Faculty of Forensic & Legal Medicine

Managing blood-borne virus exposures in custody

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Healthcare Professionals (HCPs) will be asked to see police personnel following potential exposures to blood-borne viruses (BBVs), namely hepatitis B, (HBV), hepatitis C, (HCV) and Human Immunodeficiency Virus (HIV). It is important to recognise and manage these effectively; ensure that all the relevant information is collated; and, where possible, take a blood sample from the source and send it to the relevant department.

N.B. All police personnel, whether police officers or not, who might be at risk of exposure to BBV should be offered vaccination against hepatitis B (HBV), as part of their occupational health care. Moreover, this reflects the new public health approach whereby HBV vaccine is now included in the childhood vaccination schedule.

Prompt and effective management of the recipient is vital in ensuring that any necessary treatment is given expeditiously. Also where the risk is deemed to be low or non-existent then reassurance can be given.

The immediate management following a potential exposure depends not on the virus but on the route of infection/ exposure

The routes can be divided into three broad categories:

- parenteral exposure e.g. needlestick, bites or other sharps injury
- mucous membrane exposure e.g. mouth and eyes
- contamination of non-intact skin (less than 24 hours old).

Where there has been a penetration of the skin or contamination of an open wound, encourage gentle bleeding from the site. Then wash the wound with soap and warm running water, but do not scrub or apply antiseptics; do not suck the wound. Mucous membranes should be irrigated copiously with sterile water. If the recipient is wearing contact lenses then they should be removed and the eyes irrigated again.

Collect as much information about the incident as possible. This is summarised in the following table.

Date and time of incident				
Nature of incident	☐ Bite	☐ Spit	☐ Splash*	☐ Needlestick injury (NSI)
Material	☐ Blood	☐ Blood-stained fluid	☐ Saliva	
Site of injury	☐ Skin	☐ Mucosa	☐ Eye	☐ Mouth
Injury type	☐ Puncture	☐ Laceration	☐ Other	
If needle stick injury	☐ Fresh	☐ Discarded	☐ Visible blood	
	☐ Hollow	☐ Solid		
Injury through	☐ Gloves	☐ Clothes	☐ No protection	

*contamination of broken skin

Other information should also be sought as to the health of the recipient, specifically asking if they are pregnant, immunocompomised or immunosuppressed or if they are on any medication or have previously received medication for any of the BBVs. This would include anti-retroviral treatment for HBV and HIV, and anti-virals or ribavirin and interferon therapy for HCV. Check whether they have been vaccinated for HBV and if so how many doses they received and when, and whether they had their antibody levels checked at any time. All these factors will play a part in the decision-making process for further management. It may be necessary to consider whether HBV immunoglobulin (HBIG) may be required (given as soon as possible, ideally, within 24 hours, and no later than 7 days), as well as commencing an ultra-rapid vaccination course.
See *Green Book, chapter 18, Hepatitis B*

Gather as much information about the contact as possible if they are known. This must be done with the contact's valid consent. Such consent may allow contact with their care-provider, to establish current therapy, viral load etc.

Please see page 2 for the relevant history to be obtained from the contact and page 4 for the details of the blood sample requirements and the consent form to be completed by the HCP and the contact.

The following questions should be asked where possible:

- Injecting drug use whether current or historic.
- A detailed sexual history in the context of determining the risk of blood-borne virus exposure.
- Country of origin and/or residence.
- History of blood transfusions and/or surgical procedures including when and where they were carried out.
- General health including any medication they may be taking.
- History of vaccination against HBV (no. of doses, timing and whether antibody levels have been checked).
- It may be helpful to ask about any time spent in prison or contact with Drug Treatment Agencies.
- Check with the arresting or investigating officer for any useful background information.

An argument can be made to ask any contact (if known) for a blood sample regardless of risk factors, as it is not always possible to identify those who may be at risk of infection. This also enables reassurance to be given to the recipient if the results of the blood tests are negative. Human Immunodeficiency Virus, (HIV): currently, 4th generation tests for HIV, (which measure p24 Antigen and antibodies to HIV-1) or 5th generation tests (which also measures antibodies to HIV-2) mean the window period has been reduced to around 4 weeks; a test taken at the time may identify early infection. However, at least 4 weeks between exposure and test is needed to exclude HIV and a 2nd test after a further 4 weeks may be required.
See *BASHH/EAGA statement on HIV window period*

Hepatitis B (HBV) can have a long incubation phase and infectivity depends on antigen status. Hepatitis C RNA (HCV-RNA) will usually be positive at 2 weeks, whereas antibodies may not become positive for several months.
See *2017 interim update of the 2015 BASHH National Guidelines for the Management of the Viral Hepatitides*

RISKS BY VIRUS

Hepatitis B

The virus can be transmitted through contact with body fluids (blood, saliva, semen, vaginal fluids, sweat, breast milk and any other if blood-stained) via percutaneous or mucosal exposure. Injecting drug use is the main risk factor for HBV infection in the UK. It is estimated that more than 1% of people who inject drugs (PWID) and men who have sex with men (MSM) have been infected with HBV.

Other risk groups include people from high and intermediate risk countries.
See *World Health Organization, Hepatitis B Fact sheet*

High risk:

The World Health Organization (WHO) regions: Africa and the Western Pacific; (HBV is found in approximately 6% of the population).

Intermediate risk:

The WHO regions: South East Asia, Eastern Mediterranean and European; (HBV is found in approximately 3% of the population).

The risk from a single needlestick exposure is estimated at 10 – 30% but can be taken as an average of 1 in 3.

Human Immunodeficiency Virus

By the end of 2017, 93,385 people were receiving care for HIV in the UK. Rates of new diagnoses were decreasing, (by 28% since 2015), in part due to more testing and the use of HIV (anti-retroviral treatment ART) medicines to treat or prevent transmission of HIV (pre- and post-exposure prophylaxis, PrEP and PEP). The greatest fall in new diagnoses is in men who have sex with men (MSM), but they still represent the largest group with a new diagnosis. For those on ART, the suppression of virus in 97%, was to such a level that they did not pose a risk of transmitting HIV. See *Trends in new HIV diagnoses and people receiving HIV-related care in the United Kingdom: data to the end of December 2017*

Nevertheless, many (40%) were diagnosed late in terms of the time since they had acquired the infection.

Like HBV, HIV is transmitted through percutaneous or mucosal exposure to body fluids.

High risk body fluids include

Blood	Semen	Vaginal secretions
CSF	Peritoneal fluid	Synovial fluid
Pericardial fluid		

Low risk fluids (unless blood stained)

Saliva	Urine	Vomit
Faeces	Amniotic fluid	

The 2015 UK Guideline for the use of HIV post exposure prophylaxis following sexual exposure (PEPSE) has useful tables and information about prevalence of HIV and the risks associated with different types of exposure, so obtaining as much information as possible is helpful.

See *UK Guideline for the use of HIV Post-Exposure Prophylaxis Following Sexual Exposure (PEPSE)*

Information regarding prevalence in other countries can be obtained from WHO:
World Health Organization, HIV country profiles

Hepatitis C

It is estimated that around 215,000 people in the UK have chronic HCV. In the UK the major route of HCV transmission is through sharing equipment for injecting drug use, most commonly through blood-contaminated needles and syringes.

The current estimates below are of people who have HCV and inject (or have ever injected) drugs (PWID):

- In England and Wales about 50%
- in Scotland about 58%
- in Northern Ireland about 23%.

Whilst needle exchange programmes reduce transmission, it can still occur by sharing other 'equipment', especially if contaminated with blood.
See *Public Health England, Hepatitis C in the UK*

Other routes of infection are as follows:

- Receiving a blood transfusion or blood products prior to September 1991 when screening was introduced in the UK. This has been shown to account for the majority of cases of post-transfusion non-A, non-B hepatitis.
- Transmission from mother to baby is estimated at around 5% and may be much higher if there concomitant HIV.
- Sexual transmission is not common with estimates of less than 0.1% over 10 years, in heterosexual partners. There is an increased risk for those with multiple sexual partners.
- The risk through occupational exposure following a single needlestick injury with an HCV RNA positive source is estimated at 1.8%
- Tattooing, acupuncture, ear or body piercing with unsterilized equipment.
- There is no data of the risk of hepatitis C through a bite. With saliva alone the risk is considered to be very low. However, if there is blood in the mouth then the risk would increase and could be taken to be about the same as that following a single needlestick injury.
  See *BASHH National Guidelines for the Management of the Viral Hepatitides*

Follow-up Management

Specialist management of any potential exposure is required to ensure that the optimum treatment is given where relevant. Whilst this would be handled at the same time for all the viruses, it is easier to discuss them as separate entities.

Nevertheless, it is important that all police personnel are aware of the importance of reporting at-risk incidents immediately. They should attend their nearest Emergency Department (ED) unless there is immediate access to assessment via occupational health. ED staff should have access to on-call expert advice to assist in carrying out a suitable risk assessment of any BBV risk. Such experts could be consultants in virology, microbiology, infectious diseases, HIV medicine or GU medicine. They could also include public health physicians, namely Consultants in Communicable Disease Control or Consultants in Public Health in Scotland.

The Occupational Health Departments for the different Constabularies should have good arrangements in place with their local EDs to collate information about police personnel following any exposure.

The reason for having a robust system in place is to ensure that Post-Exposure Prophylaxis is instigated as soon as possible, in the case of HIV. Ideally this should be within one hour, although it may be considered up to 72 hours after exposure.

The details of the specific management for each virus are beyond the remit of this document and would be the responsibility of the specialist. Further information may be found:

EAGA guidance on HIV post-exposure prophylaxis

How to deal with an exposure incident

The Green Book, Immunisation against infectious disease

Public Health England

The Public Health Agency

NHS Health Scotland

BASHH Guidelines

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A sample of clotted blood (ideally 10 ml but not less than 0.5 ml) should be taken from the contact and placed in a plain tube. The sample can only be taken with specific consent[1] to test for HIV, HBV and HCV. An example of a consent form is shown below. Additional authority may be required if the sample is designated as an 'intimate' sample.[2]

Notes

1. Informed consent is an absolute pre-requisite to testing the source for the purpose of managing blood-borne virus. In this case consent is governed by the Human Tissue Act 2004 which outlines a universal approach for source testing and identifies those who can give appropriate consent. The exposed individual, (the recipient) should not themselves approach the source to request testing.
2. Where the source has been arrested for assault on a police officer or another person [including a sexual assault], under PACE the sample of blood may then become an intimate sample – part of the evidence against the detainee and require the authorisation of an inspector before it can be taken. This authorisation would be entered on the custody record.

Consent form – THIS FORM SHOULD ACCOMPANY THE BLOOD SAMPLE

The form should be signed by the HCP, the contact and witnessed by an independent police officer (usually the custody sergeant). The blood sample and the form should be taken to the designated hospital by an independent officer i.e. not the injured police officer (recipient).

Part 1

"I, _____ having discussed with _____ who is a Forensic Physician/ Healthcare Professional to the _____ (insert Constabulary), hereby consent to give a sample of my blood for testing for hepatitis B virus, (HBV), hepatitis C virus, (HCV) and human immunodeficincy virus, (HIV). I also authorise the testing laboratory to inform the Occupational Health Service of _____ (insert Constabulary), of the results of the tests and agree that the results may also be released by them to _____(insert name and shoulder number of police officer [recipient])."

"I do/do not wish to be informed of the results."*

"If I wish to be informed of the results they can be communicated to me by telephone/mobile phone/text/ email/post (two of the above must be selected and completed below)."

Print name _____

Address _____

_____

Telephone no. _____

Mobile no. _____

Email _____

Signed

_____

Signature witnessed by _____

Print Name of witness _____

Countersigned by FP/HCP

_____

Print Name _____

Part 2

I would also like the result of the test to be communicated to the GP and/or GP practice named below.

_____

_____

Prepared by Dr Felicity Nicholson in April 2012
Reviewed and updated by Dr Bernadette Butler and Dr Felicity Nicholson
on behalf of the of the Faculty of Forensic & Legal Medicine

Send any feedback and comments to forensic.medicine@fflm.ac.uk