Hepatitis B vaccination in Europe

November 2008 - March 2009

The Health Protection Surveillance Centre
European Centre for disease Control
VENICE II project

Darina O'Flanagan,
Suzanne Cotter,
Jolita Mereckiene

Table of contents

Abbreviations

AIDS	Acquired immune deficiency syndrome
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
GP	General Practitioner
HBsAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCWs	Health care workers
ISS	Istituto Superiore di Sanità
InVs	Institut de Veille sanitaire
IDU	Intravenous drug user
HIV	Human immunodeficiency virus
HPSC	Health Protection Surveillance Centre
MOH	Ministry of Health
MSs	Member States
MSM	Men who have sex with men
VENICE	Vaccine European New Integrated Collaboration Effort
WHO	World Health Organisation
WP4	Work Package four

Acknowledgments

The VENICE Project would like to take this opportunity to thank all the gatekeepers, contact points and members of the work packages for their contributions to this report. The time generously provided by each person in answering the questionnaire and subsequent follow up queries is greatly appreciated. We also would like to thank Dr. Koye Balogun who is responsible for surveillance of HBV infection in UK and completed the questionnaire for the UK for this study.

ISO 3166-1 Country Codes

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

VENICE National Gatekeepers and Contact Points

Belgium	Pierre Van Damme, Martine Sabbe
Bulgaria	Mira Kojouharova
Czech Republic	Bohumir Kriz
Cyprus	Chryso Gregoriadou, Chrystalla Hadjianastassiou
Denmark	Steffen Glismann
Estonia	Natalia Kerbo
Finland	Tuija Leino
France	Daniel Levy-Bruhl
Germany	Sabine Reiter
Greece	Takis Panagiotopoulos
Hungary	Zsuzsanna Molnàr
Iceland	Thorulfur Gudnason
Ireland	Suzanne Cotter
Italy	Fortunato D'Ancona, Cristina Giambi
Latvia	Jurijs Perevoscikovs
Lithuania	Egle Valikoniene
Luxemburg	Danielle Hansen-Koenig
Malta	Tanya Melillo
The Netherlands	Hester de Melker
Norway	Berit Feiring
Poland	Pawel Grzesiowski
Portugal	Teresa Fernandes, Paula Valente
Romania	Adriana Pistol, Miecea Ioan Popa
Slovakia	Jarmila Lancova, Helena Hudecova
Slovenia	Marta Grgic Vitek
Spain	Isabel Pachon del Amo
Sweden	Ander Tegnell
United Kingdom	Richard Pebody

Summary

In 1992, the World Health Assembly recommended the inclusion of Hepatitis B vaccine in all national immunisation programmes. By 2004, the majority of European member states (MSs) had introduced the vaccine, either as universal infant, universal newborn or universal adolescent. However, a number of European Union (EU) MSs had not introduced the vaccine into the routine programme; all of these were northern European countries. However, although a routine immunisation programme is not implemented in these MSs, most of these countries do offer vaccine to high risk groups. Some of these countries have previously carried out cost effectiveness studies and have reported that introducing a universal vaccination programme would not be cost effective.

The aim of this study was to write a detailed report on hepatitis B vaccination policies and immunisation programs identifying specific recommendations for different risk groups among countries with routine childhood or selective immunisation programs and to obtain most recent vaccine uptake data in EU/EEA member states in order to compare data between countries.

A cross-sectional electronic based survey was undertaken. This survey is collaborative study between the European Centre for Disease Prevention and Control (ECDC), Health Protection Surveillance Centre (HPSC) in Ireland, Vaccine European New Integrated Collaboration Effort (VENICE) Project and EU and European Economic Area (EEA) MS.

A standardised questionnaire was developed and completed electronically by previously identified VENICE gatekeepers in each country. The questionnaire was pilot tested by three VENICE project-leading partners (Italy, France and Ireland) and Lithuania. The data were analysed using the computer-based STATA software. Data validation was carried out by gatekeepers when the interim survey report was produced.

The response rate to the survey was 96% (27/28). One country (GR) did not respond to the survey. AT decided to decline VENICE II participation.

Hepatitis B vaccination is included in the routine childhood vaccination in twenty (74%) of 27 countries (BE, BG, CZ, CY, EE, FR, DE, HU, IE, IT, MT, LV, LT, LU, PT, RO, SK, SI, ES,PL). In twelve (60%) of these countries (BE,CY, EE, FR, DE, IT, MT, LV, LT, RO, PL and LU) catch-up programmes for older children, teenagers were organised; in BG vaccine is recommended for adults. Seven countries (26%) do not vaccinate children routinely but have selective immunisation program for those at risk (DK, FI, IS, NL, NO, SE, UK).

In all countries, except RO hepatitis B vaccination is recommended for those individuals at risk by their lifestyle: close family contacts of a case or individual with chronic hepatitis B infection (25/27; 93%), injecting drug users (22/27; 81%) and for men who have sex with men (MSM) (18/27; 67%). Approximately half of EU countries recommend vaccination of those who are likely to ‘progress’ to injecting of illicit drugs, children of injectors and individuals who change sexual partners frequently (13/27; 48%), non-injecting users who are living with current injectors and

sexual partners of injecting users (14/27; 52%), female commercial sex workers (16/27; 59%) and inmates of custodial institutions (12/27; 44%).

All countries recommend hepatitis B vaccination of individuals who are at increased risk by their occupation: most of them recommend vaccination of health care workers (27/27; 100%), laboratory staff (26/27; 96%), police, emergency and rescue services (22/27; 81%) and staff of residential and other accommodation for those with learning difficulties (16/27; 59%).

Almost all countries (except IS, RO) recommend hepatitis B vaccination for individuals who are at increased risk by other factors: babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy (25/27; 93%); people travelling to or going to reside in areas of high or intermediate prevalence (21/27; 78%, IS included in the numerator); patients with chronic renal disease (23/27; 85%); liver disease and individuals receiving regular blood or blood products (18/27; 67%), individuals in residential accommodation for those with learning difficulties (16/27; 59%). One third (8/27; 30%) of countries recommend vaccination for families adopting children from countries with intermediate or high hepatitis B prevalence and one fifth of countries (5/27; 19%) recommend vaccination for carers of individuals receiving regular blood or blood products.

Most countries do not recommend pre-vaccination serologic testing for: human immunodeficiency virus (HIV) infected persons (20/27; 74%); MSM, intravenous drug users (IDU) and incarcerated persons (19/27; 70%); household, sex, and needle-sharing contacts of HBsAg positive persons (15/27; 55%). A majority of countries recommend post-vaccination serologic testing for chronic haemodialysis patients (21/27; 78%), infants born to HBsAg positive women and health care workers who have contact with patients or blood (18/27; 67%).

Most countries do not recommend serologic screening to all foreign born persons born in regions with high endemicity of HBV infection (19/27; 70%). However, almost all countries (23/27; 85%) recommend screening of pregnant women.

Most countries (23/27; 85%) monitor hepatitis B vaccine uptake, with the most frequently reported interval of monitoring being annual (16/22; 73%). The most common age for vaccine uptake monitoring is at one or two years. The age at which vaccine uptake is monitored for older children varied greatly (range from four to 18 years) between countries depending on age vaccine is given. Countries with selective immunisation programs monitor vaccine uptake among some risk groups. The most common type of vaccine uptake assessment was number of subjects vaccinated (15/20; 65%) in countries with routine immunisation program. Approximately one third of countries use survey methods (8/27; 29%) for vaccine uptake monitoring. The most common occupational group for which vaccine uptake is measured was health care workers (HCWs) (4/27; 15%).

Vaccine uptake was measured in 23 countries. Vaccine uptake among countries with routine childhood immunisation for children at one and two years varied between 90.6% and 99.9%, except DE,FR,MT where it was lower and varied from 29% to 74.7%. For older children and teenagers (5-18 years of age) vaccine uptake varied

greatly from in 33% to 99.5%. Vaccine uptake among HCWs was reported by four countries and varied from 75% to 100%. Vaccine uptake among countries with selective immunisation was presented for some risk groups and varied from 16.8% among children at 2 years of age in families from high prevalence countries to 98% for children of HBV carrier.

Vaccine and administration was free for all children born (babies and/or infants) in almost all countries (except FR where vaccine and administration is free for some recipients) with routine childhood vaccination programs (19/20; 95%) and in the UK. In the remaining countries (6/7; 86%) with selective vaccination programs vaccine and administration is free for some recipients.

Vaccine and administration is free in almost all countries (23/27; 85%) for HCWs and is often paid by employer.

Vaccine and administration is free in all countries (26/27; 96%) for babies born to mothers who are chronically infected with hepatitis B virus (HBV) or to mothers who have had acute hepatitis B during pregnancy.

Travelers going to high or intermediate prevalence countries pay full cost for vaccine and administration in most countries (20/27; 74%).

The payment scheme for individuals who are at increased risk by their lifestyle (i.e. IDUs, MSM, individuals who change sexual partners frequently, female commercial sex workers, inmates of correctional facilities) varied among countries.

Vaccine and administration is free for individuals with chronic medical condition (i.e. chronic renal, liver diseases, immunocompromised) in 16 of 27 (60%) countries.

Three of seven countries with selective immunisation programs indicated that they are currently reviewing (NL, NO, SE) plans regarding possible introduction of routine hepatitis B vaccination program in the near future.

The collected data for hepatitis B vaccination programs shows that mainly two different strategies among EU/EEA countries are used depending on endemicity of hepatitis B infection: universal childhood vaccination or selective immunisation for those at risk.

Background

Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus. It is a major global health problem and a very serious type of viral hepatitis. It can cause chronic liver disease and puts people at high risk of death from cirrhosis of the liver and liver cancer.

Worldwide, an estimated two billion people have been infected with the hepatitis B virus (HBV), and more than 350 million have chronic (long-term) liver infections.

Hepatitis B is vaccine preventable and a vaccine has been available since 1982. The vaccine is 95% effective in preventing HBV infection and its chronic consequences, and is the first vaccine against a major human cancer.

In 1992, the World Health Assembly recommended the inclusion of hepatitis B vaccine in all national immunisation programmes. Substantial progress has been made worldwide to introduce the vaccine. Within Europe, following the introduction of the vaccine, the incidence of acute hepatitis B has decreased markedly, from 6.7/100,000 in 1995 to 1.5/100,000 in 2005. Most recent data on prevalence (2008) indicate that although that European rates are much lower than many other parts of the world, there is wide variation within Europe, with rates of chronic infection (HBsAg) ranging from the highest of 8% (Turkey) to 0.5% in a number of states.[1]

By 2004, the majority of European member states (MSs) had introduced the vaccine, either as universal infant, universal newborn or universal adolescent. However, a number of European Union (EU) MSs had not introduced the vaccine into the routine programme; all of these were northern European countries. Although a routine immunisation programme is not implemented in these MSs, most of these countries do offer vaccine to high risk groups. Some of these countries have previously carried out cost effectiveness studies and have reported that introducing a universal vaccination programme would not be cost effective. [2,3]

Recent experience from the EU funded Vaccine European New Integrated Collaboration Effort (VENICE) project has demonstrated the value in member states of sharing general information on vaccination programmes; such as age groups targeted, vaccination schedules used, how the vaccination programmes are delivered, how policy decisions are made (and by whom and using what data), and to identify what policy changes are anticipated within member states. [4]

Additionally, the recent VENICE survey undertaken on influenza a vaccine has proved invaluable in comparing country policies, programmes, and uptake in relation to achieving World Health Organisation (WHO) goals on vaccination uptake in different risk groups. This study has demonstrated that some countries are already on or near, target in achieving WHO Goals and information provided in the study can provide valuable insight into policies that can achieve higher uptake. [5]

The EU wishes to improve sharing of information on vaccine issues between MSs and to demonstrate alternative policy options that may improve protection against vaccine preventable disease. However, as each country is responsible for setting its own policy, full harmonisation can only be achieved if all member states are in consensus. Therefore understanding rationale for each country's immunisation programme is needed during any discussions on harmonisation. Before consensus is reached all partners should understand the obstacles (real or perceived) to implementing disease specific immunisation programmes already recommended by WHO. The European Centre for Disease Prevention and Control (ECDC) needs to understand fully the situation (epidemiological, resources, systems, and medical and public perception to vaccination programmes) in MSs which have chosen to delay implementation of a universal hepatitis B vaccination policy.

Objective of the Study

The aim of this study was to write a detailed report on hepatitis B vaccination policies and immunisation programs identifying specific recommendations for different risk groups among countries with routine childhood or selective immunisation programs and to obtain most recent vaccine uptake data in EU/European Economic Area (EEA) member states in order to compare data between countries.

Methods and Materials

Study Design

A cross-sectional electronic based survey was undertaken. This survey is a collaborative study between the European Centre for Disease Prevention and Control (ECDC), Health Protection Surveillance Centre (HPSC) in Ireland, VENICE Project and EU/EEA MS. Each MS previously identified and enrolled gatekeepers, who are responsible for conducting all VENICE surveys inside their countries.

Currently in the VENICE project there are 26 EU (all except Austria) participating countries and also Norway and Iceland.

Data collection

A standard questionnaire was developed using close-ended questions predominantly. Information was sought on population groups recommended hepatitis B vaccination (age, occupation, or individuals at increased risk by their lifestyle), whether countries monitor hepatitis B vaccine uptake, the method used to monitor uptake, recent vaccination coverage results by population group, payment and administration costs for vaccine, and finally, information was sought on anticipated vaccination policy changes over the next couple of years.

Data handling

The electronic questionnaire was developed on VENICE website in December 2008, which was available for all participating MSs (**http://venice.cineca.org**). A questionnaire was developed for on-line (web-based) completion and then saved by gatekeepers in each country. VENICE project information technology (IT) people, Consortium of Public Universities for ICT (CINECA), collated information into one Excel file and sent it to the Work Package four (WP4) group.

Data processing

Gatekeepers in each MS entered data directly on-line. Single data entry was introduced. WP4 group contacted formal gatekeepers by email if clarification was needed on the responses.

Pilot study

The questionnaire was pilot tested by three VENICE project-leading partners (Italian Istituto Superiore di Sanita (ISS), the French Institut de la Veille Sanitare (InVS) and the Irish Health Protection Surveillance Centre (HPSC)) and Lithuanian Centre for Communicable Diseases Prevention and Control. The piloting of the study was undertaken in the second part of December 2008. After the pilot study, the questionnaire was reviewed and amended following provided comments as needed.

Study time
MSs were asked to complete the electronic questionnaire between the 16 th to 23rd January 2009. The accompanying letter sent to MSs explained the objectives and rationale of the study. Those countries that did not complete the questionnaire by this deadline were contacted on 27th of January again and asked to fill in questionnaire by 29 th of January. Data was validated with participating countries from 19th February to 2nd March.

Data analysis
The data was analysed using the STATA software. Frequencies of all variables and the appropriate descriptive statistics were produced.

Expected deliverables
The expected output of this survey is development of a technical report, which describes hepatitis B vaccination programmes in EU/EEA.

The tables in this technical report are divided in two parts (columns). One column describes hepatitis B vaccination programmes in the seven Northern European countries not yet implementing a universal hepatitis B programme (DK, FI, IS, NL, NO, SE, UK). The other column describes the current childhood vaccination policy for hepatitis B vaccination in the remaining EU countries, all of whom have a universal programme in place. The report contains following information:

- A detailed description of the hepatitis B programme in each country;
- Risk- / age- groups targeted by the vaccination;
- Description of schedules in use for each targeted group;
- narrative description on how the HBV vaccination is delivered in each country;
- Narrative description of the decision making process in case of policies changes in the vaccination programmes;
- Possible policy changes planned in the selected countries;
- Age group at which HBV is recommended;
- Any change in policy in recent years since programme first implemented (e.g. introduction of neonatal in countries that originally introduced adolescent programme);
- The type of vaccines used – e.g. combined vaccines in use (penta- hexa- valent, etc.) or single vaccines;
- A table showing the current childhood vaccination schedule for HBV in the remaining EU countries (where universal vaccination is in place), including the information on combined vaccines in use (penta- hexa- valent, etc.).

Results

Response rate
The response rate to the survey was 96% (27/28). One country (GR) did not respond to the survey.

Data validation
Data were validated by 24 of 27 countries. The response rate to data validation was 89%. Those three countries (CZ, IS, PT) that did not validate data but completed questionnaire and submitted data on line on VENICE website were assumed to be correct for the purpose of this report.

Hepatitis B vaccination by age

Routine childhood vaccination
Hepatitis B vaccination is included in the routine childhood vaccination in twenty (74%) of 27 countries (BE, BG, CZ, CY, EE, FR, DE, HU, IE, IT, MT, LV, LT, LU, PT, RO, SK, SI, ES,PL); seven countries (26%) do not vaccinate children routinely but have selective immunisation programmes for those at risk (DK, FI, IS, NL, NO, SE, UK).

Eighteen (90%) of 20 countries have implemented hepatitis B vaccination of newborns or infants in place, the remaining two countries (SI, HU) vaccinate only schoolchildren. Vaccination schedules and number of administered doses differ between countries and varies from two to four doses. Most countries (except IE) introduced hepatitis B vaccination in early, middle or late 1990s. Ireland introduced a universal childhood vaccination programme in September 2008. The hepatitis B vaccination schedule, number of doses, vaccine type usage and year of introduction is presented in tables 1 and 2.

Table 1. Hepatitis B vaccination by age and number of doses among countries with routine childhood vaccination. Hepatitis B vaccination survey in Europe, January 2009. (n=20)

Country	1st dose	2nd dose (months)	3rd dose (months)	4th dose (months)
BE	2 months	3	4	15
BG	At birth	1	6	
CZ	3 months	4	5	11
CY	2 months	4	8-12	
EE	At birth	1	6	
FR	2months	3-4	16-18	
DE*	2 months	3	4	12
HU†	0 months	6		
IE	2 months	4	6	
IT	3 months	5	11	
MT	15 months	16	21	
LV	At birth	1	6	
LT	At birth	1	6	
LU	2 months	3	4	11
PT	At birth	2	6	
RO	At birth	2	6	
SK	2 months	4	10	
SI‡	Before school			
ES§	2 months	4	6	
PL	At bitrh	2	6	

* Four doses as indicated in the table are administered only with hexavalent vaccine; scheme with 3 doses: 2, 3, 8 months.
† Two doses schedule in the school for adolescents aged 14 years.
‡ First dose is given before school entry, second and third in the first year of elementary school.
§ In some Autonomous Communities the schedule is 0, 1, 6 months or 0, 2, 6 months.

Table 2. The year of introduction and type of hepatitis B vaccine among countries with routine childhood vaccination. Hepatitis B vaccination survey in Europe, January 2009. (n=20)

Country	Vaccine introduction	Type of vaccine used for routine childhood vaccination	Same type of vaccine from introduction	Vaccine was changed	Vaccine type used before
BE	1999	Combined	No	2001	Single antigen
BG	1991	Single antigen	Yes		
CZ	2001	Both	No	2007	Single antigen
CY	1989	Both *	No	Not known	
EE†	2003	Single antigen	Yes		
FR	1995	Both	No	2008	Single antigen
DE	1995	Both	No	Not known‡	
HU	1999	Single antigen	Yes		
IE	2008	Combined §	Yes		
IT	1991	Combined §	No	Not known±	Combined
MT	1997	Single antigen	Yes		
LV	1997	Single antigen	Yes		
LT	1998	Single antigen	Yes		
LU	1996	Combined	Yes		
PT **	1999	Single antigen	Yes		
RO	1995	Both	No	2002***	
SK	1998	Combined §	No	2007	Single antigen
SI	1998	Single antigen	Yes		
ES!	1996	Both	No		
PL	1996	Single antigen	Yes		

*Single antigen vaccine was used when Hepatitis B vaccine was introduced in the routine vaccination programme and since combined vaccines were introduced in the market, both have being used.
†Vaccination of children aged 13 years was introduced in 1999.
‡Physicians can choose among all licensed vaccines, they may use hexavalent vaccines, single antigen vaccines or combinations with hepatitis A vaccines.
§ Hexavalent vaccines (6 in 1).
± Hexavalent vaccines are used since they were introduced into the market and progressively replaced by monovalent vaccines or other combined vaccines.
**In 1995 introduction of HBV for 11-13 years old children.
*** Since 2002, for the second and third dose combination with DTPw is used (4 in 1).
! Type of vaccine can vary within Autonomous Communities. Single antigen is used when vaccinated at birth. Different combined vaccines are used.

Immunisation program for older children, adolescence and adults

Following the introduction of hepatitis B vaccine to routine childhood vaccination for newborns or infants catch-up programmes for older children and teenagers were also organised in twelve (60%) of 20 countries: BE, CY, EE, FR, DE, IT, MT, LV, LT, RO, PL and LU. In BG vaccine is recommended for adults. Some countries (EE, FR) introduced vaccination of teenagers before vaccination of newborns. Details of catch-up program among these countries are presented in table 3. Seven countries (35%) did not have catch-up programs in their countries (CZ, HU, IE, SK, SI, PT and ES).

Table 3. The age, year of introduction and type of hepatitis B vaccine among countries with catch up campaigns. Hepatitis B vaccination survey in Europe, January 2009. (n=13)

Country	Age in years	No. of doses (months)			Introduction of catch up campaign	End of catch up campaign	Type of vaccine used	Same type of vaccine from introduction	Year when vaccine was changed
		1st	2nd	3rd					
BE	11,12	0	1	6	1999	2011	Single antigen	Yes	
BG*	Adults	0	1	6	1996	Not fixed	Single antigen	Yes	
CY	6,11,16	0	2	6	1990	2008	Single antigen	Yes	
EE†	13	0	1	6	1999	2014	Single antigen	Yes	
FR‡	11,12,13	0	1	6	1994	1998	Both	Yes	
DE§	9-18	0	1	6	1995	Not known	Combined	No	Not known±
IT	11	0	1	6	1991	2003	Single antigen	Yes	
MT	8	0	1	6	2003	2010	Single antigen	Yes	
LV	14	0	1	6	2006	2011	Single antigen	Yes	
LT	12	0	1	6	2002	2010	Single antigen	Yes	
LU	12-18	0	1	6	1996	2008	Single antigen	Yes	
PL	14	0	1	6	2000	2010	Single antigen	Yes	
RO**	9	0	1	6	1999	2005	Single antigen	Yes	
	18	0	1	6	2004	2008	Single antigen	Yes	

* Catch-up programmes for older children and teenagers were not organised in BG (according to the definition). We are only recommending the immunisation to all persons born before 1991.
† From 2008 recommended age of hepatitis B vaccination changed from 13 years to 12 years.
‡ School vaccination campaigns were organised from 1995 in 11 years old children (1st grade of secondary school) and were planned to last for 10 years, the time needed for the first cohort of children vaccinated as infants to reach the age of 11 years. They were discontinued in 1998 in the context of HBV vaccination crisis in FR.
§Physicians can choose among all licensed vaccines, they may use hexavalent vaccines, single antigen vaccines or combinations with hepatitis A vaccines.
± No specific catch-up campaign organised (no school-based vaccination infrastructure) but HBV vaccination is recommended for all unvaccinated children aged 9-17.
** Hepatitis B vaccination for 9 years old children and for adolescents of 18 years old was part of the national program organised as school campaigns.

Hepatitis B vaccination of individuals who are at increased risk by their lifestyle

All countries (n=26) except RO recommend hepatitis B vaccine to the individuals at increased risk by their lifestyle.

In countries (n=20) with routine childhood programme vaccination is recommended for close family contacts of a case or individual with chronic hepatitis B infection in 18 (90%), injecting drug users in 15 (75%), MSM, female sex workers and individuals who change sexual partners frequently in 12 (60%) countries. Vaccine for those who are likely to 'progress' to injecting of illicit drugs (IDUs), inmates of custodial institutions recommended in nine (45%) countries. Vaccine for non-injecting users who are living with current injectors, sexual partners of injecting users, children of injectors and persons tattooing and body piercing recommended in eight countries (40%).

In countries (n=7) with selective immunisation programme vaccination is recommended for close family contacts of a case or individual with chronic hepatitis B infection and injecting drug users in all seven (100%) countries. Six countries (86%) recommend vaccine for non-injecting users who are living with current

injectors, sexual partners of injecting users and MSM. Vaccine is also recommended for children of injectors and female commercial sex workers, inmates of custodial institutions in five (71%), four (57%) and three (42%) countries respectively. Details presented in table 4.

Table 4. Hepatitis B vaccination of individuals who are at increased risk by their lifestyle. Hepatitis B vaccination survey in Europe, January 2009. (n=26)

Risk group	**Countries**		**Total**
	With routine immunisation program (n=19)	**With selective immunisation program (n=7)**	
Injecting drug users (IDUs)			
Recommended for all IDUs	BE,BG,CY,EE,DE,HU,IE, IT,MT,LU,PT,SK,SI,ES,FR (n=15)	DK,FI,IS,NL,NO,SE,UK (n=7)	22
Recommended for only regular IDUs	CZ (n=1)		1
Recommended for only intermitant IDUs			0
Not recommended	LV,PL (n=2)		2
Not known	LT (n=1)		1
Those who are likely to 'progress' to injecting			
Recommended	BE,CY,EE,DE,IE,IT,LU,ES,PT* (n=9)	IS,NL,NO,UK (n=4)	13
Not recommended	FR,SK,SI,MT,BG,HU,LV,LT,PL (n=9)	DK,FI,SE (n=3)	12
Not known	CZ (n=1)		1
Non-injecting users who are living with current injectors			
Recommended	BE,CY,EE,DE,IE,LU,ES,PT* (n=8)	DK,FI,SE†,UK,NO,IS (n=6)	14
Not recommended	FR,IT,SK,SI,MT,BG,HU,LV, LT,PL (n=10)	NL (n=1)	11
Not known	CZ (n=1)		1
Sexual partners of injecting users			
Recommended	BE,CY,EE,DE,IE,LU,ES,PT (n=8)	DK,FI,IS,NO,SE,UK (n=6)	14
Not recommended	FR,IT,SK,SI,MT,BG,HU, LV,LT,PL (n=10)	NL (n=1)	11
Not known	CZ (n=1)		1
Children of injectors			
Recommended	CY,EE,DE,IE,LU,ES,BG,PT (n=8)	DK,FI,IS,SE†,UK (n=5)	13
Not recommended	BE,FR,IT,SK,SI,MT,HU,LV, LT,PL (n=10)	NL,NO (n=2)	12
Not known	CZ (n=1)		1
Individuals who change sexual partners frequently (Persons with more than one sex partner during the previous 6 months)			

Recommended	BE,BG,CY,EE,FR,DE, HU,IE,LU,ES,SK,IT‡ (n=12)	UK (n=1)	13
Not recommended	LV,LT,PT,SI,MT,PL (n=6)	DK,FI,IS,NL,NO,SE (n=6)	12
Not known	CZ (n=1)		1
Men who have sex with men (MSM)			
Recommended	BE,BG,CY,EE,DE,HU,IE,IT, LU,SK,SI,ES (n=12)	DK,IS,NL,NO,SE,UK (n=6)	18
Not recommended	FR,LV,LT,PT,MT,PL (n=6)	FI (n=1)	7
Not known	CZ (n=1)		1
Female commercial sex workers			
Recommended	BE,BG,CY,EE,DE,HU,IE,IT, LU,PT,SK,ES (n=12)	FI,NL,NO,UK (n=4)	16
Not recommended	FR,LV,LT,SI,MT (n=5)	DK,IS,SE (n=3)	8
Not known	CZ (n=1)		1
Not answered	PL (n=1)		1
Close family contacts of a case or individual with chronic hepatitis B infection			
Recommended	BE,BG,CZ,CY,EE,FR,DE,HU, IE,IT,LV,LU,PT,SK,SI,ES,MT,PL (n=18)	DK,FI,IS,NL,NO,SE,UK (n=7)	25
Not recommended	LT (n=1)		1
Inmates of custodial institutions (correctional facilities)			
Recommended	BE,CY,FR,DE,IE,IT,LU,PT,ES (n=9)	NL,SE,UK (n=3)	12
Not recommended	LV,LT,SK,SI,MT,BG,HU,PL (n=8)	DK,IS,NO,FI (n=4)	12
Not known	CZ,EE (n=2)		2
Persons tattooing and body piercing			
Recommended	BE,CY,EE,DE,PT*,ES,IE,MT (n=8)	IS (n=1)	9
Not recommended	HU,IT,LV,LT,LU,SK,SI,BG,PL,FR (n=10)	DK,FI,NL,NO,SE,UK (n=6)	16
Not known	CZ (n=1)		1
Other lifestyle risk groups mentioned by respondents			
Sex partners of HBsAg positive persons	HU,ES (n=2)	NO,NL,FI,SE (n=4)	6
STI patients and their sexual contacts	SI,IE (n=2)		2
Male sex workers	IE (n=1)	UK (n=1)	2
Children of injectors that are HBsAg positive		NO (n=1)	1
Homeless people	IE (n=1)		1

* The vaccination of contacts of IDU and other likely to progress to IDU and person's tattooing or body piercing are subject to individual medical decision.

† Neither does the recommendations address this situation unless the user is infected then it is recommended.
‡ Recommended by a committee of experts.

Recommendations for BE in table 4 based on those of the Belgian Association for the Study of the Liver (BASL) as well as the National Health Council.
Only official recommendation published in official regulations (for instance, Cabinet regulations or regulations of MOH) are presented for LV in this report.

Hepatitis B vaccination of individuals who are at increased risk by their occupation

All countries have recommendations for hepatitis B vaccination of individuals who are at increased risk by their occupation. Vaccination of health care workers is recommended in all countries (100%), laboratory staff in 26 (96%), police, emergency and rescue services in 22 (81%). Vaccine is recommended for staff of residential and other accommodation for those with learning difficulties in 13 (65%) countries with routine childhood immunisation program and in three (43%) countries with selective immunisation program. Details provided in table 5.

Table 5. Vaccination of individuals who are at increased risk by their occupation. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

Occupational group	Countries		Total
	With routine immunisation program (n=20)	With selective immunisation program (n=7)	
Healthcare workers (including students and trainees)			
Recommended	BE,BG,CZ,CY,EE,FR,DE,HU, IE,IT,LV,LT,LU,PT,RO,SK,SI, ES,MT,PL (n=20)	DK,FI,IS,NL,NO,SE*,UK (n=7)	27
Laboratory staff			
Recommended	BE,BG,CY,EE,FR,DE,HU,IE, IT,LV,LT,LU,PT,RO,SK,SI, ES,MT,PL (n=19)	DK,FI,IS,NL,NO,SE*,UK (n=7)	26
Not recommended	CZ (n=1)		1
Staff of residential and other accommodation for those with learning difficulties (developmentally disabled persons)			
Recommended	BE,CY,DE,IE,IT,LV,LT,LU, PT,SK,SI,ES,MT (n=13)	DK,UK,SE* (n=3)	16
Not recommended	EE,FR,RO,BG,HU,PL (n=6)	FI, NL, IS, NO (n=4)	10
Not known	CZ (n=1)		1
Other occupational risk groups: such as morticians and embalmers			
Recommended	BE,CZ,CY,FR,IE,LV,LT, PT,ES,MT,HU,IT,PL (n=13)	SE*,UK (n=2)	15
Not recommended	DE,LU,RO,SK,SI,BG (n=6)	DK,FI,IS,NL,NO (n=5)	11
Not known	EE (N=1)		1
Police			
Recommended	BG,CY,EE,FR,DE,IE,IT,LT,LU, PT,SK,SI,ES,MT,HU,PL (n=16)	DK,FI,IS,SE*, NO†,UK† (n=6)	22

Not recommended	BE,LV,RO (n=3)	NL (n=1)	4
Not known	CZ (n=1)		1
Fire and rescue services			
Recommended	BE,CY,CZ,EE,FR,DE,IE,IT,LT, LU,PT,SK‡,SI,ES,MT,HU,PL (n=17)	DK,FI,IS,UK†,SE*(ambulance) (n=5)	22
Not recommended	RO,BG,LV (n=3)	NL,NO (n=2)	5

* The persons should be considered to be at risk i.e. not all police should be vaccinated only those who have duties that entails risk.

†Police and emergency service staff are offered vaccine after a risk assessment (i.e. not all police are offered vaccine).

‡For fire staff is not recommended.

Other occupational risk groups mentioned by respondents whom hepatitis B vaccine is recommended for:

BE - Specific occupational groups provided they proof they are at increased risk.
FR - Sewer workers.
IE - Cleaning staff, porters (with occupation risk of possible exposure to blood or blood contaminated environments).
ES, PL - Workers with potentially in contact with body fluids.
IT, FR, DE, ES (gardeners and street cleaners) - Garbage collectors.
DK - Any employee with exposure that is considered relevant.
CY, EE, IE, UK, ES, FI, DE (staff in contact to drug addicts), NO (in close contact with prisoners) - Prison Staff.
FR, IE, ES - Tattooers and body piercing artists/practitioners.
DE - Staff of asylum seeking institutions, social workers with possible contact to contaminated blood, voluntary first-aider.
IT - Religious persons or voluntaries that provide assistance to ill persons; people working with blood products.
LV - All persons who has a regular contact with blood (at least 1 time a month) conducting their occupational duties.
NO - Staff in kindergarten where there is HBsAg positive children under the age of 3 years, staff that are caring for developmentally disabled persons that are HBsAg positive.
FR - HBV vaccination is mandatory for all individuals occupationally directly exposed to patients, blood or other body fluids.
BG - Any employee with exposure that is considered relevant. Non-medical specialists, including ancillary staff, working in health care facilities. Military officers.

Hepatitis B vaccination of individuals who are at increased risk for other reasons

Twenty five countries (except IS*, RO) recommend hepatitis B vaccination for individuals who are at increased risk by other factors (table 6).

Hepatitis B vaccine is recommended for babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy in 25 (93%), people travelling to or going to reside in areas of high or intermediate prevalence in 21 (78%, IS included to the numerator), patients with chronic renal in

23 (85%), liver disease and individuals receiving regular blood or blood products in 18 (67%), individuals in residential accommodation for those with learning difficulties in 16 (59%) countries. Eight countries recommend vaccination for families adopting children from countries with intermediate or high hepatitis B prevalence (30%) and five countries (19%) recommend vaccination for carers of individuals receiving regular blood or blood products.

Table 6. Hepatitis B vaccination of individuals who are at increased risk by other factors. Hepatitis B vaccination survey in Europe, January 2009. (n=25)

Other risk groups	Countries		Total
	With routine immunisation program (n=19)	With selective immunisation program (n=6)	
Babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy (table 6a)			
Recommended	BE,BG,CZ,CY,FR,DE,HU,IE,IT, LV,LT,PT,SK,ES,MT,LU,EE,SI,PL (n=19)	DK,FI,NL,NO,SE,UK (n=6)	25
People travelling to or going to reside in areas of high or intermediate prevalence			
Recommended	BE,BG,CY,EE,FR,DE,HU,IE, IT,LT,PT,ES,MT,LU,SI (n=15)	DK,FI,NL,NO,UK,IS* (n=6)	21
Not recommended	LV,SK,CZ (n=3)	SE (n=1)	4
Not answered	PL (n=1)		1
Patients with chronic renal failure (persons with or likely to progress to end-stage renal disease)			
Recommended	BE,BG,CZ,CY,EE,DE,HU,IE,IT,LV, LT,PT,SK,ES,MT,FR,LU,SI,PL (n=19)	DK,NL,NO,UK (n=4)	23
Not recommended		FI,SE (n=2)	2
Patients with chronic liver disease			
Recommended	BE,BG,CY,EE,DE,HU,IE,SK,ES, LU,IT†,SI,PT,PL (n=14)	DK,NL,NO,UK (n=4)	18
Not recommended	CZ,FR,LV,LT,MT (n=5)	FI, SE (n=2)	7
Patients with immunosupression			
Recommended	BG,CY,EE,DE,HU,IT,SK,ES,LU, SI‡,PL (n=11)	DK (n=1)	12
Not recommended	BE,CZ,LV,LT,PT,IE,MT,FR (n=8)	FI,NL,NO,SE,UK (n=5)	13
Families adopting children from countries with intermediate or high hepatitis B prevalence (HBsAg prevalence higher than 2%)			
Recommended	BE§,CY,IE,ES,MT (n=5)	DK,SE,UK (n=3)	8
Not recommended	BG,CZ,EE,FR,DE,IT,LV,LT,PT, SK,LU,HU,SI (n=13)	FI,NL,NO (n=3)	16
Not answered	PL (n=1)		1
Foster carers (short and/or permanent)			
Recommended	CY,EE,IE,ES (n=4)	UK (n=1)	5

Not recommended	BE,BG,CZ,FR,DE,IT,LV,LT,PT, SK,MT,LU,HU,SI (n=14)	DK,FI,NL,NO,SE (n=5)	19
Not answered	PL (n=1)		1
Individuals receiving regular blood or blood products			
Recommended	BG,CY,EE,FR,DE,IE,IT,PT,ES, LU,BE±,SK±,SI (n=13)	FI,NL,NO,UK,DK± (n=5)	18
Not recommended	CZ,LV,LT,MT,HU (n=5)	SE (n=1)	6
Not answered	PL (n=1)		1
Carers of individuals receiving regular blood or blood products			
Recommended	CY,EE,IE,ES (n=4)	UK (n=1)	5
Not recommended	BE,BG,CZ,FR,DE,IT,LT, PT,SK,MT,LU,HU,LV,SI (n=14)	DK,FI,NL,NO,SE (n=5)	19
Not answered	PL (n=1)		1
Individuals in residential accommodation for those with learning difficulties (developmentally disabled persons)			
Recommended	BE,CY,FR,DE,IE,PT,SK, ES,MT,LU,SI (n=11)	DK,UK,NL,NO**,SE (n=5)	16
Not recommended	BG,CZ,EE,IT,LV,LT,HU (n=7)	FI (n=1)	8
Not answered	PL (n=1)		1
Other			
Recommended	BE,EE,DE,IT,PT,SK,IE,ES,PL (n=9)	NL,NO,SE,DK (n=4)	13
Not recommended	CY,CZ,FR,LV,MT,LU,HU,SI (n=8)	FI,UK (n=2)	10
Not known	LT (n=1)		1
Not answered	BG (n=1)		1

*Recommended for travelers.
†Recommended by a committee of experts.
‡ Patients with HIV/AIDS.
§ Adoptive children and their families. Hepatitis B catch up at the age of 11-12 years can be done earlier if in an at risk situation, e.g. adoption from countries where hepatitis B is endemic.
± Patients with hemophilia.
** Individuals in residential accommodation for those with learning difficulties (developmentally disabled persons), when living in the same accommodation as individuals that are HBsAg positive.

Comments:

BE - Candidates for organ transplantation/ with thalassemia major/ after a bone marrow transplant/ liver transplant/ the family members of patients with chronic hepatitis B. These patients specified above receive reimbursement. People travelling to high endemicity countries - their risk has to be assessed based on length of stay and risk behavior, they do not receive reimbursement.
BE, EE, SK, and ES - Organ transplantation patients.
DE - Patients before major surgery; psychiatric patients.

LV - There are no special official recommendations except inmates of custodial institutions, but all family doctors are responsible to offer vaccine against hepatitis B to their patient taking into account individual risk that may include mentioned conditions.
IT - People with injury from a potentially contaminated needle stick; people with cutaneous lesions (eczema, psoriasis).
PT - Staff and students in Health Schools. Patients with chronic liver disease are vaccinated according with individual medical decision.
SK - Persons at the higher risk of injury, diabetics, patients with cystic fibrosis.
DK - Children in institutions with HBV carriers.
NL - Infants who have one or two parents born in an intermediate or highly endemic country.
NO - Children of parents from medium or high endemic countries, children in kindergarten with HBsAg positive children under the age of three.
FI - For those who travel and stay longer period, particular for travelers combined hepatitis A and B -vaccination is often recommended.
IE - Children had born to parents from intermediate/high HBV countries, homeless people.
IS - Travelers.
PL - HIV infected individuals, patients before cardiac surgery.
FR, IE - Household or sexual contacts of HbsAg ⊕ subjects (both acute cases and chronic carriers).

Vaccination schedule of babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy is presented in table 6a. Most countries use three dose schedules, some countries offers vaccination with four or five doses.

Table 6a. Vaccination schedule of babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy. Hepatitis B vaccination survey in Europe, January 2009. (n=25)

Country	1st dose (months)	2nd dose (months)	3rd dose (months)	4th dose (months)	5th dose (months)
With routine immunisation program					
BE	0	2	3	4	15
BG	0	1	6		
CY	0	2	4	8-12	
CZ	0	1	6		
DE	0	1	6		
HU	0	1	6		
IT	0	1	2-3	11	
LT	0	1	6		
LV	0	1	2	12	
PT	0	1	6		
SK	0	1	6		
MT	0	1	6		
ES	0	1	6		
FR	0	1	6		
LU	0	1	6		
EE	0	1	6		
IE	0	2	4	6	
SI	0	1	2	12	

PL	0	2	6		
With selective immunisation program					
DK	0	1	2	12	
FI	0	1	2	12	
NL	0	2	3	4	11
NO	0	1	2	12	
SE	0	3	5		
UK	0	1	2	12	

Serologic testing

Most countries do not recommend pre-vaccination serologic testing for HIV infected persons (74%), groups with high risk of HBV infection (MSM, IDU, incarcerated persons)(70%), household, sex, and needle-sharing contacts of HBsAg positive persons (55%). Post-vaccination serologic testing is recommended in 21 countries for chronic haemodialysis patients (78%), in 18 countries for infants born to HBsAg positive women and health care workers who have contact with patients or blood (67%). Details provided in table 7.

Table 7. Serologic testing of vaccine recipients. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

Serologic testing	**Countries**		**Total**
	With routine immunisation program (n=20)	**With selective immunisation program (n=7)**	
PREVACCINATION SEROLOGIC TESTING			
Household, sex, and needle-sharing contacts of HBsAg positive persons			
Recommended	BE,CY,DE,PT,RO,SK,ES,MT,FR,BG (n=10)	NL,NO (n=2)	12
Not recommended	CZ,EE,IT,LV,LT,LU,SI,IE,HU,PL (n=10)	DK,FI,IS,SE,UK (n=5)	15
HIV infected persons			
Recommended	BE,CY,DE,PT,ES,MT,FR (n=7)		7
Not recommended	CZ,EE,IT,LV,LT,LU,RO, SK,SI,IE,BG,HU,PL (n=13)	DK,FI,NO,NL,IS,SE,UK (n=7)	20
Groups with high risk of HBV infection (MSM, IDU, incarcerated persons)			
Recommended	BE,CY,DE,PT,ES,MT,FR (n=7)	NO(MSM,IDU) (n=1)	8
Not recommended	CZ,EE,IT,LV,LT,LU,RO,SK,SI,IE, BG,HU,PL (n=13)	IS,FI,DK,NL,SE,UK (n=6)	19
Other			
Recommended	DE,IE (n=2)		2
Not recommended	CZ,EE,IT,LV,LU,PT,RO,SK,SI,ES,MT, BG,HU,PL,FR (n=15)	DK,FI,IS,NL,NO,UK (n=6)	21
Not known	BE,CY,LT (n=3)	SE (n=1)	4
POST-VACCINATION SEROLOGIC TESTING			
Chronic haemodialysis patients			
Recommended	BE,CY,HU,FR,DE,IE,IT,LV,LU,PT, SK,SI,ES,MT,PL (n=15)	DK,FI,NL,NO,SE,UK (n=6)	21
Not recommended	CZ,EE,LT,BG	IS	5

	(n=4)	(n=1)	
Not known	RO (n=1)		1
Other immunocompromised persons			
Recommended	BE,CY,FR,DE,IT,LU,PT,ES,MT,PL (n=10)	DK,FI,NL,NO (n=4)	14
Not recommended	CZ,EE,IE,LV,LT,SK,SI,BG,HU (n=9)	IS,SE,UK (n=3)	12
Not known	RO (n=1)		1
Persons with HIV infection			
Recommended	BE,CY,DE,IT,LU,ES,MT,PL (n=8)	FI,NL,NO (n=3)	11
Not recommended	CZ,EE,FR,IE,LV,LT,PT,SK,SI,BG, HU,RO (n=12)	DK,IS,SE,UK (n=4)	16
Sex partners of HBsAg positive person			
Recommended	BE,CY,IE,IT,LU,ES,MT,HU (n=8)	FI,NL,NO,SE (n=4)	12
Not recommended	CZ,EE,FR,DE,LV,LT,PT,SK, SI,BG,PL (n=11)	DK,IS,UK (n=3)	14
Not known	RO (n=1)		1
Infants born to HBsAg positive women			
Recommended	BE,CZ,CY,HU,FR,IE,IT,LV,LU, PT,ES,MT,PL (n=13)	FI,NL,NO,SE,UK (n=5)	18
Not recommended	EE,DE,LT,SK,SI (n=5)	DK,IS (n=2)	7
Not applicable	RO,BG (n=2)		2
Health care workers who have contact with patients or blood			
Recommended	BE,CY,FR,DE,IE,IT,LU,PT,SI, ES,MT,HU,PL (n=13)	FI,NL,NO,SE,UK (n=5)	18
Not recommended	CZ,EE,LV,LT,SK,BG (n=6)	DK,IS (n=2)	8
Not known	RO (n=1)		1
Other			
Recommended	FR,DE,IE,SI (n=4)	FI,NO (n=2)	6
Not recommended	CZ,EE,IT,LV,LU,PT,RO,SK,ES, MT,HU,PL (n=12)	DK,IS,NL,SE,UK (n=5)	17
Not known	BE,LT (n=2)		2
Not applicable	CY,BG (n=2)		2

*Recommended for pregnant women if risk factor in life history.

Comments on pre-vaccination serologic testing:

DE - Patients with individual medical risks.
BE - Pre-vaccination serologic testing not necessary for occupational risk groups.

DK - There is no recommendations for pre-vaccination testing. This is an economic issue. The problem needs to be solved.
FI - If person belongs to a risk group he/she always vaccinated without pre-testing. For refugees for instance hepatitis B is tested anyway, to find out carriers, to be able to vaccinate their family members.
NL -In the groups who are tested, this is done at the same moment as giving the first vaccine.
PT - Commercial sex workers. Exceptions: not recommended for MSM and general households of HBsAg positive persons.
IE - Pre-vaccination serologic testing should never delay vaccination if indicated.

Comments for post-vaccination serologic testing:

BE - Serologic post-vaccination testing: 1 to 3 months after the completed vaccination, recommended for all adults. If antibody titers are ≥ 10 IU/L lifelong protection is supposed. If not: restart the vaccination schedule or 2 doses at the same time (in left and right deltoid muscle) with 2 months later again 2 doses. Again serologic testing afterwards.
FR - For HCW and other individuals occupationally directly exposed to patients, blood or other body fluids, only if vaccinated after 25 years of age.
DE - Persons with occupational risk presented in table 5.
NO - Commercial sex workers.
SI - HCW after vaccination.
FI - Testing offered to all mentioned in table 7. All are recommended a test 6-8 weeks after vaccinations. All those positive, lifetime protection promised. The rest, if protection needed, a new vaccination administered of 3 doses given and test repeat again.
IE - Anyone who is at continued risk of exposure to hepatitis B virus.
PT - For immunocompromised persons testing is dependent of individual medical decision.

Screening for hepatitis B
Most countries do not recommend screening for all foreign born persons (immigrants, refugees, asylum seekers, internationally adopted children) born in regions with high endemicity of HBV infection (70%). However 23 countries (85%) recommend hepatitis B screening for pregnant women (Table 8).

Table 8. Heptitis B sreeninng. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

Screening tests	**Countries**		**Total**
	With routine immunisation program (n=20)	**With selective immunisation program (n=7)**	
All foreign born persons (immigrants, refugees, asylum seekers, internationally adopted children) born in regions with high endemicity of HBV infection			
Recommended	BE,CY,FR,IE*,ES (n=5)	IS,NO (n=2)	7
Not recommended	CZ,EE,DE,IT,LV,LT,LU,PT, SK,SI,MT,BG,HU,PL (n=14)	DK,FI,NL,SE,UK (n=5)	19
Not known	RO (n=1)		1

Pregnant women			
Recommended	BE,CZ,CY,EE,HU,FR,DE,IE,IT, LV,LU,PT,SK,SI,ES,MT,PL (n=17)	DK,FI,IS,SE,NL,UK (n=6)	23
Not recommended	LT,RO,BG (n=3)	NO* (n=1)	4

* Only refugees and asylum seekers.

Monitoring vaccine uptake

Twenty three countries (85%) monitor hepatitis B vaccine uptake most of them annually (73%). Countries with selective immunisation programs monitor vaccine uptake among risk groups. Details presented in table 9.

Table 9. Monitoring vaccine uptake. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

Vaccine uptake	Countries		Total
	With routine immunisation program (n=20)	With selective immunisation program (n=7)	
Monitor hepatitis B vaccine uptake			
Monitor	BE,CY,EE,FR,DE,HU,IE,IT, LV,LT,LU,PT,RO,SK,SI,ES, MT,BG,PL,CZ (n=20)	NL,SE*,UK (n=3)	23
Do not monitor		DK,FI,IS,NO (n=4)	4
Vaccine uptake measured by age			
1 year (12 months)	IE,LV,PT,SK,ES,EE,DE,BG, LT,PL (n=10)		10
2 years (24 months)	BE,CY,EE,FR,IT,LU,RO,FR, IE,DE,MT (n=11)	NL†,SE (n=2)	13
4 years	DE (n=1)		1
5 years	DE (n=1)		1
6 years	SI,FR‡,DE (n=3)		3
10 years	FR,SK (n=2)		2
11 years	FR‡ (n=1)		2
12 years	LT,BE,LU (n=3)	SE (n=1)	4
13 years	EE,ES§,LU (n=3)		3
14 years	BE,FR‡,EE,LV,LU,HU,PL (n=7)		7
15 years	LU (n=1)		1
16 years	LU (n=1)		1
17 years	LU (n=1)		1
18 years	LU,RO (n=2)		2

General population	EE,CY,MT (n=3)		3
Vaccine uptake measured by risk group (by occupation, lifestyle and/or other)±			
HCWs	FR±,RO,SK,BE (n=4)		4
Babies born to positive HBsAg (+) mothers, IDUs, MSM, prisoners	SK**,HU (n=2)	UK (n=1)	3
Any risk group	SK*** (n=1)		1
Interval at which hepatitis B vaccine uptake is collected			
Monthly	LV (n=1)		1
Every three months (quarterly)	IE (n=1)		1
Annually	EE,FR,DE,IT,LT,RO,SK,SI, ES,SE,MT,BG,HU,PL (n=14)	NL,UK (n=2)	16
Every 3-4 years	BE (n=1)		1
Every 3 years	CY (n=1)		1
Every 6 months	PT (n=1)		1
Every 5 years	LU! (n=1)		1

*Only for children in families from high prevalence countries.

†This data refers only to infants born to parents from endemic hepatitis B countries and infants born to HsAg positive mothers. Other infants do not get HBV vaccination.

‡Surveys done every year alternatively on 6, 10 and 14 years old school children.

§ At national level a range of age is considered for adolescents: between 10-14 years of age.

± Refers to GPs, through surveys.

**Vaccine uptake measured only in babies born to positive HBsAg (+) mothers.

***Students of the schools of health and social science, haemodialysis patients, contacts of individuals infected with HBV.

! Surveys every 5 years for children aged 30 months and yearly for adolescents in catch-up program.

Methods for vaccine uptake assessment

Most common type of vaccine uptake assessment is number of subject vaccinated (65%), eight countries use survey method for vaccine uptake monitoring (Table 10).

Table 10. Methods for vaccine uptake assessment. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

Type for vaccine uptake assessment	**Countries**		**Total**
	With routine immunisation program	**With selective immunisation program**	
Administrative			
No. of subjects vaccinated	BE,CZ,EE,IT,LV,LU,PT, SK,SI,ES,FR*,IE,BG, LT,HU (n=15)	SE,UK (n=2)	17
No. of doses administered	RO,PT,MT,PL (n=4)		4
No. of doses distributed		FI,IS (n=2)	2
School records	DE (n=1)		1

Immunisation register		NL,IS† (n=2)	2
Survey methods			
Face to face	IT,DE (n=2)		2
School survey	FR‡ (n=1)		1
Household survey	BE,CY§ (n=2)		2
Telephone survey	DE (n=1)		1
Mail survey	LU (n=1)		1
Focus groups	(n=0)		0
Not known	SE (n=1)		1
Survey methods used for risk groups, not specified type		UK (n=1)	1
Not applicable	EE,LV,LT,SI,ES,MT,BG,HU,PT,PL, CZ,DK,IE,RO,SK (n=15)	FI,NL,NO,IS (n=4)	19
Other methods mentioned by respondents			
Administrative control in GPSs/paed±	CZ (n=1)		1
Sales figures		IS (n=1)	1
Family doctor registers	RO (n=1)		1
Yearly assessment of the vaccination coverage	SK (n=1)		1

* At 2 years.
† Central database on vaccinations also used.
‡ School age children.
§ Surveys among children 17-24 months carried out every 3 years.
± Data were not validated and this expression was not explained.

Comments:

FI - Has some surveys among IDUs done.
DE - Face to face interviews and telephone surveys are not done regular.
IT - A sample survey (face to face) is carried out every five years (ICONA).
LU - Administrative (sickness fund) for adolescents in catch-up programme and surveys for general vaccination coverage every 5 years for children aged 30 months are used.
NL - There is vaccination register (\'Praeventis\') in which all registered children in the NL are included, and all vaccinations given within the National Immunisation Programme are recorded.
SK - The vaccination coverage is represented by the number of the children fully vaccinated with three doses from the total number of children included into the routine regular vaccination schedule; this assessment gives also the number of administered doses to children.
UK - Coverage measured in four groups by survey methods: babies born to positive HBsAg mothers; injecting drug users; prisoners; MSM.
IE - Local registers, data collated every quarter.

EE - The data of immunisation under the Immunisation Schedule is summarised as the population of children aged up to 17 years, number of doses administered for vaccine and age-specific coverage for vaccine. This summary coverage information is reported annually by GPs and school health professionals.
PL - Obligatory reports from GPs, data collated every quarter by sanitary inspection.

Vaccination coverage results
In table 11 presented vaccine uptake data by countries among different age and risk groups which were available for most recent year at the time of conducting study.

Table 11. Hepatitis B vaccination coverage by age, risk groups and year. Hepatitis B vaccination survey in Europe, January 2009. (n=23)

Country	Percentage	Year
1 year		
CZ	98	2007
EE	95.9	2008
DE*	58.3	2006
LV	96.8	2007
LT	95.7	2007
PT	97	2007
SK†	99.3	2007
ES	96	2007
BG	95.7	2008
PL	90.6	2006
2 years		
BE‡	95	2008
CZ	98	2007
CY§	93	2006
EE	97.4	2008
FR	29	2004
DE*	85.6	2006
IT	96.5	2007
MT	74.7	2007
LU	94.5	2007
NL±	**90.7**	**2008**
RO	98	2008
SE**	**16.8**	**2007**
PL	99.9	2006
5 years		
DE*	87	2006
6 years		
SI	97	2006/2007 school year
FR	33	2002/2003
10 years		
SK†	99.4	2007
FR	39	2004/2005 school year
12 years		
CZ	99	2007
13 years		
ES	83	2007
EE	31.7	2008
14 years		
EE	94.2	2008
FR	42	2003/2004 school year

PT	92	2007
HU	99.5	2007
18 years		
RO	96	2007
Catch-up program		
BE	89	2008
FR	42	2004
LV	73.5	2007
LU	65	2008
MT	74.8	2008
LT	87.6	2007
General population		
EE	2.5	2008
IDUs		
FI	**45**	**2004**
HCWs		
CZ	100	2007
FR***	87	1999
RO	75	2008
SK	88.1	2007
Children of HBV carrier		
DK	**98**	**2007**
Haemodyalisis patients		
SK	96.2	2007

* Result of the German Health Interview and Examination Survey for Children and Adolescents 2003 to 2006, (n= 16.460).
† Children are vaccinated with three doses within the first year of life since 1998; children born between 1993 and 1997 were administered the vaccination of three doses at 10 years.
‡ Percentage refers to the coverage data in Flanders (representing 60% of Belgium).
§Coverage of children included in the survey of 2006 among children 17-24 months.
± This data refers only to infants born to parents from endemic countries. Other infants do not get HBV vaccination.
**Among children of 2 year old in families from high prevalence countries are vaccinated. The exact denominator is not known but this likely to be between 80- 90 % of all children considered being at risk.
*** Vaccine coverage provided refers only to GPs.
Data for IE on vaccine coverage expected in quarter 3 2009 for first cohort of vaccinated children as immunisation was introduced in September 2008.

Payment and administration for hepatitis B vaccine

Details regarding payment and administration for hepatitis B vaccine are presented in table 12. Vaccine and administration is free for all children born (babies and/or infants), without regard to other risk indication in 20 countries (74%), for catch up programs in 10 of 12 countries (83%) countries who currently have catch up programs, babies born to mothers who are chronically infected with HBVor to mothers who have had acute hepatitis B during pregnancy in 26 countries (100%). Full vaccine and administration cost paid by all recipients is recommended for travellers going to high or intermediate prevalence countries in 20 (74%) countries.

Table 12. Payment and administration for hepatitis B vaccine. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

Cost category	Countries		Total
	With routine immunisation program (n=20)	With selective immunisation program (n=7)	
All children born (babies and/or infants), without regard to other risk indication			
Vaccine and administration free for all recipients	BE,CZ,CY,EE,DE,IE, IT,LV,LT,LU,PT,RO, SK,SI,ES,MT,BG,HU,PL (n=19)	UK (n=1)	20
Vaccine and administration free for some recipients	FR (n=1)	DK,NO,NL,SE (n=4)	5
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients			0
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients			0
Full vaccine and administration cost paid by some recipients			0
Not applicable		FI,IS (n=2)	2
Catch-up programme			
Vaccine and administration free for all recipients	BE,CY,DE,IT,LV,LU, LT,MT,EE,PL (n=10)		10
Vaccine and administration free for some recipients	FR (n=1)		1
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients			0
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients	BG (n=1)		1
Full vaccine and administration cost paid by some recipients			0
Not applicable	CZ,IE,PT,RO,SK,SI, ES,HU (n=8)	DK,FI,IS,NO, SE,UK,NL (n=7)	15
Health care workers			
Vaccine and administration free for all recipients	BE,CZ,CY,EE,DE,IE,IT, LV,PT,RO,SK,SI,ES,MT, FR,BG,HU,PL (n=18)	FI,NL,SE,UK,NO (n=5)	23
Vaccine and administration free for some recipients	LU (n=1)	DK (n=1)	2
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients			0
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0

Full vaccine and administration cost paid by all recipients		IS (n=1)	1
Full vaccine and administration cost paid by some recipients	LT (n=1)		1
Emergency workers (i.e. police, fire and rescue services)			
Vaccine and administration free for all recipients	BE,CY,EE,DE,IE,IT,LU, PT,SK,SI,ES,FR,HU,PL (n=14)	FI,UK (n=2)	16
Vaccine and administration free for some recipients	CZ (n=1)	DK,SE,NO (n=3)	4
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients	MT (n=1)		1
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients	BG (n=1)	IS (n=1)	2
Full vaccine and administration cost paid by some recipients	LT (n=1)		1
Not applicable	LV,RO (n=2)	NL (n=1)	3
Travelers going to high or intermediate prevalence countries			
Vaccine and administration free for all recipients	CY,ES (n=2)	UK (n=1)	3
Vaccine and administration free for some recipients	DE,IT,MT,FR (n=4)		4
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients			0
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients	BE,CZ,EE,LV,LT,LU,IE, PT,RO,SK,SI,BG,HU,PL (n=14)	DK,NL,NO,FI,IS, SE (n=6)	20
Full vaccine and administration cost paid by some recipients			0
Individuals who are at increased risk by their lifestyle (i.e. IDUs, MSM, individuals who change sexual partners frequently, female commercial sex workers, inmates of correctional facilities)			
Vaccine and administration free for all recipients	CY,DE,IT,SK,ES,MT (n=6)	FI,NL,NO,UK (n=4)	10
Vaccine and administration free for some recipients	LU,IE,PT,SI,FR (n=5)	DK,SE (n=2)	7
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients	HU (n=1)		1
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients	BE,EE,LV,BG,PL (n=5)	IS (n=1)	6
Full vaccine and administration cost paid by some recipients			0
Not known	CZ,LT (n=2)		2
Not applicable	RO (n=1)		1

Babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy			
Vaccine and administration free for all recipients	BE,CZ,CY,EE,DE,HU,IE, IT,LV,LT,LU,PT,SK,SI,ES, MT,FR,BG,PL (n=19)	DK,FI,IS,NL,NO, SE,UK (n=7)	26
Vaccine and administration free for some recipients			0
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients			0
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients			0
Full vaccine and administration cost paid by some recipients			0
Not applicable	RO (n=1)		1
People with chronically medical condition (i.e. chronic renal, liver diseases, immunocompromised)			
Vaccine and administration free for all recipients	CY,DE,IT,LV,LT,LU,PT, SK,ES,MT,FR,PL (n=12)	DK,NL,NO,UK (n=4)	16
Vaccine and administration free for some recipients	SI,IE (n=2)		2
Partial subsidy for vaccine and administration (below cost to recipient) for all recipients	BE,HU (n=2)		2
Partial subsidy for vaccine and administration (below cost to recipient) for some recipients			0
Full vaccine and administration cost paid by all recipients	EE,BG (n=2)		2
Full vaccine and administration cost paid by some recipients	CZ (n=1)	FI,IS,SE (n=3)	4
Not known	RO (n=1)		1

Comments to cost category for children:

BE - An administration is free if offered in well baby clinics; if offered by GP or pediatrician a visit needs to be paid.
CY - The cost of vaccine paid by recipients only if they are vaccinated in the private sector.
DK - Children of HBV carrier mothers and children of immigrants from high endemic areas.
EE - Covered by national budget.
FI - If someone wants a vaccine to his/her newborn, vaccine should be prescribed by the doctor, vaccine is given but it should be paid by all.
PT - Vaccine included in National Immunisation Program.
MT - Free to children born since 1989.

FR - Vaccine and its administration are fully free or reimbursed for at least 85 % of the population. Only those without any complementary insurance have to bear up to 35 % of the costs.
NO - Vaccine and administration free for all children of parents from medium or high endemic countries, children in kindergarten with HBsAg positive children under the age of 3 and children in defined risk groups.
SE - If a child at risk it is provided free.

Comments to cost category for catch-up program:

BE - Administrations is free if offered in school health system; if offered by GP or pediatrician a visit needs to be paid.
MT - Free to children born since 1989.

Comments to cost category for healthcare workers:

EE, DK, LV, NO, SK, SI, BG- paid by employer.
FI - Paid by the work instance, some refund - for the work -by insurance. In any case, free for the worker.
LU - For employees' vaccine and administration paid by employer; for liberal doctors and other health professionals, vaccine to be paid by them, administration paid by sickness fund.
BE - Vaccine paid by Fund for professional diseases administration is free of charge if done by occupational physician, otherwise not free of charge if done by GP.
PT - For all recipients that have a risk to be infected (not administrative functions).
MT - Free to those health care workers working in state hospitals and clinics.
IE - Free for HCWs employed in national health services, private sector varies.

Comments to cost category for emergency workers:

BE -Same comment as above for HCWs. For Police: vaccination is not free of charge.
DK, EE, NO, PT, SK, SI, SE, UK - Paid by employer.
FI - Paid by the work instance, some refund - for the work -by insurance. In any case, free for the worker.
MT - Subsidised when bougth through national immunisation centre.
SE - If at risk it is provided free.

Comments to cost category for travelers:

BE - For travelers and some other groups at risk, partial reimbursement is foreseen, depending on the Health Insurance Company, which can cover part of the immunisation costs.
EE - Vaccination and administration is normally paid from their own pocket.
FI - In public sector, which is mostly utilised for these in country side, administration does not cost, but vaccine bought for full price. In private sector, used in bigger cities, full cost for both.
DE - Free for business travelers, individual travelers have to pay all the costs.

IT - The vaccine is free of charge only for travelers to endemic countries for work reason.
FR - Vaccine and its administration is free for at least 85 % of the population. Only those without complimentary insurance have to bear up to 35 % of the costs.
MT - Free to children born since 1989.

Comments to cost category for persons at increase risk by their lifestyle:

DK - Free for all IDUs, free for MSM in Copenhagen municipality.
EE - Vaccination and administration is normally paid from their own pocket.
MT - Offered free if recommended by authorised doctors working in public health.
FR - Vaccine and its administration is free for at least 85 % of the population. Only those without a complementary insurance have to bear up to 35 % of the costs.
FI - Free vaccinations for IDU, non-injecting users who are living with current injector, sexual partners of injecting users, children of injectors, female commercial sex workers, and close family contacts of a case or individual with chronic hepatitis B infection is offered. For travelers it is recommended but they should pay themselves.
SE - If at risk it is provided free.
PT - Only for the following groups: IDUs, female commercial sex workers, inmates of correctional; sexual contacts and households of persons with chronic Hep B infection.

Comments to cost category for babies born to HBsAg positive mothers:

BE - Administration is free if offered in well baby clinics; if offered by GP or pediatrician a visit needs to be paid
EE - In the frame of national immunisation schedule.
LV - There is routine immunisation for all newborns.

Comments to cost category for people with chronically medical condition:

LV - Free to hemodialysis patients.
LT - Vaccine and administration free only for patients who needs haemodialysis.
NL - Costs paid by health insurance of the individual. Health insurance is compulsory in the Netherlands.
SI - Free for chronic liver disease patients.
EE - Vaccination and administration is normally paid from their own pocket.
SE - If at risk it is provided free.
PT - Only for persons with chronic renal disease.
IT - The vaccine is free only for the categories recommended by the MoH. It is not free for who change often individuals who change sexual partners frequently and people with chronic liver diseases (category recommended by a committee of experts).

Vaccination policy changes

Three countries (table 13) with selective immunisation programs indicated that they currently review (NL, NO, SE) plans to introduce hepatitis B vaccination in the nearest future.

Table 13. Vaccination policy changes. Hepatitis B vaccination survey in Europe, January 2009. (n=27)

	Countries		Total
	With routine immunisation program (n=20)	**With selective immunisation program (n=7)**	
Economical assessment (i.e. cost-effectiveness study) or mathematical modelling study			
Carried out	BE,IE,LV,BG,IT (n=5)	DK,NL,UK (n=3)	8
Not carried out	CZ,CY,EE,FR,DE,HU, LT,LU,PT,RO,SK,SI, ES,MT,PL (n=15)	FI,IS,NO (n=3)	18
Should be carried out		SE (n=1)	1
Reasons for not implementing hepatitis B vaccination program			
It is too expensive			0
It is not public health priority			0
Low prevalence in the country		DK,FI,IS,NO,UK (n=5)	5
Low spread i.e. low risk for getting infected		SE (n=1)	1
Not applicable	BE,CZ,CY,EE,DE,IE, IT,LV,LT,LU,PT,RO, SK,SI,ES,MT,FR,BG, HU,PL (n=20)		20
Other		NL* (n=1)	1
Plan to introduce hepatitis B vaccination in the nearest future			
Planned			0
Not planned		DK,FI,IS,UK (n=4)	4
Currently on review		NL,NO†,SE‡ (n=3)	3
Not applicable	BE,CZ,CY,EE,DE,IE, IT,LV,LT,LU,PT,RO, SK,SI,ES,BG,HU, FR,MT,PL (n=20)		20

*The decision-making-process on universal vaccination against HBV in the NL is ongoing. The advice on this is expected in March 2009. Subsequently, the government will take a decision.
†The Norwegian Institute of Public Health has recommended to the Ministry of Health and Care Services to include the hepatitis B vaccine in the immunisation programme for all children.
‡Currently doing a review.

Comments for economical assessment (i.e. cost-effectiveness study) or mathematical modeling study:

BE - See Beutels PH et al, 1995.
DK - Very few cases of chronic hepatitis B occur in DK that are not either imported or transmitted at birth, and so not avoidable by adding hepatitis B to childhood vaccination program starting three months after birth. So not cost-effective.
IE - Found to be cost effective and influenced vaccination policy.
LV - The number of prevented cases, including carriers, cirrhosis and liver cancer cases was estimated.

NL - Adding universal HBV vaccination to the current policies of vaccination of risk groups is cost-effective. This is a recent finding, which has not yet been transferred into policy making.
UK - Selective immunisation is probably more cost-effective than mass immunisation in the UK, but universal immmunisation may still be considered a cost-effective option (in addition to selective immunisation) if future health benefits are not discounted (i.e. given a lower value than present ones). If future health benefits are discounted, then mass immunisation is almost certainly not cost effective in the UK.
IT - The vaccine is free only for the categories recommended by the MoH. It is not free for who change often individuals who change sexual partners frequently and people with chronic liver diseases (category recommended by a committee of experts).

Conclusions

Hepatitis B vaccination by age

- Hepatitis B vaccination is included in the routine childhood vaccination program in twenty (74%) of 27 countries. In twelve (60%) of these countries catch-up programmes for older children and teenagers were organised; in BG there is recommendation for adults vaccination. Seven countries (26%) do not vaccinate children routinely but have selective immunisation program for those at risk (DK, FI, IS, NL, NO, SE, UK).
- Routine hepatitis B vaccination of newborns or infants and older children or teenagers was introduced mainly in the 1990s (except IE, where vaccination started in September of 2008).

Hepatitis B vaccination of individuals who are at increased risk by their lifestyle

- In all countries, except RO, hepatitis B vaccination is recommended for those individuals at risk by their lifestyle: close family contacts of a case or individual with chronic hepatitis B infection (93%), injecting drug users (81%) and for MSM (67%). Approximately half of surveyed countries recommend vaccination of those who are likely to 'progress' to injecting drug use (48%), children of injectors (48%), individuals who change sexual partners frequently (48%), female commercial sex workers (59%) and inmates of custodial institutions (44%), non-injecting users who are living with current injectors (52%), sexual partners of injecting users (52%).

Hepatitis B vaccination of individuals who are at increased risk by their occupation

- All countries recommends hepatitis B vaccination of individuals who are at increased risk by their occupation: all countries recommend vaccinate health care workers (100%); most of them recommend vaccination of laboratory staff (96%), police, emergency and rescue services (81%) and staff of residential and other accommodation for those with learning difficulties (59%).

Hepatitis B vaccination of individuals who are at increased risk for other reasons

- Almost all countries (except IS, RO) recommend hepatitis B vaccination for individuals who are at increased risk by other factors: for babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy (93%), people travelling to or going to

reside in areas of high or intermediate prevalence (78%, IS included in the numerator), patients with chronic renal (85%) or liver disease (67%), individuals receiving regular blood or blood products (67%), individuals in residential accommodation for those with learning difficulties (59%). One third (30%) of countries recommend vaccination for families adopting children from countries with intermediate or high hepatitis B prevalence and one fifth countries (19%) recommend vaccination for carers of individuals receiving regular blood or blood products.

Serologic testing

- Most countries do not recommend pre-vaccination serologic testing for: HIV infected persons (74%); MSM, IDU, incarcerated persons (70%); household, sex, and needle-sharing contacts of HBsAg positive persons (55%). Most countries recommend post-vaccination serologic testing for chronic haemodialysis patients (78%); infants born to HBsAg positive women and health care workers who have contact with patients or blood (67%).

Hepatitis B screening

- Almost all countries (85%) recommend screening of pregnant women; however majority countries do not recommend it for all foreign born persons born in regions with high endemicity of HBV infection (70%).

Monitoring and methods for vaccine uptake assessment

- Most countries (85%) monitor hepatitis B vaccine uptake, with most frequent interval of monitoring being annual (73%). The most common age for vaccine uptake monitoring is at one or two years. Age at which vaccine uptake is monitored for older children varied greatly (range from four to 18 years) between countries depending on age vaccine is given. Countries with selective immunisation programs monitor vaccine uptake among some risk groups. The most common type of vaccine uptake assessment was based on number of subjects vaccinated (65%). Approximately one third countries use survey method(s) for vaccine uptake monitoring. Most common occupational group where vaccine uptake is measured was HCWs.

Vaccination coverage results

- Vaccine uptake among counties with routine childhood immunisation:
    - For children at one and two years was high (except DE, FR, MT) and varied between 90.6% and 99.9% in PL.
    - For children at one and two years old in DE, FR, MT was low or suboptimal and varied from 29% in DE to 74.7% in MT.
    - For older children and teenagers (5-18 years of age) uptake varied greatly, from low in FR (33%) to high in HU (99.5%).
    - Vaccine uptake among HCWs presented by four countries varied from 75% in RO to 100% in CZ.
    - Vaccine uptake among haemodialysis patients in SK was high at 96.2%
- Vaccine uptake among counties with selective immunisation programs:
    - Was presented for some risk groups (children of HBV carrier, IDUs, infants born to parents from endemic HBV countries) varied from low

16.8% in SE among children of 2 year old in families from high prevalence countries to high 98% in DK for children of HBV carrier.

Payment and administration for hepatitis B vaccine

- All children born (babies and/or infants) and catch up program, without regard to other risk indication
    - In all countries (except FR where vaccine and administration is free for some recipients) with routine childhood vaccination program (95%) and also in UK vaccine and administration is free for all recipients. In the remaining countries (86%) with selective immunisation programs vaccine and administration is free for some recipients. Vaccine and administration is free in ten countries with catch up campaigns.
- Health care and emergency workers
    - In almost all countries regardless to which country groups their assigned in relation to immunisation program vaccine and administration is free and often paid by employer.
- Travelers going to high or intermediate prevalence countries
    - Full cost paid by all recipients for vaccine and administration occurs in 70% countries for countries with routine childhood immunisation program and in 86% countries with selective immunisation program.
- Babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy
    - In all countries vaccine and administration is free regardless to which country groups their assigned in relation to immunisation program.
- Individuals who are at increased risk by their lifestyle (i.e. IDUs, MSM, individuals who change sexual partners frequently, female commercial sex workers, inmates of correctional facilities)
    - Payment scheme among these risk groups varies among countries regardless to which country groups their assigned in relation to vaccination program.
- People with chronic medical condition (i.e. chronic renal, liver diseases, immunocompromised)
    - In approximately 60% of countries vaccine and administration is free regardless to which country groups their assigned in relation to immunisation program.

Vaccination policy changes

- Three countries of seven with selective immunisation programs indicated that they currently review (NL, NO, SE) plans for introduction hepatitis B vaccination in the nearest future.
    - In NL the decision-making-process on universal vaccination against HBV is ongoing. The advice on this is expected in March 2009. Subsequently, the government will take a decision.
    - In NO The Norwegian Institute of Public Health has recommended to the Ministry of Health and Care Services to include the hepatitis B vaccine in the immunisation programme for all children.
    - SE is also currently conducting review regarding universal hepatitis B vaccination.

Dissemination of results

The completed survey results and the final report will be circulated to relevant institutions: ECDC, participants of VENICE project, relevant scientific and professional bodies.

References

1. World Health Organisation. Hepatitis B fact sheet. http://www.who.int/mediacentre/factsheets/fs204/en/index.html
2. Van Damme P, Van Herck K, Leuridan E, Vorsters A. Introducing universal hepatitis B vaccination in Europe: differences still remain between countries Eurosurveillance, Volume 8, Issue 47, 18 November 2004
3. Van Vliet JA. Cost-effectiveness of national hepatitis B vaccination in the NL. Euro Surveill. 2000;4(29):pii=1563. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=1563
4. Rantala M, van de Laar MJ. Surveillance and epidemiology of hepatitis B and C in Europe – a review. Euro Surveill. 2008;13(21):pii=18880. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=18880
5. Mereckiene J, Cotter S, Weber JT, Nicoll A, Lévy-Bruhl D, Ferro A, Tridente G, Zanoni G, Berra P, Salmaso S, O'Flanagan D, on behalf of the VENICE gatekeepers group. Low Coverage of seasonal influenza vaccination in the elderly in many European countrieS. Eurosurveillance, Volume 13, Issue 41, 09 October 2008

Definitions

Definition of catch-up campaign

A catch-up programme is defined as a one-time, usually nationwide, vaccination campaign targeting children within a specified age group for vaccination for the purpose of providing protection against hepatitis B. Such a programme is usually in operation for a limited period of time (e.g. one – two years) after which this age group is no longer specifically targeted as all subsequent groups are expected to have had the opportunity for vaccination in the routine programme.

Definition of HCW

Clinical and other staff, including those in primary care, who have regular, clinical contact with patients. This includes staff such as doctors, dentists and nurses, paramedical professionals such as occupational therapists, physiotherapists, radiographers, ambulance workers and porters, and students in these disciplines.

Appendices

Appendix1. Survey questionnaire

Survey on Hepatitis B vaccination in Europe 2008
HPSC*/ECDC/VENICE project

* Health Protection Surveillance Center in Ireland

Please Return Questionnaire by _____, 2008

COUNTRY: _____

GATEKEEPER:_____

Name of Person who fills in questionnaire (if different from above):

Title:_____

Contact email:_____

Contact Phone Number:_____

HEPATITIS B VACCINATION BY AGE

Q1. Is hepatitis B vaccination included in the routine childhood vaccination in your country without regard to other risk indication?

□ Yes □ No □ Don't know

Q2. If yes to Q1, at what age is the hepatitis B vaccine administered to all children born (babies and/or infants), without regard to other risk indication?

Age	1st dose	2nd dose	3rd dose
At birth			
1 month			
2 months			
3 months			
4months			
5 months			
6 months			
7 months			
8 months			
9 months			
10 months			
11 months			
12 months			
13 months			
14 months			

15 months			
16 months			
17 months			
18 months			
19 months			
20 months			
21 month			
22 months			
23 months			
24 months			

Q2a. Other, please specify/
comments_____
_____
_____
_____
_____

Q3. When was hepatitis B vaccine first introduced (routinely recommended) for babies and/or infants in your country?

In_____ year (Please specify year)

Q4. What type of vaccine is used in your country for routine childhood vaccination for all children born?

Q4a. Single antigen vaccine (i.e. hepatitis B vaccine alone)

□ Yes □ No □ Don't know

Q4b. Please specify/
comments_____
_____
_____
_____
_____

Q4c. Combined vaccine

□ Yes □ No □ Don't know

Q4d. Please specify/
comments_____
_____
_____
_____
_____

(i.e. hexavalent: diphtheria, tetanus, pertussis, polio, Hib, HepB or other combinations i.e. hepatitis A and B vaccine)

Q4e. Both types of vaccine

□ Yes □ No □ Don't know

Q4f. Comments

_____
_____
_____
_____

Q5. Was the same type of vaccine used for all children born (babies or infants) from the vaccine introduction to routine vaccination schedule up to now?

□ Yes □ No □ Don't know

Q5a. If no to Q5, please specify the year when the vaccine was changed?

In_____ year (Please specify year)

Q5b. If no to Q5, please specify what type of vaccine was used before? Please provide comments.

_____
_____
_____

Q6. Following introduction of the vaccine into the programme, was a catch-up programme organised?

□ Yes □ No □ Don't know

Q6a. If yes, what age was targeted (If vaccine is administered for some age group (interval) please tick all appropriate age)?

□ 4 years
□ 5 years
□ 6 years
□ 7 years
□ 8 years
□ 9 years
□ 10 years
□ 11 years
□ 12 years
□ 13 years
□ 14 years
□ 15 years
□ 16 years
□ 17 years
□ 18 years

Q6b. Please, specify intervals between doses:

Age	1st dose	2nd dose	3rd dose
0 month			
1 month			
2 months			
3 months			
4months			
5 months			
6 months			
7 months			
8 months			

Q6c. Other/comments please specify:

_____
_____
_____

Q7. When the hepatitis B vaccination catch-up programme was introduced in your country?

In _____ year (Please specify year)

Q7a. When the hepatitis B vaccination catch-up programme finished (or will be finished) in your country?

In _____ year (Please specify year)

Q8. What type of vaccine is (was) used in your country for catch-up campaign?

Q8a. Single antigen vaccine (i.e. hepatitis B vaccine alone)

□ Yes □ No □ Don't know

Q8b. Please specify/
comments_____
_____
_____
_____

Q8c. Combined vaccine

□ Yes □ No □ Don't know

Q8d. Please specify/ comments

_____
_____
_____
_____

(i.e. hexavalent: diphtheria, tetanus, pertussis, polio, Hib, HepB or other combinations i.e. hepatitis A and B vaccine)

Q8e. Both types of vaccine

□ Yes □ No □ Don't know

Q8f. Comments

_____
_____
_____
_____

Q9. Was the same type of vaccine used for catch-up programme from the vaccine introduction to routine vaccination schedule up to now?

□ Yes □ No □ Don't know

Q9a. If no to Q9, please specify the year when the vaccine was changed?

In_____ year (Please specify year)

Q9b. If no to Q9, please specify what type of vaccine was used before? Please provide comments.

_____
_____
_____

HEPATITIS B VACCINATION OF INDIVIDUALS WHO ARE AT INCREASED RISK BY THEIR LIFESTYLE

Q11. Is hepatitis B vaccination recommended to risk groups in your country (without regard to age)?

□ Yes □ No □ Don't know

Q12. If yes, to which risk groups is it recommended?

Q12a. Injecting drug users (IDUs)

□ Current IDUs
□ Iintermittent IDUs
□All IDUs
□ No
□ Don't know

Q12*a1*.Those who are likely to 'progress' to injecting, for example those who are currently smoking heroin and/or crack cocaine and heavily dependent amphetamine users

□ Yes □ No □ Don't know

Q12*a2*.Non-injecting users who are living with current injectors

□ Yes □ No □ Don't know

Q12*a3*.Sexual partners of injecting users

□ Yes □ No □ Don't know

Q12*a4*.Children of injectors

□ Yes □ No □ Don't know

Q12b. Individuals who change sexual partners frequently*

□ Yes □ No □ Don't know

*Persons with more than one sex partner during the previous 6 months

Q12c. Men who have sex with men (MSM)

□ Yes □ No □ Don't know

Q12d. Female commercial sex workers

□ Yes □ No □ Don't know

Q12e. Close family contacts of a case or individual with chronic hepatitis B infection

□ Yes □ No □ Don't know

Q12f. Inmates of custodial institutions (correctional facilities)

□ Yes □ No □ Don't know

Q12g. Persons tattooing and body piercing

□ Yes □ No □ Don't know

Q12h. Other/comments

_____

_____

_____

HEPATITIS B VACCINATION OF INDIVIDUALS WHO ARE AT INCREASED RISK BY THEIR OCCUPATION

Q13. Does hepatitis B vaccination is recommended in your country to individuals who are at increased risk by their occupation (without regard to age)?

□ Yes □ No □ Don't know

Q14. If yes, to which groups it is recommended?

Q14a. Healthcare workers (including students and trainees)

□ Yes □ No □ Don't know

Q14b. Laboratory staff

□ Yes □ No □ Don't know

Q14c. Staff of residential and other accommodation for those with learning difficulties (developmentally disabled persons)

□ Yes □ No □ Don't know

Q14d. Other occupational risk groups: in some occupational groups, such as morticians and embalmers

□ Yes □ No □ Don't know

Q14*d1*.Other, please specify_____
_____
_____
_____

Q14e. Police

□ Yes □ No □ Don't know

Q14f. Fire and rescue services

□ Yes □ No □ Don't know

Q14g. Other, please specify_____
_____
_____
_____

HEPATITIS B VACCINATION OF INDIVIDUALS WHO ARE AT INCREASED RISK BY OTHER FACTORS

Q15. Is hepatitis B vaccination recommended in your country to individuals who are at increased risk by other factors (without regard to age)?

□ Yes □ No □ Don't know

Q16. If yes, to which groups it is recommended?

Q16a. Babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy

□ Yes □ No □ Don't know

Q16*a1*. Please specify intervals between vaccine doses:

Age	1st dose	2nd dose	3rd dose
0 months (at birth)			
1 month			
2 months			
3 months			
4months			
5 months			
6 months			
7 months			
8 months			

Q16b. People travelling to or going to reside in areas of high or intermediate prevalence

□ Yes □ No □ Don't know

Q16c. Patients with chronic renal failure (persons with or likely to progress to end-stage renal disease)

□ Yes □ No □ Don't know

Q16d. Patients with chronic liver disease

□ Yes □ No □ Don't know

Q16e. Patients with immunosupression

□ Yes □ No □ Don't know

Q16f. Families adopting children from countries with an intermediate or high hepatitis B prevalence (HBsAg prevalence higher than 2%)

□ Yes □ No □ Don't know

Q16g. Foster carers (short and/or permanent)

□ Yes □ No □ Don't know

Q16h. Individuals receiving regular blood or blood products

□ Yes □ No □ Don't know

Q16h*1*. Carers of individuals receiving regular blood or blood products

□ Yes □ No □ Don't know

Q16i. Individuals in residential accommodation for those with learning difficulties (developmentally disabled persons)

□ Yes □ No □ Don't know

Q16j. Other, please specify

_____
_____
_____
_____

Q16k. Comments

_____
_____
_____
_____

PREVACCINATION SEROLOGIC TESTING

Q17. If pre-vaccination serologic testing is recommended for following persons:

Q17a. All foreign born persons (immigrants, refugees, asylum seekers, internationally adopted children) born in regions with high endemicity of HBV infection (HBsAg prevalence higher than 8%)

□ Yes □ No □ Don't know

Q17b. Hosehold, sex, and needle-sharing contacts of HBsAg positive persons

□ Yes □ No □ Don't know

Q17c. HIV infected persons

□ Yes □ No □ Don't know

Q17d. Groups with high risk of HBV infection (MSM, IDU, incarcerated persons)

□ Yes □ No □ Don't know

Q17e. If other, please specify:

_____
_____
_____

Q17f. Comments

_____

_____

SEROLOGIC TESTING

Q18. If serologic testing is recommended for pregnant women

□ Yes □ No □ Don't know

Q18a. Comments

_____

_____

_____

POSTVACCINATION SEROLOGIC TESTING

Q19. If post-vaccination serologic testing is recommended for following persons:

Q19a. Chronic haemodialysis patients

□ Yes □ No □ Don't know

Q19b. Other immunocompromised persons

□ Yes □ No □ Don't know

Q19c. Persons with HIV infection

□ Yes □ No □ Don't know

Q19d. Sex partners of HBsAg positive person

□ Yes □ No □ Don't know

Q19e. Infants born to HBsAg positive women

□ Yes □ No □ Don't know

Q19f. Health careworkers who have contact with patients or blood

□ Yes □ No □ Don't know

Q19g. If other, please specify:

_____

_____

_____

Q19h. Comments

_____

_____

MONITORING VACCINE UPTAKE

Q20. Does your country monitor hepatitis B vaccine uptake?

□ Yes □ No □ Don't know

Q20a. If yes to Q20, please specify age the vaccine uptake is measured in your country?

□ 1 year (12 months)
□ 2 years (24 months)
□ 3 years
□ 4 years
□ 5 years
□ 6 years
□ 7 years
□ 8 years
□ 9 years
□ 10 years
□ 11 years
□ 12 years
□ 13 years
□ 14 years
□ 15 years
□ 16 years
□ 17 years
□ 18 years

Q20b. If yes to Q20, please specify risk group (by occupation, lifestyle and/or other) the vaccine uptake is measured in your country?

_____
_____
_____

Q20b. What is the most frequent interval at which hepatitis B vaccine coverage is collected?

□ Never
□ Monthly
□ Every three months (quarterly)
□ Annually
□ Don't know
□Other
If other , specify: _____

METHODS FOR VACCINE UPTAKE ASESSMENT

Q21. Which of the following methods does your country use to measure hepatitis B vaccine uptake?

Q21a. Administrative

□No. of subjects vaccinated

□No. of doses administered
□No. of doses distributed
□School records
□Other administrative methods
Please specify other administrative methods

_____
_____
_____

Q21b. Survey methods
□Face to face
□School survey
□Household survey
□Telephone survey
□Mail survey
□Focus groups
□Other survey methods
Please specify other survey methods_____
_____
_____

Q21c. Other methods
Please specify other methods

_____
_____
_____

Q21d.
Comments_____
_____
_____
_____

VACCINATION COVERAGE RESULTS

Q21a. What was the vaccination coverage for fully vaccinated children (with three vaccine doses) at one year of age (12 months) in the most recent year for which there are data?

Percentage _____
Year _____
□ Unknown
□ Not applicable

Q21b. What was the vaccination coverage for fully vaccinated children (with three vaccine doses) at two years of age (24 months) in the most recent year for which there are data?

Percentage _____
Year _____

 Unknown
 Not applicable

Q21c.
Comments_____
_____
_____

Q22a. What was the vaccination coverage among those with catch up campaign in the most recent year for which there are data?

Percentage _____
Year _____
 Unknown
 Not applicable

Q22b. What was the vaccination coverage among other age groups in the most recent year for which there are data?

Age (please specify)_____
Percentage _____
Year _____
 Unknown
 Not applicable

Q22c. What was the vaccination coverage among other age groups in the most recent year for which there are data?

Age (please specify)_____
Percentage _____
Year _____
 Unknown
 Not applicable

Q22d. What was the vaccination coverage for all hepatitis B vaccine usage (general population) in the most recent year for which there are data?

Percentage _____
Year _____
 Unknown
 Not applicable

Q22e.
Comments_____
_____
_____

Q23a. What was the vaccination coverage in IDUs in the most recent year for which there are data?

Percentage _____
Year _____
□ Unknown
□ Not applicable

Q23b. What was the vaccination coverage in health care workers in the most recent year for which there are data?

Percentage _____
Year _____
□ Unknown
□ Not applicable

Q23c. What was the vaccination coverage in other risk groups in the most recent year for which there are data?

Please specify risk group_____
Percentage _____
Year _____
□ Unknown
□ Not applicable

Q23d. What was the vaccination coverage in other risk groups in the most recent year for which there are data?

Please specify risk group _____
Percentage _____
Year _____
□ Unknown
□ Not applicable

Q23e. What was the vaccination coverage in other risk groups in the most recent year for which there are data?

Please specify risk group _____
Percentage _____
Year _____
□ Unknown
□ Not applicable

Q23f.
Comments_____
_____
_____

PAYMENT AND ADMINISTRATION FOR HEPATITIS B VACCINE

Q25. Vaccine administered to all children born (babies and/or infants), without regard to other risk indication

- □ Vaccine and administration free for all recipients
- □ Vaccine and administration free for some recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- □ Full vaccine and administration cost paid by all recipients
- □ Full vaccine and administration cost paid by some recipient
- □ Don't know
- □ Not applicable

Q25a. Comments

_____
_____
_____
_____
_____
_____

Q26. Vaccine routinely administered for catch up programme, without regard to other risk indication

- □ Vaccine and administration free for all recipients
- □ Vaccine and administration free for some recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- □ Full vaccine and administration cost paid by all recipients
- □ Full vaccine and administration cost paid by some recipients
- □ Don't know
- □ Not applicable

Q26a. Comments

_____
_____
_____
_____
_____
_____

Q27. Vaccination recommended to risk groups

Q27a1. Health care workers

- □ Vaccine and administration free for all recipients
- □ Vaccine and administration free for some recipients
- □ Partial subsidy for vaccine and administration (below cost to

recipient) for all recipients
- Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- Full vaccine and administration cost paid by all recipients
- Full vaccine and administration cost paid by some recipients
- Don't know
- Not applicable

Q27a. Comments

_____
_____
_____
_____
_____
_____

Q27b. Emergency workers (i.e. police, fire and rescue services)
- Vaccine and administration free for all recipients
- Vaccine and administration free for some recipients
- Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
- Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- Full vaccine and administration cost paid by all recipients
- Full vaccine and administration cost paid by some recipients
- Don't know
- Not applicable

Q27b1. Comments

_____
_____
_____
_____
_____
_____

Q27c. Travellers going to high or intermediate prevalence countries
- Vaccine and administration free for all recipients
- Vaccine and administration free for some recipients
- Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
- Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- Full vaccine and administration cost paid by all recipients
- Full vaccine and administration cost paid by some recipients
- Don't know
- Not applicable

Q27c1. Comments

_____
_____
_____
_____
_____
_____

Q27d. Individuals who are at increased risk by their lifestyle (i.e. IDUs, MSM, individuals who change sexual partners frequently, female commercial sex workers, inmates of correctional facilities)

- □ Vaccine and administration free for all recipients
- □ Vaccine and administration free for some recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- □ Full vaccine and administration cost paid by all recipients
- □ Full vaccine and administration cost paid by some recipients
- □ Don't know
- □ Not applicable

Q27d1. Comments

_____
_____
_____
_____
_____
_____

Q27e. Babies born to mothers who are chronically infected with HBV or to mothers who have had acute hepatitis B during pregnancy

- □ Vaccine and administration free for all recipients
- □ Vaccine and administration free for some recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
- □ Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
- □ Full vaccine and administration cost paid by all recipients
- □ Full vaccine and administration cost paid by some recipients
- □ Don't know
- □ Not applicable

Q271e. Comments

_____
_____
_____
_____
_____
_____

Q27f. People with chronically medical condition (i.e. chronic renal, liver diseases, immunocompromised)

□ Vaccine and administration free for all recipients
□ Vaccine and administration free for some recipients
□ Partial subsidy for vaccine and administration (below cost to recipient) for all recipients
□ Partial subsidy for vaccine and administration (below cost to recipient) for some recipients
□ Full vaccine and administration cost paid by all recipients
□ Full vaccine and administration cost paid by some recipients
□ Don't know
□ Not applicable

Q27f1. Comments

_____
_____
_____

VACCINATION POLICY CHANGES

Q28. Has your country carried out an economical assessment (i.e. cost-effectiveness study) or mathematical modelling study at any time regarding introduction of hepatitis B vaccine into the national programme?

□ Yes □ No □ Don't know □ Not applicable

Q28a. If yes, please describe shortly and communicate the main results in 5-6 sentences:

_____
_____
_____
_____
_____
_____

Q29. If hepatitis B vaccination has not been introduced into the childhood immunisation programme why has hepatitis B vaccination not been introduced into routine immunisation schedule?

□ It is too expensive
□ It is not public health priority
□ Low prevalence in the country
□ Don't know
□ Not applicable

Q29a. Other, please specify:

_____
_____
_____

_____

_____

Q30. Does your country have a plan to introduce hepatitis B vaccination in the nearest future (2-3 years)?

□ Yes □ No □ Don't know □ Not applicable

Thank you very much for your time. If you have any questions in relation to this questionnaire, please contact Jolita Mereckiene by email: jolita.mereckiene@hse.ie

Appendix 2. Accompanying letter 1

16 January 2009

Re: VENICE Hepatitis B vaccination in Europe, 2009

Dear VENICE Project Gatekeepers and Contact points,

As most of you know from discussions during the recent VENICE workshop (Rome, Italy on 1st - 3rd of December of 2008), we have been asked by ECDC to conduct a survey on hepatitis B vaccination in Europe, 2009 (a request from ECDC).

The objective of the survey is to describe hepatitis B vaccination in EU/EEA countries, specifically describing immunisation policy in countries which does not include hepatitis B vaccine into routine childhood vaccination (Denmark, Finland, Ireland, Iceland, Netherlands, Norway, Sweden, and UK).

We would kindly ask you to fill in web based questionnaire, which is placed on VENICE website (http://venice.cineca.org) by January 23rd 2009. It will allow us to conduct analysis and to prepare preliminary data for data validation for the end of January/ early February. Therefore, we would be grateful if you could respond to the survey by the deadline indicated above.

If you have any questions, please contact Jolita Mereckiene or Dr. Suzanne Cotter by e-mail: jolita.mereckiene@hse.ie or suzanne.cotter@hse.ie . If you are not responsible for conducting this survey inside your country, please forward this email to person (VENICE gatekeeper/contact person) who has to complete questionnaire.

Thank you for your participation in this study.

Yours sincerely,

Jolita Mereckiene
on behalf of Dr. Darina O'Flanagan

Dr. Darina O'Flanagan
VENICE Project
Leader of Work Package 3
Health Protection Surveillance Centre
25-27 Middle Gardiner Street
Dublin 1
Ireland

Jolita Mereckiene
VENICE Project
Work Package 3
Health Protection Surveillance Centre
25-27 Middle Gardiner Street
Dublin 1
Ireland

Appendix 3. Accompanying letter 2

27 January 2009

Dear VENICE Project Gatekeepers and Contact points,

The VENICE project survey regarding hepatitis B vaccination in Europe is going on. I would like kindly remind you that not all countries completed questionnaire which you can find on the VENICE website (**http://venice.cineca.org**). Last week we had some technical problems filling in questionnaire on line. All problems were solved successfully and you can complete questionnaire for your country.

We would **kindly ask all gatekeepers or contact points** to find questionnaire for hepatitis B on the VENICE website and to complete it **by Thursday 29th of January**. We would be very thankful if you would be able to respond by this deadline.

Please contact me if you will have any difficulties by email jolita.mereckiene@hse.ie

Thank you for your cooperation and participation in this study.

Yours sincerely,

Jolita Mereckiene

VENICE Project
Health Protection Surveillance Centre
25-27 Middle Gardiner Street
Dublin 1
Ireland

Appendix 4. Accompanying letter 3

19 February 2009

Re: VENICE Hepatitis B vaccination in Europe, 2009

Dear VENICE Project Gatekeepers and Contact points,

Thank you for participating in the recent survey regarding national hepatitis B vaccination in Europe, 2009. This survey was undertaken in collaboration with ECDC. Almost all VENICE participating countries completed the on-line questionnaire placed on the project website.

We have completed an initial analysis and prepared a draft preliminary report "Hepatitis B vaccination in Europe" which is now placed on VENICE website (**http://venice.cineca.org**) WP3 document area (file name: Report_Hepatitis B_Vaccination_Survey_0.4v.doc). We kindly ask you to find this document on the website and to validate your country's data. Please look carefully to each table and if you find that your country's data are not correct you are asked to specify which table is incorrect and provide the correct answer. Check-missing data and if you would be able to fill in these gaps please do it. We would appreciate if countries which did not complete the questionnaire would be able to fill in tables in this draft report.

Please send comments **by 26th of February 2009 (Thursday)** by email to Jolita Mereckiene (jolita.mereckiene@hse.ie). We would be very grateful if you could respond by this deadline. We will finalise the report as soon as we receive feedback from you.

Thank you for your participation in this study.

Yours sincerely,

Jolita Mereckiene
on behalf of Dr. Darina O'Flanagan

Dr. Darina O'Flanagan
VENICE Project
Leader of Work Package 3
Health Protection Surveillance Centre
25-27 Middle Gardiner Street
Dublin 1
Ireland

Jolita Mereckiene
VENICE Project
Work Package 3
Health Protection Surveillance Centre
25-27 Middle Gardiner Street
Dublin 1
Ireland