Primary Care Guidance for Management of Inoculation Incidents

This document is intended for reference as a summary of current national and local guidelines for Primary Care. Full links to guidelines can be found in references section of this document.

If you require further advice on a specific case of inoculation injury please discuss with a Microbiologist (or Occupational Health Department where relevant) or refer the patient to the Emergency Department for emergency assessment including PEP.

High risk injuries including those from high risk donors should be treated as a clinical emergency.

Definitions

Inoculation Incident (sometimes referred to as contamination Incident): An incident where one person is exposed to the blood or bodily fluids of another person.

- Penetrating injury occurring from a sharp object covered in blood or bodily fluids
- penetrating injuries from a sharp object contaminated with blood/body fluid (also
- known as an inoculation or 'needlestick' injury)
- contamination of broken skin surface (e.g. cuts, grazes)
- splashes into the mouth or eyes
- Bite injuries

Body fluids and materials that may pose a risk on exposure are:

- blood and blood products
- visibly blood-stained vomit, faeces, urine or saliva
- other bodily fluids (with/without visible blood staining) including:
  - amniotic fluid
  - breast milk
  - semen
  - vaginal secretions

Donor: The person whose blood or bodily-fluids have been transferred

Recipient: The person exposed to the blood or bodily fluid.

Blood borne viruses (BBV): HIV, Hepatitis B and Hepatitis C

First aid measures for Recipient

Immediately following the incident:

- Irrigate contaminated of mucus membranes with saline.
- Wash puncture wounds with soap and water. Do not scrub. If puncture wound is actively bleeding then squeeze gently to encourage bleeding

Action Required for Donor

Donor: If possible assess donor risk and obtain consent for blood sample. Send clotted blood sample to the Microbiology Laboratory. Stating any high-risk factors for BBV.

Donor risk assessment

1. Country of birth -is this a medium or high-risk country for BBV
   High/Medium Risk Countries include: all Sub-Saharan Africa, Sudan, Papua NG, Myanmar, Thailand, Cambodia, Trinidad/Tobago, Jamaica, Barbados, Bermuda, Haiti, Dominican R, Belize, Honduras, Guyana, Russia, Ukraine, Uzbekistan
2. Ever had a positive HIV/Hep B or Hepatitis C test?
3. Have you ever injected drugs? If yes, have you shared needles/equipment
4. Have you ever had sexual contact with a sex-worker?
5. Have you ever received a blood transfusion outside the UK?
6. Have you ever had unprotected sex with anyone know to have HIV, Hep B or Hep C?
7. *Men only.* Have you ever had sexual relationships with men?

If the donor answers yes to any of the Donor Risk Assessment questions they should be treated as high risk and an emergency clinical assessment for PEP and Hep B prophylaxis should be made.

Action Required for the Recipient

The overall risk of infection following a percutaneous injury especially deep penetrating injuries from a hollow bore needle are estimated at:

1 in 3 for Hepatitis B

1 in 30 for Hepatitis C

1 in 300 for HIV

Generally human bites are 10x less infectious but all have been transmitted including syphilis.

Depending on the viral load at the time transmission risk may be may be lower or higher.

1) Assessing the need for HIV Post-Exposure Prophylaxis (PEP)

BASHH Guidance Summary for PEP prescribing can be used to assess the need for PEP and if PEP is required the recipient should attend the Emergency Department immediately for PEP provision.

In the event that after reviewing BASHH guidance you feel unable to make a decision on the need for PEP then refer patient immediately to the Emergency Department where they can undergo assessment for the need for PEP and it can be issued if recommended.

6.5 Table 4: Summary table of PEP prescribing recommendations

	Index HIV positive		Index of unknown HIV status	
	HIV VL unknown or detectable	HIV VL undetectable	From high prevalence country / risk-group (e.g. MSM) [a]	From low prevalence country / group
SEXUAL EXPOSURES				
Receptive anal sex	Recommend	Not recommended [b] *Provided on ART >6 months with undetectable HIV VL within the last 6 months & good adherence*	Recommend	Not recommended
Insertive anal sex	Recommend	Not recommended	Consider [c,d]	Not recommended
Receptive vaginal sex	Recommend	Not recommended	Generally not recommended [c,d]	Not recommended
Insertive vaginal sex	Consider [c]	Not recommended	Not recommended	Not recommended
Fellatio with ejaculation	Not recommended	Not recommended	Not recommended	Not recommended
Fellatio without ejaculation	Not recommended	Not recommended	Not recommended	Not recommended
Splash of semen into eye	Not recommended	Not recommended	Not recommended	Not recommended
Cunnilingus	Not recommended	Not recommended	Not recommended	Not recommended
OCCUPATIONAL AND OTHER EXPOSURES				
Sharing of injecting equipment	Recommended	Not recommended	Generally not recommended[e]	Not recommended
Sharps injury	Recommended	Not recommended	Generally not recommended[c,e,f]	Not recommended
Mucosal splash injury	Recommended	Not recommended	Generally not recommended[c]	Not recommended
Human bite	Generally not recommended [g]	Not recommended	Not recommended	Not recommended
Needlestick from a discarded needle in the community			Not recommended	Not recommended

Recommended: the benefits of PEP are likely to outweigh the risks, PEP should be given unless there is a clear reason not to.
Consider: the risk of HIV transmission is low, the risk / benefit balance of PEP is less clear. The risk should be assessed on a case by case basis taking into consideration factors shown in footnotes c and d below.
Generally not recommended: the risk of HIV transmission is very low, the potential toxicity and inconvenience of PEP is likely to outweigh the benefit unless there is a clear specific extenuating factor which increases the risk (see footnotes c, d, e, f below). We anticipate PEP should very rarely be given when the risk has been assessed and discussed (section 6.1.2 and 6.2.1.2)
Not recommended: the risk of HIV transmission is negligible and PEP should not be given

[a] High prevalence countries or risk-groups are those where there is a significant likelihood of the index case individual being HIV-positive. Within the UK at present, this is likely to be MSM, IDUs from high-risk countries (see d below) and individuals who have immigrated to the UK from areas of high HIV prevalence, particularly sub-Saharan Africa (high prevalence is >1%). HIV prevalence country specific HIV prevalence can be found at https://aidsinfo.unaids.org

[b] The index case has been on ART for at least 6 months with an undetectable plasma HIV viral load at the time of last measurement and within the last 6 months) with good reported adherence. Where there is any uncertainty about HIV VL results or adherence to ART then PEP should be given after condomless anal intercourse with an HIV-positive person. The viral load threshold considered 'undetectable' in the PARTNER 1 and 2 and HPTN052 studies was <200 copies/ml.

[c] Factors that influence decision-making in all exposures: More detailed knowledge of local HIV prevalence within index case population [a]

[d] Factors that may influence decision-making include in sexual exposures:
1. Breaches in the mucosal barrier such as genital ulcer disease and anal or vaginal trauma following sexual assault or first intercourse
2. Multiple episodes of exposure within a short period of time e.g. group sex
3. Sexually transmitted infection in either partner

[e] HIV prevalence amongst IDUs varies considerably depending on whether there is a local outbreak and country of origin and is particularly high in IDUs from Eastern Europe and central Asia. Region-specific estimates can be found in the UNAIDS Gap Report http://www.unaids.org/sites/default/files/media_asset/05_Peoplewhoinjectdrugs.pdf.

[f] Factors that may influence decision-making include in occupational exposures: Deep trauma or bolus of blood injected

21 https://www.bashhguidelines.org/media/1269/pep-2021.pdf

2) Assessing Risk of Hepatitis B

The table below should be used to assess what Hepatitis B prophylaxis is needed following inoculation incident.

Appendix 3: High Risk Inoculation (Contamination) Incident, page 6 cont'd…

4. HEPATITIS B ASSESSMENT

Table 6: HBV Prophylaxis for significant exposure, high risk contamination injuries		**HBV status of Recipient**			
		≤ 1 dose Hepatitis B vaccine pre-exposure	≥2 doses of Hepatitis B vaccine, but immune status unknown	Known responder to Hepatitis B vaccine (anti-HBS >10 mIU/ml)	Known non-responder to hepatitis B vaccine (anti-HBS <10 mIU/ml 2-4 months post vaccination)
Donor Status	**Unknown Status**	**Accelerated course of HB vaccine***	**One dose of HB vaccine and finish course**	**Consider booster dose of HB vaccine**	**HBIG x 1** Consider booster dose of HB vaccine A second dose of HBIG should be given at 1 month**
	Known HBV positive (HBsAg positive)	**Accelerated course of HB vaccine* HBIG x 1****	**One dose of HB vaccine followed by second dose 1 month later**	**Booster dose of HB vaccine**	**HBIG x 1** Booster dose of HB vaccine A second dose of HBIG should be given at 1 month**

***Accelerated Course HB vaccine = doses spaced at zero, 1 and 2 months with a booster dose given at 12 months to those at continued risk of HBV.**

****HBIG = HB Immunoglobulin, 500U given intramuscularly.** Has to be ordered urgently via Microbiology, and given as soon as possible, ideally within 48 hours and not later than a week after exposure.

Source: PHE, The Green Book, Chapter 18

Contraindications to the HB vaccine can be found in The Green Book: https://www.gov.uk/government/uploads/system/uploads/attachment/data/file/263311/Green Book Chapter 18 v2 0.pdf

3) Blood Samples required for testing and follow up of the recipient:

The Recipient should be consented and an initial sample 10ml clotted sample sent to the Microbiology Laboratory. This will be stored for 2years.

Depending on the outcome of donor screening and donor status the follow up blood tests schedules are recommended in the table below

DONOR STATUS	TESTING OF RECIPIENT (initially serum just stored day 0)
Unknown Donor	4th Gen HIV test and HCV antibody test at 12 weeks. HBsAG and HBcAB at 12 weeks only if unvaccinated/non-responder
Known Donor BBV Negative	Nil
Donor HIV Positive	4th Gen HIV test at 4,12 weeks, and/or 7 weeks after cessation of PEP
Donor Hepatitis B Positive	HBsAg and HBsAb at 12, 24 weeks; if HBsAb neg – do HBcAb
Donor Hepatitis C Positive	HCV PCR at 4,12 weeks, HCV Ab test at 12, 24 weeks

References

1) Royal Devon University Healthcare NHS Foundation Trust Inoculation (Contamination) Incident Policy August 2022 version

2) https://www.bashhguidelines.org/media/1269/pep-2021.pdf

3) Management of an exposure incident - Blood borne viruses (BBV) (hse.gov.uk)