

# Infection Control

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Owner: Manager OHS

## Key Responsibilities

1. Local managers, supervisors and course coordinators are responsible for creating and maintaining a safe system of work where ever there is a risk of infection. This includes carrying out risk assessments, providing appropriate training, and developing work practices and infection control measures.
2. Local managers, supervisors and staff supervising students are responsible for monitoring work practices and infection control measures.

## Operational Arrangements

3. Deakin University is committed to providing staff, students, contractors and visitors with a healthy and safe environment for work and study. The University recognises that staff, students, contractors and visitors working or studying at the University may handle or be exposed to blood and body fluids. In addition in the clinical setting, patients could be accidentally exposed to blood from health care students or staff. Exposures to human blood, blood products, tissue and body fluids are associated with the risk of contracting potentially fatal infectious diseases, some of which are not vaccine-preventable.
4. The University has based all procedures and work instructions on the assumption that blood and body fluids should always be handled as if they are infected.
5. All staff and students who are required to become involved in patient contact in clinical settings or who are active in biological laboratories are required to undertake an induction course into infection control procedures before commencing any form of clinical or laboratory work where transmission of infectious diseases is possible. The induction will stress the importance of standard precautions against the risk of infection from blood and body fluids and the proper handling and disposal of sharps and awareness of sharps injury protocols. Aspects that cover additional precautions will be offered to cover specific occasions where additional risks apply, and this will be covered in the written school/faculty procedures.
6. In addition students/staff may not only be at risk of acquiring infections, but also of being the cause of transmission of infectious diseases.
7. The areas in which there is an increased risk of exposure include:
  - in laboratories in which blood and body fluids are handled and stored
  - in clinical settings where patients have reduced or compromised resistance to disease
  - in clinical settings in which blood and body fluids are handled.
8. The University promotes continual assessment of the risks to staff, students, contractors and visitors who work with blood and body fluids or perform exposure prone invasive procedures. The University requires the maintenance of an on-going program:
  - to identify those working with or potentially handling blood and body fluids;
  - to provide on-going training and instruction in safe work and emergency procedures, management of exposures and injury management;
  - to ensure appropriate and timely immunisation;
  - to protect public health in the clinical setting.

9. The University has based all procedures and work instructions on the assumption that blood and body fluids should always be handled as if they are infected.
10. Students and staff who have infectious medical conditions that may endanger the health of patients or others will be required to avoid situations or clinical settings until the infection is resolved. This includes common infections such as influenza.

### Scope

11. This work instruction applies to laboratory staff and students who handle human blood and body fluids that put them at risk of contracting infection from Human Immunodeficiency Virus (HIV), the Hepatitis viruses or other blood borne pathogens.
12. Although much care has gone into the preparation of this procedure, **no guarantee** can be given that they will ensure 100% protection. Staff, especially those in positions of management and control, are advised to keep abreast of current literature in this area.

### Accountabilities

13. Local managers and supervisors, including Laboratory Managers and Course Coordinators are responsible for:
  - carrying out the necessary risk assessments to ensure potential sources of infection are identified and appropriate control measures adopted. The responsible persons are reminded that the first step in risk control is elimination of the hazard. These persons are responsible for assessing the academic importance of the use of the materials along with the associated risks;
  - developing and delivering appropriate induction and refresher training on infection control
  - developing, maintaining, monitoring and promoting healthy and safe work practices in their area;
  - referring to senior management promptly matters that cannot be resolved locally and regularly following up on those matters until resolved.
14. Demonstrators and other staff responsible for the supervision or teaching of students are responsible for ensuring students:
  - are sufficiently aware of the hazards and risks in carrying out experimental work using blood or bodily fluids
  - are aware of the risks of infection to and from patients in different clinical settings and their responsibility not to put themselves or their patients at risk
  - have a sufficient level of competence and understanding to carry out procedures and protocols
  - actually carry out work using the appropriate procedures and protocols.
15. All staff and students who are required to become involved in patient contact in clinical settings or who are active in biological laboratories are required to undertake an induction course into infection control procedures before commencing any form of clinical or laboratory work where transmission of infectious diseases is possible. The induction will stress the importance of **standard precautions** against the risk of infection from blood and body fluids and the proper handling and disposal of sharps and awareness of sharps injury protocols. Aspects that cover **additional precautions** will be offered to cover specific occasions where additional risks apply, and this will be covered in the written School/Faculty procedures.

### Operational Guidelines

16. In the application of this procedure the following guidelines are to be distributed to specific groups of staff and students:
  - Guideline 1—to be included in the front of the practical notes of any unit or course in which students handle any human material

- Guideline 2—to be included at appropriate position in course notes where finger prick blood samples are taken
- Guideline 3—to be issued to the demonstrators, technicians and academic staff in charge of any practical course involving the use of human material
- Guideline 4—to be issued to any member of Academic Staff, Postgraduate or Honours Student, Technical Staff or other people who may need to handle human blood or body fluids
- Guideline 5—to be circulated to the persons listed and a copy displayed in any room used for venipuncture

## STANDARDS

- [Australian Standard 2243.3: Safety in Laboratories – Microbiology](#)
- Australian Government, Department of Health and Ageing: [Infection control guidelines for the prevention of transmission of infectious diseases in the health care setting](#)
- Victorian Government, Department of Human Services: [Blue book - Guidelines for the control of infectious diseases](#)  
Revised edition 2005
  - [Appendix 3: Standard and additional precautions](#)
  - [Appendix 4: Procedure for managing an exposure to blood/body fluids/substances](#)
  - [Appendix 5: Procedure for managing spills of blood and body fluids/substances](#)
  - [Appendix 6: Cleaning and waste disposal procedures](#)
  - [Tetanus](#); [Influenza](#); [Hepatitis A](#); [Hepatitis B](#); [Hepatitis C](#); [Hepatitis D](#); [Hepatitis E](#); [HIV/AIDS: Your questions answered](#); [Tuberculosis](#)
- Victorian Government, Department of Human Services: [Immunisation for health care workers](#)
- Victorian Government, Department of Human Services: [Notifying cases of infectious diseases within Victoria](#)
- Safe Work Australia [National Code of Practice for the Control of Work Related Exposure to Hepatitis and HIV \(blood-borne\) Viruses](#) [NOHSC: 2010 (2003)]

## OTHER SUPPORTING DOCUMENTS

- National Health and Medical Research Council ['The Australian Immunisation Procedures Handbook'](#) 9th edition, AGPS, 2008
- NSW Health Department Circular 2003/39 (5 June 2003): [Management of Health Care Workers Potentially Exposed to HIV, Hepatitis B or Hepatitis C](#)

### Operational Guideline 1: For Undergraduate Practical Notes—All Years

#### Handling of Human Blood, Blood Products and Other Body Fluids.

- 1 Hepatitis B, Hepatitis C, HIV and other infective agents present a serious risk to handlers of infected blood and other body fluids. Hepatitis B is extremely virulent. Infection by HIV is generally via contact with a skin lesion or break in mucous membrane. HIV/AIDS may be transmitted by blood, tissue and secretions or excretions that contain blood such as saliva, semen, urine and faeces. Precautions should be directed at eliminating direct exposure to these body fluids.

#### Precautions to be Observed

- 2 **Treat all material as if it is infectious.** Avoid contact with blood and all body fluids if your own hands or lower arms have open lesions (lesions should always be covered with occlusive dressings while in laboratories). Always handle freeze-dried plasma or serum standards as carefully as any fresh blood/body fluid. Commercial quality control may not guarantee infection free products.
- 3 Use disposable gloves when:
  - handling all body fluids
  - lesions of hands/lower arms are present
  - directed to do so by a demonstrator
  - personal preference dictates.
- 4 Remember that the use of gloves may protect you, but if you are careless in handling of human tissues you may spread infectious material around causing hazard to others. Do not allow the gloves to become a further source of infection for others.
- 5 Gloves must be removed when using notebooks, equipment such as microscopes and before leaving the laboratory for any purpose.
- 6 The safest method for removal of gloves is to peel them off the hands from the wrist down to the fingers. This turns the glove inside out and prevents contact with any contaminant on the surface of the gloves.
- 7 Personal clothing and protective equipment. At all times wear a buttoned up lab coat (or gown) and safety glasses. A mask may be necessary if there is a danger of splashing or inhalation. Contact with mucous membranes (eyes, mouth and nostrils) should be avoided.

#### After Exposure Has Occurred.

- 8 At once:
  - if skin is penetrated, wash the area well with soap and/or water. Bleeding from any wound should be encouraged
  - if blood gets on the skin, irrespective of whether there are cuts or abrasions, wash well with soap and/or water
  - if the eyes are contaminated, rinse the area gently but thoroughly with water or normal saline, while eyes are open
  - if blood gets in the mouth, spit it out and then rinse the mouth with water several times
  - report any accident immediately to your laboratory supervisor and:
  - complete an Accident/Hazard Report form. Include the name of the source individual (if known), the date and time of exposure and how the incident occurred.

- if a needle/syringe was involved, carefully place it in a rigid-walled container and take it with you when you go to the nurse or doctor. Do not attempt to cover the needle because you run the risk of further injury.

### **Recapping of Needles.**

- 9 Within the health sciences disciplines both in the academic and practising environment, syringes and other devices which consist in part of a needle ( infusion sets etc) are used for a variety of purposes—injections, blood collection, sampling urine and other fluids. In all instances recapping of used needles after use can pose a serious health risk to the operator and serves no useful function.
- 10 In the particular circumstances where a syringe is used for venipuncture blood collection then it is of course essential for the needle to be removed prior to expulsion of the blood into collection tubes (to prevent haemolysis).
- 11 There are a variety of commercially available devices for needle removal. They range from those that grip the needle and then cut it in two, to simple sterilisable plastic devices which hold the needle cap while the needle is in use and then make it very simple and safe to recap the needle prior to its removal from the syringe.
- 12 These simple plastic devices are used within the Faculties for recapping of needles used in venipuncture.

### **Sterilisation/Disinfection of Non Disposable Equipment**

- 13 Where equipment is re-useable, it must be sterilised in an autoclave. Autoclave users must be appropriately trained and supervised.

### **Cleaning Bench Tops**

- 14 Bench tops need to be cleaned with soap and water first and then swabbed with 0.5% hypochlorite solution.

### **Waste Disposal**

- 15 All blood contaminated wastes including gloves and disposable items must be placed in the Biohazard Bags provided.

**Operational Guideline 2: Notes for courses where finger prick blood samples are taken**

1 Note: ONLY HANDLE YOUR OWN BLOOD

2 Procedure

- wash your hands with medicated soap and water
- work over the paper towel provided. If you soil it, dispose of all contaminated material in the Biohazard Bag
- swab the fingertip with a prepacked swab when provided. Allow to air dry thoroughly (erroneous results can occur in some tests if any residual disinfectant is present)
- break out a new lancet from its sterile plastic holder
- sharply jab the lancet into the disinfected finger tip
- dispose of the used lancet in the Sharps Biohazard Bin
- squeeze out single blood drop and transfer it to the test slide
- wipe off finger with swab. Discard swab in Biohazard Bag provided
- if bleeding has not completely stopped cover wound with a bandaid
- dispose of slides when finished in the Sharps Biohazard Bin

### Operational Guideline 3: Demonstrators, Course Co-ordinators and Technical Staff on Handling Blood and Other Related Materials

#### Use of Gloves

- 1 Gloves are necessary where:
  - a student has lesions on the hands; waterproof dressings must be also used
  - contact with potentially infectious material is unavoidable—as may occur when students handle body fluids other than their own
  - personal preference dictates
  - great care must be exercised in the use of gloves when using equipment which can tear/puncture them—a false sense of security occurs in such instances.
  - demonstrators must remind students that gloves should not be allowed to become a further potential source of infection and that gloves should be changed frequently
  - demonstrators need to show how to remove and dispose of gloves—which should always be treated as if contaminated.

#### Spillages

- 2 Follow the Guideline: [Management of biological spills in laboratories.](#)

#### Recapping of Needles:

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- 4 In the particular circumstances where a syringe is used for venipuncture blood collection then it is of course essential for the needle to be removed prior to expulsion of the blood into collection tubes (to prevent haemolysis). There are a variety of commercially available devices for needle removal. They range from those that grip the needle and then cut it in two, to simple sterilisable plastic devices which hold the needle cap while the needle is in use and then make it very simple and safe to recap the needle prior to its removal from the syringe.

These simple plastic devices are used within the Faculties at the University for the recapping of needles used in venipuncture.
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#### Operational Guideline 4: For Persons Handling Human Body Fluids and Tissues

##### Laboratory Biosafety Guidelines for Handling of Human Body Fluids and Tissues (Taken in part from AIDS Task Force Document R86/1567)

- 1 These guidelines remind laboratory workers of the need to follow standard safety practices when dealing with reagents of human origin and all biological specimens including those potentially contaminated with Hepatitis B, Hepatitis C or with the human immunodeficiency virus (HIV).
- 2 Hepatitis B and Hepatitis C are extremely virulent especially via blood.
- 3 HIV damages the immune system of the body. This results in susceptibility to a variety of infective agents and some unusual forms of cancer. The emergence of HIV/AIDS as a significant transmittable disease in Australia has implications for all laboratory workers. The human immunodeficiency virus may be transmitted by the percutaneous inoculation of blood. It may be transmitted by tissue and secretions or excretions that contain blood such as saliva, semen, urine and faeces. Precautions should be directed at exposure to these body fluids. There have however been only five cases reported to date among health care workers in whom the antibody test to the HIV has become positive as a result of needle-stick or mucous membrane exposure when treating patients with HIV/AIDS.
- 4 Although the occurrence of AIDS has drawn the matter of laboratory safety to the attention of staff there are also many other infectious diseases that may be transmitted by specimens handled in laboratories performing diagnostic tests. Bacterial, fungal and viral agents may cause infections with tuberculosis, hepatitis, enteric disease, brucellosis and Q fever being the best documented. The major routes of acquisition of laboratory infection include aerosol, mucous membrane (including enteric) and percutaneous. Many of the standard laboratory safety practices can minimise such exposure.
- 5 Whereas it would be foolish to assume that there is no risk of infection with HIV occurring in the laboratory, evidence suggests that the risk is low, when compared with agents such as hepatitis B virus and Mycobacterium tuberculosis and that staff can be protected by standard safety practices.

##### Laboratory Safety Practices

- 6 Extraordinary precautions of containment and accommodation are not required to protect the staff of pathology or research laboratories against infection unless one is dealing with pathogens classified as belonging to Hazard Group 4. In general HIV is not such an agent. The only circumstances in which special containment and accommodation are required are when attempts are being made to grow the virus when large volumes of viral culture are being processed or with work involving the inoculation of experimental animals.
- 7 Special procedures should not need to be introduced for handling blood and other specimens from patients who are known to be infected with HIV nor should they be separated from other specimens being handled in the laboratory. The most effective method of preventing infection of staff is to assume that all specimens are potentially infectious.

##### Recapping of Needles

- 8 Within the health sciences disciplines both in the academic and practising environment, syringes and other devices which consist in part of a needle ( , infusion sets etc) are used for a variety of purposes - injections, blood collection, sampling urine and other fluids. In all instances recapping of used needles after use can pose a serious health risk to the operator and serves no useful function. Hence many Codes of Practice in this area simply direct 'Do not recap needles'.
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- 11 These simple plastic devices are used within the Faculties for recapping of needles used in venipuncture.

### Accommodation and Clothing

- 12 All work surfaces should be non-porous and capable of disinfection or work should be done on non-porous bench pads which must be disposed of in a Biohazard Bag at the end of each work session or as soon as contamination obviously occurs, whichever comes first.
- 13 Lab coats and safety glasses must be worn; masks are necessary where splashing or aerosols may occur (eg. when handling large volumes of urine).

### The Use of Gloves

- 14 Inappropriate use of disposable gloves at times may be more of a liability than an asset:
- when handling large volumes of blood or other material where major contact may be difficult to avoid they should be worn, but it is important to be aware of the ease with which infection may be spread by contact of gloved hands with other surfaces
  - when handling small volumes of fluids using micropipettes, eppendorf tubes etc., there is a very real danger of gloves being torn/punctured without the operator being aware
  - gloves should be worn where a worker has open lesions on the hands or lower arms; lesions should also be covered with occlusive dressings
  - thorough washing of the hands after every work session (or at every work break including breaks for note taking) is mandatory.

### Disposal of Contaminated Material

- 15 There are three types of contaminated material: sharps, disposables, laboratory glassware equipment and instrumentation.
- 16 Sharps, i.e. venipuncture needles, lancets and glass pasteur pipettes should be placed in a rigid walled disposal bin.
- 17 Disposables i.e. bench pads, blood collection syringes and tubes, swabs, pipette tips etc., should be placed in a Biohazard Bag taped to your workbench. Biohazard Bags should be closed with secure tie and delivered to the designated cold room for disposal via an EPA licensed contractor.

### Disinfection of Laboratory Items

- 18 Reusable medical instruments must be sterilised appropriately in an autoclave.
- 19 For other instruments or situations where soaking or wiping are the only practicable methods available then:
- Laboratory Glassware—soak for 30 minutes in 0.5% sodium hypochlorite(♯) before washing normally. Equipment should be thoroughly cleaned to remove gross contamination before immersion in the hypochlorite.
  - Equipment—items such as pipettors, stop watches, vortex mixers etc., should be wiped over thoroughly with 70% ethanol, dispose of used paper towel in Biohazard Bag.
  - Instrumentation—instruments such as pH meter probes and automated biochemistry analysers should be wiped as appropriate on exposed surfaces with 70% ethanol. The analyser should be run for 30 minutes with 0.5% sodium hypochlorite in the cuvette system or per the manufacturer's instructions.
  - Bench tops, floors, walls where soiled—wipe with 0.5% sodium hypochlorite (♯) and leave in contact with at least for 10 minutes. Repeat the process before washing normally.
  - Bench tops, floors, walls where suspected of being soiled—wipe with 0.05% sodium hypochlorite(♯) and leave in contact with at least for 10 minutes. Repeat the process before washing normally.

(#) Hypochlorite solution is a very effective disinfectant however it is dangerous to use, corrosive and tends to bleach surfaces. It is also difficult under normal working conditions to determine the concentration of active chlorine in stored solutions.

- 20 Some commonly used disinfectants and their properties are listed in Chapter 7 of [Infection control guidelines for the prevention of transmission of infectious diseases in the health care setting](#).

### Accidents

- 21 Where personal contamination has occurred follow the Hazardous Exposure to Blood and Other Body fluid Guidelines

## Operational Guideline 5: Persons Authorised For Venipuncture In Humans

### Venous Blood Extraction

- 1 Only suitably trained persons may do extractions. These persons will include all registered nurses and medical staff and other staff of the University authorised by their respective Division or Faculty.
- 2 Where applicable, each Faculty / Division shall maintain a register of authorised persons.
- 3 Medical and nursing staff of the campus medical centres may be called upon only in unusual circumstances to perform venipuncture for research purposes.
- 4 Any procedure involving venous blood extraction shall only be done with the approval of the University Ethics Committee.
- 5 All blood extraction shall take place in rooms specifically equipped for the purpose. A couch or suitable seating, appropriate screens, appropriate washing facilities, biohazard sharps bins and biohazard bags shall be available.

### Recapping of Needles

- 6 Within the health sciences disciplines both in the academic and practising environment, syringes and other devices which consist in part of a needle ( , infusion sets etc) are used for a variety of purposes - injections, blood collection, sampling urine and other fluids. In all instances recapping of used needles after use can pose a serious health risk to the operator and serves no useful function. Hence many Codes of Practice in this area simply direct 'Do not recap needles'.
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### Disposal of Used Equipment

- 9 Needles and other sharps shall be disposed of into a rigid walled Sharps/Biohazard Bin displaying the Biohazard symbol. Before the waste reaches the full line on the bin, the container shall be sealed and delivered to the appropriate department cool store ready for disposal by an EPA approved contractor.
- 10 All other contaminated material—syringes, swabs, gloves, blood collection tubes etc. shall be placed in a Biohazard Bag. Before the bag is too full, the bag shall be taped closed and delivered to the appropriate department cool store ready for disposal by an EPA approved contractor. Where deemed appropriate because of situations such as the distance to the cool store being too distant and transport not being discreet, departments may wish to autoclave the waste first. In many cases, this may still be considered to be potentially infectious waste and still need disposal by an EPA approved contractor.