Needlestick Injury Management Procedure

NHS Lothian

Contents

1. Overview

1.1 Scope

This document gives practical step by step guidance on what to do after potential exposure to blood-borne viruses (BBV) following a needle-stick or other exposure.

It covers injuries sustained by:

- NHS health-care workers (HCW),
- Third sector workers in voluntary agencies providing BBV testing using dry blood spot tests
- Non-occupational injuries

NB: The Occupational Health Service (OHS) ONLY deals with injuries of HCWs

Individuals presenting after **sexual exposure or assault** should be assessed according to the Post-Exposure Prophylaxis for Sexual Exposure (PEPSE) and non-occupational exposure to Blood Borne Viruses.

1.2 Definitions and abbreviations

Anti HBS – Anti Hepatitis B Surface Antigen Antibody
BBV – Blood-Borne Virus
CSHC – Chalmers Sexual Health Centre
GUM – Genito-Urinary Medicine
HBIG – Hepatitis B Immunoglobulin
HBV – Hepatitis B Virus
HCV – Hepatitis C Virus
HCW – Health Care Worker
HIV – Human Immunodeficiency Virus
ID – Infectious Diseases
OHS – Occupational Health Service
PCR – Polymerase Chain Reaction
PEP – Post Exposure Prophylaxis
RHCYP – Royal Hospital for Children and Young People
RIDU – Regional Infectious Diseases Unit
RIE – Royal Infirmary of Edinburgh
SJH – St John's Hospital
WGH – Western General Hospital

1.3 Documents to be used with this procedure

Title	Function
Needlestick Injury Immediate Care and BBV Risk Assessment flowchart	Recommendation for how to optimally manage a needlestick injury, including assessment for each BBV; also available in section 2.

BBV exposure risk assessment form	To be filled out in every case, and forwarded to the relevant specialty in cases of significant exposure
Blood Borne Viruses – Background information for Risk Assessment	Allows you to calculate % chance a source is BBV positive, to perform a risk assessment
Current recommended HIV Post-Exposure Prophylaxis (PEP)	Current NHS Lothian recommended PEP medication
Needlestick Injuries and Prevention of HIV Infection: A Factsheet for Patients	Information about risk of contracting BBVs from needlestick, BBV testing and PEP
Post Exposure Prophylaxis (PEP) Antiretroviral starter pack: Patient Information Leaflet	PEP patient information leaflet. Give to patients who are starting PEP
Testing for Blood Borne Viruses, Information for Patients	Can be handed to patients who are or are considering being tested for BBV

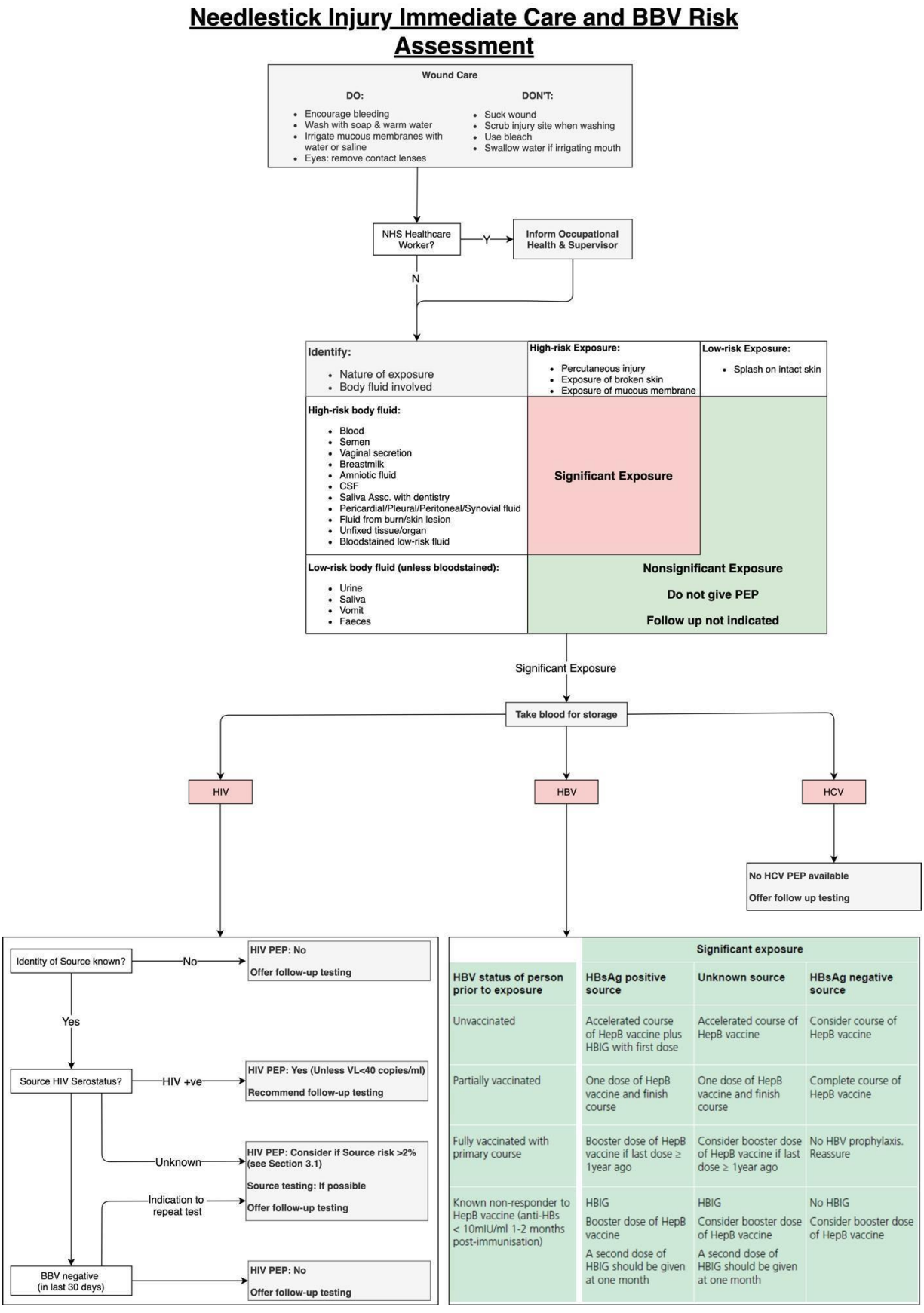
1.4 References

Department of Health. HIV Post-exposure prophylaxis: Guidance from the UK Chief Medical

Officers' Expert Advisory Group on AIDS. Revised September 2008 & 2013 Department of Health, Green Book, Chapter 18, updated 2017

BMA: Needlestick injuries and blood borne viruses: decisions about testing adults who lack capacity

2. Immediate Care and Risk Assessment



	Significant exposure		
HBV status of person prior to exposure	**HBsAg positive source**	**Unknown source**	**HBsAg negative source**
Unvaccinated	Accelerated course of HepB vaccine plus HBIG with first dose	Accelerated course of HepB vaccine	Consider course of HepB vaccine
Partially vaccinated	One dose of HepB vaccine and finish course	One dose of HepB vaccine and finish course	Complete course of HepB vaccine
Fully vaccinated with primary course	Booster dose of HepB vaccine if last dose ≥ 1year ago	Consider booster dose of HepB vaccine if last dose ≥ 1year ago	No HBV prophylaxis. Reassure
Known non-responder to HepB vaccine (anti-HBs < 10mIU/ml 1-2 months post-immunisation)	HBIG Booster dose of HepB vaccine A second dose of HBIG should be given at one month	HBIG Consider booster dose of HepB vaccine A second dose of HBIG should be given at one month	No HBIG Consider booster dose of HepB vaccine

Initial assessment of needlestick injuries should be conducted according to the above

flowchart, which is also available as a separate document (Needlestick Injury Immediate Care and Risk Assessment flowchart). Priorities are:

- Appropriate wound care.
- Assessing if a Significant Exposure has occurred (requires both a high-risk fluid **and** high-risk exposure).
- If a Significant Exposure has occurred, determining the risk of the injured party contracting BBVs (depends on source patient BBV status, or likelihood the source is BBV+) and offering follow-up testing.

Please note:

- HIV: PEP is **rarely recommended** unless source is known to be HIV+ with a detectable viral load, or from a high-risk group.
- HBV: In non-significant exposure to HBV, consider initiating a course of HBV vaccine if there is ongoing risk (e.g. patient is a healthcare worker, police officer etc.).
- HCV: There is no PEP for HCV. Patients at risk of HCV infection are managed by follow up testing only.

2.1 Risk assessment of bites

Transmission of HIV by human bite is **extremely** rare and occurs when there is severe trauma with extensive tissue damage.

Possible biting scenarios include:

- *HIV+ person bites injured party*: a significant exposure would require:
- Mucosal trauma to the mouth of the biter
- Severe trauma with extensive tissue damage to the victim
- *HIV- person bites known HIV+ person*: significant exposure would require:
- Mucosal trauma to the mouth of the biter
- Significant bleeding from the victim into the mouth of the biter

If neither party is known to be HIV positive then a bite would **not** be considered a high-risk exposure.

2.2 Risk assessment of common injuries in children

Bite injuries are common in pre-school and school-age children and are low-risk.

Occasionally children can sustain community needlestick injuries; these are also low-risk; children should attend RHCYP for assessment & follow up.

3. Managing Significant Exposures

3.1 Assess the risk of transmission

Determine risk using the Needlestick Injury Immediate Care and BBV Risk Assessment flowchart and, if required, the Blood Borne Viruses – Background information for Risk Assessment document. This will inform your course of action. High-risk sources are defined as individuals with a baseline risk of greater than:

HIV: 2%
HBV: 2.5%

3.2 Check vaccination status of injured person

Review the injured person's HBV vaccination status. For children check tetanus status also.

3.3 Take blood for storage

In **every** case of Significant Exposure, take a baseline blood sample (4.5ml or 2x 2.7ml anti-coagulated EDTA, red cap / clotted sample in children) from the injured party and send to RIE Virology for storage. These samples are kept for 2 years, and in the event of a subsequent positive result for BBV the stored sample helps determine BBV serostatus at time of injury.

Occupational Health offer injured healthcare workers follow-up appointments for storage bloods to at 6, 12 and 24 weeks as required.

3.4 Follow-up testing

Follow up testing should be offered in all cases, but recommended in high-risk scenarios.

The information leaflet Testing for Blood Borne viruses can be given to patients prior to testing; this contains basic information on BBVs and issues to consider prior to being tested.

Healthcare Workers will be tested (if required or requested) by Occupational Health, unless a course of PEP has been started – in which case follow up testing will be done in RIDU.

There is a professional obligation on certain HCWs to submit to testing when they have been at significant risk.

The schedule for follow-up testing is as per Table 1 below:

BBV	Test	Timing (Weeks)		
		6	12	24
HIV	HIV Ag/Ab test	Y	Y	N
HBV	HBsAg	Y	Y	Y
	HBcAb	N	N	Y
HCV	HCV Antibody	N	Y	Y
	HCV RNA (PCR)	Y	Y	N

Table 1. Recommended testing schedule for BBVs after significant exposure event.
Note: If giving HIV PEP, testing occurs 6 and 12 weeks from the end of treatment.

Follow up is undertaken as follows:

1. Adults commenced on HIV Post Exposure Prophylaxis (PEP): Regional Infectious Disease Unit:
    - Contact the on-call RIDU registrar via WGH switchboard (0900-2100).
    - Outwith these hours: Obtain a contact number for the injured person and contact the on- call RIDU registrar the next morning. Email the risk assessment form to wgh.infectiousdiseases@nhslothian.scot.nhs.uk.
    - Adults who have **not** been commenced on HIV PEP should be advised to discuss ongoing concerns with their GP.
2. Children: contact the on-call paediatric consultant at RHCYP. If unavailable: See section 8.

Injured party concern: There will be situations where no significant injury has occurred or transmission risk is low, but patient anxiety may determine the need for referral to RIDU for counselling +/- follow up testing. This is appropriate.

3.5 Source testing

The injured worker's line manager should make every effort is made to establish source serostatus. Urgent testing is available, but rarely required (see Section 3.6).

3.5.1 Source testing panel

- HIV antigen/antibody
- HBV surface antigen/core antibody
- HCV antigen/HCV antibody

3.5.2 Informing source patient of test results

- Test results should be conveyed to the source patient, even if negative.
- Any source patient who is newly diagnosed with BBV infection as a result of this process will need immediate access to specialist post-test counselling and assurances about confidentiality. This is accessible at RIDU.

3.5.3 Obtaining consent

A senior member of the source patient's clinical team should approach them and ask them to consent to testing.

The injured HCW should **not** approach the source themselves.

If the HCW sustaining the injury is single-handed, there may be no option but for them to approach the source patient themselves.

In this case, if the source agrees to BBV testing, they should be referred to their GP or A&E. The single-handed practitioner should contact the GP/A&E to discuss the situation.

Brief pre-test discussion and informed consent is required, and can be provided by any competent HCW.

What to tell the source patient.

- Inform them about the incident and reason for the request for a test.

- Discuss the exposed HCW's situation, noting:
    - The benefits of HIV PEP if the source is HIV+, or
    - If HIV-, that there are considerable savings in terms of cost, repeat testing and reduced anxiety for the injured person.

Consent to HIV testing is rarely withheld in these circumstances, when the approach is made in a sensitive manner.

If consent for testing is withheld or cannot be obtained from the source patient then testing cannot occur.

If the source patient is unconscious they cannot consent; do **NOT** carry out testing.

3.6 Urgent BBV testing in NHS Lothian

This is almost never required. In most cases where the risk is considered to be high the injured party can be started on HIV PEP and source status confirmed by non-urgent testing the following day.

For HBV, the only indication for urgent testing is an unvaccinated injured party, where identifying the source as HBV+ would prompt the administration of HBIG.

In extenuating circumstances, urgent source testing can be performed by RIE Virology (results available within 2 hours of arriving at the lab).

Urgent testing procedure:

- Make a verbal request to Virology (via RIE switchboard, 0131 536 1000) – either to the Duty Virologist (0900-1700 Mon-Fri) or the Biomedical Scientist on-call out with these times.
- Take 4.5 ml serum gel (brown cap) blood sample tube
- Send as follows (either via TRAK or paper form):
- All patient and requestor details (including contact details)
- Mark/state 'Urgent: Exposure incident - Source patient'.

4. PEP for HIV

4.1 Timing

- When HIV PEP is required, start as soon as possible, ideally within 1h of a Significant Exposure, but no later than 72h; PEP is ineffective if started after 72h.
- If it is known/highly likely the source is HIV positive, PEP can be started immediately pending the outcome of a more thorough risk assessment.
- Where laboratory staff working with drug-resistant virus are exposed, an immediate expert opinion must be obtained from the ID consultant on-call.
- OHS Nurses should also contact the ID consultant on-call for advice as required.

4.2 Supplying HIV PEP

Before supplying PEP, obtain the following history:

- A clear history of the injury including timeline and source risk assessment.
- Past medical history.
- Drug history, including oral contraception, herbal remedies, over the counter medicines, and recreational drugs.
- Females should be asked about possible pregnancy:
- Conduct urgent pregnancy testing for any woman who may be pregnant.
- Pregnancy is not a contraindication to PEP, but may affect the decision process.
- These patients can be discussed with the on-call ID consultant.

4.3 Starter packs

The current HIV PEP regimen used in NHS Lothian is detailed in Current recommended HIV Post-Exposure Prophylaxis (PEP). A full course is 28 days.

7-day starter packs of PEP medication are available at:

- Emergency departments at RIE and SJH
- Regional Infectious Diseases Unit, Ward 43 (WGH)
- Royal Hospital for Children and Young People Ward 6 (emergency cupboard)
- Roodlands Hospital Ward 1 (back up cupboard)

4.4 Patient information

The doctor providing PEP should print and give to the patient the following leaflets:

- Needlestick Injuries and Prevention of HIV Infection: A Factsheet for Patients
- Post Exposure Prophylaxis (PEP) Antiretroviral starter pack: Patient Information Leaflet

4.5 Follow-up for HIV

4.5.1 Patients starting PEP

- Adults: Should be followed up at RIDU within 48-72 hours so that a decision can be made on continuing therapy, and any additional concerns can be addressed.
- Children: follow-up is with the paediatric ID consultant at RHCYP.
- HIV follow up testing is done at 6 and 12 weeks after **completing** PEP (see Table 1 in section 3.4).
- Patients receiving HIV PEP require baseline FBC, U&Es, LFTs and Phosphate, and repeat testing at days 14 and 28.

4.5.2 Patients not starting PEP

Patients who refuse PEP but agree to follow up testing should be tested as per Table 1.

5. PEP for Hepatitis B

See the Needlestick Injury Immediate Care and BBV Risk Assessment flowchart for recommended actions.

Most HCWs are vaccinated against HBV (and may know their anti-HBs titre). Irrespective of type of exposure:

- **All** fully vaccinated HCWs should be offered a HBV booster
- All non/partially vaccinated HCWs should start/complete a course of HBV vaccine. Those with previous HBV infection require no prophylaxis.

5.1 HBV accelerated vaccination

- Doses at 0, 1 and 2 months (alternatively, 0, 7 & 21 days if more pragmatic) with a booster dose at 12 months.
- See current BNF for adult and paediatric doses.

5.2 Administering Hepatitis B Immunoglobulin (HBIG)

Where indicated, give HBIG as soon as possible and ideally within 48hrs (but can be considered up to a week post-exposure).

HBIG is held in the RIE Emergency department. Dose:

- Adult and Child over 10 yrs, 500 IU by IM injection
- Children <10yrs: contact the paediatric ID consultant at RHCYP (Unavailable: See section 8). Do not co-administer HBIG and HBV vaccine at the same site.

5.3 Follow-up for Hepatitis B

- Those with Significant Exposure should be referred for follow-up testing.
- Follow up testing should be scheduled as per Table 1.
- Follow up everyone who received a course of vaccine.
- Individuals don't need follow-up HBV testing if they are pre-exposure vaccine responders, and anti-HBS titre >100mIU/ml 2-3 months after a full course of vaccine.

6. Managing Healthcare Worker (HCW) injuries

6.1 Informing people the incident has occurred

6.1.1 The injured person

- Report injury to line manager (For medical staff this is the consultant on duty)
- Notify the Occupational Health Service (OHS) by completing the Sharps / Contamination incident form available on the NHS Lothian intranet. The form can be accessed **via the Guest log in** on: https://lothiannhs.my.cority.com/#/login

OR

- by searching NHS Lothian Occupational Health

(https://weare.nhslothian.scot/occupationalhealthcommercial/) and entering 'Contact us (https://weare.nhslothian.scot/occupationalhealthcommercial/contact-us/)

OR

- By scanning the QR code below which can also be found on the updated **GREEN** 'Managing sharps and contamination injuries' **posters** in your work location.

SCAN ME

6.1.2 The line manager

- Clarify that a needlestick or Significant Exposure injury has occurred
- Ensure that the individual reports to OHS for advice and follow-up
- Carry out a risk assessment with assistance from OHS (see section 6.2).
    - For Regional Infectious Diseases Unit (RIDU) and Chalmers Sexual Health Centre (CSHC) staff, the risk assessment will be carried out by the consultant on-call, but the Occupational Health Service must be made aware of the incident by the injured staff member completing the Sharps/ Contamination incident form electronically
- Where high risk exposure occurred ensure that blood is obtained from the Source for BBV testing.

6.1.3 Recording the injury

There is a legal requirement for line management to accurately record injuries occurring within the organisation. Fill out an incident form in **all** cases.

The Datix reporting system must be used. Access to named information on the Datix system is password protected and restricted to key members of staff.

Fill in all details as usual, with the following exceptions:

- Source: Identify by initials and case note number **only**
- Injured person: Identify by initials and date of birth **only**

The full name of the injured party should be written down and kept at ward/department level only. Do not include the name of the injured person on any formal reports.

6.2 Risk Assessment of HCWs

In **every case** fill in a BBV exposure risk assessment form.

- Completion of the risk assessment is the responsibility of the line manager (or senior clinician on duty).
- If required, assistance can be obtained from the Occupational Health Service by contacting the service on 0131 536 1135 option 1 then option 1 (during working hours).

- Email risk assessment form to OHenquiries@nhslothian.scot.nhs.uk
- If the injury is sustained by a single-handed HCW (e.g. salaried dental practitioner), this person should contact the on-call OHS nurse or the duty Infectious Diseases (ID) registrar on-call or consultant for advice.

6.3 Follow-up of HCWs

For HCWs (and third sector workers providing BBV dry blood spot testing) the OHS nurse arranges follow-up +/- need for HBV vaccination.

Following **any** occupational exposure to BBV, HCWs should attend for OHS follow-up as requested by OHS staff and report symptoms/signs of concern at any time.

HCWs who carry out exposure prone procedures (EPP) do **not** need to modify their practice pending test results.

7. Managing Third Sector Workers and Members of the Public injuries

7.1 Risk assessment of Third Sector workers and members of the public

In **every case** fill in a BBV exposure risk assessment form. File the risk assessment in their case notes.

7.1.1 Adults

This is done by the assessing clinician e.g. an emergency physician or GP.

7.1.2 Children

Children up to age 16 years are usually seen at the Emergency Department at Royal Hospital for Children and Young People (RHCYP).

Expert advice can be obtained (at any time) from the paediatric ID physician via switchboard (0131 536 0000). If they cannot be contacted out-of-hours, contact the Paediatric Infectious Disease on-call consultant in Glasgow (0141 201 0000).

7.2 Follow-up of Third Sector workers and members of the public

- Follow up for those who have started HIV PEP is available at RIDU.
- HBV: members of the public may be referred to the NHS Lothian Health and Social Care Partnerships (HSCPs) vaccination service for completion of the vaccination course. This referral is made by completing the Unscheduled Immunisation Referral Form, available via the NHS Lothian intranet.

8. Where to get expert advice

8.1 Adults:

- The ID Registrar is available 0900-2100/7 days a week. ID consultants are available 24-hrs, and can assist with complex cases.
- There is **no need** to contact them in the middle of the night if a decision to supply a PEP starter pack has already been made (Exception: OHS nurses should contact the ID

consultant if PEP might be indicated).

- Counselling staff at RIDU are happy to see HCW's and members of the public who have been affected by BBV issues, even if the level of risk associated with this incident is negligible. They can be contacted on 0131 537 2864 or extension 32864 during normal working hours.

8.2 Children:

- Children receiving HIV PEP, HBV vaccinations or follow up testing should be referred to the paediatric ID consultant at RHCYP. No child should be started on PEP without discussing with them.
- The referral letter should be sent to 'Paediatric ID Consultant, c/o RHCYP'.
- The paediatric Infectious Diseases consultant on call in Glasgow (Tel 0141 201 0000) provide cover if the RHCYP ID consultant is unavailable.