PART 4 - GUIDANCE ON MANAGEMENT OF WORKPLACE INCIDENTS POTENTIALLY INVOLVING EXPOSURE TO A BLOOD-BORNE VIRUS

Overview

4.1 This section of the guidance is intended to provide broadly applicable advice to assist in the initial management of a potential workplace exposure to a blood-borne virus, irrespective of the circumstances or the location of that exposure. Further management of such an incident will require specialist knowledge and expertise. This is available through a number of sources, which, in no order of priority, include:

- Local Health Protection Units
- Specialist led Occupational Health Departments
- Virology/Microbiology Departments
- Infectious diseases specialists
- Genito-Urinary medicine specialists
- Hepatologists
- Accident and Emergency Departments

In this section, the term 'source' means the person/item from which the blood or body fluid originates, whilst the term 'recipient' means the person exposed to potentially BBV infected blood or body fluids.

4.2 Exposure to blood-borne viruses may arise through a wide variety of different circumstances. Occupational exposure is most likely to occur in the context of health-care, whereby workers are exposed to the blood or body fluids of BBV-infected patients. However, exposure may also occur in any workplace where one individual is exposed to the blood or other body fluids of any other individual, e.g. following an accident. Such exposures may also occur in the home or through participation in leisure pursuits.

4.3 It is not the intention of this section of the guidance to reproduce or replace the extensive and detailed existing guidelines relating to post-exposure management as these are available from a variety of sources. Relevant information sources are listed in Info Box 4.1 below. Rather, this section of the guidance is aimed at helping those involved in the initial management of the incident, to determine whether onward referral to such professional advice is necessary.

Immediate first aid requirements

4.4 Where the eyes or mouth have been exposed to blood or body fluids, they should be washed copiously with water. For puncture wounds, the wound should be gently encouraged to bleed, but not scrubbed or sucked, and should be washed with soap and water. It is NOT necessary to keep any needle/sharp instrument to send to the laboratory for testing for the presence of blood-borne viruses. Any such sharp instruments should not be re-sheathed, but be disposed of directly into an appropriate container.

4.5 An urgent risk assessment is required to establish if the exposure has the potential to transmit a blood-borne virus – i.e. whether or not the exposure is significant. A number of factors will be taken into account in the risk assessment, including:

- **Type of body fluid to which the recipient has been exposed.** Blood carries the highest risk, but BBV can be transmitted by other body fluids (see the Info Box in the Introduction to this guidance), especially if they are also contaminated by blood.

- **Route of exposure**. This is classified essentially into 3 categories – percutaneous, mucous membranes (which include eyes, mouth), and skin. Splashing of blood/body fluids onto mucous membranes may result in virus transmission, although the risk is considerably lower than for percutaneous exposure.
    - If intact, skin is impervious to these 3 viruses; however,
    - If the skin is NOT intact e.g. through cuts or abrasions, or chronic dermatitis such as eczema, then transmission may occur

- **Nature of exposure.** – An assessment should be made as to whether exposure to blood/body fluids was direct, or indirect, e.g. through an item, such as a contaminated device or instrument:
    - If indirect, then in what way had the item become contaminated? Contaminated hollow bore needles (e.g. those used for injection) are more likely to transmit than solid needles (e.g. those used in suturing);
    - Needles that have been present in a blood vessel are more likely to transmit than needles used for intramuscular injection;
    - How soon after the sharps became contaminated did the exposure incident occur? The viability of the BBVs will decrease rapidly on drying, so for instance transmission is very unlikely from a dried-up needle found lying in a field;

- **Personal protective equipment** (PPE) used – e.g. were gloves in use? There is a wiping effect as a needle pierces a glove, which may reduce the likelihood of transmission

- **What is known about the source?**
    - If the source is known, it may be possible to determine their BBV infection status, or the presence of risk factors for BBV infection, from serological testing with informed consent or from medical notes,
    - If the incident arose from an unknown source, a risk assessment may still be possible in the light of local knowledge of the prevalence of BBV infections.

- **Hepatitis B immunisation status of the recipient** – has the recipient previously received any doses of HBV vaccine? If so, was he/she a responder to the vaccine?

All of the above will contribute to decisions on whether HIV and/or HBV post-exposure prophylaxis (PEP), or follow-up for evidence of HCV transmission, is required.

Management of significant exposure incidents will include some or all of the following:

- Obtaining a blood sample from the recipient to be sent to the laboratory as a baseline sample for storage. This will only be tested, with informed consent,

at a later date if subsequent follow-up tests of the recipient prove to be positive for a BBV infection;

- Starting an accelerated course of hepatitis B vaccination, if not previously immunised or if a hepatitis booster is due;

- Consideration of the need to administer an immediate dose of hepatitis B immunoglobulin;

- Consideration of the need for follow-up testing for hepatitis C virus infection. If this is deemed necessary, the recommended schedule for testing is for HCV RNA at 6 weeks, HCV RNA and anti-HCV at 12 weeks, and anti-HCV at 24 weeks;

- Consideration of the need for immediate post-exposure HIV prophylaxis;

- Arrangement of suitable follow-up appointments for administration of further doses of HBV vaccine, monitoring of anti-retroviral therapy, and taking of appropriate blood samples for testing.

The source individual

4.7 Where appropriate, the individual who is the source of the blood/body fluid should be approached, given an explanation of the incident and asked for informed consent for them to be tested for HIV, HBV and HCV, where the status is not already known. Such information will clearly impact on any decisions taken with regard to the management of the recipient. This universal approach to source testing for BBVs normalises the procedure and avoids perceived discrimination [EAGA HIV PEP Guidelines 2008[1]].

Management strategies for blood-borne viruses

4.8 For each of the three main blood-borne viruses, there are possible post-exposure interventions and management strategies designed to minimise the chances of the recipient of that exposure from acquiring a blood-borne virus infection as a result of the exposure. In brief, these possibilities are as follows (also summarised in table 4.1):

Hepatitis B Virus: consideration of passive immunisation (i.e. administration of preformed antibodies against HBV derived from healthy blood donors) in the form of hepatitis B immunoglobulin (HBIg), and of active immunisation with hepatitis B vaccine, usually using an accelerated course (i.e. doses administered 0, 1, 2, and 12 months post-exposure).

Hepatitis C Virus: monitor the recipient for evidence of acquisition of infection with HCV over the 6 months following exposure (by testing for the presence of HCV RNA and/or antibodies to HCV in samples from the recipient taken at appropriate intervals after the incident). As soon as evidence of infection is detected, the recipient should be referred immediately to an appropriate specialist for consideration of antiviral therapy, as evidence shows that treatment at this stage is very successful.

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[1]HIV post-exposure prophylaxis: Guidance from the UK Chief Medical Officer's Expert Advisory Group on AIDS. Department of Health / EAGA. 2008. Available from: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088185

Human Immunodeficiency Virus: following exposure to HIV administration of post-exposure prophylaxis (i.e. a regimen of 3 anti-HIV drugs taken for 4 weeks post exposure). The EAGA guidance (see Info Box 4.1) provides detailed schedules recommended for HIV PEP.

Table 4.1. Risk of transmission of blood borne viruses from patient to health care worker with intervention

Infection	***Patient to health care worker***	***Intervention***
Hepatitis B	Up to 30%**	Post-exposure prophylaxis with vaccine and/or HBIg
Hepatitis C	1-3%	Monitor recipient. Early therapy if transmission occurs
HIV	0.3%	Post-exposure prophylaxis – anti-retroviral drugs

**There is a wide variability in infectiousness of hepatitis B carriers and this rate reflects transmission from Hepatitis B surface antigen positive source. The risk stated is that of transmission following needlestick exposure in unvaccinated individuals.

4.9 The interventions above can only be instituted after careful risk assessment of the exposure incident by appropriately trained clinical personnel. Exposed individuals should seek immediate specialist post-exposure care at a recognised specialist centre. This phase of treatment or observation is most likely to be administered by a local accident and emergency department, or by other specialist personnel at the local hospital. For those working outside of the NHS, occupational health facilities and expertise may be accessible but will vary in different occupational settings. Whilst the primary responsibility for post exposure medical services lies with the NHS, it is recommended that all occupational health providers ensure that local arrangements are in place for risk assessment, advice and the provision of PEP, in particular to ensure that the correct BBV medical support is immediately available.

Info Box 4.1. Authoritative information sources related to BBV post exposure intervention and treatment

- Expert Advisory Group on Aids (EAGA) issues specialist guidance on HIV post-exposure prophylaxis, which can be found at. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_088185
- National guidance is available in the following publication to aid the management of healthcare workers exposed to a hepatitis B infected source patient, including the use of hepatitis B vaccine and immunoglobulin: PHLS Hepatitis Subcommittee. Exposure to hepatitis B virus: guidance on post-exposure prophylaxis. Communicable Diseases Review 1992;2:R97-R100. This is available at http://www.hpa.org.uk/cdr/archives/CDRreview/1992/cdrr0992.pdf
- Extracts of this guidance are also reproduced in from Immunisation against infectious disease, Hepatitis B, Chapter 18, The Green Book (DH). At: www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/Greenbook/DH_4097254
- Full details on the required follow-up for healthcare workers exposed to hepatitis C can found in the following publication: Guidance on the investigation and management of occupational exposure to Hepatitis C, ME Ramsay. Communicable Disease Public Health 1999; 2: 258-62. Available at: www.hpa.org.uk/cdph/issues/CDPHVol2/no4/guides_hepC.pdf
- Under exceptional circumstances, e.g. where multiple casualties exist, specialist post exposure action may be required for those exposed to the blood and tissue of others. Advice is available at: http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/1204542903006?p=1204542903006

Incident reporting

4.10 Mandatory Scheme for Reporting Exposures

Some occupational exposures to blood borne viruses, (HBV, HCV and HIV), are reportable to the Health and Safety Executive under The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) as:

- A dangerous occurrence – as the exposure would qualify as an 'accidental release of a biological agent likely to cause severe human illness';
- An over-three-day injuries – if exposure to the blood borne virus resulted in the worker being absent from work for three or more days;
- A Disease – if exposure to the blood borne virus resulted in the worker acquiring the virus.

Further details relating to RIDDOR and how to report are available at: www.hse.gov.uk/riddor

The Health and Safety Executive's Infoline is available for advice, telephone: 08701 545500

Useful information is also available from the document, *The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995: Guidance for employers in*

the healthcare sector. (**Editorial note:** A link is required here, either to the PDF of this cited leaflet which has been submitted with the final guidance documents, or by citing the following web link at: http://www.penninecare.nhs.uk/documents/2508.pdf)

4.11 Voluntary Scheme for Reporting Exposures

Health Protection Agency Centre for Infections – Surveillance of Significant Occupational Exposures to Blood borne Viruses in Healthcare Workers

The Health Protection Agency receives reports on:

- Significant percutaneous or mucocutaneous exposures to blood or other body fluids from a source that is **known** to be, or as a result of the incident found to be, hepatitis B surface antigen (HBsAg), hepatitis C, or HIV positive.

- Significant percutaneous or mucocutaneous exposures to blood or other body fluids from a source patient considered to be of high risk of HIV, but the viral status is unknown and the worker has commenced HIV PEP.

Further details on the surveillance scheme are available at: http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/1191942146589
Alternatively, please contact the Health Protection Agency Centre for Infections, HIV/STI Department, 61 Colindale Avenue, London NW9 5EQ; telephone 020 8327 7095/7152.