GUIDELINES FOR HANDLING UNFIXED HUMAN TISSUE, BLOOD AND BODY FLUIDS IN RESEARCH

A. Introduction

While risks associated with exposure to blood and tissues contaminated with Hepatitis B can be mitigated by vaccination of laboratory workers, the potential for infection from the risk of other infectious 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.

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

1. Treat all human blood, tissue and body fluids as potentially infectious.

2. Absolutely no eating or drinking in the laboratory. Food or drink should not be stored in laboratories. Hand/mouth contact should be kept to a minimum.

3. Laboratory coats or appropriate gowns must be worn in the laboratory and fastened properly. Laboratory coats/protective gowns must be removed when leaving the laboratory area to go to tea-rooms, offices, toilets or seminar rooms.

4. Gloves must be worn when handling:
    i) human blood, tissue and body fluids
    ii) Infectious, or potentially infectious materials
    iii) hazardous chemicals

5. Care must be taken to prevent contaminated gloves coming in contact with laboratory furniture, door handles, telephones and the like.

6. All disposable equipment, tissues and gloves should be disposed as medical waste.

7. Hands should be washed and dried after removing gloves and before leaving the laboratory/blood collection area.

8. All open cuts and abrasions must be covered

9. Any spills of infectious (or potentially infectious) material on floors, benches or equipment must be cleaned up immediately with disinfectant (see below).

10. All samples must be properly labelled. Because the outside of the tube may be contaminated, tubes should be handled with care. Samples should be stored in an appropriate labelled, designated refrigerator or portion of the refrigerator or freezer.

11. All sample tubes should be placed within a leak-proof container with a secure lid.

12. Glass containers, vacutainer tubes, scalpels, needles and syringes must be placed in sharps bins. Sharps bins must never be overfilled.

13. Do not attempt to separate needles from syringes. Discard both together. Do not attempt to recap a needle.

14. Avoid techniques with a high potential for creating aerosol (sonication, vortexing, blowing out pipette contents).

15. All accidents must be reported immediately to the Principal Investigator or Operations Manager and an accident/incident form filled out.

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

1. 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 Faculty privacy protocols are followed.

2. All laboratory personnel must have their Hepatitis B antibody checked (and be immunised, if necessary) before handling human blood, tissue or body fluids.

3. Wherever possible, blood or tissue that has been shown not to be contaminated by Hepatitis B, Hepatitis C or HIV should be used.

4. Never use cells from staff or their relatives to transform cell lines, due to higher risk of re-exposure to histocompatible cell lines

5. Work with human blood, wherever possible, should be performed in a certified Class 2 Biohazard cabinet (see also 6 and 7 below).

6. Where blood is being collected with minimal processing (i.e. isolation of serum), work may be conducted outside a certified Class 2 Biohazard cabinet, provided centrifuges are fitted with sealed rotors and Standard Precautions for handling blood are observed.

7. Larger specimens or procedures that will not fit into, or cannot be reasonably accommodated in a Class 2 Hood may be handled outside a Class 2 Biohazard cabinet, provided that there is adequate ventilation for any aerosols that might be generated and adequate protective

equipment (face shields) to prevent splashes of biological material into mucous membranes

8. 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.

9. Do not use vacuum aspiration. Pipette supernatants to a disposable tube and then autoclave/chemically sterilise the waste supernatant.

10. 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 solution (see Section D below).

11. 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, a peroxygen biocide such 1% Virkon or proprietary disinfectant such as Trigene

12. Report any accident or spillage of infectious material to the Principal Investigator or Operations Manager immediately.

D. Cleaning and Disinfecting Equipment

Disposable Equipment

Discard disposables (e.g. pipettes, needles and syringes) that have come into contact with blood into sharps bins. Sharps bins must never be overfilled. Ensure lids to sharps bins are properly secured before placing them for collection.

Re-usable Equipment
Soak glass in fresh 0.05% sodium hypochlorite or a proprietary disinfectant (Virkon, Trigene) at concentrations recommended by the manufacturer for at least 30 minutes. The action of many disinfectants is severely hampered by presence of protein. Where possible, remove proteinaceous material before soaking.

Metal will be corroded by sodium hypochlorite. Use alternative proprietary disinfectant solutions (1% Virkon, 1% Trigene) to disinfect centrifuge rotors, centrifuge bowls and other metal equipment.

E. Disposal of Waste Specimens

1. Blood, small human tissue specimens or contaminated waste, wherever practicable, must be decontaminated, preferably by autoclaving. Where autoclaving is impractical, material should be

placed in a sealed sample tube with hypochlorite and sent out for disposal as medical waste (see also 2 below).

2. Where risk assessment demonstrates that rendering larger specimens nonviable on site may involve extra risk and increase the likelihood of splashes and generating aerosols, alternative procedures may be employed. Specimens may be sent directly to medical waste provided extra precautions are taken to ensure all material (including blood) is double contained and the likelihood of spills at any stage en route is kept to an absolute minimum.

3. All disposal of human tissue must be consistent with tissue consent procedures and donors wishes.

F. Blood Accidents

1. Wear gloves throughout the clean up procedure.
2. Spills can be decontaminated with Sodium hypochlorite (freshly made dilution of 1:100 final concentration of household bleach or 5% solution).
3. Surfaces can be decontaminated with a swab impregnated with 0.05% sodium hypochlorite.

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

G. 'Needle Stick' Injury

1. Any ‘needle stick’ or similar injury involving blood or body fluids must be reported and medical assistance sought immediately. It should not be assumed that blood from a colleague is safe, or that past Hepatitis B vaccination will provide sufficient levels of antibody against HBV.

2. Wherever possible contact Student Health Services (Extn 87681 or 87682) to provide advance notice of ‘needle stick’ injury.

3. If Student health Services is not available for any reason, the injured person should seek treatment from Auckland Hospital Emergency Department.

4. Student Health Service will provide appropriate testing and treatment for persons having sustained a ‘needle stick’ injury. If the Student Health Service is closed then Auckland Hospital Emergency Department will provide care. It is important that such accidents are reported and the assistance of Student Health Service/ Auckland Hospital Emergency Department is sought immediately.

5. The Student Health Service or the Auckland Hospital Emergency Department may need to arrange tests to detect Hepatitis B, Hepatitis C and HIV infection in the donor. Wherever possible, the personwho was the source of the blood should also attend.