| Northern Ireland Blood Transfusion Service | POLICY DOCUMENT |
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**Document Details**

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| **Document Number:** | POL:98:HP:002:04:NIBT | **No. of Appendices: 0** |
| **Supersedes Number:** | POL:98:HP:002:03:NIBT | |
| **Document Title: POLICY FOR VACCINATION OF STAFF AGAINST HEPATITIS B** | | |
| **ISSUE DATE: 04 OCTOBER 2021** | **EFFECTIVE DATE: 01 NOVEMBER 2021** | |

**Document Authorisation**

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**CROSS REFERENCES**

This Policy refers to the following documents:

| Doc Type | Doc. No. | Title |
|---|---|---|
| SOP | HS001 | Disposal of waste |
| SOP | HS005 | Procedure for dealing with spillage |
| SOP | HS006 | The handling of specimens from patients suspected (or known) to be infected with Hazard Group 3 pathogens |
| SOP | HS008 | Health & Safety rules for all staff handling blood samples |
| SOP | HS010 | Staff Sharps Injury Accidents |
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**Key Change from Previous Revision:**

Policy in new format.
Equality screen completed.
Reference to HS SOPs added: SOP:HS:001' Disposal of waste, SOP:HS:005 'Procedure for dealing with spillage', SOP:HS:006 'The handling of specimens from patients suspected (or known) to be infected with Hazard Group 3 pathogens', SOP:HS:008 'Health & Safety rules for all staff handling blood samples' and SOP:HS:010 'Staff Sharps Injury Accidents'.
Responsibility updated to include Heads of Service.
Occupational Health, Belfast City Hospital amended to Belfast Health & Social Care Trust
Overview section contains newly added information and is sourced from Green Book chapter 18: Link added to Green Book guidance: Greenbook_chapter_18.pdf (publishing.service.gov.uk).
4.2 Additional information on at risk groups (added from Green Book).
4.2 Information on vaccine added (from Green Book).
4.3 Additional information added on booster vaccination from updated Green Book.
4.4 New information added on response to vaccination.
4.5 New section on contraindications to vaccination.
4.6 Risk reduction: added as new section with cross reference to relevant HS SOPs.

## 1. STATEMENT

The purpose of this policy is to provide information on Hepatitis B vaccination for NIBTS /healthcare staff.

This policy is based on the following document:

The Green Book: Immunisation against infections disease, Chapter 18 Hepatitis B
Greenbook_chapter_18.pdf (publishing.service.gov.uk)

## 2. OVERVIEW

Hepatitis B is an infection of the liver caused by the hepatitis B virus (HBV). Many individuals with a new infection with hepatitis B may have a sub-clinical or a flu-like illness. Jaundice only occurs in about 10% of younger children and in 30 to 50% of adults. Acute infection may occasionally lead to fulminant hepatic necrosis, which is often fatal. The virus is transmitted by parenteral exposure to infected blood or body fluids. The incubation period ranges from 40 to 160 days, with an average of 60 to 90 days. Current infection can be detected by the presence of HBsAg in the serum. Blood and body fluids from these individuals should be considered to be infectious. In most individuals, infection will resolve and HBsAg disappears from the serum, but the virus persists in some patients who become chronically infected with hepatitis B. The risk of developing chronic hepatitis B infection depends on the age at which infection is acquired. Chronic infection occurs in 90% of those infected perinatally but is less frequent in those infected as children (e.g. 20 to 50% in children between one and five years of age). About 5% or less of previously healthy people, infected as adults, become chronically infected (Hyams, 1995).

The risk is increased in those whose immunity is impaired. Around 20 to 25% of individuals with chronic HBV infection worldwide have progressive liver disease, leading to cirrhosis in some patients. The risk of progression is related to the level of active viral replication in the liver. Individuals with chronic hepatitis B infection – particularly those with an active inflammation and/or cirrhosis, where there is rapid cell turnover – are at increased risk of developing hepatocellular carcinoma Vaccination against Hepatitis B is available and recommended for those who may be at increased risk of exposure to infection, including those who may come into contact with blood or other biological fluids in their occupation.

## 3. RESPONSIBILITY

Medical Director.

Responsibility is delegated to individual Heads of Service who have responsibility to ensure that this guidance has been appropriately disseminated to the staff working within their area of responsibility.

## 4. POLICY

4.1 All NIBTS staff should follow general infection control guidelines and adopt safe working practices to prevent the transmission of blood-borne viruses. In addition to these measures, further guidance on prevention of Hepatitis B infection has been issued in “The Green Book: Immunisation against infectious disease, Hepatitis B”, Department of Health, 18 November 2019. The Northern Ireland Blood Transfusion Service Agency will comply with this guidance by providing, through the Occupational Health Department, Belfast Health & Social Care Trust, hepatitis B vaccination to members of staff who may, by their work activities, be at increased risk of hepatitis B.

4.2 **Vaccination Programme:**

In keeping with the above guidelines, it is not considered mandatory for any current NIBTS staff to receive hepatitis B vaccination in order to carry out their duties. However, vaccination for those members of staff who may come into contact with blood or other biological fluids, notably laboratory, nursing, blood donor attendant, medical and transport staff, is strongly recommended.

Hepatitis B vaccination is recommended for the following groups who are considered at increased risk:

- healthcare workers in the UK and overseas (including students and trainees): all healthcare workers who may have direct contact with patients’ blood, blood-stained body fluids or tissues, require vaccination. This includes any staff who are at risk of injury from blood-contaminated sharp instruments, or of being deliberately injured or bitten by patients. Advice should be obtained from the appropriate occupational health department.
- laboratory staff: any laboratory staff who handle material that may contain the virus require vaccination.

Staff who feel that they may be at risk of acquiring hepatitis B occupationally, due to the nature of their work activities, should discuss their individual need for hepatitis B vaccination with the Occupational Health Department, Belfast Trust. A vaccination clinic is available to staff via Occupational Health.

Individuals applying for posts in NIBTS in which they may, as part of their duties, come into contact with blood, will be offered hepatitis B vaccine during their pre-employment medical assessment. In the case of staff vaccinated previously in their career, Occupational Health may check for a record of previous vaccination.

There are two classes of products available for immunisation against hepatitis B: a vaccine that confers active immunity and a specific immunoglobulin that provides passive and temporary immunity while awaiting response to vaccine. Hepatitis B vaccines contain HBsAg prepared from yeast cells using recombinant DNA technology. Hepatitis B-containing vaccines are inactivated, do not contain live organisms and cannot cause the diseases against which they protect. The available vaccines are highly effective in preventing infection in children and most adults through the production of specific antibodies to HBsAg (anti-HBs). Hepatitis B vaccine is also highly effective at preventing infection if given shortly after exposure. Ideally, immunisation should commence within 24 hours of exposure, although it should still be considered up to a week after exposure. Hepatitis B Immunoglobulin (HBIG) provides passive immunity and can give immediate but temporary protection after accidental inoculation or contamination with hepatitis B-infected blood. HBIG is given concurrently with hepatitis B vaccine and does not affect the development of active immunity.

### 4.3 Booster vaccination

The full duration of protection afforded by hepatitis B vaccine has yet to be established (Whittle et al., 2002). Levels of vaccine-induced antibody to hepatitis B decline over time, but there is evidence that immune memory can persist in those successfully immunised (Liao et al.,1999, Poovorawan et al., 2010, Bruce et al., 2016, Simons et al., 2016). The WHO has concluded that, although knowledge about the duration of protection against infection and disease is still incomplete, studies demonstrate that, among successfully vaccinated immunocompetent individuals, protection against chronic infection persists for 20-30 years or more. Therefore, WHO conclude that there is no compelling evidence for recommending a booster dose of hepatitis B vaccine in routine immunisation programmes (WHO 2017). Based on this conclusion, the current UK recommendation is that those who have received a primary course of immunisation do not require a reinforcing dose of HepB-containing vaccine, except in the following categories:

- healthcare workers (including students and trainees), who should be offered a single booster dose of vaccine, once only, around five years after primary immunisation
- patients with renal failure
- at the time of a significant exposure event

## 4.4 Response to vaccination

Hepatitis B vaccines are highly effective; around 90% of adults respond to vaccines adequately. Poor responses are mostly associated with age over 40 years, obesity and smoking (Roome et al., 1993). Testing for evidence of immunity post immunisation (anti-HBs) is not routinely recommended, except in certain groups as described below:

- Those at risk of occupational exposure: in those at risk of occupational exposure, particularly healthcare and laboratory workers, anti-HBs titres should be checked one to two months after the completion of a primary course of vaccine. Under the Control of Substances Hazardous to Health (COSHH) Regulations, individual workers have the right to know whether or not they have been protected. Such information allows appropriate decisions to be made concerning post-exposure prophylaxis following known or suspected exposure to the virus. Antibody responses to hepatitis B vaccine vary widely between individuals. It is preferable to achieve anti-HBs levels above 100mIU/ml, although levels of 10mIU/ml or more are generally accepted as enough to protect against infection. In immunocompetent individuals, once a response has been established further assessment of antibody levels is not indicated. Responders with anti-HBs levels of 10 to 100mIU/ml should receive one additional dose of vaccine at that time. In immunocompetent individuals, further assessment of antibody levels is not indicated. Current advice is that healthcare and laboratory workers should be offered a single booster dose of vaccine, once only, five years after the primary immunisation. An antibody level below 10mIU/ml is classified as a non-response to vaccine, and testing for markers of current or past infection is good clinical practice. In non-responders, a repeat course of vaccine is recommended, followed by retesting one to two months after the second course. Those who still have anti-HBs levels below 10mIU/ml, and who have no markers of current or past infection, will require HBIG for protection if exposed to the virus.

## 4.5 Contraindications to vaccination

There are very few individuals who cannot receive hepatitis B-containing vaccines. When there is doubt, appropriate advice should be sought from the relevant specialist consultant, the local screening and immunisation team or local Health Protection Team rather than withholding vaccine. The vaccine should not be given to those who have had a confirmed anaphylactic reaction to a previous dose of a hepatitis B-containing vaccine or a confirmed anaphylactic reaction to any component of the vaccine.

## 4.6 Risk reduction

Vaccination does not reduce the responsibility of all NIBTS staff to adopt safe working practices such as those outlined in Management of Sharps Injury, Waste Disposal and other NIBTS policies. All staff must be aware of the procedure to be followed should they sustain a sharps injury. Relevant HS SOPs are referenced on page 1 of this policy.

## 5. EQUALITY SCREENING OUTCOME

This policy has been drawn up and reviewed in light of the statutory obligations contained within Section 75 of the Northern Ireland Act (1998). In line with the statutory duty of equality this policy has been screened against particular criteria. If at any stage of the life of the policy there are any issues within the policy which are perceived by any party as creating adverse impacts on any of the groups under Section 75 that party should bring these to the attention of the Head of HR & Corporate Services

The Northern Ireland Blood Transfusion Service is committed to the promotion of equality of opportunity for staff, donors and service users. We strive to ensure that everyone is treated fairly and that their rights are respected at all times. We believe that it is important that our policy is understood by all those whose literacy is limited, those who do not speak English as a first language or those who face communication barriers because of a disability. On request it may be possible to make this policy available in alternative formats such as large print, Braille, disk, audio file, audio cassette, Easy Read or in minority languages to meet the needs of those not fluent in English.

## 6. TRAINING REQUIREMENTS

Medical Consultants, Specialist Registrar and Specialty Doctors should read & understand.
Nursing and donor staff should be aware of policy.
Laboratory Biomedical Scientist staff should be aware of policy.