Biological hazards

– **Infectious disease control**

Post mortem procedures >

This information bulletin provides examples of several safe work practices which could form the basis of more detailed procedures to be adopted in individual work situations relating to post mortem procedures in various health care environments.

Introduction

This information bulletin should be read in conjunction with the National Code of Practice for the Control of Work-related Exposure to Hepatitis and HIV (Blood-borne) Viruses [NOHSC: 2010(2003)], which is an Approved Code of Practice under section 187A of the *Workers Rehabilitation and Compensation Act*.

Transmission of HIV and the Hepatitis B virus in the workplace has occurred in two major ways:

- when sharps contaminated with infected blood or body fluids penetrate the skin; and
- when infected blood or body fluids splash into the eye or onto broken skin or into a cut.

Preventing the transmission of HIV and the Hepatitis B virus in the workplace, therefore means preventing:

- injuries from sharps and other instruments contaminated with blood or body fluids; and
- contact between blood or body fluids and the eye, or other mucous membranes, and broken skin or cuts.

Every body, dead or alive, has microorganisms on the skin and particularly internally. Special health hazards are associated with the performance of coronal autopsies. This can be due to the lack of detailed clinical history and no information regarding the carrier status of the deceased.

Universal precautions are based on the concept that all blood, blood products and body fluids of all persons are potential sources of infection, independent of diagnosis or perceived risk.

All staff must adhere rigorously to protective measures, which minimise exposure to these agents. The use of universal precautions involves placing a barrier between staff and all blood and body fluids.

Training

It is essential that all post-mortem workers receive initial and ongoing training to enable them to do their duties in a healthy and safe manner.This training should enable them to anticipate and manage situations in which they may be exposed to infectious organisms such as HIV or the Hepatitis B virus. Mortuary staff should also be trained in the safe provision of first aid.

It is also important that postmortem staff have access to appropriate professional counseling and follow-up services available after any possible and definite exposures to blood and body fluids.

Safe work practices

Safe work procedures should be developed within the framework of risk identification, risk assessment and risk control. The implementation of effective controls impacts on many areas in the workplace, including the selection and purchasing of equipment, staffing, policy and procedures in the workplace, provision of information and training and the recording and monitoring of exposures to blood or body fluids.

Work practices and the choice of personal protective equipment should be based on the universal precautions.

At the beginning of each shift, post-mortem workers should wash their hands to both clean them and identify any cuts or breaks in the skin. Cuts or abrasions should be covered with waterproof dressings.

It is recommended that the mortuary should be divided into clearly designated 'clean' and 'dirty' areas with an intercom system between the areas to facilitate communication.

Changing and shower facilities should be provided in the transition area. Employees entering 'dirty' areas should change into appropriate protective clothing, as outlined below. Clothes should be changed and hands must always be washed after leaving a 'dirty' area and before re-entering a 'clean' area.

Protocol for autopsies

Various protocols have been prepared to provide guidelines for the post-mortem examination of bodies infected with organisms such as HIV and the Hepatitis B virus in coronial and non-coronial cases. This information bulletin should be used in conjunction with them.

Performing the post-mortem

When a body is admitted to the mortuary, every effort should be made to establish its infection status. However, a safe standard of mortuary practice is to regard all cases as infective, as the most hazardous cases are those which are not suspected as being infectious. Beware of needles, sharps or other medical paraphernalia attached to the body or loose within the body bag.

In performing post-mortems, the following procedures should be observed:

- The number of people engaged in an examination should be kept to a minimum. Nonetheless, no fewer than two people should be involved.
- If instruments fall during the examination, no attempt should be made to stop the fall.
- Instruments should not be passed from hand to hand, they should be set out on a table according to the pathologist's preferred practice.
- To avoid carrying infectious materials to uncontaminated areas, a program for the collection of specimens and a list of instruments required for the autopsy should b prepared before the commencement of the post-mortem procedure. All sample containers required should be readily available close to the mortuary table.
- Instruments should be carefully put aside in puncture-resistant containers when no longer required, for transfer to the cleaning/decontamination area.
- A Rokitansky (total) evisceration technique is safer than a Virchow dissection (used for organ removal) because it minimises the use of the scalpel.
- Blind dissections should be avoided where practicable. However, if they unavoidable, the use of forceps in place of the operator's hand should be encouraged.
- Blunt-ended scissors should be used whenever practicable during the dissection of the body.

- The use of sharp instruments should be avoided whenever practicable. If it is necessary to use a scalpel, the other hand should hold the tissue with toothed forceps. The use of blunt-ended scalpels may provide additional safety.
- Organs should be dissected on an impervious table with a non-slip surface, preferably on a bench where exhaust ventilation is provided.
- Intestines should be opened in a deep sink under water (not under a running tap).
- To limit the risk of injury during dissection of the spinal cord, it is recommended that the opening of the rib cage be done by cutting along the costal cartilage, near the costo-chondral junction. The rib cage should be opened along the costal cartilage using a hand cutter. A towel should be placed over the ends of cut ribs or any other exposed bones.
- Additional protection can be secured by the use of metallic mesh sleeve underneath the protective clothing.
- In coronal cases involving retrieval of foreign bodies or projectiles in the vicinity of bone, the use of plastic or padded forceps is preferred to manual retrieval.
- The skull should be opened at the end of the examination. When opening the skull, a mask and helmet should be worn. A power saw is preferred to the use of a hand saw due to the general lack of familiarity with the use of hand saws. An air-powered oscillating saw with an exhaust port is preferable to a conventional 100/240 volt oscillating saw. A transparent plastic cover may further reduce the spraying of bone fragments.
- When reconstructing the body, suturing should be kept to a minimum, to reduce the risk of needle stick injury. Following reconstruction, the body should be washed down with an appropriate disinfectant and placed in an approved bag. This bag should be wiped down with disinfectant and placed in another approved body bag.
- Used needles and other disposable sharp instruments should be promptly discarded into an approved sharps container. See Australian Standard AS 4031 Non-reusable Containers for the Collection of Sharp Items Used in Health Care Areas.
- If a needle stick or other injury occurs or a glove is torn, the glove should be removed and a new glove worn promptly after washing hands with soap and water. The needle or instrument involved must also be removed from the sterile field. Needle stick and mucous membrane exposures should be attended to immediately as safety permits.
- Gross soiling should be rinsed off instruments in the operating room before they are placed in a closed container for transport to a central processing area. Where practicable, used instruments should be washed mechanically rather than by hand. If this is not possible, they should be washed in a sink of warm water with detergent, not under running water.

Handling samples

- Tissue specimens should be placed in containers of an adequate size to allow them to be submerged in 10 times their volume of fixative solution. Large specimens should be kept in the examination room until fixation is completed.
- Tissue specimens should be fixed in 10% buffered formalin for two weeks.
- Tissues for immunoperoxidase stains should be small (1 x 1 x 0.02 cms) and fixed in buffered formalin for a maximum of one day.
- Smears should be fixed in methanol for two hours.
- It is not advised to perform frozen sections on fresh tissues.
- All fluids should be analysed in a biohazard cabinet.
- The use of needles or sharp instruments should be discouraged.

Post-exposure procedures

All workplaces must have in place post-exposure procedures. These procedures should be consistent with procedures for other workplace accidents and should utilise existing mechanisms for compensation, rehabilitation, retraining and long term follow-up of employees injured at work.

The procedures should address:

- immediate action;
- follow-up action;
- record keeping;
- confidentiality.

Personal protective equipment

All staff who are required to wear personal protective equipment while on duty should be trained in its correct fit and use. This equipment should be checked regularly, maintained and restocked as necessary.

While on duty, mortuary staff should have access to the following items:

- Gown or surgical shirt and trousers.
- Impermeable gowns with long waterproof sleeves and full length front paneling are recommended if gross contamination is likely. Gowns should be made of waterproof fabric with the ability to breathe. See Australian Standards AS 3789.6 Textiles for Health Care facilities and Institutions – Fabric Specficiations.
- Full length plastic waterproof apron.
- Overshoes or waterproof boots with non-slip soles.
- Hair covering.
- Portable respirators.
- Protective eyewear, that is, goggles or a face shield.
- Gloves, including latex gloves, reinforced safety gloves or chain mail gloves for tasks when saws or chisels are used, or shoulder-length veterinary gloves.

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