HEALTH ADVISORY BOOKLET

for Medical Students

2010

School of Medicine

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INTRODUCTION

This booklet is important for all students who will have contact with patients. Included with this book is your personal immunisation record that should be kept up to date.

There are two general concerns about infectious diseases in health care establishments:

1. That you do not inadvertently acquire infections from patients.
2. That you do not transmit infections to your patients.

The following infection control policies indicate the proper procedures to be followed to minimise inadvertent infection. You have a responsibility for your own health and for the health of others to follow the guidelines. We specifically draw your attention to the risks of blood-borne viruses (Hepatitis B & C and HIV) and keeping yourself fully informed about infection risks if you travel overseas on electives.

When working in a hospital, you will be at increased risk of exposure to some infectious agents against which you should be vaccinated. You may also transmit infectious agents during the incubation period of the diseases that can be very serious in specific patient groups (eg. chickenpox and rubella in immunosuppressed or non-immune pregnant patients). Refer to the Immunisation and Blood-borne Viruses Policy and Questions and Answers in this booklet to ensure you comply with the requirements of the School of Medicine.

Before enrolment, a student should seek medical advice to determine the student's immunity to common infections. Students are required to obtain appropriate immunisation where effective programs are available.

Should you have any queries on these policy matters please speak directly to Professor David Gordon of the Department of Microbiology and Infectious Diseases or the Senior Occupational Health Nurse of Flinders Medical Centre OHS and Injury Management Services. Your supervisor in clinical situations outside FMC will also be happy to help.

Prof David Gordon
Head, Department of Microbiology & Infectious Diseases

Dr Tony Edwards
Assistant Dean, Student Affairs

CONTACT INFORMATION

Flinders University Health & Counselling Service	Phone 8201 2118
Flinders Infectious Diseases Clinic (Referral required)	Phone 8204 5699

NATIONAL IMMUNISATION PROGRAM SCHEDULE

A National Health and Medical Research Council publication, *The Australian Immunisation Handbook - 9th edition 2008*, is available on the web at http://immunise.health.gov.au. It outlines the currently available vaccines and recommended vaccination schedules.

Students need to check which of the National Immunisation Program vaccines they have already received:

Hepatitis B: This was only added into the routine childhood schedule in 2000 and therefore few adults will have received immunisation. Health Care Workers (HCW) who have not been vaccinated should complete the course (vaccine at 0, 1, 6 months).

Varicella Zoster Virus (chickenpox): Students with a reliable past history of chickenpox can be considered immune. If there is no history of chickenpox, serological status should be determined and, if seronegative, vaccination given (2 doses 1-2 months apart).

Diphtheria & Tetanus: The recommended schedule comprises immunisation at 2, 4 and 6 months of age, with boosters at 4 and 15 years. Thereafter, boosting is no longer routinely recommended unless a high-risk injury occurs, until the age of 50 when a further booster is given.

Poliomyelitis: Most students will have received the recommended schedule comprising immunisation with inactivated polio vaccine (IPV) at 2, 4 and 6 months of age with a booster at 4 years. If not, a 3-dose primary vaccination course is required.

Measles, Mumps & Rubella: The recommended schedule for measles, mumps and rubella comprises immunisation with MMR at 12 months, and 18 months of age. Adults born before 1966 can be considered immune. MMR is also recommended for adults born since 1966 who have not received 2 doses of vaccine in the past.

Tuberculosis: BCG is not generally recommended, but Mantoux status should be determined.

Influenza: Yearly vaccination is recommended for all students with patient contact.

Pertussis: A single booster dose (given as dTpa, provided dTpa has not been given previously) is recommended for all Health Care Workers

In addition to vaccines listed above, students may require other vaccinations eg. Hepatitis A. Please use the Questions and Answers on pages 8-9 to guide you on which vaccines you will require.

How to obtain information on your immunisation status

Your parents or general practitioner may have the relevant information on file. Alternatively, local government immunisation clinics may have it, but you would need to know where you were vaccinated in order to get the information.

STUDENTS' ACTION LIST

- Read, understand and adopt the recommended practices concerning infection control (see following pages).

- Sign and date the students' agreement to comply with the Immunisation and Blood-Borne Viruses Policy (Form A). This is a requirement prior to commencement of clinical studies.

- Review/update your immunisation status and bring records of previous immunisations or blood tests as outlined in the Immunisation and Blood-borne Viruses Questions & Answers (page 8) to your health care appointment. You can make an appointment with your general practitioner, or the University's Health and Counselling Service, located on main campus (phone 8201 2118).

- You will need to provide the health care provider with a copy of the Health Care Provider form - confirmation of Student's Compliance with Immunisation and Blood-Borne Viruses Policy (Form B).

- Mantoux testing will be incorporated into the first semester of the first year program and BCG vaccination can be arranged subsequently if appropriate.

- If you are exposed to infections against which you are unlikely to be immune or plan to work amongst patients who might be particularly susceptible to infection, you can seek advice from Infectious Disease Consultants at Flinders Medical Centre.

Work-related Accident (eg. needlestick injury)

Should you have, in the course of your studies, a work-related accident with risk of infection (eg. needlestick injury) it is necessary to report it immediately, either to OHS and Injury Management Services in the Flinders Medical Centre (or equivalent in other hospitals), or, after hours, to the Emergency Department. A procedure for follow-up of blood or body fluid exposure is included in this manual as a general guide.

Noarlunga students should immediately notify the Occupational Health and Safety Hospital of the hospital or their GP supervisor, and as soon as practical notify staff in the Onkaparinga Clinical Education Program office.
PRCC students should immediately notify the Occupational Health and Safety Officer of the hospital (if in hospital) or their GP supervisor (if in any other clinical setting). The student also needs to notify the Clinical Educator in their region as soon as is practical. If any follow up is required it will be arranged with a GP of the student's choice.
Darwin students should report in the following order: to the supervisor, rotation team leader, Emergency Department, Infection Control at the Royal Darwin Hospital and to the Clinical Dean in the NTCS Office.
Alice Springs students should report the incident directly to their supervisor and Infection Control and complete an Accident/Incident form.
Katherine students should report the incident to their supervisor and to NTRCS staff.
Students doing **General Practice placements in Adelaide** should notify their GP supervisor immediately and inform the Department of General Practice.

IMMUNISATION AND BLOOD-BORNE VIRUSES POLICY

AIM: To minimise the risk of medical students contracting or spreading an infectious or blood-borne disease.

STANDARD: The Policy has been devised in accordance with the Guidelines established by the former Committee of Deans of Australian Medical Schools (now Medical Deans Australia and New Zealand).

IMMUNISATION: Immunisation of medical students should be in accordance with the standard recommendations of the National Health and Medical Research Council as documented in *The Australian Immunisation Handbook - 9th edition 2008* (which can be accessed at http://immunise.health.gov.au) and *Immunisation Guidelines for Health Care Workers in South Australia* (www.dh.sa.gov.au/pehs/immunisation-index.htm). Questions and Answers to guide students on any tests or vaccines they may require are included on pages 8-9.

PROCESS: Students are expected to attend a health care provider with expertise in infectious diseases prior to Year 1 of medical school for assessment, counselling and immunisation as necessary. Appointments can be made with general practitioners or the Flinders University Health Service. At this appointment, previous infection with or immunity to a number of infections will be assessed. It is recommended you review the Questions and Answers prior to your appointment and bring any records of blood tests or immunisations with you when you attend.

CONFIDENTIALITY: All students will be assessed by the immunisation service with absolute confidentiality. The School of Medicine will be notified of a student's compliance with this Policy but will not be advised of individual results.

COMPLIANCE: Students are required to sign a statement (Form A) indicating that they have read and agree to comply with the Policy, and provide documentation of compliance with this Policy (Form B), signed by their health care provider. Both forms are included at the end of this booklet. Completed forms should be returned to the Course Administration Unit within 2 weeks of commencement of the course. Students who do not feel that they can comply with the Policy are required to discuss their objections with a nominated representative of the Dean.

ELECTIVES: Students are required to seek pre-travel advice before undertaking overseas medical electives where special precautions may be necessary, and provide proof that they have done so. This is not required for electives confined to New Zealand/USA/Canada/United Kingdom/European countries, with comparable health facilities to Australia.

DISCRIMINATION: No student will be discriminated against nor prevented from qualifying for the award of the degrees of Bachelor of Medicine and Bachelor of Surgery as a result of complying with this Policy.

INFECTION CONTROL: Students are expected to understand and practice appropriate infection control measures during all clinical experiences. Infection control information and policies are attached.

OCCUPATIONAL HEALTH AND SAFETY: All medical students should have access to medical advice, either in the teaching hospitals to which they are assigned or through an occupational health and safety service. Guidelines for the management of exposure to blood or body fluids are on pages 15-16.

BLOOD-BORNE VIRUSES: Students have a responsibility to be aware of their status in relation to blood-borne viruses including HIV, Hepatitis B and Hepatitis C prior to commencing the medical course. Students who engage in at risk behaviour or suspect that they may have been infected with a blood-borne virus at any time during the course have an ethical duty to seek testing and counselling.

Students who are infected with HIV, Hepatitis B or Hepatitis C are not required to disclose their status to the School of Medicine. However, infected students must not undertake exposure-prone procedures. The School recognises the right of infected students to confidentiality and will neither coerce nor contrive to determine a student's status. However, infected students are strongly encouraged to inform the Dean of their status and to seek counselling in relation to personal health measures and training and vocational issues.

EXPOSURE PRONE PROCEDURES (EPP): Procedures where there is potential for contact between the skin of the health care worker and sharp objects (including surgical instruments and splinters or pieces of bone) **in body cavities or in poorly visualised or confined body sites (including the mouth).**

Provided they are not conducted in poorly visualised or confined body sites, the following procedures are not considered to be exposure prone:

- Phlebotomy,
- administering injections,
- placing intravenous (IV) or central venous (CVC) lines,
- performing needle biopsies or aspirations, lumbar punctures, venous cutdowns or angiographic procedures,
- excision of epidermal or dermal lesions,
- suturing of superficial skin lacerations,
- any other procedure where the use of sharps is superficial, well visualised and very unlikely that a health care worker skin injury would result in exposure of a patient to the health care worker's blood or body substances.

Oral, vaginal or rectal examinations, endoscopy, placing nasogastric tubes or urinary catheters or other procedures that do not involve sharps are also excluded from the definition of EPPs.

IMMUNISATION AND BLOOD-BORNE VIRUSES
QUESTIONS AND ANSWERS

HIV

Q1. Do you have results from a recent HIV antibody test?

YES: If you are HIV antibody positive it is suggested you seek confidential medical and career advice from an infectious diseases specialist. You must not undertake exposure prone procedures.
NO: You need to know your HIV status but you do not need to inform the School of the result.

HEPATITIS B

Q2. Do you have results from a recent Hepatitis B surface antigen test?

YES: Go to Q3.
NO: You need to know your HepBsAg status.

Q3. Was your HepBsAg test positive?

YES: It is highly recommended that you seek confidential medical and career advice from an infectious diseases specialist. You must not undertake any exposure prone procedures.
NO: If you have documented surface antibody to Hepatitis B you don't need to do anything further as you are considered to have life-long immunity to Hepatitis B. If not, you will need 3 doses of Hepatitis B vaccine followed by a blood test 6-12 weeks after the final injection to confirm you have developed immunity to Hepatitis B. For students at risk of Hepatitis A (see below) there is an option of combined Hepatitis A and B vaccine (Twinrix).

HEPATITIS C

Q4. Do you have results from a recent Hepatitis C antibody test?

YES: If you are Hepatitis C antibody positive it is strongly suggested you seek confidential medical and career advice from an infectious diseases specialist. You must not undertake any exposure prone procedures.
NO: You need to know your Hepatitis C antibody status although you do not need to inform the School of the result.

CHICKENPOX (varicella zoster virus - VZV)

Q5. Have you previously had chickenpox?

YES: You are considered to be immune to chickenpox.
NO: You need to have a blood test to see if you are immune to chickenpox (presence of IgG to VZV) and if you are not immune you should be vaccinated.

DIPHTHERIA/TETANUS

Q6. Have you received at least 5 diphtheria/tetanus toxoid shots, at least one of which was administered above the age of 10 years?

YES: You do not require any boosters unless you sustain a high risk injury.
NO: You will need diphtheria/tetanus toxoid shots.

POLIOMYELITIS

Q7. Did you have a full course (3 doses) of polio vaccinations as a child?

YES: No action required, unless you travel into an endemic country, eg. for an elective. Then, contact an infectious disease physician or travel physician for advice.
NO: Get a complete set of polio vaccinations.

MEASLES, MUMPS, RUBELLA

Q8. Do you have documented evidence of vaccination with at least 2 doses of measles mumps rubella (MMR) vaccine?

YES: You are considered immune to MMR.
NO: If you born after 1966 you will need to complete your 2 vaccinations against MMR. A history of previous infection with one or more of measles, mumps or rubella is not considered reliable evidence of immunity nor is it a contraindication for vaccination against the other components of the vaccine. It is not necessary to check serology prior to vaccinating against MMR.

TUBERCULOSIS (TB)

Q9. Do you have a scar from a previous BCG vaccine (against TB) or have you lived in a country in which TB is endemic?

YES: You should have a 2 step Mantoux test.
NO: You should have a 1 step Mantoux test.

Q10. If you have had your Mantoux test already, was it positive?

YES: You will be referred for further advice at the time of your Mantoux test.
NO: It is not essential that you have a BCG vaccination, but if you are exposed to TB, you should have a repeat Mantoux test. **BCG vaccination is only offered to students at high risk of exposure, eg. Northern Territory students exposed to East Timorese refugees.**

NB Mantoux testing will be incorporated into Semester 1 of the Year 1 program and BCG vaccination will be arranged subsequently if appropriate.

Q10. Will you be undertaking a clinical placement at Alice Springs Hospital this year?

YES: Mantoux test required prior to commencement if not in the 12 month period concurrent with your rotation. Numerical value only is accepted. If >10mm, a chest x-ray and review by an infectious diseases specialist is required.
NO: See Questions 8 and 9 above.

INFLUENZA

Q11. Will you have contact with patients this year?

YES: It is recommended that you receive an annual influenza vaccine.
NO: You are not required to have an influenza vaccine this year.

PERTUSSIS

Q12. Did you have a full course (3 doses) of pertussis vaccinations as a child? Did you receive a booster dose in adolescence (between 15-17 years) and is this less than 10 years ago?

YES and booster dose: No action required.
YES but no booster in adolescence: Get a booster dose.
NO: Get a single booster dose.

HEPATITIS A, MENINGOCOCCUS, MALARIA, HIV

Q13. Are you planning to work in areas where Hepatitis A, meningococcus, malaria or HIV are prevalent?

YES: You may wish to discuss the pros and cons of vaccinations, antimalarials and/or post-exposure prophylaxis against HIV with an infectious diseases specialist.
Prior to undertaking clinical placements in the Northern Territory, students must have a course of 2 injections of Hepatitis A vaccine, 6-12 months apart, or provide evidence of serological immunity.
NO: In Adelaide teaching hospitals, vaccination against Hepatitis A is not normally required but it is recommended if working in remote communities.

When students undertake overseas Electives, they are strongly advised to seek advice well in advance on their likely exposures and prophylactic medications. Those working in developing countries (eg. Africa, South East Asia, India) must discuss the Elective with their General Practitioner, the Flinders Health and Counselling Service or The Travel Doctor.

STANDARD AND ADDITIONAL PRECAUTIONS

Standard Precautions (formerly Universal Precautions) are work practices required for the basic level of infection control and are recommended for the treatment and care of all patients. Standard Precautions are designed to reduce the risk of transmission of micro-organisms from both recognised and unrecognised sources of infection to a susceptible host. Standard Precautions include:

- hand hygiene,
- use of personal protective equipment (PPE),
- aseptic practices,
- appropriate reprocessing of instruments and equipment following use,
- safe handling and disposal of potentially infectious material and
- environmental controls.

Additional Precautions are recommended for specified patients known or suspected to be infected or colonised with epidemiologically important or highly transmissible pathogens that can cause infection. Additional Precautions are implemented when Standard Precautions may be insufficient to prevent transmission of infection. Additional Precautions when required are always in addition to Standard Precautions.

The precautions implemented are based on disease transmission and are specific to the situation:

- airborne transmission (tuberculosis, measles, chickenpox),

- droplet transmission (mumps, rubella, influenza, pertussis),
- contact transmission (MRSA, *Clostridium difficile*),
- any combination of the above routes,
- immunocompromised patients,
- patients with altered mental state and/or poor hygiene, or
- patients with large areas of infected skin or large open purulent wounds.

Additional Precautions may include one or any combination of the following:

- allocation of a single room with ensuite facilities,
- cohorting (room sharing by persons with the same infectious agent),
- special ventilation requirements (a negative pressure room),
- a 'STOP' sign on the door directing all persons to consult staff prior to entering,
- antiseptic hand cleansers for routine hand hygiene,
- extended sterilisation time of used instruments/equipment when reprocessing (currently only required for Creutzfeldt-Jakob Disease – low risk patients),
- additional use of protective barriers (eg. gowns, gloves, masks, dressings),
- immune staff to care for infectious patients (eg. only staff who have had chickenpox or VZV vaccination should care for a patient with chickenpox),
- additional room cleaning,
- special scheduling of the patient on a procedure list, or
- dedicated patient equipment.

HAND HYGIENE

Hand hygiene is the most important and most basic measure to prevent the spread of infection. Alcohol gels or rubs are available in all wards and should be used for hand hygiene between all patient contacts. Hands carry two different types of flora: resident and transient.

Resident Flora: These organisms live and multiply on the skin (mainly on superficial layers, but 10-20% inhabit deep layers) and can be repeatedly cultured, even after routine hand washing. Although these organisms are generally harmless, they are of special concern if staff are performing invasive procedures. In these circumstances they need to be reduced and inhibited using an antimicrobial preparation, to prevent cross-infection.

Transient Flora: These organisms are present in the hospital microenvironment and contaminate the hands of hospital staff during normal work activities. They can be readily passed on to another person during contact and will survive on the hands for up to 24 hours, if not removed by hand hygiene. (Occasionally, despite routine hand washing, a transient organism may take up "temporary residence" for a period of several weeks.) Contamination with transient flora may occur in the absence of visible soiling. Routine hand hygiene is performed to remove transient microbial flora derived from touching one's skin, another person's skin, or some object in the environment.

Hand hygiene should be performed before significant contact with any patient. Significant contact activities include: examination of a patient, or similar prolonged contact, inspection of a wound or intravascular cannula site, emptying a catheter or drainage reservoir, undertaking a venepuncture or a dressing, changing an IV flask or manipulating any similar 'closed' sterile system, delivery of IM or IV injections.

Hand hygiene should be performed after activities likely to cause significant contamination. Activities known to cause significant contamination include handling objects or materials soiled with body secretions or excretions, direct contact with body secretions or excretions, direct contact with mucous membranes, wounds, tracheostomy, and personal hygiene after toileting. Gloves should be used as an adjunct to hand washing when contamination of hands with blood or body fluids is anticipated. Gloves should be changed and hand hygiene performed between patients.

There are two main methods for hand hygiene:

1. Hand washing with soap or other detergents and water.
2. Hand antisepsis with alcohol hand gels or alcohol liquid hand rub.

Alcohol-based hand antisepsis provides a significantly greater reduction of micro-organisms on hands than hand washing and is therefore preferable for most clinical situations. However, hand washing with soap is indicated when hands are visibly soiled.

Procedure for hand antisepsis: Ensure all skin surfaces are accessible. Ensure nails are clean, short and unvarnished. Dispense 2-3 squirts of alcohol gel or alcohol liquid rub from the dispenser onto the hands. Rub hands with alcohol to cover all hand and finger surfaces, including fingertips and the dorsal sides of thumbs. Make sure that the hands are not wet (ie. water) before alcohol hand antisepsis. Rub hands together until alcohol had dried by evaporation. Takes 15-30 seconds.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) provides a barrier between the source and the operator. Its use does not negate the need for safe work practices or hand hygiene. In many situations the risk of exposure to blood and body fluids can be determined in advance, so the appropriate PPE should be worn prior to performing the procedure or task. PPE may include: gloves, gowns and aprons, eye and/or facial protection (glasses, goggles, and face shields), masks, adequate footwear.

Gloves must be worn whenever there is a risk of direct contact with blood, body fluids, mucous membranes, non-intact skin or contaminated equipment or surfaces. Types of gloves worn should be appropriate to the task: sterile gloves for procedures involving normally sterile areas of the body, non sterile examination gloves to be used for all other contacts, general-purpose utility gloves to be used for cleaning and during manual decontamination of used instruments and equipment. Allergy or sensitivity may develop to glove powder or contact with latex proteins. Powder-free latex gloves or alternatives to latex are available and should be used by those who develop sensitivity. Seek advice from Occupational Health and Safety and Injury Management Services.

Gowns are worn to protect the wearer's clothing and skin from contamination with blood and body substances. Fluid resistant gowns/plastic aprons are indicated in situations where contamination with large amounts of blood or body fluid is anticipated. A plastic apron can be worn beneath a sterile gown to give added protection if strike through is a possibility during surgical procedures. Gowns/aprons are also worn by personnel during the care of patients infected or colonised with epidemiologically important micro-organisms to reduce the opportunity for transmission of pathogens from patients or items in their environment to other susceptible patients.

Protective Eyewear (goggles, glasses or face shields) must be worn during procedures likely to cause splattering, splashing or spraying of blood or body fluids. Eyewear should be shielded at the side and close fitting, and should be cleaned after use in detergent and water if contaminated.

Masks are worn to protect the mucous membranes of the mouth and nose during procedures likely to cause splattering, splashing or spraying of blood or body fluids. High efficiency masks with filtration to 1 micron must be used for care of patients known or suspected to be infected with pathogens spread by the airborne route. To provide protection against airborne pathogens, masks must provide a snug fit and be changed when they become moist or visibly soiled during use.

Specimens should be collected with gloved hands, placed in a correctly labelled leak proof container, enclosed in a sealed bag for transport with the request form in the outer sleeve pocket of the plastic bag to prevent contamination.

ASEPSIS, REPROCESSING AND ENVIRONMENTAL CONTROL

Asepsis

Aseptic practices refer to precautions designed to prevent undue contamination of a person, object or area by micro-organisms. Aseptic practices are indicated if performing any invasive procedure, for example surgical procedures, dressing open wounds or insertion of indwelling cannulae. Measures employed to achieve asepsis include:

- performance of appropriate hand hygiene,
- preoperative skin and body cavity preparation,
- processing,
- supply and storage of sterile equipment,
- antiseptic and disinfectant use,
- management of indwelling devices,
- environmental controls such as air filtration.

Reprocessing equipment

Cleaning is the essential first step for any form of reprocessing. If an item cannot be thoroughly cleaned, it cannot be reprocessed. Thorough cleaning should commence as soon as practicable after use. Inadequate cleaning may result in ineffective disinfection or failure to sterilize instruments or equipment. Hospital crockery and cutlery require no special precautions. The combination of hot water and detergents used in hospital dishwashers is sufficient to render the items safe for reuse.

Environmental controls
A neutral detergent is the cleaning solution of choice for environmental surfaces. Extra cleaning may be necessary in the presence of some micro-organisms. Blood and body substance spills must be dealt with by wiping the area immediately with a paper towel and then cleaning the area with detergent and water if the spill is small. Large spills should be contained and in addition to cleaning with detergent and water, chlorine-generating disinfectants may be used. ***Linen*****:** Soiled linen is discarded into linen bags which when $^{2}/_{3}$–¾ full must be securely tied off for transport. Any linen bags likely to leak blood or body fluid must be contained by a clear plastic bag and secured prior to transport. Alternatively waterproof linen bags should be used. All used linen is considered contaminated therefore minimal handling is recommended.

Waste disposal
Standard Precautions must be employed when handling all waste. Waste is segregated at the point of generation into general, medical, cytotoxic, radioactive and hazardous streams. There is a legal obligation to classify waste appropriately.

Sharps
The person generating the sharp is responsible for its safe disposal. Sharps should never be passed by hand between health care workers. Disposal should occur immediately following its use and at the point of use into designated puncture resistant containers that conform to Australian Standard AS4031. Discard sharps containers when $^{2}/_{3}$ full, seal appropriately and place in the medical waste stream. Never recap used needles unless an approved recapping device is used.

NOSOCOMIAL INFECTION

Nosocomial infections are infections acquired directly or indirectly in a medical setting. The probability of a micro-organism causing infection in a host is dependent upon the dose (number of micro-organisms), a receptive host site of contact with the organism, time of contact (sufficient for multiplication or not) and the virulence of the organism.

The source(s) of the infecting agents may be patients, staff or visitors and may include:
- persons with acute diseases,
- persons in the incubating or window period of a disease,
- persons who are colonised or chronic carriers of the infecting agent,
- the person's own endogenous flora, or
- inanimate objects including equipment and medications.

Susceptible host
Resistance to infection varies depending upon underlying medical conditions and other factors that may compromise a person's immune status. Trauma, surgical procedures, anaesthesia, invasive indwelling devices, and therapeutic and diagnostic procedures render a person more susceptible to infection. Immunocompromised patients are at increased risk of infection from both their own flora (endogenous) as well as other sources (exogenous). Susceptibility to infection depends on the severity and duration of immunosuppression. They may be particularly susceptible to environmental contaminants such as Legionnaires disease or Aspergillus.

Where invasive medical procedures are involved, consideration should be given to placing patients at the start of the operating schedule. If considerable immunosuppression or neutropenia is present the Additional Precaution of single room accommodation is desirable.

Routes of transmission

- Direct contact transmission involves direct physical transfer of micro-organisms from an infected or colonised person to a susceptible host. Indirect contact transmission involves the contact of a susceptible host with a contaminated inanimate object, such as contaminated instruments or equipment.
- Droplets are generated during coughing, sneezing, talking, and during certain procedures such as suctioning and bronchoscopy. Transmission occurs when droplets containing micro-organisms come in contact with the conjunctiva, nasal mucosa or mouth of a susceptible person. Droplet distribution involves close association, usually 1 metre or less.
- Airborne transmission occurs by dissemination in the air of either droplet nuclei or dust particles containing the infectious agent. Micro-organisms carried in this manner can be widely dispersed via air currents and can remain airborne for long periods before being inhaled by the susceptible host.
- Vehicle transmission applies to micro-organisms transmitted by contaminated food, water, drugs, blood or body fluids.
- Vector-borne transmission occurs when mosquitoes, flies, rats or other vermin transmit micro-organisms.

PROCEDURE FOR FOLLOW-UP OF BLOOD/BODY FLUID EXPOSURE

Wash the affected area with soap and water. If cuts and abrasions are involved they should be included in the washing. For eye splashes rinse gently but thoroughly with water or normal saline, while the eyes are open. If blood gets in the mouth, spit it out and rinse the mouth with water several times. Record the accident details (for FMC this will be on BBFE Accident Report Form) including your name, contact number, ward, and the source name and medical record number if available.

The affected person should have blood taken (10 ml white top) either in the ward, Emergency Department or in the Occupational Health, Safety and Injury Management Unit. Blood is tested for Hepatitis B antibody if not previously tested, and serum is held for 7 years.

T**he source individual** should have blood taken for HIV Antibody, Hepatitis B surface antigen, Hepatitis C antibody (NB: informed consent is required to undertake these tests usually obtained by the doctor responsible for the patient). If blood is already available in serology (from previous tests) then more blood may not have to be taken. If the source individual does not consent to have tests taken, the affected person is to be followed up as if the source was unknown.

If the source is known or suspected to be HIV positive, the on-call Infectious Diseases Physician must be contacted urgently (via FMC switchboard) for advice.

Source HIV positive
Post-exposure prophylaxis with antiretroviral therapy may be offered when the risk of transmission is considered to be significant. Commence as soon as possible after the exposure (preferably within 2 hours). Counselling will be provided on the risk of transmission, the importance of strict compliance with the treatment regimen and the potential side effects and appropriate course of action if these are experienced.
Follow-up: Report any febrile illness that occurs within 3 months after exposure. Repeat testing for HIV antibody will be performed 3 and 6 months after exposure. During the first 3 months you should not donate plasma or blood, body tissue, milk or sperm. Sexual partners should be protected from contact with blood, semen or vaginal fluids by using condoms. Pregnancy should be avoided until HIV status is known and you must avoid performing exposure prone procedures.

Source HBV positive (HBsAg positive)
If you have previously had Hepatitis B infection or you have been vaccinated against Hepatitis B and have confirmation of seroconversion, no further action is required. If there is no record of seroconversion to confirm that vaccine immunity has been achieved or if you have not been previously vaccinated for Hepatitis B, blood is taken for Hepatitis B surface antibody. If negative, Hepatitis B immunoglobulin (HBIg) will be offered and a Hepatitis B vaccination course should commence at the same time. Three vaccinations at 0, 1 and 6 months are required.

Source Anti-HCV positive
At present, apart from thorough washing (as for HIV and HBV) at the time of injury there is no known treatment that can alter the likelihood of transmission. If HCV infection does occur, early treatment with interferon may be offered. Repeat testing for HCV antibody will be done 3 months after exposure.

Source unknown
Reasonable efforts should be made to identify source persons or syringes. If the source remains unknown, appropriate follow-up should be determined on an individual basis depending on type of exposure and likelihood of source being positive for a blood pathogen.

Source negative for HIV, HBV, HCV:
No further action is required.

FOLLOW-UP AND APPROPRIATE CARE NOT REQUIRED

- **Non-Parenteral** Exposure: Intact skin visibly contaminated with blood or body fluid.
- **Doubtful Parenteral** Exposure: Intradermal (superficial) injury with a needle considered not to be contaminated with blood or body fluid, eg. giving IV medication, drawing up medication. A superficial wound not associated with visible bleeding produced by an instrument not contaminated with blood or body fluid. Prior wound or skin lesion contaminated with a body fluid other than blood and with no trace of blood eg. urine.

FOLLOW-UP AND APPROPRIATE CARE ARE REQUIRED FOR

- **Possible Parenteral** Exposure: Intradermal injury with a needle contaminated with blood or body fluid. A wound not associated with visible bleeding produced by an instrument contaminated with blood or body fluid. Old wound or skin lesion contaminated with blood or body fluid. Mucous membrane or conjunctival contact with blood.
- **Definite Parenteral** Exposure: Laceration or similar wound which causes bleeding, and is produced by an instrument that is visibly contaminated with blood or body fluid. Any direct inoculation with human immunodeficiency virus (HIV) tissue or material likely to contain HIV, Hepatitis B virus (HBV) or Hepatitis C virus (HCV) not included above - this refers to accidents in laboratory settings.
- **Massive** Exposure: Transfusion of blood. Injection of large volume of blood/body fluids (>1ml). Parenteral exposure to laboratory specimens containing high titre of virus.

ELECTIVES IN DEVELOPING COUNTRIES

Students undertaking Electives in developing countries are strongly encouraged to seek advice well in advance of travel, on illnesses and personal health and safety issues which may be encountered in those countries. Students planning Electives in countries with high rates of HIV positivity (eg. most of Africa, India and South East Asia) must consult with a General Practitioner, the Flinders Health and Counselling Service or The Travel Doctor several months prior to undertaking the Elective. Students may require specific preventative treatment medications for malaria and traveller's diarrhoea and may be advised to carry emergency HIV drugs to take immediately should a high risk blood/body fluid exposure take place.

Vaccination status needs to be reviewed for students undertaking electives in developing countries and additional vaccines such as Typhoid, Hepatitis A, Meningococcal and Yellow Fever vaccinations may be required. Further information can be obtained from the Centre for Disease Control and Prevention website (http://www.cdc.gov/index.htm).

FREQUENTLY ASKED QUESTIONS

Q: Will the School of Medicine cover the costs of my blood tests and consultation(s) with a doctor?

A: No (although for most students Medicare will cover the cost). The University Health Service has agreed to bulk bill for consultation. Private health insurance policies may vary in their cover and so students ineligible for Medicare will need to clarify their cover with their own health insurance provider.

Q: Can I get reimbursement for vaccines purchased from private pharmacies or get private scripts filled by the SOM?

A: No.

Q: Should I carry anti-HIV drugs to take in the event of possible exposure during Electives in parts of Africa and Asia?

A: These may be required depending on the location of your Elective. You should seek advice from your General Practitioner, the Flinders Health and Counselling Service or The Travel Doctor who may arrange for you to carry an emergency supply of anti-HIV drugs. Students will be expected to cover any associated costs.

APPENDIX 1: TUBERCULIN SKIN TEST

Government of South Australia
Central Northern Adelaide Health Service

Royal Adelaide Hospital

SA TB Services

CHEST CLINIC 8222 4867
PATIENT INFORMATION ON TUBERCULIN SKIN TEST

This information is intended as a general guide only. Please ask the Nurse or Doctor if you have any questions relating to this information.

What is a tuberculin skin test (TST)?
The TST is a simple & safe test to show if a person has ever been exposed to tuberculosis (TB) bacteria (or germs).

Who should be tested?
- People who have had contact with someone who has active TB
- People from countries where TB is common
- People who are travelling to or have recently returned from countries where TB is common
- People who have to be tested for work e.g. health care workers
- People who have to be tested for medical reasons
- People who require a Bacille Calmette-Guerin (BCG) vaccination

When should the TST be delayed?
- If you have a fever (>38C) or have had a recent infection
- If you have had a live vaccine e.g. measles-mumps-rubella (MMR), yellow fever, chicken pox (varicella) within the last 4 weeks [1]

When should the TST not be done?
- If you have or have had TB
- If you have had a previous large reaction to a TST
- If you have an allergy to any component of tuberculin solution [2]

Please let the healthcare worker know if any of these are relevant to you.

How is the test done?
A small amount of tuberculin [3] is injected into the skin on the inner forearm by a healthcare worker.

Care of the test site
Remove cotton wool from TST site after 60 minutes. Leave uncovered.
- Do not scratch. If it itches, place a cold pack on it

- Shower or bathe as usual

What happens next?

Three to four days later you will need to return for the site of the test to be checked & the result recorded. Test documentation will be provided for your records.

Only a trained healthcare worker can accurately measure & interpret the test result.

A TST can result in:

- Redness
- Lump at site
- Bruising
- Blistering
- Ulceration

Depending on the reaction & your medical & TB history you may be advised:

- To have the TST repeated
- To avoid future TST
- To make an appointment to see a medical practitioner experienced in TB management
- That no further testing or follow-up is required

When should the TST be repeated at 1-3 weeks ("two-step" TST)?

An initial TST result may be falsely negative. A second TST may produce a more accurate response. The TST may be repeated if:

- If you require testing at regular intervals e.g. Healthcare workers
- If you are immune suppressed

Where can I get more information?

If you have any questions please telephone SA TB Services at the RAH Chest Clinic between 8:45am & 4:45pm Monday to Friday on (08) 8222 4867 to talk to a registered nurse or doctor.

1. The Australian Immunisation Handbook 9th Edition, 2007. National Health & Medical Research Council

2. TUBERSOL® contains:

- Purified protein derivative of *M. tuberculosis*
- Polysorbate 80 0.0006%
- Phenol 0.22% to 0.35% w/v in sterile isotonic phosphate buffered saline

3. Tuberculin is available in Australia as TUBERSOL®. It is a purified protein derived from the TB bacteria but contains no active TB bacteria. In Australia the standard dose of TUBERSOL® is 5 Tuberculin Units (TU) per test dose of 0.1 ml.

Author : SA TB Services
Date of Development : 31/10/2007
Document Location : CCPIGTST1C
Date of Last Review : 07/01/2008
Version : 1
Reviewed and Endorsed by RAH Consumer Advisory Council : 04/12/2007

APPENDIX 2: IMMUNISATION POLICY FOR NT PLACEMENTS

The following vaccinations/proof of immunisation are required for all locations in the Northern Territory supported by the Northern Territory Clinical School or Northern Territory Rural Clinical School (RDH, ASH, Katherine Hospital, Gove District Hospital).

Evidence of immunisation must be submitted **prior** to commencement for:

MMR
Chicken Pox
Diphtheria/tetanus
Polio
Hepatitis B
Hepatitis A
Pertussis – booster required
TB/mantoux - evidence of last mantoux
Influenza – given in Feb usually

Note:
Flinders University Policy – All except Hep A are standard requirements for Flinders.
James Cook University Policy – Hepatitis A falls under Category 2, Strongly Recommended.

PROCESS:

1) Forms to be coordinated based on location
    a. *Darwin* – (JCU Year 5/6, Flinders Year 3 and Selective/Electives)
       NTCS sends form which student returns to Infection Control Unit

    b. *Alice Springs* – (RCS Flinders Year 3 and Selective/Electives)
       RCS sends form which student returns to ASH Infection Control

    c. *Katherine* – (RCS Flinders Year 3)
       NTCS sends form which student returns to Infection Control Unit

    d. *Gove* –(RCS Flinders Year 4 and possible Selective/Elective or JCU Yr 6)
       RCS sends form which student returns to Infection Control Unit at GDH

2) NTCS Admin to correspond with appropriate Infection Control to verify records have been received.

FORM A

FLINDERS UNIVERSITY SCHOOL OF MEDICINE

COMPLIANCE WITH IMMUNISATION AND BLOOD-BORNE VIRUSES POLICY

STUDENT FORM

STATEMENT OF COMPLIANCE

I have read and agree to comply with the Immunisation and Blood-Borne Viruses Policy.

STUDENT NAME _____

STUDENT ID _____

SIGNATURE _____

DATE _____

NOTE: Students who do not feel that they can comply with the Policy are required to discuss their objections with a nominated representative of the Dean.

Please return completed form by *31 March 2010* to:

Course Administration Unit
Department of Medical Education
Flinders University
GPO Box 2100
Adelaide SA 5001
Australia

Location: Room 5E217, Flinders Medical Centre

FORM B

FLINDERS UNIVERSITY SCHOOL OF MEDICINE

COMPLIANCE WITH IMMUNISATION AND BLOOD-BORNE VIRUSES POLICY

HEALTH CARE PROVIDER FORM

STUDENT NAME _____

STUDENT ID _____

REQUIREMENTS		**Date/s**
HIV	Results from a recent HIV antibody test	
Hepatitis B	Results from a recent Hepatitis B surface antigen test (HepBsAg) If HepBsAg was negative, student has received 3 shots of Hepatitis B vaccine and a blood test >3 months after the final injection, confirming presence of Hepatitis B surface antibody	
Hepatitis C	Results from a recent Hepatitis C antibody test	
Chickenpox (VZV)	A past history of clinical chickenpox OR presence of IgG to VZV OR 2 shots of Varilrix	
Diphtheria/Tetanus	At least 3 diphtheria/tetanus toxoid shots, at least one of which was administered aged > 10 years	
Poliomyelitis	At least 3 doses of inactivated polio vaccine	
Measles/Mumps/Rubella	At least 2 doses of MMR vaccine	
Pertussis	Single booster dose (given as dTpa)	

*Tuberculosis (TB): Mantoux testing will be incorporated into Semester 1 of the Year 1 program and BCG vaccination will be arranged subsequently if appropriate.
*Influenza: Annual dose of influenza vaccine is recommended.

I confirm that the above student has provided me with evidence satisfying the above requirements.

SIGNATURE _____

DATE _____

HEALTH CARE PROVIDER'S NAME & CONTACT DETAILS _____

NOTE: This form must be completed before students will be permitted to commence clinical studies/patient contact.

Please return completed form to:

Course Administration Unit
Department of Medical Education
Flinders University
GPO Box 2100
Adelaide SA 5001
Australia

Location: Room 5E217, Flinders Medical Centre