HIV positives
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg + mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Travellers who travel to endemic areas; post-exposure prophylaxis	
Catch-up programme	Individual catch-up vaccinations are administered during recommended doctors´ visits during childhood and adolescence.		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: Children at school entry: 87% in 2006; 90.5% in 2008		

Greece

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Clinical criteria: an acute illness with discrete onset of symptoms (e.g. jaundice); OR elevated serum aminotransferase levels. Laboratory criteria: IgM anti-HBc positive or HBV DNA positive. Confirmed: meets clinical criteria and laboratory confirmed Probable: meets clinical criteria AND positive HBsAg		Clinical criteria: An acute illness with discrete onset of symptoms (e.g. jaundice) OR elevated serum aminotransferase levels; Laboratory criteria: anti-HCV positive and IgM anti-HAV negative AND anti-HB core IgM negative OR HCV RNA positive Confirmed: meets clinical criteria AND laboratory confirmed Probable: not applicable	
Chronic	No case definition		No case definition	
Other	HbsAg+, asymptomatic infants < 12 months: Other asymptomatic cases, antiHBc IgM+ or HbsAg+		Newly diagnosed HCV, asymptomatic (confirmed by anti-HCV, first diagnosis).	
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	HbsAg+, asymptomatic infants < 12 months: should be notified. Other asymptomatic cases (antiHBc IgM+ / HbsAg+) should not be notified.	Other:	Newly diagnosed HCV, asymptomatic (confirmed by anti-HCV, first diagnosis)
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Clinical symptoms: jaundice and acute fulminant hepatitis are reported. Laboratory results: HbsAg, anti-HBc IgM, ALT, AST, other. High risk group			Clinical symptoms: jaundice and acute fulminant hepatitis. Laboratory results: anti-HCV (EIA), anti-HCV (RIBA), HCV-RNA,AST, ALT, other. Transmission risk factors: part of population at risk;		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggre-gated	Other:	Case-based	Aggre-gated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients	■	
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		■ Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg + mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		■ Chronic liver disease patients	
		■ STI clinic patients	
		Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme	■ Childhood and adolescent population		
Vaccination coverage	Infants 0 to 2 years		
	■ Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	■ Coverage (3 doses of vaccination): Children 6 years: 95.3% in 2006; Adolescents 14 years: 84.7% in 2006		

Hungary

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	HBV reporting is included in syndromic surveillance of viral hepatitis.	HCV reporting is included in syndromic surveillance of viral hepatitis.
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution	no	no
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Possible (for acute viral hepatitis): n/a Probable: HBsAg-positive patient with clinical symptoms Confirmed: laboratory confirmation (hepB core IgM antibody positivity or HBV DNA in the blood)		Possible: n/a Probable: n/a Confirmed: laboratory confirmation (HCV-specific antibody or HCV-RNA detection) plus clinical signs	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	
	Confirmed		Confirmed	with classification
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	Classification not needed; only acute cases included	Other:	Classification not needed; only acute cases included
Including duplicates	No		No	
Underreporting	Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.		Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.	
Rate underreporting	5% to 6%		5% to 6%	

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Is infection sexually acquired?			Is infection sexually acquired?		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	National organisation for blood and blood-borne products has its own register.			National organisation for blood and blood-borne products has its own register.		

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg + mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Programme for school children	
Catch-up programme	For 13-year-olds (in 2009)		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: 95% to 98% in 2008%		

Iceland

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	All newly lab confirmed HBV cases are reportable, both acute and chronic cases, regardless of symptoms.		EU case definitions 2008.	
Chronic	Laboratory-confirmed cases with serological tests and medical history compatible with previous HBV infection.		EU case definitions 2008.	
Other	Asymptomatic laboratory-confirmed cases are reportable.			
Cases included in surveillance	Possible		Possible	
	Probable		Probable	
	Confirmed	with classification	Confirmed	with classification
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting not possible.		Underreporting not possible.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Classification: lab result: HBsAg, HBc antibodies, HBeAg, HBe antibodies Transmission risk factors: information on transmission route is always collected, even if it is not in the standard reporting form. Other: ICD: ICD-10			Classification: lab result: HCV antibodies (ELISA), HCV antibodies (RIBA), HCV PCR Transmission risk factors: information on transmission route is always collected, even if it is not in the standard reporting form. Other: ICD: ICD-10		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	The National Treatment Centre of Addiction Medicine screens alcohol and drug addicts. The National Blood Bank screens blood donors.			The National Treatment Centre of Addiction Medicine screens alcohol and drug addicts. The National Blood Bank screens blood donors.		

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		■
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg+ mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		

Ireland

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	To facilitate resource allocation and health care planning. To guide public health action.	To facilitate resource allocation and health care planning. To guide public health action.

Case definition

Definition	HBV		HCV	
Clinical	Hepatitis B (acute and chronic): In symptomatic cases, clinical picture compatible with hepatitis, i.e. discrete onset of symptoms and/or jaundice or elevated serum aminotransferase levels. Asymptomatic cases are common (description in the EU case definition document has been elaborated upon); Hepatitis B (acute) (EU): Laboratory criteria for diagnosis. One of the following: • IgM antibody to hepatitis B core antigen (anti-HBc) positive • Detection of hepatitis B virus (HBV) nucleic acid in serum Case classification. Possible: n/a Probable: A symptomatic case that is HBsAg positive and has a clinical picture compatible with an acute hepatitis. Confirmed: A case that is laboratory confirmed.		Clinical description. In symptomatic cases, clinical picture compatible with hepatitis, i.e. discrete onset of symptoms and/or jaundice or elevated serum aminotransferase levels. Asymptomatic cases are common (all laboratory-confirmed cases included; the EU definition is restricted to symptomatic cases) Laboratory criteria for diagnosis. One of the following: • Detection of hepatitis C virus (HCV) specific antibodies • Detection of HCV nucleic acid from clinical samples Case classification. Possible: n/a Probable: n/a Confirmed: A case that is laboratory confirmed.	
Chronic	Hepatitis B (chronic): Laboratory criteria for diagnosis. One of the following: • Hepatitis B surface antigen (HBsAg) positive and antibody to hepatitis B core antigen (anti-HBc) positive and IgM antibody to hepatitis B core antigen negative • Persistence for more than 6 months of either HBsAg or HBV nucleic acid in serum Case classification. Possible: n/a Probable: n/a Confirmed: A case that is laboratory confirmed. Note: Notification distinguishes between acute or chronic.			
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		Yes	

	HBV	HCV
Underreporting	Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.	Underreporting is possible, but no estimates exist for magnitude of underreporting.
Rate underreporting	Estimated 25%	

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Lab results: HBsAg, HBeAg, anti-HBe, Anti-HBc, anti-HBc IgM, PCR/NA, genotype. Epi information: If linked to an outbreak. Other: Sex worker, intellectual disability setting.			Lab details: HCV EIA, immunoblot, PCR, genotype. Epi information: if linked to an outbreak. Other: possible sexual exposure, most likely risk.		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Quarterly		Other:	Quarterly	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
				National database for those infected through blood and blood products (historical cohort)		

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients	■	
	Multiple sex partners	■	
	Prisoners	■	■
	Haemodialysis patients	■	■
	Long-term healthcare facilities	■	
	Healthcare workers	■	
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	■ Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg + mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		■ Chronic liver disease patients	
		■ STI clinic patients	
		■ Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		■ Other risk groups**	
	Other:	■ Sexual partners and children of IDUs Patients receiving regular transfusions of blood or blood products Clients in centres for intellectual disability Prisoners Tattoo and body-piercing practitioners Families adopting children from high or intermediate HBV endemicity countries Short-term foster carers Immigrants from areas with a high or intermediate prevalence of HBV; Children born to parents from high or intermediate prevalence; Travellers to these countries Homeless people	
Catch-up programme			
Vaccination coverage	■ Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	■ Coverage: Infants: 89% in 2009		

Italy

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	National	National
Comments	The national surveillance system for acute viral hepatitis infection (SEIEVA, Sistema Epidemiologico Integrato dell'Epatite Virale Acuta), coordinated by the National Centre for Epidemiology, Surveillance and Health Promotion of the Istituto Superiore di Sanità, promotes the monitoring and control of acute viral hepatitis infection at both the local and national level. Epidemiological data are combined with laboratory data to estimate the impact of various risk factors, allowing prevention programmes to be defined and evaluated. Specific surveillance goals are: a) to determine the number of cases of acute viral hepatitis infection, by specific type of infection; b) to calculate the incidence of acute viral hepatitis infection, by type of infection, date and place of disease onset, age, and gender; c) to identify outbreaks in a timely manner; d) to calculate the proportion of cases exposed to specific risk factors, by type of infection; e) to study variations over time in the relative and attributable risks associated with specific types of exposure, by type of infection; f) to develop control strategies based on the identification of risk factors at the local level. *(Continue on the right)*	The general methods of SEIEVA are: a) to interview infected persons using an individual questionnaire (SEIEVA form), which includes socio-demographic and risk factor information; questionnaire is administered before results of serological tests are obtained; b) to provide information on the results of serological tests; c) to contact the transfusion centre and record information obtained on a specific form if the infected person reports that he/she had received a blood transfusion in the six months prior to disease onset; d) to conduct, when applicable (mainly when outbreaks are identified), case control and cohort studies. Participation is voluntary. The percentage of ASLs participating to the surveillance progressively increased from 5% in 1986 (about 3 million people) and in 2006 represented 59% of total population (about 33.7 million people). Hepatitis C is currently reported as 'non-A non-B hepatitis', but the Italian surveillance system for infectious diseases is evolving and requires notification of specific hepatitis C.

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	The diagnostic criteria used to identify acute viral hepatitis B is laboratory confirmation.		Diagnostic criteria used to identify acute viral hepatitis C is laboratory confirmation.	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible		Possible	
	Probable		Probable	
	Confirmed	with classification	Confirmed	with classification
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme	HBV		
(only HBV)	Universal vaccination	Infants	
		Adolescents (12 years)	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg + mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Not specified	
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: Infants: 96% in 2008		
	Comment: 12 year olds are included in universal vaccination programme since 1991		

Latvia

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	HBV reporting is included in syndromic surveillance of viral hepatitis.	HBV reporting is included in syndromic surveillance of viral hepatitis.
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	EU 2008 Case definition		EU 2008 Case definition	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance (highlighted in green)	Possible		Possible	
	Probable	with classification	Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:	Laboratories: detection of hepatitis C virus nucleic acid in serum	
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Clinical symptoms: yellow skin or eyes. Laboratory results: HBV core IgM antibody, HbsAg. Transmisison risk factors: cosmetologist, police officer, soldier, blood donor, prisoner, laundress, person with chronic illness, person with mental illness. ICD-10 code: B16, B18.0, B18.1, Z22.5			Clinical symptoms: yellow skin or eyes. Laboratory results: hepatitis C virus nucleic acid in serum, HCV IgM antibody. Transmission risk factors: cosmetologist, police officer, soldier, blood donor, prisoner, laundress, person with chronic illness, person with mental illness. ICD-10 code: B17.1, B18.2.		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannual	Yearly	Monthly	Biannually	Yearly
	Other:	Often if needed		Other:	Often if needed	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
		'Expanding Network for Comprehensive and Coordinated Action on HIV/AIDS Prevention Among IDUs and Bridging Population', ENCAP No. 2005305; Anti-HBc prevalence among IDUs in Latvia in 2007: 55.8%	
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Universal vaccination: newborns (since 1998); adolescents (14-year-olds) (since 2007). Risk group: healthcare and other workers who get in contact with blood (since 2000).	
Catch-up programme	Adolescents (14 years) in Riga in 2005-06		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage (2007): Infants (1-2 years of age): 97% Adolescents (15 years of age): 73.5%		

Liechtenstein

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	
Type of surveillance	The laboratories report every positive HBV-test to the Office for Public Health, and the Office makes further inquiries.	
Surveillance system	Own system for HBV	
Comments		

Objectives

	HBV	
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures	no	
Improve knowledge of epidemiology	no	
Other	no	

Case definition

Definition	HBV		
Clinical	No case definition		
Chronic	No case definition		
Other			
Cases included in surveillance (highlighted in green)	Possible	with classification	
	Probable		
	Confirmed		
	Unknown classification		
Type of cases	Acute	with classification	
	Chronic		
	Asymptomatic		
	Suspected		
	Other:	Classification not needed, only acute cases included	
Including duplicates	No		
Underreporting	Underreporting not possible.		
Rate underreporting			

Data

	HBV			
Source of data	Physicians	Laboratory	Hospital	
	Other:			
Collected data	Basic data	Patient ID		
		Date of birth or age		
		Gender		
		Country of birth		
		Place of residence		
		Date of onset of the disease		
		Date of diagnosis		
		Date of reporting/notification		
		Date used for statistics		
		Country where infection was acquired		
		Immunisation status		
		Outcome		
	Classification information	Clinical symptoms		
		Laboratory results		
		Epidemiological information		
	Transmission route risk factors	Homosexual contact		
		Heterosexual contact		
		Injecting drug use		
		Mother HBsAg+		
		Close family member HBsAg+		
		Sex partner HBsAg+		
		Blood or blood-product transfusion		
		Invasive healthcare procedure/dental treatment		
		Organ transplantation		
		Haemodialysis		
		Needle injury or other occupational exposure		
		Tattooing/body piercing		
		Other		
	Other	Hospitalisation		
		Length of hospitalisation		
		ICD code diagnosis		
		Genotype information		
	Jaundice only Lab: qualitative results (HbsAg, anti-HBc antibodies (IgM and total)) Quantitative results: ALAT			
Data linked to	Liver transplant	Liver cancer	Mortality	
	Hospital register			
	Other:			
Format	Electronic	Paper		
Type	Case-based	Aggre-gated	Other:	
Frequency	Daily	Weekly	Biweekly	
	Monthly	Biannually	Yearly	
	Other:			
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	
	Regular sero-surveys in general population		Other	

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		

Lithuania

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	EU 2008 case definition		EU 2008 case definition	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	Comment: acute clinical, asymptomatic acute, and chronic cases are classified. Surveillance of chronic cases is not implemented.	Other:	Comment: acute clinical, asymptomatic acute, and chronic cases are classified. Surveillance of chronic cases is not implemented.
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Classification: HBsAg+, anti-HBc IgM+, HBV DNR, negative Transmission risk factors: commercial sex worker, prisoner, immigrant, asocial person, haemophilia patient, bisexual contact Other: ISD-10			Classification: anti-HCV+, HCV RNR, negative Transmission risk factors: commercial sex worker, prisoner, immigrant, asocial person, haemophilia patient, bisexual contact Other: ISD-10		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme	HBV		
(only HBV)	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: 0-11-month-olds: 99.1%; 1-year-olds: 96.4% ; 13-year-olds: 97.2%		

Luxembourg

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	HBV notified via mandatory notification system	HCV notified via mandatory notification system
Comments		.

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	Monthly publication of statistics is required by law.	Monthly publication of statistics is required by law.

Case definition

Definition	HBV		HCV	
Clinical	No case definition		No case definition	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	Yes		Yes	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme	HBV		
(only HBV)	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage:		

Malta

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Hepatitis B (acute); clinical description: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated serum aminotransferase. Laboratory criteria for diagnosis: IgM antibody to hepatitis B core antigen (anti-HBc) positive; detection of HBV nucleic acid in serum Case classification: Possible: n/a Probable: HBsAg positive case with clinical picture compatible with acute hepatitis. Confirmed: Case, laboratory confirmed.		Clinical description: In symptomatic cases, clinical picture compatible with hepatitis, e.g. discrete onset of symptoms and jaundice or elevated aminotransferase. Laboratory criteria for diagnosis: One of the following: Detection of hepatitis C virus (HCV)-specific antibodies; detection of HCV nucleic acid from clinical samples. Case Classification: Possible: n/a Probable: n/a Confirmed: symptomatic case, laboratory confirmed.	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	■
	Military recruits	■	
	Injecting drug users	■	■
	STI clinic patients	■	■
	Multiple sex partners		
	Prisoners	■	■
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers	■	■
	Workers who are occupationally exposed to the virus	■	■
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	■ Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		Chronic liver disease patients	
		■ STI clinic patients	
		Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme	■ Catch-up campaign started in 2003, concurrently with introduction of universal hepatitis B vaccination for children aged 15 months. This will be completed in 2008-09		
Vaccination coverage	■ Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	■ Coverage: Infants aged 15 months in 2007: First dose: 74.68%; Second dose: 74.14%; Third dose: 76.22% Doctors in private practice do not report vaccinations, so we do not know how many were vaccinated privately. In 2007, we continued with catch up for 7-8 year-olds in schools : First dose: 90.2%; Second dose: 85.7%; Third dose: 82.3%. We do not vaccinate 10-14-year-olds as they are already vaccinated.		

Netherlands

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following two: jaundice; elevated serum aminotransferase levels AND hepatitis B virus core IgM or HBsAg positive		Every new diagnosis of HCV infection must be notified when suspecting a recent infection (last year). Suspicion of a recent infections can originate from: • appearance of antibodies against HCV, or increase in laboratory reactivity; • symptoms (e.g. icterus or increased liver function disorder); • exposure to relevant risks if present in recent period, including medical treatments.	
Chronic	HBsAg positive		No case definition	
Other				
Cases included in surveillance	Possible		Possible	
	Probable		Probable	
	Confirmed	with classification	Confirmed	with classification
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:	Municipal health services		Other:	Municipal health services	
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme	**HBV**		
(only HBV)	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Persons with Down's syndrome All newborns with at least one parent originating from an HBV-endemic country Drug users, commercial sex workers, men who have sex with men	
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage Infants born to one or two parents from an endemic country: 96% in 2008 (three HBV vaccinations or more)		

Norway

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	No case definition		No case definition	
Chronic	Detection of HBsAg and anti-HBc for more than 6 months and with no clinical picture of acute hepatitis.		No case definition	
Other	Any person with clinical acute hepatitis and presence of HbsAg and one of the following laboratory criteria: HbeAg, HBV-RNA, anti-Hbc (IgG or IgM); or any person with confirmed anti-Hbc seroconversion in the last 12 months and one of the following laboratory criteria: HbsAg, HBV-RNA, anti-HbsAb (with no history of previous vaccination).		Common case definition for both acute and chronic HCV: Any person meeting with one of the following laboratory criteria: anti-HCV, HCV-RNA.	
Cases included in surveillance	Possible		Possible	with classification
	Probable		Probable	
	Confirmed	with classification	Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		Yes	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	■
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients		
	Multiple sex partners		
	Prisoners	■	■
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg + mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		■ Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		■ Other risk groups**	
	Other:	Risk group vaccination: Men who have sex with men Risk group vaccination: Neonates born to immigrants from countries with medium or high prevalence, and all immigrants from countries with medium or high prevalence. Risk group vaccination: commercial sex workers	
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	■ Not known		
	Coverage:		

Poland

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	EU 2008 case definition		EU 2008 case definition	
Chronic	No case definition		Newly detected hepatitis C cases: probable antibodies detected by screening type assay and not excluded by immunoblot. Confirmed antibodies confirmed by immunoblot (RIBA or other) or detection of viral genetic material in clinical samples.	
Other			Comment: Temporarily collected data are simultaneously classified according to EU 2002 and 2008 case definitions, in order to better monitor trends.	
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	Classification comments: symptomatic cases (including elevated liver function tests) can be differentiated from asymptomatic cases
Including duplicates	Unlikely, but possible duplicate removal at the regional level.		Unlikely, but possible duplicate removal at the regional level.	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Aggregated data are provided bi-weekly for hepatitis B (number of cases, acute and chronic) and yearly, with some demographic break-up. Individual level data, paper based, for acute hepatitis B are forwarded quarterly.		Other:	Aggregated data are provided bi-weekly for hepatitis C (numbers according to 2002 and 2008 EU case definitions) and yearly, with some demographic break-up. Individual level data, paper based, for hepatitis C (according to 2002 EU case definition) are forwarded quarterly.	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV		
Screening programme	Pregnant women			
	Military recruits			
	Injecting drug users			
	STI clinic patients			
	Multiple sex partners			
	Prisoners			Only if tattooed or injecting drug user
	Haemodialysis patients			
	Long-term healthcare facilities			
	Healthcare workers			
	Workers who are occupationally exposed to the virus			
	Blood and organ donors			
	Other groups**			

Vaccination programme (only HBV)	**HBV**	
	Universal vaccination	Infants
		Adolescents
		Both
		Other
	Risk groups vaccination	Neonates born to HBsAg + mothers
		Individuals at risk for HBV due to occupation
		Haemodialysis patients
		Chronic liver disease patients
		STI clinic patients
		Multiple sex partners
		Injecting drug users
		Household contacts of HBsAg+ patients
		Contacts of infected persons
		Other risk groups**
	Other:	HIV-infected persons; residents of long-term stationary facilities, childcare centres; persons scheduled for surgery for cardiopulmonary bypass
Catch-up programme		
Vaccination coverage	Infants 0 to 2 years	
	Adolescents 10 to 14 years	
	Adults	
	Other groups	
	Not known	
	Coverage (two or three doses): Year of birth: coverage in percent 2008: 90.2 2007: 99.8 2006: 99.9 2005: 99.9 2004: 100 2003: 100 2002: 100 2001: 100 2000: 100	1999: 100 1998: 100 1997: 100 1996: 99.1 1995: 92.4 1994: 98.7 1993: 99.1 1992: 99.3 1991: 99.5 1990: 99.5 1989: 99.6

Portugal

	HBV	HCV
Surveillance system		
Included in the national surveillance system	yes	yes
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Included in the national mandatory surveillance system for communicable diseases.	Included in the national mandatory surveillance system for communicable diseases.
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Acute disease, with insidious onset of symptoms (fever, malaise, anorexia, nausea, vomiting) and elevation of serum transaminase levels, with or without icterus.		Acute disease with insidious clinical symptoms (fever, malaise, anorexia, nausea, astenia) and elevation of serum transaminase levels, with or without icterus.	
Chronic	No case definition		No case definition	
Other	Probable case: person with disease compatible with the case definition for clinical HBV, epidemiologically related to a laboratory-confirmed case (cohabitant/sexual partner) 30 to 180 days before onset of symptoms. Confirmed case: case compatible with case definition for clinical HBV and confirmed by lab (IgM anti HBc in serum).		Probable case: case compatible with the clinical description and epidemiologically linked to another case with laboratory confirmation (during the incubation period). Confirmed case: case compatible with the clinical description and laboratory confirmed.	
Cases included in surveillance	Possible	with classification	Possible	
	Probable		Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	Classification not necessary; only acute cases included.	Other:	Classification not necessary; only acute cases included.
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	The form is used for all communicable diseases in the system, so data about clinical symptoms, laboratory results, and epidemiological information may be given as free-text responses, or in a Yes/No format.			Laboratory results not specified, only Yes/No; four variables with epidemiological information; ICD-10		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:	Quarterly	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme	HBV		
(only HBV)	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: 97% fully vaccinated children at 12 months of age; 92% vaccination coverage at 14 years of age.		

Romania

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	HBV reporting is included in syndromic surveillance of viral hepatitis.	HCV reporting is included in syndromic surveillance of viral hepatitis.
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks	no	no
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	To monitor the impact of the universal vaccination programme.	no

Case definition

Definition	HBV		HCV	
Clinical	Clinical criteria: acute disease with discrete onset and jaundice or increased aminotransferase levels. Lab criteria for confirmed cases: presence of specific antigens to the core antigen (AntiHBc-IgM); detection of the nucleic acid in serum.		Acute disease with discrete onset AND hepatitis C virus-specific antibody response OR detection of hepatitis C virus nucleic acid in serum.	
Chronic	No case definition		No case definition	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	Classification not necessary; only acute cases included.	Other:	Based on anti-HCV antibodies; we cannot differentiate.
Including duplicates	No		Yes	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg + mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: Infants: 98%; Adolescents: 97%		

Slovakia

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Epidemiologists investigate each reported suspect case or each laboratory-positive result directly with patients and their contacts.	Any suspect case of viral hepatitis is investigated by epidemiologists.
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	To evaluate existing preventive measures.	no

Case definition

Definition	HBV		HCV	
Clinical	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following: fever; jaundice; elevated serum aminotransferase levels, confirmed lab test		Symptomatic case which is laboratory confirmed.	
Chronic				
Other				
Cases included in surveillance	Possible		Possible	with classification
	Probable	with classification	Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting not possible.		Underreporting not possible.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	ICD- 10 codes for acute, chronic, and asymptomatic cases. B16: acute HBV B18.1: chronic HBV Z22.5: carrier of HBsAg			ICD-10 B17.1: acute HVC B18.2: chronic HVC		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Determined by need		Other:	Determined by need.	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		

Vaccination programme (only HBV)	**HBV**	
	Universal vaccination	Infants
		Adolescents
		Both
		Other
	Risk groups vaccination	Neonates born to HBsAg + mothers
		Individuals at risk for HBV due to occupation
		Haemodialysis patients
		Chronic liver disease patients
		STI clinic patients
		Multiple sex partners
		Injecting drug users
		Household contacts of HBsAg+ patients
		Contacts of infected persons
		Other risk groups**
	Other:	Risk group vaccination: patients with other type of viral hepatitis (hepatitis A, hepatitis C)
Catch-up programme		
Vaccination coverage	Infants 0 to 2 years	
	Adolescents 10 to 14 years	
	Adults	
	Other groups	
	Not known	
	Coverage: 0-2 years: 98.5% 10-14 years: 98% Health professionals: 88%	

Slovenia

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	EU 2008 case definition Current definition: A case that is HBsAg + with a clinical picture compatible with acute hepatitis; any person with a discrete onset of symptoms (fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting)		EU 2008 case definition Clinical picture compatible with hepatitis;.	
Chronic	No case definition		EU 2008 case definition	
Other				
Cases included in surveillance	Possible	With classification	Possible	With classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	With classification	Acute	With classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:	Almost all reported cases are laboratory confirmed. Cases on notification forms are classified as acute and chronic ones; asymptomatic cases can be classified according to data from questionnaires. Notification system will change in the future.	Other:	Acute and chronic forms can be differentiated from notification forms, other data are gathered from questionnaires.
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
	Above information is available from notification form; other information (including laboratory results) are available if questionnaires are filled in.			Above information is available from notification form; other information (including laboratory results) are available if questionnaires are filled in.		
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:	Automatic linking is not possible. Individual cases can be found in other registers through personal data.		Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	In case of clusters or outbreaks we analyse data more frequently.		Other:	In case of outbreaks, data are analysed more frequently.	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients	■	■
	Multiple sex partners		
	Prisoners	■	■
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**	■	■
		■ Screening of prisoners. Most screenings are conducted for risk groups. The Slovenian armed forces are vaccinated ofr HBV according to risk assessments connected to working places and standards of peacekeeping missions.	
Vaccination programme (only HBV)	**HBV**		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		■ Other	
	Risk groups vaccination	■ Neonates born to HBsAg + mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		■ Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		■ Other risk groups	
	Other:	■ Universal vaccination programme for children before they enter primary school.	
Catch-up programme	■ Vaccination catch-up was offered for young people		
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	■ Other groups		
	Not known		
	■ Coverage: Among compulsory vaccinated children aged 7 years: 97.3% in 2007		

Spain

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Several surveillance systems for HBV, one of which is the major and most comprehensive one.	Several surveillance systems for HCV, one of which is the major and most comprehensive one.
Comments		HCV is included in the syndromic surveillance of viral hepatitis. In addition, data on HCV are collected through a voluntary reporting system based on reports sent by the microbiology laboratories in hospitals

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		no
Evaluation and planning of control measures		no
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting) AND at least one of the following three: fever; jaundice; elevated serum aminotransferase levels.		An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g. anorexia, abdominal discomfort, nausea, vomiting and jaundice) and increase in transaminase (ALT, AST).	
Chronic	No case definitions		No case definitions	
Other				
Cases included in surveillance	Possible		Possible	
	Probable	with classification	Probable	with classification
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	Yes		Yes	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	■
	Military recruits		
	Injecting drug users		
	STI clinic patients		■
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		■
	Workers who are occupationally exposed to the virus	■	
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme	HBV		
(only HBV)	Universal vaccination	Infants	
		Adolescents	
		■ Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg + mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:		
Catch-up programme			
Vaccination coverage	■ Infants 0 to 2 years		
	■ Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	■ Coverage: Infants: 98% (2004) Adolescents: 78% (2004)		

Sweden

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Mandatory	Mandatory
Type of surveillance	Passive	Passive
Surveillance system	Own system for HBV	Own system for HCV
Comments	SmiNet	SmiNet

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	No case definition		No case definition	
Chronic	HBV chronic infection: HBsAg positive AND anti-HBc IgG positive AND not detectable or low levels of anti-HBc IgM		HCV RNA positive and HCV antibody positive	
Other	HBV acute infection: HBsAg + OR HBV-DNA + AND anti-HBcIgM + OR HBV-DNA + with or without detectable HBsAg AND not detectable anti-HBc.		HCV acute infection: seroconversion to anti-HCV within 6 months between the samples.	
Cases included in surveillance	Possible		Possible	with classification
	Probable	with classification	Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	No		No	
Underreporting	Underreporting is possible, but no estimates exist for magnitude of underreporting.		Underreporting is possible, but no estimates exist for magnitude of underreporting.	
Rate underreporting				

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:	It is not possible to link HBV cases to other registers except to mortality in the ordinary surveillance system. Linking can be done in special studies.		Other:	Except for mortality, HCV cases cannot be linked to other registers from the ordinary surveillance system. Linking can be done in special studies	
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggre-gated	Other:	Case-based	Aggre-gated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:			Other:		
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other

Prevention

		HBV	HCV
Screening programme	Pregnant women	■	
	Military recruits		
	Injecting drug users	■	■
	STI clinic patients		
	Multiple sex partners		
	Prisoners	■	■
	Haemodialysis patients	■	■
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors	■	■
	Other groups**		
Vaccination programme (only HBV)	HBV		
	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	■ Neonates born to HBsAg + mothers	
		■ Individuals at risk for HBV due to occupation	
		■ Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		■ Multiple sex partners	
		■ Injecting drug users	
		■ Household contacts of HBsAg+ patients	
		■ Contacts of infected persons	
		■ Other risk groups: individuals at risk for HBV due to occupation	
	Other:		
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	■ Not known		
	Coverage:		

United Kingdom

	HBV	HCV
Surveillance system		
Included in the national surveillance system		
Legal basis (mandatory/ voluntary)	Voluntary	Voluntary
Type of surveillance	It includes information from multiple sources, primarily the laboratory carrying out the testing to detect changing patterns in hepatitis B. Blood specimens are tested to determine acute hepatitis B infection.	It includes information from multiple sources, including the microbiology laboratory to detect changing patterns of hepatitis C infection. Blood specimens are tested to determine hepatitis C exposure.
Surveillance system	Several surveillance systems for HBV, one of which is the major and most comprehensive one.	Several surveillance systems for HCV, one of which is the major and most comprehensive one.
Comments		

Objectives

	HBV	HCV
Monitoring trends		
Detect outbreaks		
Monitoring changes in disease distribution		
Evaluation and planning of control measures		
Improve knowledge of epidemiology		
Other	no	no

Case definition

Definition	HBV		HCV	
Clinical	HBsAg + and anti-HBc IgM + and abnormal liver function tests with a pattern consistent with acute viral hepatitis.		Case definition for surveillance: Recent seroconversion OR hepatitis C RNA or antigen + and anti-HCV - or equivocal in otherwise immunocompetent individual OR anti-HCV +, anti-HAV IgM -, and anti-HBc IgM - and abnormal liver function tests with a pattern consistent with acute viral hepatitis in someone with recent exposure to HCV e.g. needlestick injury, dialysis, recent injecting drug use.	
Chronic	Chronic HBV case definition: HBsAg + twice at least 6 months apart OR HBsAg + and anti-HBc IgM2,- and anti-HBc +		Case definition for surveillance: Anti-HCV positive OR HCV RNA+ and not meeting case definition for acute HCV.	
Other				
Cases included in surveillance	Possible	with classification	Possible	with classification
	Probable		Probable	
	Confirmed		Confirmed	
	Unknown classification		Unknown classification	
Type of cases	Acute	with classification	Acute	with classification
	Chronic		Chronic	
	Asymptomatic		Asymptomatic	
	Suspected		Suspected	
	Other:		Other:	
Including duplicates	Yes		Yes	
Underreporting	Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.		Underreporting is possible; please give the rate for underreporting (number of reported cases/estimated number of real cases) below.	
Rate underreporting	The proportion of underreporting is assumed to be 25%. Ramsay M, et al. Control of hepatitis B in the UK. Vaccine 1998;16(Suppl):S52–5.		Data suggest that routine laboratory reporting may underestimate the numbers of diagnosed hepatitis C infections by up to 60% (HPA Annual Report 2007).	

Data

	HBV			HCV		
Source of data	Physicians	Laboratory	Hospital	Physicians	Laboratory	Hospital
	Other:			Other:		
Collected data	Basic data	Patient ID		Basic data	Patient ID	
		Date of birth or age			Date of birth or age	
		Gender			Gender	
		Country of birth			Country of birth	
		Place of residence			Place of residence	
		Date of onset of the disease			Date of onset of the disease	
		Date of diagnosis			Date of diagnosis	
		Date of reporting/notification			Date of reporting/notification	
		Date used for statistics			Date used for statistics	
		Country where infection was acquired			Country where infection was acquired	
		Immunisation status			Immunisation status	
		Outcome			Outcome	
	Classification information	Clinical symptoms		Classification information	Clinical symptoms	
		Laboratory results			Laboratory results	
		Epidemiological information			Epidemiological information	
	Transmission route risk factors	Homosexual contact		Transmission route risk factors	Homosexual contact	
		Heterosexual contact			Heterosexual contact	
		Injecting drug use			Injecting drug use	
		Mother HBsAg+			Mother HCV positive	
		Close family member HBsAg+			Close family member HCV- positive	
		Sex partner HBsAg+			Sex partner HCV positive	
		Blood or blood-product transfusion			Blood or blood-product transfusion	
		Invasive healthcare procedure/dental treatment			Invasive healthcare procedure/dental treatment	
		Organ transplantation			Organ transplantation	
		Haemodialysis			Haemodialysis	
		Needle injury or other occupational exposure			Needle injury or other occupational exposure	
		Tattooing/body piercing			Tattooing/body piercing	
		Other			Other	
	Other	Hospitalisation		Other	Hospitalisation	
		Length of hospitalisation			Length of hospitalisation	
		ICD code diagnosis			ICD code diagnosis	
		Genotype information			Genotype information	
Data linked to	Liver transplant	Liver cancer	Mortality	Liver transplant	Liver cancer	Mortality
	Hospital register			Hospital register		
	Other:			Other:		
Format	Electronic	Paper		Electronic	Paper	
Type	Case-based	Aggregated	Other:	Case-based	Aggregated	Other:
Frequency	Daily	Weekly	Biweekly	Daily	Weekly	Biweekly
	Monthly	Biannually	Yearly	Monthly	Biannually	Yearly
	Other:	Quarterly		Other:	Quarterly	
Other surveillance systems	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance	STI clinic surveillance	Laboratory network	Supplementary sentinel surveillance
	Regular sero-surveys in general population		Other	Regular sero-surveys in general population		Other
	Annual surveys of the prevalence of anti-HBc in oral fluid specimens from injecting drug users.			A sentinel laboratory surveillance system monitors HCV testing. The annual survey of anti-HCV testing in injecting drug users (oral fluid specimens are tested for anti-HCV)		

Prevention

		HBV	HCV
Screening programme	Pregnant women		
	Military recruits		
	Injecting drug users		
	STI clinic patients		
	Multiple sex partners		
	Prisoners		
	Haemodialysis patients		
	Long-term healthcare facilities		
	Healthcare workers		
	Workers who are occupationally exposed to the virus		
	Blood and organ donors		
	Other groups**		
Vaccination programme	HBV		
(only HBV)	Universal vaccination	Infants	
		Adolescents	
		Both	
		Other	
	Risk groups vaccination	Neonates born to HBsAg mothers	
		Individuals at risk for HBV due to occupation	
		Haemodialysis patients	
		Chronic liver disease patients	
		STI clinic patients	
		Multiple sex partners	
		Injecting drug users	
		Household contacts of HBsAg+ patients	
		Contacts of infected persons	
		Other risk groups**	
	Other:	Staff of residential and other accommodation for those with learning difficulties; people travelling to and going to reside in high prevalence areas	
Catch-up programme			
Vaccination coverage	Infants 0 to 2 years		
	Adolescents 10 to 14 years		
	Adults		
	Other groups		
	Not known		
	Coverage: Homosexual men who attend genitourinary medicine clinics (HepB3 study; 44% in 2005 and 38% in 2006). For prisons: 37.5% in 2007; 47.5% in 2008		

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