

Guidelines for Handling Unfixed Human Tissue, Blood and Body Fluids in Research

While risks associated with exposure to blood and tissues contaminated by Hepatitis B can be mitigated by vaccination of laboratory workers, the potential risk of infection by other agents such as Hepatitis C, HIV and CJD can only be reduced by following prudent safety measures when handling specimens. Therefore, human material must be handled within the confines of appropriate laboratory facilities and the following precautions adhered to, regardless of lack of evidence of infection by any of these agents.

Standard Precautions for Handling Unfixed Human Tissue, Blood and Body Fluids

- Treat all human blood, tissue and body fluids as potentially infectious.
- Absolutely no eating, drinking or applying cosmetics in the laboratory. Food or drink should not be stored in laboratories. Hand/mouth contact should be kept to a minimum.
- Laboratory coats or appropriate protective gowns must be worn in the laboratory and fastened properly. Laboratory coats/protection gowns must be removed when leaving the laboratory to go to tea-rooms, offices, toilets or seminar rooms.
- Gloves must be worn when handling:
 - Human blood, tissue and body fluids
 - Infectious, or potentially infectious, materials
 - Hazardous chemicals
- Care must be taken to prevent contaminated gloves coming in contact with laboratory furniture, door handles, telephones and other objects.
- All disposable equipment, tissues and gloves must be disposed of as medical waste.
- Hands must be washed and dried after removing gloves and before leaving the laboratory/blood collection area.
- All open cuts and abrasions must be covered.
- Any spills of infectious (or potentially infectious) material on floors, benches or equipment must be cleaned up immediately with disinfectant (see below).
- All samples must be properly labelled. Because the outside of the tube may be contaminated, tubes should be handled with care. Samples must be stored in an appropriate labelled, designated refrigerator or portion of the refrigerator or freezer.
- All samples tube must be placed within a leak-proof container with a secure lid.
- Glass containers, vacutainers, used gloves, scalpels, needles and syringes must be placed in sharps bins. Sharps bins must never be overfilled.
- Do not attempt to separate needles from syringes. Discard both together. Do not attempt to recap a needle. Do not bend, break, or otherwise manipulate used needles by hand.

- Take care to prevent injuries when using needles, scalpels, and other sharp instruments or devices; when handling sharp instruments after procedures; when cleaning used instruments; and when disposing of used needles.
- Avoid techniques with a high potential for creating aerosol (sonication, vortexing, blowing out pipette contents).
- All accidents must be reported immediately to the Principal Investigator and Laboratory Manager, and an accident/incident form filled out.
- Wear a mask and eye protection or a face shield to protect mucous membranes of the eyes, nose and mouth during procedures that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions.
- Use mouthpieces, resuscitation bags, or other ventilation devices as an alternative to mouth-to-mouth resuscitation methods in areas where the need for resuscitation is predictable.

Guidelines for Working with Human Blood, Unfixed Tissue and Body Fluids

- Venous blood must only be taken by suitably trained staff. Such staff may be doctors or nurses or those who have undergone training in phlebotomy. Ensure adequate consent has been obtained and that University privacy protocols are followed.
- All laboratory personnel must have their Hepatitis B antibody checked (and be immunised, if necessary) before handling human blood, tissue or body fluids.
- Wherever possible blood or tissue that has been shown not to be contaminated by Hepatitis B, Hepatitis C or HIV should be used.
- Never use cells from staff or their relatives to transform cell lines, due to the higher risk of re-exposure to histocompatible cell lines.
- All work with human blood in the laboratories must be performed in a certified Class 2 Biohazard cabinet.
- Where blood is being collected with minimal processing (i.e. when serum is being isolated), work may be conducted outside a certified Class 2 Biohazard cabinet, provided centrifuges are fitted with sealed rotors and Standard Precautions for handling blood (see above) are observed.
- Use disposable equipment wherever possible and discard into medical waste. Double-bag any material that might potentially puncture medical waste bag. All high risk material should be discarded into a sharps bin.
- Do not use vacuum aspiration. Pipette supernatants to a disposable tube and then autoclave/chemically sterilise the waste supernatant.
- Use sealed tubes for centrifuging blood samples. Use sealed rotors to minimise contamination in the event of tube failure. In the event of a failure of tubes the centrifuge rotor and bowls should be disinfected with 1% Virkon solutions.
- Laboratory benches and hood surfaces where blood has been handled must be cleaned and decontaminated at the completion of work. Use swab impregnated in an intermediate disinfectant such as 0.05% sodium hypochlorite or peroxygen biocide such as 1% Virkon.
- Report any accident or spillage of infectious material to the Laboratory Manager immediately.

Cleaning and Disinfecting Equipment

Disposable equipment

Discard disposables (e.g. pipettes, needles and syringes) into sharps bins. Sharps bins must never be overfilled. Ensure all lids are very secure before placing sharps bins for collection.

Reusable equipment

Soak glass in 0.05% sodium hypochlorite or a proprietary disinfectant such as 1% Virkon for at least 30 minutes. The action of many disinfectants is severely hampered by the presence of protein. Where possible, remove proteinaceous material before soaking.

Metal will be corroded by sodium hypochlorite, use 1% Virkon solutions to disinfect centrifuge rotors, centrifuge bowls and other metal equipment.

Disposal of Waste Specimens

Discard disposables that have been in contact with blood into sharps bins.

Blood or tissue must be decontaminated, preferable by autoclaving (for large volumes). Where this is impractical, material should be chemically disinfected with hypochlorite and sent out for incineration.

Blood Accidents

Wear gloves throughout the clean up procedure. Spills can be decontaminated with Sodium Hypochlorite (1:100 final concentration of household bleach or 5% solution).

Surfaces can be decontaminated with a wipe impregnated with 0.05% sodium hypochlorite.

After clean up, dispose of gloves in medical waste and wash hands.

Needle Stick Injury

When a person sustains a needle stick or similar injury involving blood or body fluid they must report the injury. Medical assistance must be sought immediately. Do not assume that because blood has been drawn from a colleague that it is safe, or that you have sufficient levels of antibody against Hepatitis B virus because you have received the Hepatitis B vaccine.

The medical treatment provider (whether on-campus or emergency clinic) will provide appropriate testing and treatment for persons having sustained a needle stick injury. Tests to detect Hepatitis B, Hepatitis C, and HIV infection may need to be arranged. Wherever possible, the person who was the source of the blood should also attend.