Information Sheet – Working with Human Research Subjects and Patients

Purpose

The purpose of this information sheet is to provide information and guidance to workers and supervisors on biological issues when working with human research subjects and patients, and should be read in conjunction with the Biological Safety Management chapter of the HSW Handbook.

Q1 What are the basic biological issues when working with human research subjects and patients?

Workers may be at risk during the course of their duties and when interacting with human research subjects or patients, due to the possibility of infectious agents being present in the workplace.

Microorganisms are easily transferred by contact with unwashed hands, soiled equipment or contact with blood and other bodily substances. Workers should assume that all blood and other body substances are potential sources of infection. Contaminated skin penetrating equipment (sharps) can transmit these blood-borne viruses to workers who may accidentally pierce themselves. Unhygienic practices and procedures may also transmit other skin and mucous membrane infections e.g. herpes simplex virus and fungal infections such as ringworm or tinea, which are spread by direct skin contact or from contaminated surfaces.

Q2 How do I minimise the risk of infection when working with human research subjects and patients?

To minimise the risk of infection a control program should be implemented. An infection control program has the following components:

1. Identification of hazards in accordance with the Hazard Management Handbook Chapter.
2. Identify who is at risk and from what.
3. Implement effective work practices and procedures including the use of Standard Precautions to minimise the risk (see Q3).

Q3 What are standard precautions when working with human research subjects and patients?

'Standard Precautions' are the National Health and Medical Research Council (NHMRC) adopted term to define appropriate work practices, based on modules of transmission of infectious agents. These precautions are based on the principle that all blood and body substances are potentially infectious. This principle is applied universally to all patients, regardless of their infectious status or perceived risk.
They include:

- hygienic practices, particularly washing and drying hands before and after patient contact;
- use of protective barriers when necessary, which may include gloves, gowns, plastic aprons, masks, eye shields or goggles;
- appropriate handling and disposal of sharps and other contaminated or clinical waste;
- use of aseptic technique (Refer to the Queensland Health website); and
- use of environmental controls.

Q4 What personal hygiene is important when working with human research subjects and patients?

Hand washing

Why wash your hands?

Hand washing is generally considered to be the most important measure in preventing the spread of infection. Hand washing protects both the human research subjects, patients and workers/students.

When should hand washing be done?

- Before and after contact with each human research subject or patient.
- Where multiple procedures are performed on a human research subject or patient, wash hands before and after each procedure.
- Before resuming a procedure if interrupted.
- Immediately prior to putting on disposable gloves.
- Immediately after removing disposable gloves for any reason.
- After touching the nose, mouth or handling a nasal tissue or handkerchief.
- Before and after eating or drinking.
- After going to the toilet.
- After contact with blood or other body fluids.

For how long?

- For routine hand washing, hands should be washed all over with soap for at least 10 to 15 seconds.
- Before commencing an aseptic procedure, hands should be should be washed all over with soap for at least 1 minute.

How?

- Wet hands thoroughly preferably with warm running water and lather with a mild soap. A liquid soap is preferable, although bar soap can be used if kept dry and in good condition.
- Liquid soap dispensers also need to be maintained by regularly washing and drying all reusable parts. Soap helps remove grease, dirt and microorganisms. Warm water helps remove grease from hands.
  ***NOTE**: An antimicrobial soap is not necessary for routine handwashing.*
- Pay special attention to the backs of hands, wrists and spaces between fingers.
- Rinse hands thoroughly under running water.
- Thoroughly dry the hands on a single-use towel or in another way that is not likely to transfer microorganisms to the hands (e.g. hot air hand dryer). The dryness of hands and fingertips is related to the transfer of bacteria – that is, the drier the hands the less likely the hands are to transfer bacteria.
- Turn off the tap with the used towel if hands-free taps are not available.
- Alcohol-based hand rubs or gels offer a practical and acceptable alternative to hand washing and can be used provided hands are not dirty. The hand rub or gel must come into contact with all surfaces of the hand and the hands rubbed together until the solution has evaporated.

Using gloves

- Gloves must be worn when it is likely that hands will be contaminated with blood or other body fluids, or come into contact with mucous membranes.
- Single-use gloves are to be worn for skin penetration procedures. They act as a physical barrier to protect the wearer's hands from contamination and to prevent the transfer of microorganisms.
- Single-use gloves are not sterile unless labelled as such and sealed.
- The use of single-use gloves does not substitute, or eliminate the need for hand washing. Hands must be washed thoroughly before putting on gloves and again following glove removal.
- Gloves must be removed and disposed of if the operator leaves the patient for any reason. Hands must be washed and new gloves must be put on before resuming the procedure, or before starting a new procedure on the same person to prevent cross contamination. Gloves must not be washed or re-used.
- Note that some people are allergic to latex gloves. If a worker develops a rash or skin condition it is recommended that they consult a medical practitioner. Single-use gloves are also available made of other materials, e.g. neoprene or nitrile.

Q5 What design features should the work area have when working with human research subjects and patients?

Work areas should:

- be well lit and well ventilated;
- have adequate storage space for processing equipment and materials;
- have sufficient bench space to ensure the separation of clean and dirty equipment;
- facilitate a workflow pattern to prevent recontamination of processed equipment;
- have equipment positioned and stored safely to minimise the risk of injury.

In the treatment and processing of biological materials all floors, floor coverings, walls, ceilings, shelves, fittings and other furniture should be constructed of materials suitable for the procedures undertaken and should be smooth, impermeable and easily cleaned.

It is important that flooring should be of a colour and type that allows for easy identification and removal of sharps should they be dropped. As a general rule carpets are not recommended, however, if carpet already exists in treatment areas where spillage of blood can be expected to be minimal it may be acceptable to protect carpeted areas with a smooth plastic mat immediately underneath the procedural area.

Sinks dedicated for the washing of hands should be supplied as close as possible to the area where the procedure is being undertaken. Hands may become contaminated if the sink being used is itself contaminated, for example, an instrument processing sink.

It is recommended that hand basins should be provided with hygiene taps that are elbow, wrist, knee, foot or sensor operated. In premises without these facilities, care should be taken to ensure taps and basins are kept clean. Avoid touching taps with gloved hands and use a disposable paper towel to turn taps off.

Q6 What are the considerations if using sharps when working with human research subjects and patients?

Sharps represent a major cause of biological hazard incidents involving potential exposure to blood-borne diseases.

- Workers must at all times handle sharps with care so as to minimise injury to themselves, to human research subjects and patients and to other persons in the workplace involved in the collection of discarded materials and refuse, e.g. into a sharps bin.
- The person who has used the sharp is responsible for its immediate safe disposal following use.
- A clearly labelled, puncture-resistant sharps container should be kept as close as possible to the area where sharps are used. Single-use needles, scalpel blades, razor blades, etc. should ***not*** be replaced into their original container or packaging.
- Needles should not be bent or broken or otherwise manipulated by hand.
- Sharp instruments should not be passed by hand between workers.

Q7 Where can I get information regarding biological emergency procedures, transportation and waste management when working with human research subjects and patients?

Please refer to the Biological Safety Management Handbook Chapter:
Appendix C Emergencies
Appendix D Transportation
Appendix E Waste disposal

or contact your local HSW Team.