

5.2 HEPATITIS B

NOTIFIABLE

RECOMMENDATIONS

Offer test (HBsAg and anti-HBc) to:

- All new migrants originating from countries with a HBsAg prevalence of $\geq 2\%$
- Household and sexual contacts of identified acute or chronic cases
- All women attending antenatal services
- Sex workers and those who have been trafficked
- People who inject drugs (PWID)
- Men who have sex with men (MSM)

Vaccinate:

- All infants according to the routine childhood immunisation schedule, 6 in 1 at 2, 4 and 6 months
- All children aged 12 months to <10 years according to the "late entrants catch-up schedule"

Vaccinate if non-immune (vaccination not required if anti-HBc positive):

- All migrants originating from countries with a prevalence of $\geq 2\%$
- Children born to parents from countries with a prevalence of $\geq 2\%$
- Persons at risk of occupational exposure to blood or blood contaminated environments
- Household and sexual contacts of persons with acute or chronic infection
- Families adopting/fostering children from countries with a prevalence of $\geq 2\%$
- Babies born to mothers who have HBV infection (they should receive a complete course of vaccine at 0, 2, 4 and 6 months and also HBIG within 24 hours of birth and have serological testing 2 months after vaccination completed)
- HIV exposed and HIV infected infants should be given hepatitis B vaccine at birth and then continue with the routine childhood schedule
- Sex workers and those who have been trafficked
- Those deemed at risk following an assessment of their health needs
- PWID and their contacts
- MSM

Refer all HBsAg positive cases to specialist services for review.

People who are HBsAg negative, anti-HBc positive should be referred for specialist care if they become immunosuppressed (including that due to chemotherapy or transplantation).

Hepatitis B virus is an important cause of serious liver disease including acute and chronic hepatitis, cirrhosis and liver cancer. The virus is transmitted by infected blood or body fluids. Transmission mainly occurs by sexual contact with an infected person, from an infected mother to her baby around the time of birth or horizontal transmission in early childhood, sharing of needles and other drug paraphernalia by people who inject drugs (PWID), and accidental sharps injuries.⁽¹⁾

Epidemiology

WHO has categorised countries based upon the prevalence of hepatitis B surface antigen (HBsAg) into:⁽²⁾

- High endemicity ($\geq 8\%$): Sub-Saharan Africa, South-East Asia, the Eastern Mediterranean countries, South and Western Pacific Islands, the interior of the Amazon basin and the Caribbean.
- Intermediate endemicity (2-7%): South-Central and South-West Asia, Eastern and Southern Europe, the Russian Federation and most of central and South America.
- Low endemicity ($< 2\%$): Australia, New Zealand, Northern and Western Europe, and North America. (Figure 5.2.1)

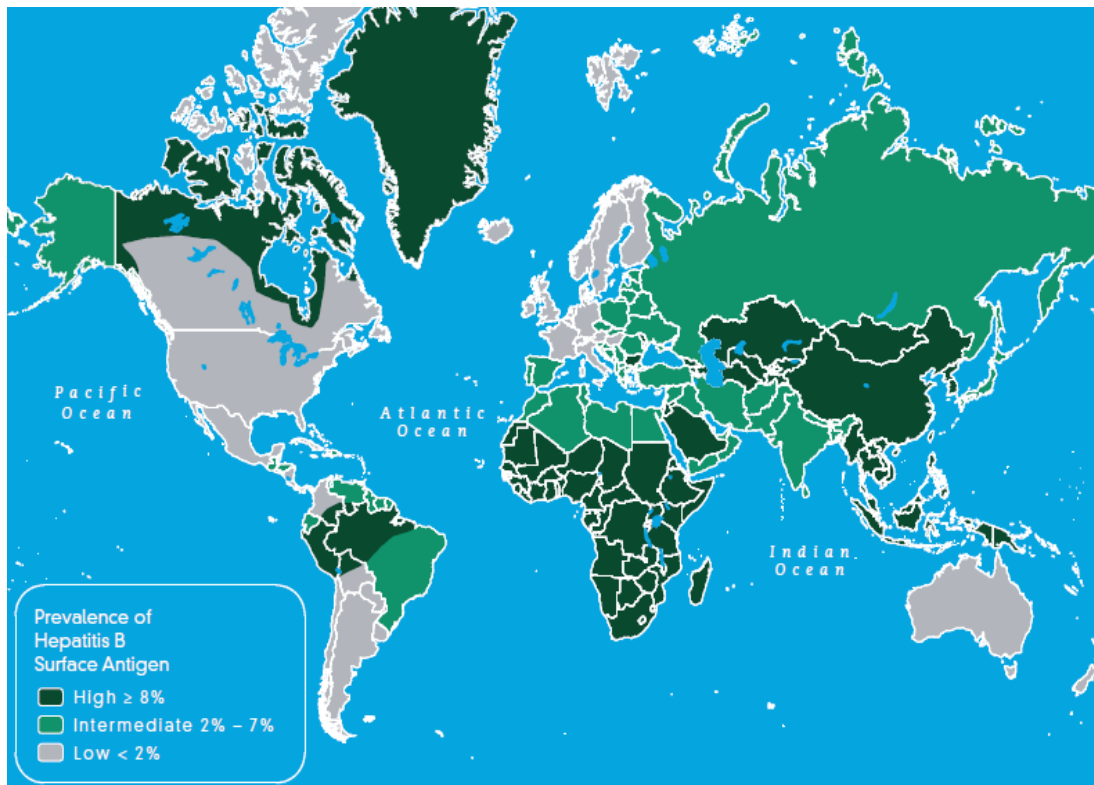


Figure 5.2.1 Geographic distribution of HBV endemicity

Source: Centers for Disease Control and Prevention. CDC Health Information for International Travel 2012, New York: Oxford University Press, 2012

There are >350 million people chronically infected worldwide. Hepatitis B is 50-100 times more infectious than HIV. Chronic HBV infection develops in 90% of those infected as infants and 1-10% infected as adults. Premature death from liver disease occurs in 15-25% of chronically infected people.

In Ireland, 91% of cases notified between 2004 and 2013 were chronically infected. There were 5,915 notifications of cases of chronic hepatitis B in this time period (annual average: $n=592$) with a peak in 2008 ($n=772$).⁽³⁾

Available data indicate that most cases of chronic hepatitis B were born and infected outside of Ireland, mostly in Sub-Saharan Africa, Asia, Central and Eastern Europe. It is likely that most became infected at birth or in early childhood and they have been infected for decades.

Trends in chronic cases are heavily influenced by trends in immigration to Ireland.

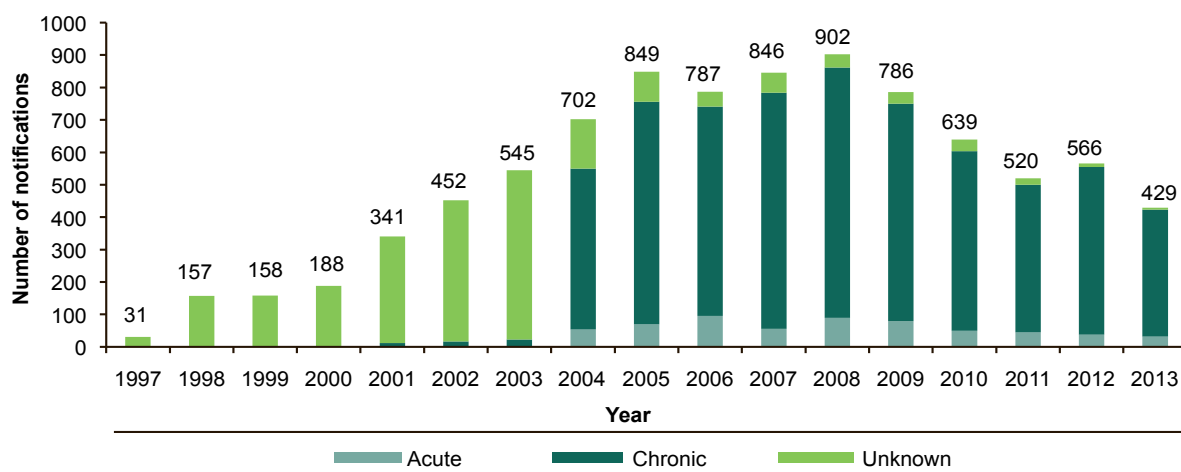


Figure 5.2.2 Number of hepatitis B notifications by acute/chronic status, 1997-2013

Source: HPSC Annual Epidemiological Report 2013. Hepatitis B chapter. Available from: <http://www.hpsc.ie/AboutHPSC/AnnualReports/> ⁽³⁾

Rationale for assessment

Hepatitis B is a condition with often debilitating consequences. However, it is vaccine preventable, there are simple tests available for diagnosis and there are effective treatments available to improve the outcome of infection. The following are the main points behind the rationale for assessing migrants for hepatitis B.

- There is a high probability of developing chronic infection if hepatitis B is acquired in infancy (approx. 90%) and when aged under 5 years (approx. 30%).⁽¹⁾
- Between 15 and 40% of people with chronic infection develop cirrhosis, liver failure or hepatocellular carcinoma.⁽¹⁾
- Hepatitis B is a vaccine preventable disease; therefore those identified as non-immune can be offered vaccination to prevent infection.⁽²⁾
- For those identified with infection, specialist services and treatments are available to improve disease prognosis and prevent ongoing spread.⁽¹⁾

Assessment

The SAC sub-committee endorses the following recommendations of hepatitis B assessment from Public Health England Migrant Health Guide for the assessment of hepatitis B in migrants and the National Immunisation Advisory Committee (NIAC).^(2,4)

Hepatitis B assessment should be offered to:

- All migrants from areas of high and intermediate endemicity, that is, from a country with a prevalence of HBsAg of greater than or equal to 2%. This includes countries in Sub-Saharan Africa, Asia, Eastern Mediterranean region, Eastern and Southern Europe, Central and South America, the Caribbean and South and West Pacific Islands.
- Contact tracing is recommended for household and sexual contacts of acute and chronic cases and vaccine offered to those who are not immune.

In addition it is recommended that:

- All women who attend for antenatal services should have their hepatitis B status assessed.

Blood should be taken for hepatitis B surface antigen (HBsAg) and anti-hepatitis B core antigen (anti-HBc). A guide to the interpretation of serological results is shown in table 5.2.1.

Table 5.2.1 A guide to interpretation of hepatitis B serological markers

HBsAg	HBeAg	Anti-HBe	Anti-HBc IgM	Total anti-HBc	Anti-HBs	Interpretation	Action
Negative	Negative	Negative	Negative	Negative	Negative	Susceptible to HBV	HBV vaccine if infant or member of 'at risk' group [^]
Positive	Positive	Negative	Pos/Neg	Pos/Neg	Negative	Acute HBV infection	Notify to Medical Officer of Health Seek immediate specialist advice if clinically unwell Refer for specialist review Screen and vaccinate (if appropriate) relevant contacts
Negative	Negative	Negative	Positive	Positive*	Negative	Recent HBV infection (HBsAg window)	Notify to Medical Officer of Health Screen and vaccinate (if appropriate) relevant contacts
Positive	Positive	Negative	Weak Pos/Neg	Positive	Negative	Chronic HBV infection**	Notify to Medical Officer of Health Refer for specialist review Screen and vaccinate (if appropriate) relevant contacts
Positive	Negative	Pos/Neg	Weak Pos/Neg	Positive	Negative	HBeAg neg chronic infection***	Notify to Medical Officer of Health Refer for specialist review Screen and vaccinate (if appropriate) relevant contacts
Negative	Negative	Pos/Neg	Negative	Positive	Pos/Neg	Past HBV infection†	Should be referred for specialist care if they become immunosuppressed
Negative	Negative	Negative	Negative	Negative	Positive	Response to HBV vaccine	No action required

[^] See targeted immunisation programme below for 'at risk' groups

*Anti-HBc detected in 2 assays

**Follow-up sample required to confirm chronic HBV infection

***Follow-up sample required and also HBV DNA viral investigations may be required

†Infection can reactivate in the case of immunosuppression, chemotherapy, transplantation

Source: Adapted from EMI Guidelines – Appendix 10 Interpretation of HBV results⁽⁵⁾

Vaccination

In 2008, universal infant hepatitis B virus (HBV) vaccination was introduced in Ireland. This runs in parallel with the pre-existing targeted immunisation programme for those individuals who are at increased risk of HBV because of their occupation, lifestyle or other factors (e.g. close contact with a case or carrier).

The following recommendations on hepatitis B vaccination are from the Immunisation Guidelines for Ireland 2013.⁽²⁾

Universal immunisation

All infants should be offered HBV vaccine as part of the routine childhood immunisation schedule (6 in 1) at 2, 4 and 6 months.

Targeted immunisation programme

The following groups are at increased risk of HBV infection and should receive HBV vaccine if non-immune:

- Immigrants from areas with a high or intermediate prevalence of HBV.
- Children born to parents from high or intermediate prevalence of HBV.
- Persons with occupational exposure to blood or blood-contaminated environments.
- Family and household contacts. The spouses, sexual partners, family and household contacts of acute cases and individuals with chronic infection. Where testing for markers of current or past infection is clinically indicated, this should be done at the same time as the administration of the first dose. Vaccination should not be delayed while waiting for results of the tests. Further doses may not be required in those with clear evidence of past exposure.
- Families adopting or fostering children from countries with a high or intermediate prevalence of hepatitis B. These children should be tested for evidence of current or past hepatitis B infection and the household contacts offered immunisation if required, preferably before adoption/fostering. If the status of the child is unknown these families should be recommended vaccination.
- Babies born to mothers who are HBV infected (HBsAg positive). Perinatal transmission of HBV infection can be prevented in approximately 95% of infants born to HBsAg positive mothers by early active and passive immunoprophylaxis of the infant. Routine screening of all antenatal patients for HBsAg is essential for identifying women whose infants will require post-exposure immunoprophylaxis beginning at birth. All babies born to these mothers should receive a complete course of vaccine at 0, 2, 4 and 6 months and also hepatitis B specific immunoglobulin (HBIG) within 24 hours of birth. The doses at 2, 4 and 6 months may be given as the routine 6 in 1. Following the administration of HBIG and the first dose of vaccine, arrangements should be made to follow up the child for serological assessment and subsequent doses of vaccine. Infants born to mothers who are HBV infected should be tested 2 months after completing HBV immunisation to determine HBV status and post-vaccination response.
- HIV exposed and HIV infected infants should be given hepatitis B vaccine at birth and then continue with the routine childhood schedule.
- Those deemed at risk following an assessment of their health needs.
- People who inject drugs (PWID) and their contacts
- Men who have sex with men (MSM)
- Sex workers including those that have been trafficked

Hepatitis B specific immunoglobulin (HBIG) is available for passive protection and, when indicated, is normally used in combination with hepatitis B vaccine to confer passive/active immunity after exposure. It should be administered according to the manufacturer's guidelines and should ideally be given within 48 hours of exposure but not later than a week after exposure. HBIG provides short-term protection (3-6 months).⁽²⁾

Post-vaccination serological testing

Routine post-vaccination testing for hepatitis B surface antibodies (anti-HBs) is recommended 2 months after completing the course of vaccination for persons who are at continuing risk of HBV exposure, e.g. healthcare workers, sexual partners of HBsAg positive persons. This does not apply to children receiving routine childhood immunisation with hepatitis B vaccine. Following primary vaccination, it is preferable to achieve anti-HBs levels greater than 100 mIU/ml, although levels greater than 10 mIU/ml are generally accepted as protecting against infection. Anti-HBs titre often declines post-vaccination but a rapid anamnestic response develops after exposure to the virus.

References

- (1) Heymann D. Control of communicable diseases manual. 19th ed. Washington: American Public health Association; 2008.
- (2) National Immunisation Advisory Committee. Immunisation Guidelines for Ireland 2013. Available from: <http://www.hse.ie/eng/health/immunisation/hcpinfo/guidelines/immunisationguidelines.html>
- (3) HPSC. Annual Epidemiological Report 2013 [Internet]. Chapter 5.1 Hepatitis B. Dublin: 2012. Available from: <http://www.hpsc.ie/AboutHPSC/AnnualReports/>
- (4) Public Health England. Migrant Health Guide Hepatitis B. [Internet]. 2013. Available from: <http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/migranthealthguide>
- (5) HPSC. EMI Toolkit - Guidelines for the Emergency Management of Injuries [Internet]. 2012. Available from: <http://www.emitoolkit.ie>.