

GUIDANCE ON OCCUPATIONAL INFECTION  
WITH BLOOD BORNE VIRUSES FOR HEALTH CARE WORKERS  
IN REMOTE SITES OR INSTALLATIONS





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# CONTENTS

	<b>Page</b>
<b>Acknowledgements</b> .....	vii
<b>Introduction</b> .....	1
<b>1 Procedure in the event of occupational exposure to BBV</b> .....	3
1.1 Prevention of exposure to BBV by safe working practices including safe disposal of sharps .....	3
1.2 First aid after exposure to blood or body fluids .....	3
1.3 Report the incident .....	3
1.4 Risk assessment .....	3
1.5 Testing source for Hepatitis B, Hepatitis C and HIV .....	3
1.6 Consideration of post exposure prophylaxis following exposure to a known infected source .....	4
1.7 Consideration of PEP following exposure to an unknown source .....	5
1.8 Follow up visits and samples taken for virology following significant exposure where source status is unknown .....	5
<b>2 Employee education and training</b> .....	7
<b>3 Risk/action matrix for PEP for possible HIV exposure</b> .....	9
<b>References and acknowledgements</b> .....	11

GUIDANCE ON OCCUPATIONAL INFECTION WITH BLOOD BORNE VIRUSES FOR HEALTH CARE WORKERS  
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# INTRODUCTION

Most needlestick injuries can be prevented if proper care is taken. It is essential that all staff perform tasks in a safe manner. Where there is a risk of exposure to a patient's blood from a needlestick or other sharps injury, then the procedures should be reviewed and modified to ensure that employee's safety is maintained.

Although prevention of exposure is better than any post exposure procedure, there will be occasions when an exposure to body fluids will occur.

## **Occupational risk of transmission from significant exposure to blood borne viruses (BBV)**

The risk of infection from Hepatitis B is about 30 per 100 where the source is known to be HBeAg positive. Hepatitis B immunisation is protective once an immunised individual is confirmed as having responded to the vaccine.

The risk from Hepatitis C infected blood is less than from Hepatitis B infected blood and is about 3 per 100 injuries from a known positive source.

The risk of acquiring HIV from percutaneous exposure to HIV infected blood in health care settings is about 0,3 per 100 injuries. Post exposure prophylaxis reduces this rate by 80%.

## **Body substances to be treated as blood**

Any fluid visibly contaminated with blood, breast milk, amniotic fluid, vaginal secretions, semen, saliva in association with dentistry, cerebrospinal fluid, pleural fluid, pericardial fluid, synovial fluid and all unfixed tissues.

There is a minimal risk of BBV infection from urine, faeces, saliva, sputum, tears, sweat and vomit (unless contaminated by blood), although they may be hazardous for other reasons.

## **Significant exposure is:**

- Percutaneous injury (e.g. needles, instruments, bone fragments, significant bites which break the skin etc.).
- Exposure of broken skin (e.g. abrasions, cuts, eczema etc.).
- Exposure of mucous membranes including the eye.

## **Universal blood and body fluid precautions:**

- Basic hygiene practices with regular hand washing.
- Cover existing wounds or skin lesions with waterproof dressings.
- Simple protective measures to avoid contamination of person and clothing.
- Protect eyes, mouth and nose from splashes.
- Avoid the use of sharps where possible.
- Disposal of sharps with care.
- Clear up spills promptly.
- Dispose of clinical waste safely.

### **Post exposure management**

Hepatitis B: immunisation is known to protect the majority of those individuals who have completed a full course of immunisation. Where there is exposure to definite Hepatitis B infection risk individuals who are either not immunised or have not responded (anti HBs <10 IU/l) will benefit from post exposure treatment with immunoglobulin.

Hepatitis C: there is currently no post exposure prophylaxis. Follow up subsequent to exposure is essential to ensure early recognition of any subsequent infection.

HIV: guidance on the benefits of post exposure prophylaxis has been produced by the UK Chief Medical Officer's Expert Advisory Group on AIDS.

# 1

## PROCEDURE IN THE EVENT OF OCCUPATIONAL EXPOSURE TO BBV

For all potential exposures to BBV these steps must be followed:

### **1.1 PREVENTION OF EXPOSURE TO BBV BY SAFE WORKING PRACTICES INCLUDING SAFE DISPOSAL OF SHARPS**

Employers have a legal duty to protect the health and safety of their employees:

- Health and Safety at Work etc Act 1974.
- Control of Substances Hazardous to Health Regulations 2002.
- Management of Health and Safety Regulations 1999.

Universal blood and body fluid precautions must be used for all patients regardless of their BBV status.

### **1.2 FIRST AID AFTER EXPOSURE TO BLOOD OR BODY FLUIDS**

- Encourage bleeding of accidental puncture wounds by gently squeezing. Do not suck the area.
- Wash the affected area with soap and warm running water, but do not scrub. Do not use antiseptics or skin washes.
- Apply a water proof dressing.

Treat mucosal surfaces (such as the mouth or conjunctiva of the eye) by rinsing with warm water or

saline, before and after removing contact lenses. For eyes use a fresh eye wash bottle. Water used for rinsing the mouth must not be swallowed.

### **1.3 REPORT THE INCIDENT**

The incident should be reported to the relevant emergency medical advice provider and also through company procedures.

### **1.4 RISK ASSESSMENT**

Further management of the incident involves a risk assessment by the emergency medical advice provider.

The risk assessment considers:

- Type of body fluid: blood, blood stained body fluid, low risk body fluid.
- Type of injury and type of sharp: deep injury, visible blood on device, injury with needle which has been placed in the source patient's artery or vein.
- Likelihood of BBV infection in source case: source status unknown or source high risk.
- Immunisation history of the exposed individual.

The senior doctor/nurse is responsible for assessing whether the exposure was significant. For significant exposures follow up with the company occupational health provider must be arranged.

## 1.5 TESTING SOURCE FOR HEPATITIS B, HEPATITIS C AND HIV

If initial assessment indicates that an exposure has been significant, consideration should be given to the status of the source. The flow chart on page 9 should be followed for management of significant injuries.

Where the source is identified the emergency medical advice provider should make arrangements to approach the source patient.

The exposed individual should not undertake this approach.

Pre-test discussion is needed, as well as fully informed consent. Verbal consent is currently sufficient but should be documented in the patient's medical records. Consent should also be obtained for a copy of the results to be made available to the occupational health service. Coded samples are acceptable to the testing laboratories provided the identifying code matches the request form.

The Association of British Insurers has recommended to its members that for life insurance proposals they no longer ask whether the applicant has had counselling or a negative test for Hepatitis B, Hepatitis C and HIV infection. Insurers continue to be entitled to ask about any positive test results in connection with life insurance applications.

Inform the source about the incident and reason for the enquiry and request for the test.

Ensure immediate access to counselling for newly diagnosed Hepatitis B, Hepatitis C or HIV source. This can be arranged through local NHS providers. Further referral to other specialists can be made if appropriate.

## 1.6 CONSIDERATION OF POST EXPOSURE PROPHYLAXIS FOLLOWING EXPOSURE TO A KNOWN INFECTED SOURCE

### 1.6.1 Source Hepatitis B surface antigen positive

Individuals who have been immunised against Hepatitis B and have been identified as responders (anti HBs >10 IU/l) do not require Hepatitis B immunoglobulin but, if appropriate, would be offered a booster dose of Hepatitis B vaccine.

Non responders (anti HBs <10 IU/l) or those who have not completed a course of immunisation should be offered Hepatitis B immunoglobulin if there is a risk of Hepatitis B infection. A blood sample will be taken for storage at the time of the incident.

Individuals who have not received Hepatitis B immunisation should be offered Hepatitis B immunoglobulin and an accelerated course of Hepatitis B immunisation.

Follow up tests for Hepatitis B surface antigen will be performed at three months and six months. Hepatitis core antibody will be tested for at six months.

### 1.6.2 Source Hepatitis C virus positive

There is no treatment currently available to prevent Hepatitis C infection. Individuals should be counselled and advised of the risks.

Samples can be taken for storage in case retrospective testing is indicated.

A blood sample will be tested for viral RNA at six weeks. Follow up will occur at three months and six months when Hepatitis C antibody levels will be tested.

If any tests are abnormal referral to specialist gastroenterology services are indicated.

No post exposure prophylaxis is currently available.

### 1.6.3 Source HIV positive

If the source patient is known to be HIV positive or is considered high risk but has not been tested then the following guidelines should be followed.

Post exposure prophylaxis (PEP) should be offered to any healthcare worker (HCW) who has suffered significant exposure to blood or blood stained material from a known HIV positive source.

- PEP should be administered as soon as possible; therefore advice following an exposure should be taken immediately. If required the HCW will be evacuated (MEDIVAC) and will receive PEP when they report to the emergency medical advice provider. PEP will not be provided to staff who remain at a remote location or installation as a high incidence of side effects mean that this treatment is not appropriate in these environments.
- PEP is effective up to several days after the incident but ideally should be administered as soon as possible.
- The form of PEP will usually involve three antiviral drugs but the choice of drug will be influenced by the antiviral treatment history of the source.
- Blood tests will be performed at intervals in consultation with the relevant specialists.

### 1.7 CONSIDERATION OF PEP FOLLOWING EXPOSURE TO AN UNKNOWN SOURCE

Advice should be taken from the emergency health care provider who will consider whether the exposure was significant and the risks associated with it.

**Hepatitis B:** Individuals who have been immunised against Hepatitis B and have been identified as non-responders (anti HBs<10 IU/l) should be offered Hepatitis B booster and consider Hepatitis B immunoglobulin.

Individuals who have not been immunised against Hepatitis B should be offered an accelerated course of Hepatitis B immunisation.

**Hepatitis C:** There is no treatment currently available to prevent Hepatitis C infection. Individuals should be counselled and advised of the risks.

No post exposure prophylaxis is currently available.

**HIV:** See risk assessment matrix page 8.

If the source is unknown PEP is not recommended and advice from the emergency medical advice provider should be taken following a review of the risks from the incident. If following this advice the HCW still requests PEP, then it should be provided.

If the source refuses HIV testing then a decision to give / continue PEP will be made based on knowledge of the HIV risk factors in the source and the wishes of the HCW in consultation with the specialist advice from an infectious disease consultant.

If it is decided to PEP then the procedure should be as if the source is known HIV positive.

### 1.8 FOLLOW UP VISITS AND SAMPLES TAKEN FOR VIROLOGY FOLLOWING SIGNIFICANT EXPOSURE WHERE SOURCE STATUS IS UNKNOWN

Where HIV infection is not considered to be a factor, follow up of exposure incidents involving Hepatitis B or C infection risks should occur through the company occupational health provider.

Employees will be given a confidential coded identity number for all samples of blood for virology that have been taken.

If Hepatitis B status of the source is unknown and the exposed person is susceptible a sample of the exposed individual's blood will be taken initially for storage and at six months for testing for Hepatitis B core antibody and Hepatitis B surface antigen.

If Hepatitis C status of the source is unknown a sample of the exposed individual's blood will be taken initially for storage and at six months for testing for Hepatitis C antibody levels.

If the HIV status of the source is unknown a sample of the exposed individual's blood will be taken initially for storage and at six months for testing for HIV antibody levels.

If the source can not be identified an initial sample of blood will be taken for storage and at six months for testing if appropriate.

Samples for storage will be kept for a minimum of two years.

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## 2

# EMPLOYEE EDUCATION AND TRAINING

All HCW should be provided with information on the arrangements following significant exposure to BBV. In particular the training should involve:

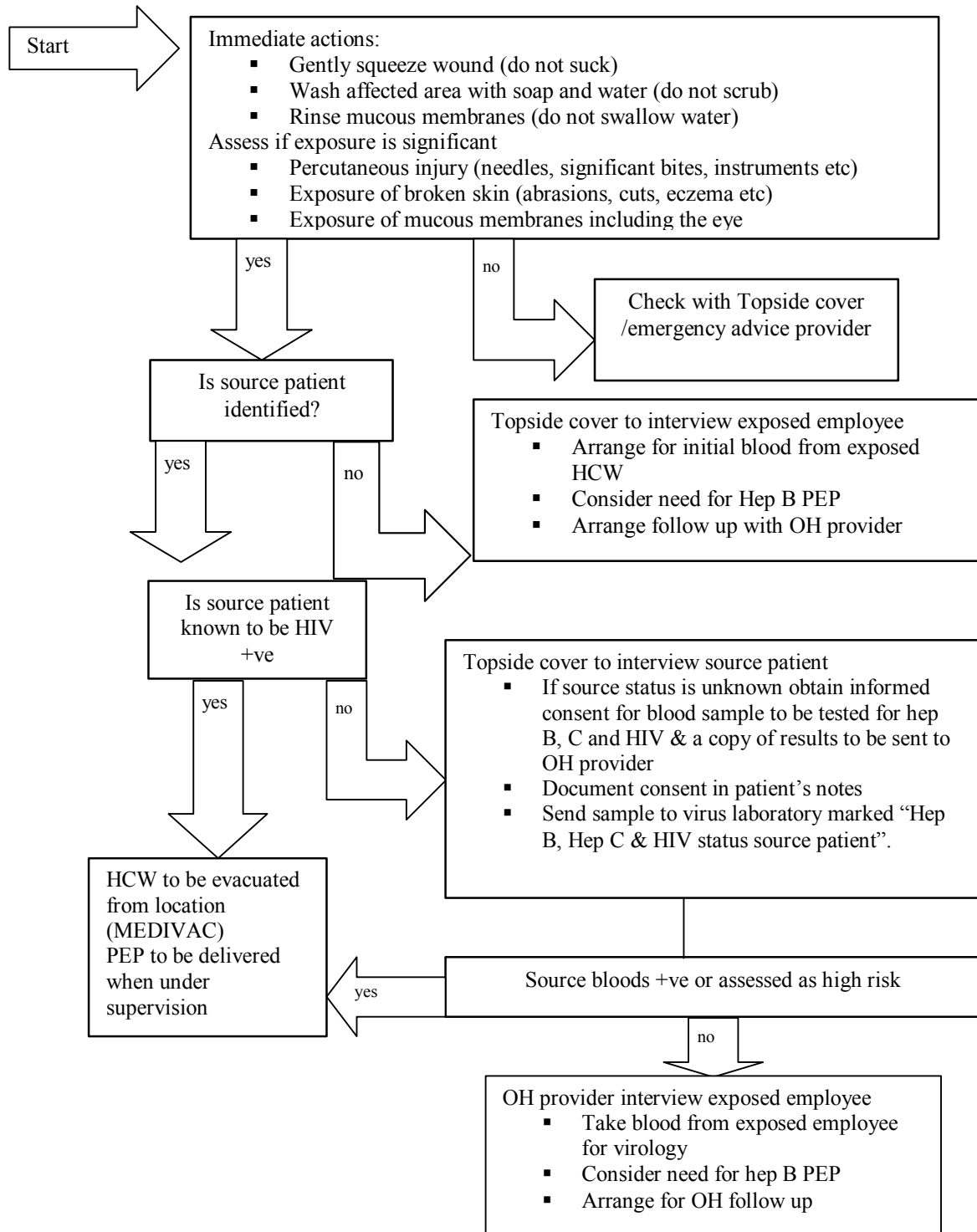
- Procedures for prevention of exposure to blood and body fluids.
- First aid after exposure to blood or body fluids.
- Procedures for obtaining advice from the emergency health provider and reporting through the employer's reporting process.
- Process for risk assessment.
- Process for testing the source of exposure.
- Options and availability of post exposure prophylaxis.
- Follow up arrangements.
- Arrangements and expectations of confidentiality for both the source patient and the exposed individual.
- Arrangements for immunisation for Hepatitis B.

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# 3

## RISK /ACTION MATRIX FOR PEP FOR POSSIBLE HIV EXPOSURE

	Known HIV -ve / Unknown HIV status	Known HIV +ve
Significant exposure	Advice and possible PEP depending on source risk factors and views of HCW after taking advice	PEP
Not a significant exposure	Advice and no PEP	Advice and no PEP



Advice and support can be obtained from Topside providers, OH providers, or other recognised emergency specialist advisers.

**References:**

NHS Grampian

Website for HIV PEP guidance

NHS Chief medical Officer expert advisory committee

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NHS Grampian OH Service

Infectious Diseases Unit Aberdeen Royal Infirmary