



QUEENSLAND FIRST AID VOLUNTEERS

INFECTION CONTROL GUIDELINES

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INTRODUCTION

Infection control or preventing spread of infection has been an important part of the practice of medicine and first aid for over 200 years. In the last 20 years, infection control has taken increased prominence with the appearance of organisms that are very difficult to control with antibiotics. This is very similar to the problem that led to the development of these principles in the 18th century. Many of the lessons of that time apply today.

The primary objective of QFAV is to provide a high standard of first aid to casualties in an environment that is safe for both the casualty and the member. An effective infection control strategy, based on preventing transmission of infection is fundamental in achieving this objective.

All QFAV educational and training programs should appropriately emphasise the importance of infection control in the provision of first aid to casualties, including specific advice about hand washing and special requirements for specialty services for advanced pre-hospital care.

New and inexperienced members should be trained and supervised until they are proficient in the recommended techniques. Regular monitoring of compliance and evaluation of procedures should be undertaken to identify areas requiring corrective action or review.

ACKNOWLEDGEMENTS

Queensland First Aid Volunteers (QFAV) acknowledges and appreciates the effort put in by Salus Group Pty Ltd for the original creation of these Guidelines, and thanks them for allowing us to adopt it for our use.

SECTION 1 CONCEPTS PRINCIPLES AND PRACTICES

PRINCIPLES OF DISEASE TRANSMISSION

Spread of infection requires three elements:

- source of infecting organisms
- susceptible host
- means of transmission for the organism.

Source

The source of the infecting agent may be:

- a casualty
- a QFAV member
- a bystander
- surroundings.

It may include:

- persons with active disease
- persons in the incubation period of the disease
- persons who are colonised by the infection agent but have no apparent disease
- a person's endogenous flora (organisms that are normally present)
- objects, including equipment and medications that have become contaminated—often called fomites.

The likelihood of a micro-organism causing infection is dependent upon:

- virulence (its ability to produce disease)
- numbers
- site (e.g. an organism may be innocuous and normal on intact skin but may potentially cause infection when in a wound).

Some micro-organisms are opportunistic in their ability to produce disease—they can cause infection in a weakened host.

Host

People's resistance to pathogenic organisms varies greatly. Some may be able to resist infection by an infectious agent—they are immune. Others exposed to the same agent may allow a symbiotic relationship with the infecting organisms and become asymptomatic carriers. Still others may develop clinical disease.

The following factors may make a person more susceptible to infection:

- age
- chronic debilitating disease
- immunosuppression (reduced immune capacity caused by disease or drugs)
- shock
- coma
- trauma
- invasive therapeutic and diagnostic procedures.

IDENTIFYING AND CONTROLLING RISKS

Risk management

The Operations Branch member is frequently confronted with the need to prevent or minimise their exposure to blood and/or other body fluids. Risk management strategies are utilised to minimise exposing people to sources of infection. Depending on the nature of specific risks, risk management may be achieved by:

- eliminating the risk factors
- modifying procedures, protocols and work practices
- engineering controls
- implementing safe work practices
- providing information about personal health conditions that may place members or others at risk
- providing information/education and training
- using personal protective equipment
- monitoring infection control procedures.

Work practices

QFAV members must examine each task to identify any practice or situation which has the potential for blood or

body fluid exposure.

In general, tasks associated with risk of exposure are those with a potential for skin injury, blood spill, splash or spray. These include invasive procedures, suction manoeuvres, resuscitation and the disposal of blood or body fluids.

Standard operating procedures, such as using a no-touch technique when appropriate, should minimise the risk of exposure when caring for a casualty. Safer methods, modifications to the equipment used or the introduction of new equipment should be given precedence to achieve safe working practices.

Work practices that minimise skin injury

Extreme care and attention are required when handling needles and sharp instruments. Disposable needle/syringe combinations, needles and other used sharp items should be placed in the designated puncture resistant containers and not left on trolleys, bench tops, placed in paper bins or otherwise discarded incorrectly.

To prevent needlestick injury, needles should not be recapped, bent or broken by hand. Needles should not be removed from disposable syringes or otherwise manipulated by hand. Casually found, discarded needles and syringes must be handled and disposed of with caution (*see Section 3*).

Work practices that minimise spill, splash or spray

Always empty blood or body fluid contents with care and as close as is practical to the outlet or disposal point. While cleaning used instruments always immerse them below the water line to reduce the risk of splash. Deep sinks facilitate total immersion. When carrying out procedures where there is a potential for spray such as using a suction device, correct positioning of the casualty may assist to prevent exposure.

CONTROL OF DISEASE TRANSMISSION

A two-tiered system, based on mode of disease transmission and encompassing the terms 'Standard Precautions' and 'Additional Precautions', forms the basis of a comprehensive approach to infection control (*National Health & Medical Research Council, 1996*).

A two-tiered approach to infection control includes, firstly and most importantly, those precautions designed for the care of all casualties, regardless of their diagnosis or presumed infection status. These precautions are known as Standard Precautions and constitute the minimum acceptable level of practice in infection control.

The second tier includes precautions that are applicable only for the care of specified casualties. These Additional (Transmission Based) Precautions are for patients known or suspected to be infected by pathogens spread by airborne or droplet transmission or direct person contact with dry skin or contact with contaminated surfaces or by any combination of these routes.

The nature of first aid activities makes it impossible and impractical, in most circumstances, to determine a casualty's infectious status before any intervention, emphasising the importance of Standard Precautions (*National Health and Medical Research Council, 1996*).

Standard precautions

Standard Precautions describe practices required to achieve infection control. Standard precautions are the basis on which all current first aid is administered to casualties, regardless of their perceived or actual infectious status.

Standard precautions include good hygiene practices, particularly washing and drying hands before and after contact with a casualty and may include wearing personal protective equipment such as gloves, face masks/shields, eye protection and protective clothing as appropriate.

Hand hygiene

Hand hygiene is performed after touching or contact with blood, body substances, and contaminated items, whether or not gloves are worn. Perform hand hygiene immediately after gloves are removed, between casualty contacts, and when otherwise indicated to avoid transfer of micro-organisms to other persons or environments. It may be necessary to perform hand hygiene and change gloves between tasks and procedures on the same patient to prevent cross-contamination of different body sites. Water-free skin cleansers or antiseptics, such as alcohol-based hand rub, gel or foam provides an appropriate alternative to handwashing. However, hands should be washed with soap and water if visibly soiled (*see p. 10*).

Gloving

Wear gloves (clean non-sterile gloves are adequate) when touching blood, body substances, and items contaminated with blood and body fluids. Clean new gloves are required before touching mucous membranes and non-intact skin. Remove gloves promptly after use, before touching non-contaminated environmental items and surfaces, and before going to another patient. Hand hygiene is performed immediately after removing gloves to

avoid transfer of micro-organisms to other persons or environments.

Facial protection

Wear a P2 respirator and eyewear to protect healthcare workers' mucous membranes of the eyes, nose, and mouth during procedures and patient care activities that are likely to generate splashes, sprays or aerosols of blood, body substances, secretions and excretions.

Gowning

Wear a fluid-repellent gown/apron, made of impervious material to protect skin and prevent soiling of clothes during procedures and patient care activities that are likely to generate splashes or sprays of blood, body substances, secretions and excretions or cause soiling of clothing.

Appropriate device handling

Handle used patient care equipment soiled with blood and body substances in a manner that prevents healthcare worker skin and mucous membrane exposure, contamination of clothing and transfer of micro-organisms to other patients and environments. Ensure that reusable equipment is not used for the care of another casualty until it has been appropriately cleaned and reprocessed and that single use items are correctly discarded after use.

Appropriate handling of laundry

Handle, transport and process linen soiled with blood, body substances, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing and transfer of micro-organisms to other health care workers, other casualties and environments.

Respiratory hygiene/cough etiquette

Respiratory secretions may be passed from person to person by coughing, by hand-to-hand, hand-to nose, hand-to-eye or hand-to mouth contact. All people with signs or symptoms of a respiratory infection, regardless of presumed cause should:

cover the nose/mouth when coughing or sneezing with a tissue or cough and sneeze into their elbow fold

- use tissues to contain respiratory secretions
- spit into tissue if spitting is necessary
- dispose of tissues in the nearest rubbish bin after use
- wash their hands thoroughly after contact with respiratory secretions and contaminated objects or materials
- if casualties are being treated in a first aid facility and coughing, they should be offered a surgical mask to wear
- encourage coughing persons to sit at least 1.5 metres away from others in common waiting areas. If available, a pocket mask or face shield should be used when undertaking resuscitation.

First aid stations should:

- ensure the availability of materials for adhering to respiratory hygiene/cough etiquette in waiting areas for casualties and visitors
- posted signs with instructions to casualties and visitors
- offer a P2 respirator mask to persons who are coughing in the case of an influenza epidemic and ensure they are properly fitted
- encourage coughing persons to sit at least 1.5 metres away from others in common waiting areas
- reinforce the importance of hand washing with access to hand hygiene, and
- ensure that health care workers have access to appropriate personal protective equipment (PPE) and have specific training in PPE use.

Additional precautions (transmission based)

In these guidelines, Additional precautions (transmission based) will be referred to as Additional Precautions. Additional Precautions are designed for patients known or suspected to be infected with pathogens for which additional Precautions beyond Standard Precautions are needed to interrupt transmission in health care settings.

Types of additional precautions

There are three types of Additional Precautions:

- Airborne Precautions.
- Droplet Precautions.
- Contact Precautions.

A combination may be required for diseases that have multiple routes of transmission or those diseases whose mode of transmission changes throughout its course. The use of Additional Precautions must always be in conjunction with Standard Precautions.

Airborne precautions

Airborne Precautions apply to casualties known or suspected to be infected with pathogens that can be transmitted by the airborne route.

Airborne Precautions are designed to reduce the risk of airborne transmission of infectious agents. Airborne transmission occurs by dissemination of either airborne droplet nuclei (small-particle residue of evaporated droplets that may remain suspended in the air for long periods of time) or dust particles containing the infectious agent. Casualty placement and negative pressure room ventilation requirements need to be considered.

Droplet precautions

Droplet Precautions apply to any casualty known to be or suspected of being infected with pathogens that can be transmitted by droplet. Respiratory droplets are generated when a patient coughs, sneezes, talks or during procedures such as suctioning and chest physiotherapy.

Droplet Precautions are designed to reduce the risk of droplet transmission of infectious agents. Droplet transmission involves contact of the conjunctivae or the mucous membranes of the nose or mouth of a susceptible person with large particle droplets containing micro-organisms generated from a person who has a clinical disease or who is a carrier of the micro-organism. As droplets do not remain suspended in the air, special air handling and ventilation are not required.

Contact precautions

The contact route is a common mode of transmission and is divided into two subgroups—direct contact and indirect contact. Contact Precautions is designed to reduce the risk of transmission of micro-organisms by direct or indirect contact.

Direct contact transmission involves skin-to-skin contact and physical transfer of micro-organisms directly from one person to another person, such as when health care workers reposition casualties, or perform other casualty care activities that require physical contact. Direct contact transmission can also occur between two patients (e.g. by hand contact), with one serving as the source of infectious micro-organisms and the other as a susceptible host.

Indirect contact transmission involves transfer of an infectious agent through a contaminated intermediate object or person. Hands of health care personnel are usually cited as the most important contributors to indirect contact transmission. Pathogens spread by patient-care devices, instruments and equipment that are inadequately reprocessed between patients, bedside environment and fomites are all examples of indirect contact transmission.

Implementation

Casualties known to have an infectious disease requiring 'Additional Precautions' should have some priority in treatment in order to minimise potential exposure of other casualties to infection. The principles of DRABCD still apply.

In addition to Standard Precautions other actions within this framework include:

- allocation of a single room
- a dedicated toilet (casualties with diarrhoea or gastroenteritis)
- dedicated equipment
- restricted movement of both casualty and member/s
- decontamination of environment and equipment following casualty separation.

Additional precautions are not required for casualties with bloodborne viruses, such as HIV, hepatitis B virus or hepatitis C virus, unless there are complicating infections, such as pulmonary tuberculosis (*Department of Health and Ageing, 2004*).

INFECTIOUS DISEASE LIST REQUIRING ADDITIONAL PRECAUTIONS

Guide for recommended Additional Precautions for a variety of infectious diseases. It purposely does not include all infectious diseases.

Disease	Airborne Precautions	Droplet Precautions	Contact Precautions	Comments
Avian Influenza	✓	✓	✓	P2 Mask respiratory protection and eye protection (goggles, face shield)
Congenital rubella Infants to 1 years		✓	✓	
Enteroviral infections Children < 6 years and incontinent patients			✓	
Giardiasis Children < 6 years and incontinent patients			✓	
Hemorrhagic fevers (Marburg, Lassa and Ebola)	✓		✓	Add eye protection, double gloves, leg and shoe coverings All waste regarded as Clinical Waste
Hepatitis A Children <6 years and incontinent patients			✓	
Hepatitis E Children < 6 years and incontinent patients			✓	
Haemophilus influenzae known or suspected		✓		Surgical Mask respiratory protection and eye protection (goggles, face shield)
Impetigo			✓	
Influenza	✓	✓	✓	Single room when available or cohort; avoid placement with high-risk patients; P2 mask, patient to don surgical mask for transport outside room
Legionnaires' disease				Standard Precautions only, not a communicable disease
Lice (pediculosis)			✓	
Measles	✓			Unvaccinated and susceptible HCWs should not enter room. P2 mask patient to don surgical mask for transport outside room
Multidrug-Resistant Organisms, infection or colonization VRE, MRAB, MRSA			✓	MROs judged by the infection control program
Mumps (infectious parotitis)		✓		Unvaccinated and susceptible HCWs should not enter room. Surgical Mask respiratory protection.
Neisseria meningitidis (meningococcal)		✓		Isolation can be discontinued after 24 hours of appropriate antibiotic therapy. Surgical Mask respiratory protection.
Norovirus		✓	✓	Surgical Mask
Parvovirus B19		✓		Maintain precautions for duration of hospitalisation when chronic disease occurs in an immunodeficient patient

Disease	Airborne Precautions	Droplet Precautions	Contact Precautions	Comments
Parvovirus B19		✓		Maintain precautions for duration of hospitalisation when chronic disease occurs in an immunodeficient patient
Pertussis (whooping cough)		✓		Surgical Mask respiratory protection
Respiratory Syncytial virus infants and young children, and immunocompromised adults		✓	✓	
Rotavirus			✓	Ensure consistent environmental cleaning and disinfection; prolonged shedding may occur in the immunocompromised
Rubella		✓	✓	Unvaccinated and susceptible HCWs should not enter room. Surgical Mask respiratory protection
SARS	✓	✓	✓	P2 Mask respiratory protection. Add eye protection (goggles, face shield), double gloves, leg and shoe coverings. Patient to don surgical mask for transport outside room .
Scabies			✓	Care when contact with bed linen
Shigella species Children < 6 years and incontinent patients			✓	
Streptococcal Group A infections Infants and young children only		✓	✓	
Streptococcal Pneumonia or Scarlet fever		✓	✓	Surgical Mask respiratory protection
Tuberculosis Pulmonary or laryngeal disease, confirmed or suspected	✓			P2 Mask respiratory protection, patient to don surgical mask for transport outside room.
Varicella-zoster Disseminated	✓		✓	Unvaccinated and susceptible HCWs should not enter room. P2 Mask patient to don surgical mask for transport outside room.
Varicella (chickenpox)	✓		✓	Unvaccinated and susceptible HCWs should not enter room. P2 Mask patient to don surgical mask for transport outside room.

SECTION 2 HYGIENE STANDARDS

Consistently high hygiene standards are required by all QFAV members in the provision of first aid to casualties:

- work areas and equipment must be cleaned regularly
- hands must be washed frequently
- uniforms should be clean.

HAND HYGIENE

Hand hygiene is the most important measure in preventing the spread of infection. Hands should be washed before and after significant contact with any casualty, after activities likely to cause contamination and after removing gloves (see *Appendix A*). Gloves are not a substitute for handwashing.

Indications for hand washing

Members should carry out a routine hand wash frequently during the day, irrespective of casualty contact. Hands should be washed at the commencement of a duty, before eating, after going to the toilet and after glove usage. Hands should be washed before and after activities likely to cause significant contamination. General activities known to cause significant contamination are:

- handling objects or materials soiled with blood or body fluids
- direct contact with body secretions or excretions
- direct contact with mucous membranes or wounds.

Specific examples include:

- examination of a casualty, or similar prolonged intense contact
- inspecting a wound or doing a dressing
- giving injections or introducing venous cannulas.

Routine hand wash

1. Ensure all skin surfaces are accessible—remove jewellery.
2. Cover all wounds with a waterproof dressing.
3. Wet hands thoroughly with warm water, then apply neutral pH soap.
4. Lather vigorously for 15–20 seconds, paying particular attention to the backs of hands and fingers, fingernails, fingertips and the webbing between fingers.
5. Rinse hands under running water.
6. Pat dry using paper towels or clean reusable cloth towel—use once only.
7. If elbow operated taps are not being used, while still holding the towel, use this to turn off the tap.

Gloves should be used as an adjunct to hand washing when contamination of hands with blood or body fluids and/or contact with mucous membranes is expected.

Emergency hand wash

It may be necessary to clean hands with antiseptic products formulated for use when water is not available in the following situations:

- emergency situations where there may be insufficient time and/or facilities
 - when hand washing facilities are not available or inadequate
 - circumstances where an alcoholic-based preparation provides a more effective option for individuals such as those with a latex allergy.
1. Remove visible soil by some means e.g. rinsing, mechanical rubbing or antiseptic wipes.
 2. Apply an alcohol-based product (gels, rinses, foams) that can be used without water (see *Appendix B*).

Note: Hands should be washed as soon as practicable when facilities become available. Disposable gloves are not a substitute for hand washing.

Non-surgical (aseptic or clinical) hand wash

Procedure:

- for non-surgical procedures which require an aseptic technique (such as insertion of an intravenous cannula), an anti-microbial soap or anti-microbial skin cleanser should be used
- wash hands thoroughly for at least 1 minute, paying particular attention to the space between the fingers and around the nails
- rinse hands carefully, keeping hands above the elbow level
- pat dry with paper towel
- if elbow operated taps are not being used, whilst still holding the towel, use this to turn off the tap.

HAND CARE

Healthy, intact skin will resist the invasion by infectious agents, even if the hands become contaminated with blood or body fluids. Moisturising creams should be used regularly, at breaks and on completion of a duty, to avoid dryness and cracking.

Wound protection

Before the commencement of daily activities, members should ensure any cuts or abrasions on their own hands are covered by a water-resistant occlusive dressing (such as Opsite or Tegaderm).

Skin problems

Members who have any skin problems such as ulcers or moist weeping areas, which may be a risk should seek medical advice to discuss changes in their role within the organisation until the condition resolves (*South Australian Health Commission, 1992*).

PERSONAL PROTECTIVE EQUIPMENT

Uniforms

As well as being comfortable to wear, uniforms should be well maintained, reflecting an individual's pride in being a QFAV member. The use of personal protective equipment (PPE) worn over uniforms will avoid contamination where members are exposed to blood or body substances.

Personal Protective Equipment (PPE)

Personal protective equipment (i.e. gloves, masks, eyewear and plastic aprons) provide a barrier between the source and the first aider. They protect the wearer's hands, face and clothing from contamination. PPE is not intended to replace the need for safe methods of practice or the need for routine measures such as hand washing. PPE should be used in accordance with the level of exposure anticipated. Management of a casualty who is not bleeding or contaminated with body fluids does not require the full use of PPE.

In many situations the chances of being exposed to blood and body fluids can be judged in advance. In these instances the appropriate PPE should be put on routinely before performing the task.

Because of the unpredictable nature of exposure during emergency situations and resuscitation, the use of PPE will be at the discretion of the individual but will almost certainly include gloves.

In designated casualty care areas (medical centres, casualty rooms and caravans) the full range of PPE including gloves, masks, eyewear and plastic aprons, must be readily available for members to wear. Safe needle handling systems should also be placed in these areas.

Personal protective equipment should comply with the relevant Australian Standard.

Gloves

Gloves should be used as an adjunct to hand washing when:

- contamination of hands with blood or body fluids and/or contact with mucous membranes is expected
- an aseptic procedure is to be performed
- when it is impractical to wash hands (e.g. at a road side incident).

Members should also wash their hands after gloves are removed, even if the gloves appear to be intact. Wearing gloves must not replace hand washing, as gloves may have defects that are not immediately obvious, or become damaged during use.

Members should change and/or discard single use gloves:

- after contact with each casualty, and when performing separate procedures on the same casualty if there is a risk of cross-contamination
- when they are damaged (torn or punctured)

- on completion of indirect casualty care activities requiring the use of gloves (i.e. handling and disposal of sharps and other contaminated or infectious waste)
- before documentation or use of communication devices (*Department of Health and Ageing, 2004*).

Removal of gloves

All gloves used in first aid are disposable. Once gloves are used in first aid, they are contaminated and can be a source of infection. They must be taken off without touching the outside surface and where possible, hands washed and dried immediately.



Grasp the upper outside of the cuff of one of the gloves.



Pull glove off hand and fingers, turning glove inside out.



Slide fingers under the cuff of inside of second glove. Pull gloves off hand and fingers, turning the glove inside out.

Place gloves in a plastic bag and seal. Wash hands with soap and running water.

Sensitivity

Gloves are made of a variety of materials. The most commonly used is latex ('natural rubber latex' or NRL). Some people react to latex. The reactions vary from a minor skin change to a life threatening anaphylactic reaction and members should be aware of these possibilities. Nitrile gloves are a safe alternative (*Technical Advisory Committee, 1995*).

Sterile gloves

Sterile gloves are to be worn for surgical aseptic procedures involving sterile areas of the body.

Reference: AS/NZS 4179 (1997), Department of Health and Ageing, 2004.

Non-sterile gloves

Non-sterile gloves are worn for procedures not involving normally sterile body sites, where contact with blood, mucous membranes, non-intact skin or wounds is likely. High risk procedures where non sterile gloves are recommended include:

- emergency resuscitation procedures
- dressings of open wounds
- invasive procedures such as intravenous cannulation
- casualty suctioning procedures
- disposal of blood or body fluids.

Reference: AS/NZS 4011 (1997) and Amendment 1 (1998), Department of Health and Ageing, 2004.

General purpose utility gloves

These are worn for 'housekeeping chores' such as cleaning.

Disposability

Sterile and non-sterile gloves are single-use items and must be discarded:

- after contact with each casualty, and when performing separate procedures on the same casualty if there is a risk of cross-contamination
- as soon as gloves are damaged (torn or punctured)
- on completion of any task not involving casualties but requiring the use of gloves
- before answering telephones or completing documentation.

Sterile or examination gloves should be removed carefully to avoid contamination of hands or other surfaces (see p.12). They must not be washed or reused.

Utility gloves may be reused, but must be discarded and replaced if peeling or cracking occurs or if they have punctures, tears or other evidence of deterioration.

Face protection

Protective eyewear or face shields are to be worn to protect the wearer's face and mucous membranes from contamination with blood splash or spray (*South Australian Health Commission, 1992*). Face protection must be worn in those situations where there is a likelihood of splash or spray such as facial injuries, using suction devices and emptying vessels containing blood or body fluids.

Location of face protection

Eyewear and masks must be readily available, easily accessible and visible to the member in first aid kits and casualty care areas where blood/body fluids are handled, such as medical centres, casualty rooms and caravans.

Protective eyewear

Protective eyewear:

- must be optically clear, anti-fog and distortion free
- must be close fitting and should be shielded at the side
- may be either reusable after cleaning and disinfection or single-use.

Reference: AS/NZS 1336 (1997), AS/NZS 1337 (1992) and Amendment 1 (1994), Department of Health and Ageing, 2004.

Masks

Members must wear masks whenever there is a possibility of splashing or splattering of blood or other body substances, or where airborne infection may occur. There are two main types of masks:

- Surgical masks—fluid-repellent paper filter masks worn during procedures
- P2 (particulate filtering respiratory) to prevent the spread of infection in the case of pandemic influenza.

Note: The P2 respirator stops filtering virus particles once it is saturated.

Masks/Respirators must:

- be worn and fitted according to the manufacturer's instructions
- not be touched by hand while being worn
- cover both mouth and nose while worn
- be removed as soon as practicable after they become moist or visibly soiled
- be removed by touching the strings and loops only
- be removed and discarded as soon as practicable after use i.e. not worn loosely around the neck (*National Health and Research Council, 1996*), (*Department of Health and Ageing, 2004*).

Reference: AS 4381 (1996) and Amended 1 (1997), AS 1716, Department of Health and Ageing, 2004

Gowns and plastic aprons

Impermeable gowns and plastic aprons are worn to protect the wearer's clothing and skin from contamination with blood and body fluids. Impermeable or fluid resistant gowns are appropriate when patient care activities are likely to generate splashes, sprays or aerosols of blood, body substances, secretions and excretions.

Clothing

The anticipation of the need for and the correct use of personal protective equipment will generally ensure that clothing is not soiled by blood and body substances. On occasions, soiling of clothing will occur.

Very small splashes, smears and stains should be spot cleaned using gloves, soap and water at the first opportunity. Heavier contamination should lead to a change of clothing as a matter of some urgency. If blood or body fluids have soaked clothing and come into contact with skin (i.e. causing non-parenteral exposure or doubtful parenteral exposure) clothing should not only be changed but a shower sought as soon as possible.

After removal, heavily soiled clothing should be carried in a plastic bag to prevent further contamination. Whilst such items should be handled with gloves, no change to normal washing practice is necessary.

SECTION 3 NEEDLESTICK AND BLOOD ACCIDENTS

Management of exposure to blood/body fluids contaminated with blood, including needlestick or sharps injuries, with a potential for Human Immunodeficiency Virus (HIV), Hepatitis B (HBV), Hepatitis C (HCV) or other bloodborne infections.

Confidentiality

Confidentiality of all details must be maintained.

EXPOSURE

An injury that involves direct skin contact with a body fluid listed below and in which there is compromised skin integrity such as an open wound, abrasion, dermatitis or where there is direct mucous membrane contact (mouth, eyes, nose). For exposure to skin, the larger the area of skin exposed and the longer the time of contact, the more important it is to verify that all the relevant skin area is intact.

Body Fluids posing a risk for transmission of blood-borne virus:

- Blood, serum and all biological fluids contaminated with blood
- Laboratory specimens that contain contaminated virus
- Pleural, amniotic, pericardial, peritoneal, synovial and cerebrospinal fluids
- Uterine, vaginal secretions
- Semen, penile secretions.

SOURCE INDIVIDUAL

The source individual is the person whose blood or body fluid was inoculated or splashed onto the affected person.

The source individual may sometimes not be identifiable (such as when an affected person has been injured by a needle/instrument and it is not known on whom it was used).

EXPOSED PERSON

The person exposed to blood or body fluid.

Risk of Transmission of Bloodborne Viruses

HIV

Prospective studies of health care workers occupationally exposed to HIV have estimated that the average risk of HIV transmission after an exposure to HIV infected blood is 3 in 1000 (0.3%) and after a mucous membrane exposure 9 in 10,000 (0.09%). Although HIV infection has been reported after skin exposure to HIV infected blood, the average risk of HIV transmission after this exposure is extremely low and no healthcare worker enrolled in prospective studies have seroconverted after isolated skin exposures. The following factors may be associated with increased risk of HIV transmission:

- Injury with a device visibly contaminated with blood
- Injury with a hollow bore needle that has been placed in an artery or vein of the source patient
- Deep injury to the exposed person
- A source patient with advanced HIV disease or high viral load.

HEP B Virus (HBV)

HBV infection is a recognised occupational hazard for workers who are exposed to blood or body fluids. In source patients who are positive for HBV surface antigen (HBsAg) transmission rates are much higher than for HIV particularly if the source is HBV e antigen positive.

HEP C Virus (HCV)

Since the introduction of HBV vaccination over the past decade, HCV has replaced HBV as the most commonly identified cause of viral hepatitis among health care workers. When a source patient is positive for HCV antibodies, transmission rates are higher than for HIV. The risk of transmission is relatively low (3- 10%) in comparison with HBV.

MANAGEMENT OF SOURCE PERSON

The person whose blood or body fluids are the source of an occupational exposure or other injury should be evaluated for HIV, HBV and HCV. Information available in the medical record or from the source person may suggest or rule out infection with each virus. If the source is known to have HIV infection, then information on stage of infection and current and previous antiretroviral therapy should be gathered and used in deciding the most

appropriate regimen of Post exposure prophylaxis for the exposed person. If the source status of HIV HBV or HCV is unknown the source person should be informed of the incident and consent sought for testing to these viruses, they will require appropriate pre and post test counselling. If consent cannot be obtained, procedures should be followed that comply with legislation in the relevant state/territory.

At the time of the injury, the source should be tested for:

- HIV antibody
- HBsAg.

If the HCV antibody test is positive. HCV polymerase chain reaction (PCR) should be performed to test for HCV RNA. Transmission is much less likely to occur from a source who is PCR negative.

If the source person is negative, the exposed person should be managed as described below.

Reasonable efforts should be made to identify the source. If the source remains unknown, appropriate follow-up should be determined on an individual basis depending on:

- the type of exposure
- the likelihood of the source being positive for a blood pathogen
- the prevalence of HIV, HBV and HCV in the community of the likely source.

MANAGEMENT OF THE EXPOSED PERSON

Immediate Management

Immediate care of the exposure site

Contaminated clothing should be removed and the injured area washed well with soap and water (an antiseptic could also be applied). Any affected mucous membranes should be flushed with large amounts of water. If the eyes are contaminated they should be rinsed gently but thoroughly with water or normal saline while kept open.

Evaluation of the Exposure

The exposed person should be examined to confirm the nature of the exposure and counselled about the possibility of transmission of bloodborne disease.

Evaluation and testing of the exposed person

The exposed person should have a medical examination including the collection of information about medications they are taking and any underlying medical conditions or circumstances. All exposed persons should be assessed to determine the risk of tetanus. Depending on the circumstances of the exposure the following may need to be considered:

- tetanus immunoglobulin
- a course of absorbed diphtheria tetanus vaccine—adult formulation (Td Vaccine)
- Td Booster.

Testing

The exposed person would normally be tested for HIV antibody, HCV antibody and antibody to HBV surface antigen at the time of the injury to establish their serostatus at the time of the exposure. Expert counselling on the implications of the event, PEP and appropriate long term follow-up should be offered.

Those who do not wish to undergo testing at the time of the exposure may be offered the option to have blood collected and stored but not tested. Blood that is collected and stored must be retained for a minimum period of twelve months.

If the source person is found to be HIV, HBV and HCV negative, no further follow-up of the exposed person is generally necessary unless there is reason to suspect the source person is sero-converting to one of these viruses or was at high risk of bloodborne viral infection at the time of the exposure. If the source is positive for one of these viruses, pregnancy testing should be offered to women of child bearing age who have been exposed and whose pregnancy status is unknown.

Post Exposure Prophylaxis (PEP)

HIV PEP

Depending on the circumstances of exposure to HIV, and the characteristics of the source, PEP may be recommended, offered but not actively recommended, or not offered.

- HIV PEP Recommended—for percutaneous exposure to potentially infectious blood or body fluids (increased risk of HIV transmission)
- HIV PEP Offered (but not actively recommended)—for ocular mucous membrane or non-intact skin exposure to potentially infectious blood or body fluids (less increased risk of HIV transmission)

- HIV PEP not offered—for any exposure to non-blood stained urine, saliva or faeces (not potentially infectious for HIV).

Only a small proportion of occupational exposures to HIV result in transmission of the virus. The toxicity of PEP must be carefully considered against its efficacy. The exposed person should be informed of these side effects and that there is only limited data on the efficacy of the PEP. If the exposed person is pregnant, she should be informed about the available limited data on the toxicity of these drugs in pregnant women.

Hepatitis B PEP

If the source is positive for HBsAg, then depending on the type of exposure HBV PEP may be considered if the person is not already immune. However no further action is required if the person is already known to be immune to HBV or if testing within 48hrs of the injury shows the exposed person to be immune to HBV. Further testing in persons who are HBsAg positive can assist in determining the risk of transmission.

If the exposed person is not immune to HBV or is of unknown immune status, then HBV immunoglobulin should be given within 48-72 hours of exposure. In addition HBV vaccine should be started for HCW who are susceptible and have not received HBV vaccine previously or is a non responder to the immunisation. Blood should be drawn for testing before HBV PEP is administered.

Hepatitis C PEP

At the time of review of this guideline, there is no PEP available for HCV. Expert advice should be sought following a needlestick injury. When the source of a needlestick injury is positive for HCV antibody, HCV RNA testing should be undertaken to assess the likelihood of transmission.

POST EXPOSURE COUNSELLING

A specialist with knowledge of bloodborne infections should follow up the incident. If it is demonstrated that a person has been exposed to a bloodborne pathogen they should not donate blood, semen, organs or tissue for six months and should not share implements that may be contaminated with even a small amount of blood (i.e. razors, toothbrushes). For HIV and HBV they should be informed of the risk of transmission to sexual and injecting partners for a six month period, and be counselled about issues of safe sex and safe injecting. If PEP is indicated or there is a risk of acute infection with HIV, HBV and/or HCV they should be offered advice on pregnancy and breastfeeding based on an individual risk assessment. In the case of HIV, patients should be advised of the remote risk of seroconversion up to 12 months after exposure, particularly if specific PEP was undertaken.

INITIATION OF PROTOCOL

Any person subjected to any form of exposure to bloodborne viruses must initiate the following protocol. The risk of serious illness may be reduced by adhering to this protocol.

Action by exposed person

Safety

If a needle or other disposable object is involved, it should be safely discarded.

First aid

Contaminated items of clothing should be removed and discarded safely. If skin is involved:

- wash the area well with soap and water—an alcohol based hand gel, hand wipe, rinse or foam should be used when water is not available.

If the eyes are contaminated:

- irrigate open eyes gently but thoroughly with copious running water or normal saline for at least 5 minutes. The eyes MUST be kept open during this process.

If the mouth is involved:

- contaminating fluid should be spat out and the mouth rinsed with large amounts of water multiple times.

Reporting

The affected person will IMMEDIATELY report to the Officer in Charge who will advise the State/Territory Duty Officer of the incident.

EVALUATION AND RISK ASSESSMENT

Regardless of the status of the source individual, the affected person should immediately be evaluated and the risk assessed, preferably by a physician or trained health care worker with experience in the management of these situations. Therefore, as soon as practical, within a matter of hours, if the incident is in the metropolitan area, the member is to report to the nearest Public Hospital Emergency Department. In rural areas contact should be made

with the nearest hospital. The member should be prepared to follow the appropriate hospital protocol.

If considered necessary, this will involve:

- an evaluation of tetanus and Hepatitis B (HBV) immune status
- a blood test for hepatitis B and C and HIV antibodies
- administration of Post Exposure Prophylactic Medications.

Documentation

The member must document the DESCRIPTION OF THE EXPOSURE AS ACCURATELY AS POSSIBLE, using the relevant state/territory member incident report form including:

- the date and time of exposure
- a description of the incident
- name and details of source if known

If the source is a casualty:

- ensure that identification data is complete (this should be on the Casualty Report OB12)
- advise the casualty of the incident and that further contact with them may be necessary.

Action by Officer in Charge

Ensure that:

- appropriate first aid measures have been carried out
- relevant documentation has been completed.

Advise the State/Territory Duty Officer immediately of:

- the details of the incident
- details of hospital that the member will attend.

Action by State/Territory Duty Officer

The State/Territory Duty Officer will ensure that an incident report containing the above details, is completed and forwarded immediately to the State/Territory Office (preferably by facsimile) for Operations Branch Manager (or as appropriate)—for urgent attention of State/Territory Professional Officer.

Action by the State/Territory Professional Officer

The State/Territory Professional Officer will review the nature of the incident and ensure that appropriate future preventative action is taken and that follow-up for the member has been arranged. Follow-up may be continued at the hospital involved in accord with protocol or by the member's own doctor if preferred.

Appropriate immunisation should be performed. If necessary, further information, support and counselling should be arranged.

Ideally, persons nominated to provide support to affected persons should have an appropriate knowledge of factors concerning transmission of HIV, HBV, and HCV, and have counselling expertise. Where this is not possible (such as rural and remote areas) then a person with appropriate knowledge of disease transmission should be used (*National Health and Medical Research Council, 1996*).

All documents and information exchanged between the individual and QFAV will be stored and treated with the utmost regard to confidentiality at all levels.

Outcome

Only a small proportion of accidental exposures to blood result in infection. The risk of infection with HIV following one needlestick exposure to blood from a patient known to be infected with HIV has been reported as 0.3% (*Henderson et al, 1990*). This rate is considerably lower than that for HBV. The risk may vary according to the stage of infection of the source individual—low risk in asymptomatic and higher risk with symptomatic HIV infection.

SECTION 4 - CLEANING DISINFECTION AND STERILISATION

Cleaning is an essential pre-requisite for all disinfection or sterilisation processes, as organic residue may prevent heat or steam penetration.

Instruments and equipment intended for use on sterile tissue (critical site), on intact mucous membranes (semi-critical site) or on intact skin (non-critical site) must be cleaned and processed to a level appropriate for their use.

SINGLE-USE ITEMS

Single-use items minimise the risk of cross infection and should be used where feasible. Dressings, dressing trays, suture materials, suture needles, splinter removers, and spatulas should be used only once. Injecting apparatus, including syringes, needles and IV lines and giving sets, must be sterile and single-use only. Any single-use article or instrument that has penetrated the skin, mucous membrane or other tissue must be discarded immediately after use or at the end of the procedure, whichever is more appropriate. For example, after each cannulation attempt, a new cannula must be used (*National Health and Medical Research Council, 1996*), (*Department of Health and Ageing, 2004*).

CLEANING PROCEDURE

Timing

Immediately after use, non-single use equipment should be immersed in warm water and detergent before routine cleaning and processing. This will prevent fats congealing or solidifying and will reduce the risk of cross-infection. It is the responsibility of members undertaking the procedure to ensure that equipment is properly cleaned and disinfected according to guidelines as soon as possible after use. Failure to achieve adequate cleaning may result in ineffective disinfection.

Care should be taken to ensure that safe work practices are implemented.

Technique

When cleaning instruments and equipment manually:

- wear general purpose utility gloves, face protection and a plastic apron (*see p.11*)
- use a sink or bowl designed for the purpose
- take care to prevent splashing onto mucous membranes or penetration of the skin by sharp instruments
- remove gross soiling by carefully rinsing in warm (15-18°C) water
- fully dismantle instruments and immerse in warm water and a detergent that is biodegradable, non-abrasive, non-corrosive, low foaming and free rinsing.
- remove all visible soil by scrubbing with a small, clean brush, working with the equipment held low in the sink, or while immersed, to limit splashing and spraying
 - cleaning brushes should be specified 'for cleaning only'
 - a light grade nylon or similar non-abrasive scouring pad or non-lint cloth are alternatives to a brush after use cleaning brushes should be washed and stored dry. Brushes should be disposed after each duty.
 - complete this procedure before any further reprocessing takes place to maximise the effectiveness of disinfection or sterilization
- rinse equipment in hot water to assist with drying, unless contraindicated, ensuring all detergent has been removed. Any detergent residue left on items may reduce the effectiveness of the disinfectant
- dry with a clean, lint free cloth. Items must not be left to dry in ambient air
- check equipment visually to establish whether cleaning has been adequate before further processing or storage (*Department of Health and Ageing, 2004*).

DISINFECTION AND STERILISATION

Instruments and equipment used in critical sites must be sterile. Those used in semi-critical sites must be either sterile or high level disinfected. QFAV does not have the capacity to sterilise equipment.

Care should be taken to ensure that safe work practices are implemented during these processes.

Disinfection

Disinfection is a process that inactivates non-spore infectious agents, using either thermal (moist or dry heat) or chemical means.

Household disinfectants have no role in medical disinfection as their efficacy has not been measured.

Thermal disinfection

Thermal disinfection using heat and water is achieved at temperatures that destroy pathogenic, vegetative agents. Boiling water at approximately 100°C or pasteurisation at 75°C is the simplest, most efficient and most cost-effective method of high level disinfection. Heat is conducted readily (by most materials) and thus is able to penetrate and achieve disinfection more efficiently than chemicals. To achieve high level thermal disinfection:

- ensure the items have been cleaned
- ensure quality of water—distilled or pre-boiled water may be needed under some circumstances
- immerse them in vigorously boiling water
- continue boiling for at least five minutes
 - begin time from when the last item is added and water has returned to boil
 - do not interrupt the process
 - do not add items during the process
- remove items and place on prepared surface

Chemical disinfection

Chemical disinfectants act by disrupting the structure or metabolism of contaminating infectious agents. The efficacy of chemical disinfectants depends on a number of factors including:

- the initial number of agents present
- temperature (usually 25°C is the optimal temperature)
- pH
- concentration.

Chemical disinfectants are regulated by the Therapeutic Goods Administration (TGA) and are approved as either a high, low, or intermediate grade disinfectant, depending on manufacturer's claims and in accordance with Therapeutic Goods Order No 54 (TGO 54) (*Department of Health and Ageing, 2004*).

An effective disinfection process will ensure that:

- items are cleaned and dried before disinfection (presence of organic substances can inactivate chemical)
- the correct concentration of solution is used
- adequate time—as per manufacturer's advice is allowed
- items are fully immersed
- the process is not interrupted by adding further items.

Sodium hypochlorite

Sodium hypochlorite is a very effective disinfectant. Items which carry a risk of cross infection such as manikin masks are best disinfected with a solution of sodium hypochlorite (*Technical Advisory Committee, 1994*). It also has advantages in availability, cost, storage and disposal. Reference to its use is made later in this document and details of its preparation are provided in (*see Appendix C*).

It is available as household bleach. To achieve stability, it is produced as a strongly alkaline preparation and needs careful handling. If needed, to allow for degradation over time, a stronger dilution may be initially prepared.

As a granular formulation, commercial chlorine preparations (usually sodium dichloroisocyanurate) are also available for use in spills kits (*see p.31*).

Alcohol

This is also an effective disinfectant. Its range of effectiveness is more limited and unpredictable than that of sodium hypochlorite. Alcohol can be used alone at 60–90% concentration. It is available in combination with chlorhexidine. Chlorhexidine increases the anti-microbial effect and supplied as 0.5% chlorhexidine in ethanol 70% (Delta West's Chlorhexidine in Alcohol 70%).

Useful for disinfecting surfaces and skin prior to an invasive procedure.

Skin disinfectants

Skin disinfectants are used to deactivate microorganisms or to prevent the growth of microorganisms to a level that may cause clinical infection:

- first aid activities rarely justify their use
- they have no role in standard wound care

- only single-use packages should be used
- the following preparations may be used but should be appropriate for the nature and site of the procedure:
 - chlorhexidine 0.05% aqueous solution
 - povidone-iodine 10% aqueous solution (such as Faulding's Betadine antiseptic solution)
 - alcohol 70%.
- skin disinfectant should be applied at least two and preferably five minutes, before commencing any aseptic procedure (*Department of Health and Ageing, 2004*).

Sterilisation

Sterilisation is a term describing the use of a physical or chemical procedure to remove or destroy all microbiological life, including bacterial spores with an acceptably low probability of survival.

Major sterilisation processes include:

- steam under pressure—moist heat
- dry heat
- ethylene oxide gas
- automated environmentally sealed low temperature peracetic acid, hydrogen peroxide plasma and other chemical sterilant systems or sterilants
- irradiation (*Department of Health and Ageing, 2004*).

QFAV does not have the capacity to sterilise equipment.

EFFICACY

No chemical sterilising or disinfecting agent works instantaneously. All require sufficient contact times. There is no specific soaking time that will guarantee all the organisms present are killed by a chemical agent.

Ultraviolet light units, microwave ovens, domestic ovens and pressure cookers are NOT capable of sterilising instruments and should not be used for this purpose.

All equipment and instruments that require high level chemical disinfection or sterilisation should be forwarded to a hospital or health facility that has the necessary resources and which complies with regulatory standards.

SECTION 5 EQUIPMENT REPROCESSING CATALOGUE

When feasible, single use items are recommended. (Original source South Australian Health Commission, 1992).

Airways—DISINFECTION

Refer to oropharyngeal (Guedel) Airways.

Arm boards and splints—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite and water [500 ppm] (see *Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Bedpans—DISINFECTION

SINGLE USE (Disposable) recommended. Clean, thermally disinfect, dry and store appropriately (16.2.5 *Infection Control Guidelines, Department of Health and Ageing, 2004*).

Books, Magazines, Toys (personal artefacts)—CLEANING

In general, any of these articles visibly soiled with infective material should be cleaned or destroyed and toys should not be shared between children. Avoid fluffy toys where possible.

Crutches—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (see *Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Draw Sheets—SINGLE USE

Dispose of when casualty no longer requires item.

Dressing Trays—SINGLE USE

Dispose of when casualty no longer requires item.

Oropharyngeal (Guedel) Airways—SINGLE USE

Dispose of when casualty no longer requires item.

Intravenous Therapy Stands—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (see *Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Masks (Resuscitation)—DISINFECTION (See *Ventilating*).

Masks (Oxygen administration)—SINGLE USE

Dispose of when casualty no longer requires item.

Pillows—CLEANING

If pillow has no protective vinyl/plastic cover, dispose of it in general refuse after single casualty contact. Wipe over vinyl/plastic cover with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (see *Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Resuscitation manikin face pieces and accessories—DISINFECTION

Manikin surfaces should be thoroughly cleaned and then disinfected after each trainer/trainee use in accordance with the manikin manufacturers' advice. Alternatively, clean by scrubbing with nail brush (check manufacturers' advice) and detergent with warm water, rinse in clean water and dry. After drying, immerse for ten minutes in sodium hypochlorite solution [500 ppm] (see *Appendix C*) or 0.5% chlorhexidine in ethanol 70% (Chlorhexidine in Alcohol 70%). Rinse in cold water and allow to dry (*Australian Resuscitation Council, 2001*).

Note: The pieces must be dry before immersion in disinfectant to ensure that the disinfectant solution is not diluted, or made inactive as this may result in inadequate disinfection over the contact period.

Spacers used with metered dose inhalers—DISINFECTION

Ideally spacers should be for single-patient use but if circumstances arise where communal usage occurs, clean by

washing in detergent and warm water and allow to drain until it is dry. When dry, the mouth piece should be wiped thoroughly with an alcohol wipe (impregnated with 70% isopropyl alcohol). Do not use a cloth to dry spacer as it may cause an electrostatic charge.

Sphygmomanometer, Blood Pressure Cuff and Stethoscope—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (see *Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Stretchers (including examination couches)—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (see *Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Suction Tubing—SINGLE USE

Dispose of when casualty no longer requires item.

Suction Equipment—DISINFECTION

Suction outlet/regulator unit

Disassemble unit, clean thoroughly with detergent and water, rinse with water and store dry.

Container (re-useable)

Empty contents of container down sluice, taking care to avoid splashing (Plastic apron, gloves, mask and protective eye wear should be appropriately worn when performing this task). Clean thoroughly with detergent and water, rinse with water and store dry.

Thermometers (casualty)—DISINFECTION

Digital or SINGLE USE thermometers

Digital—refer to manufacturer's recommendations and use plastic covers. Wipe with alcohol wipe (impregnated with 70% isopropyl alcohol) before use. Wash with detergent and water and store dry. Do not immerse in water, store in direct sunlight or attempt to disassemble thermometer.

Trolleys—CLEANING

Wipe over with detergent and water.

Trolleys—DISINFECTION

Wipe over with an alcohol wipe (impregnated with 70% isopropyl alcohol).

Urinals—CLEANING

(Refer to Bedpans—CLEANING).

Ventilating Sets (Laerdal silicone resuscitators)—DISINFECTION

Refer to manufacturer's recommendations.

Soiled components

The silicone mask and non-rebreathing patient valve should be considered soiled after use and cleaned and disinfected. Any other visibly soiled component should be similarly handled. All components on the patient side of the filter should be considered soiled. Ventilation circuits must always include a disposable filter as close to the patient as practicable.

Ensure all excess body fluids have been removed by rinsing with cold running water immediately after use, disassemble, rinse components again under running water and dry—If arrangements exist for disinfection by a hospital, pack accordingly, after drying, immerse for ten minutes in sodium hypochlorite solution [500 ppm] (see *Appendix C*) or 0.5% chlorhexidine in Alcohol 70% . Rinse in cold water, allow to dry.

Reassemble.

Unsoiled components

Usually consisting of ventilation bags, reservoir valve units and oxygen reservoirs. Disassemble, rinse components under running water, wash with detergent and water and dry. Reassemble.

Walking Frames—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (*see Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

Wash bowls (including soap dishes)—CLEANING

Wash in detergent and water and store dry.

Wheelchairs—CLEANING

Wipe over with detergent and water. If contaminated with blood or body fluids, after cleaning, wipe over with sodium hypochlorite solution [500 ppm] (*see Appendix C*) or an alcohol wipe (impregnated with 70% isopropyl alcohol) and allow to dry.

SECTION 6 ENVIRONMENTAL CLEANING

Environment includes medical centres, casualty rooms, caravans and mobile first aid units.

A clean environment is microbiologically safe and enhances the well being of casualties and members of QFAV. Deposits of dust, soil and microbes on environmental surfaces can transmit infection. Regular cleaning and maintenance is imperative to maintaining a safe environment in casualty care settings. Just because it looks clean does not mean it is clean.

PRINCIPLES

Standard Precautions should be implemented when cleaning surfaces and facilities. Operations Branch members should wear suitable personal protective equipment i.e. gloves, aprons, gowns, masks and other protective clothing appropriate for whatever task they are undertaking. Protective eyewear should be worn where splashing is likely to occur.

Cleaning is the physical removal of organic material or soil from surfaces. Cleaning is designed to remove micro-organisms. Physical action and complete surface coverage is important. Avoid soiling clean areas in the process of cleaning dirty ones. Cleaning schedules for each casualty care environment should be in writing and include both the method and frequency of the cleaning task. Cleaning schedules are governed by need. In general, the presence of dust indicates that a more frequent cleaning schedule is required (*South Australian Health Commission, 1992*), (*Department of Health and Ageing, 2004*).

The physical removal of microorganisms by scrubbing or 'elbow grease' is more effective than the effect of the cleaning agent used. Neutral detergent is the cleaning solution of choice for environmental surfaces. They don't improve the antibacterial status!! Just the aesthetics.

Recommended Detergent:

Detergents used for environmental cleaning should physically remove dirt/soils, suspend in water and rinse clean with little or no residue. It should be low irritant to minimise skin problems for health care professionals.

Neutral pH detergents are the best for environmental cleaning because they are less likely than acid or alkali detergents to damage metals such as stainless steel. They are also less likely to cause skin irritation with direct contact, although it is always recommended that gloves be worn by the member when undertaking environmental cleaning!

Chemical disinfectants should not be part of routine cleaning procedures.

CLEANING PATIENT AREAS

Horizontal surfaces

Surfaces should be cleaned on a regular basis using only cleaning procedures which minimise dispersal of microorganisms into the air i.e. damp cloths or mops. In medical centres, casualty rooms and caravans, vinyl floors/tiles should be cleaned daily with damp dusting or cleaning with a dust retaining mop. Brooms disperse dust and bacteria into the air and should not be used in casualty areas.

Routine surface cleaning should proceed as follows:

- clean and dry work surfaces before and after each duty, and when visibly soiled
- spills should be dealt with immediately
- use a neutral detergent and warm water for routine cleaning
- empty buckets after use, wash with detergent and warm water and store dry
- mops should be laundered (detachable mop heads recommended) or cleaned in detergent and warm water then stored dry (*Department of Health and Ageing, 2004*).
- Carpeted areas should be vacuumed before the commencement of the duty. Heavy traffic areas may need to be done more frequently. When carpets require thorough cleaning they should be shampooed. Carpet sweepers are not recommended in casualty care areas.

Vertical surfaces—walls, blinds and curtains

Vertical surfaces require cleaning when there is visible soiling or the accumulation of dust. Curtains should be changed regularly and as necessary.

Wet Areas

All fittings and floors in wet areas should be cleaned at commencement of the duty. Avoid the use of aerosols.

CLEANING EQUIPMENT

Cleaning items should be changed routinely. This includes but is not limited to cleaning solutions, buckets, mops, cleaning cloths and mop heads. They must be changed IMMEDIATELY following the cleaning of blood or other bodily fluids. Reusable items should be washed in detergent and warm water, rinsed and stored dry.

Mop heads (detachable), must be changed/discarded safely when visibly soiled. Cleaning and damp dusting cloths should be disposable and discarded safely following use. Non-detachable mop heads must be washed with detergent and hot water and stored dry. Equipment used to clean organic debris should be disposable.

SPILLS MANAGEMENT

Standard Precautions and the use of personal protective equipment are important pre-requisites in dealing with blood and body substance spills. Spills should be cleared up before the area is cleaned.

Note: Adding cleaning liquids to the spill increases the size of the spill and should be avoided and generation of aerosols from spilled material should be also avoided.

The management of spills should be sufficiently flexible to cope with the circumstances in which the spill occurs and depends on a number of factors including:

- the nature of the spill—sputum, vomit, faeces, urine or blood
- the size of the spill—spot, small or large spill
- the type of surface—carpet or impervious flooring
- the area involved—patient care area or public area
- whether or not there is a likelihood of bare skin contact with the soiled surface.

It is also not necessary to use sodium hypochlorite solution (Bleach) for managing spills (*see Appendix C*).

Detergent is an effective environmental cleaning agent. There is no evidence from an infection control perspective that bleach is of any greater benefit than detergent.

With all spills management protocols, it is essential that the area is left clean and dry (*Department of Health and Ageing, 2004*).

Priority

In casualty care areas (including medical centres, casualty rooms, caravans and mobile first aid units) blood and body substance contamination should be dealt with immediately.

Spots and small volume spills

Small spots (drops) or volumes of blood or body fluids should be removed immediately. Wipe the area immediately with paper towelling and then clean with water and detergent. A hospital grade disinfectant can be used on the area after pre-cleaning.

Large blood or body fluid spills

The area of the spill should be contained then decontaminated. A granular preparation, which also prevents spread of the spilled/spilt material and ensures a satisfactory concentration of chlorine, may be preferred. It should be left applied for ten minutes. A scraper and pan should be used to remove the adsorbed material. (*see p.?*). The area of the spill should then be cleaned with water and detergent using a mop and bucket if available. The cleaning equipment should be washed and stored dry after use. If the area is carpeted, it should be shampooed. Avoid generation of aerosols.

The area of the spill should then be cleaned with a mop and bucket of water and detergent. The bucket and mop should be thoroughly cleaned after use and stored dry.

AVAILABILITY OF CLEANING EQUIPMENT

Standard cleaning equipment

Standard cleaning equipment, including a mop and cleaning bucket plus cleaning agents, should be readily available for spills management and should be stored in a readily accessible area known to all members.

Cleaning equipment should be changed routinely and as soon as possible following the cleaning of blood or body substance.

Disposable Spills kit

To facilitate management of spills in areas where cleaning materials may not be readily available, a disposable 'spills kit' should be used consisting of a large (10 litre) reusable plastic container or bucket with fitted lid, containing:

- appropriate leak-proof bags and containers for disposal of waste material
- a designated, sturdy scraper and pan for spills

- five granular disinfectant sachets.

NOT TO BE USED ON ALUMINIUM SURFACES

Each sachet should contain enough granules to cover a ten centimetre diameter spill.

- disposable rubber gloves suitable for cleaning (vinyl gloves are not recommended for handling blood)
- eye protection
- a plastic apron
- a respiratory protection device—for protection against inhalation of powder from the disinfectant granules, or aerosols from high risk spills which may be generated during the cleaning process.

With all spills management, it is imperative that the affected area is left clean and dry.

Disposable items in the spills kit should be replaced after each use of the kit (*Department of Health and Ageing, 2004*).

Where a QFAV member is unable to effectively clean the area a Professional Cleaning Service should be engaged.

SECTION 7 LINEN HANDLING

Although soiled linen has been identified as a source of pathogenic microorganisms, the risk of disease transmission is negligible. Hygienic and common-sense storage and handling of clean and soiled linen is paramount:

- Separate clean from soiled linen and transport, sort and store separately.
- Soiled linen should be handled as little as possible and with minimum of agitation to prevent microbial contamination of the air and persons handling the linen.
- Avoid vigorous shaking of linen during patient care procedures such as bed making.
- Gloves should be worn when handling soiled linen.
- Place linen heavily soiled with body substances or other fluids within suitable impermeable bags and close the bags securely.
- Do not sort or rinse linen in casualty care areas.
- Place linen in appropriate bags at the point of generation.
- Linen bags should only be filled to three-quarter full to ensure proper closure, reduce the risk of rupture of the bags in transit and reduce the risk of injury to waste handlers.

SAFETY ASPECTS

Sharps

Care should be taken to ensure that sharps and other objects are not inadvertently discarded into laundry bags.

Body fluid contaminants

If the linen is soiled with sufficient fluid liquid contaminants (such as urine, faeces or blood) to cause leakage through the standard linen bag, the linen bag itself is enclosed in a large, stout, clear plastic bag.

This outer bag should also be securely closed. No labelling (categorising) of the linen is required. Dissolvable inner bags are not required.

Washing of linen

A hot water and detergent solution is adequate for cleaning most laundry items. Soiled linen, preferably, should be collected, transported and processed by a commercial linen service.

If hot water is used, linen should be washed with detergent in hot water (at least 70°C) for 25 minutes. If low temperature (< 70°C) laundry cycles are used, chemicals suitable for low-temperature washing, at the proper concentration, should be used.

Reference: AS/NZS 4146, Department of Health and Ageing, 2004.

SECTION 8 WASTE MANAGEMENT

The management of clinical and related waste must comply with relevant state/territory regulations, Australian Standard AS/NZS 3816 (1998) and NHMRC National Guidelines for Waste Management in the Health Care Industry (*Department of Health and Ageing, 2004*).

Standard Precautions apply when handling waste. All waste should be handled with care to avoid injuries from concealed sharps (which may not have been placed in sharps containers). Gloves and appropriate protective clothing should be worn when handling infectious waste bags and containers (*National Health and Medical Research Council, 1996*).

Waste within the Operations Branch can be categorised into Clinical (yellow container) and General (black or white container) types of waste.

CLINICAL WASTE

Clinical waste is defined as:

- used 'sharps'
- any human tissue or fluids, including material or solutions containing free-flowing blood
- dressings contaminated by blood or body fluids.

Handling of clinical waste

All clinical waste must be disposed of in yellow bags or directly disposed of into 240L mobile bins identified for this purpose. All designated casualty care areas (including medical centres, casualty rooms and caravans) should have available yellow bags for the disposal of clinical waste. These bags should be as close as possible to the site where waste is produced.

Disposal

When sharps containers are 70% full they should be sealed and transported to a hospital or medical centre for final disposal.

On completion of first aid event duty yellow bags, or mobile bins, containing clinical waste should be sealed and disposed of in a similar manner (*National Health and Medical Research Council, 1996*).

GENERAL WASTE

The majority of waste generated by the delivery of first aid services to members of the public and is no more a public health risk than normal household waste (*Department of Health and Ageing, 2004*). The following items are classified as general waste:

- paper, metal, unbroken glass and plastic materials
- kitchen waste
- dressings/bandages
- materials stained with or having had contact with blood or body substances
- containers emptied of blood or other body substances (rinsing is unnecessary)
- disposable nappies, sanitary napkins and incontinence sheets.

Handling

General waste may be placed in a black, buff, green or white container (this may be a strong plastic bag).

Disposal

General waste may be disposed of by using domestic facilities.

It may be impractical, because of environmental restrictions, to dispose of contaminated dressings, swabs and bandages at the time of use. It is recommended that contaminated items be initially placed into a self sealing plastic bag and then placed in a container for general waste disposal at the earliest opportunity (*South Australian Health Commission, 1992*).

SPECIFIC ITEMS

Intravenous equipment

Intravenous lines should have 'sharp' elements removed and the remainder discarded into general waste. IV fluid bags should be drained of fluids.

Vessels containing blood/body fluids

These should be emptied into a sluice (or flushable toilet) using safe work practices to avoid splashing onto mucosa or broken skin. This implies provision of gloves, plastic aprons, eyewear, masks and a safe working area. These containers may then be discarded into a 'general waste' facility.

SECTION 9 HEALTH

OCCUPATIONAL HEALTH AND SAFETY

QFAV has a responsibility to provide a safe working environment without risks to the health of its members. In the provision of first aid services to the public this responsibility includes adequate training, personal protective equipment, supplies and other resources to minimise occupational exposure to infection hazards and minimise occupational risks from cleaning processes and chemicals.

Members also have a responsibility to comply with safety standards and procedures of the Operations Branch and should ensure that their work practices do not jeopardise the health and safety of themselves or anyone else (*National Health and Medical Research Council, 1996*). Some states/territories have statutory infection control requirements for health care workers. Members have an obligation to follow infection control policies and procedures. These include:

- Reporting any known potential exposures to blood and/or body substances.
- Members who undertake exposure prone procedures have a responsibility to know their infectious status with regard to bloodborne viruses.
- All members should be aware of their requirements for immunisation against infectious diseases and maintain personal immunisation records. Members must make an annual declaration that they are maintaining the currency and adequacy of their vaccinations. Members should sign and submit the Declaration of Continued Fitness for Public Duties, which is located at the back of the Skills Maintenance Program.

PROTECTIVE IMMUNISATION

Immunisation against the common infectious diseases (diphtheria, tetanus, whooping cough, poliomyelitis, measles, mumps, rubella, hepatitis and tuberculosis) is encouraged.

Members should ensure that they are vaccinated against tetanus, diphtheria and Hepatitis B.

Reference: Faoagali & Pearn (1996).

Tetanus and diphtheria

Primary immunisation in combination with diphtheria, pertussis vaccine and tetanus toxoid (Triple Antigen or CDT Vaccine) is usually given during childhood.

ADT vaccine is given to adults who have not been previously immunised against tetanus and diphtheria. The recommended primary or basic course consists of three injections of the ADT vaccine at intervals of 6 to 12 weeks between the first and second doses, and 6 to 12 months between the second and third doses.

Active immunisation against tetanus and diphtheria can be maintained with a booster dose of ADT at 10 year intervals.

Hepatitis B

All members of the Operations Branch are encouraged to be vaccinated against Hepatitis B. Education with respect to the potential benefits and risks of immunisation or non-immunisation must be made available to members.

The immunisation regime consists of three doses of the vaccine. Following the first injection the second dose is given 1 month later with the third dose given 6 months after the first dose.

A booster may be required every five years—depending upon immunity status which should be determined by a blood test.

RESTRICTIONS ON ACTIVITIES

Where there is a risk of a member transmitting infection to a casualty or other member i.e. if the member is infected with a bloodborne virus, other transmissible infection (respiratory/enteric or pre-disposing skin condition), the member is restricted from fulfilling Operations Branch activities until they have been assessed by a doctor. Members should be counselled about their duty options and either, rostered appropriately or provided information to enable them to continue to provide safe care (*Department of Health, National Guidelines 2004*). Examples include chicken pox, shingles, mumps, acute conjunctivitis, hepatitis, active tuberculosis, streptococcal pharyngitis and acute diarrhoea.

SECTION 10 ETHICS RIGHTS AND RESPONSIBILITIES

GENERAL RESPONSIBILITY

Maintenance of a safe environment for casualties and members of the Operations Branch is a complex matter that requires cooperation and coordination at all levels of the Organisation. In this regard, States/Territories Regions and Divisions have a general responsibility to prevent transmission of infections in the provision of first aid services.

Specific aspects of this general responsibility are to:

- implement appropriate infection control strategies
- ensure that infection control is an integral component of a comprehensive quality management program
- ensure that legislative and regulatory obligations relating to infection control are fulfilled and maintained
- ensure that appropriate vaccination is available and encouraged
- provide education in hygiene including specific advice about hand washing and the special requirements applicable to the area where QFAV members are on duty
- maintain adequate physical facilities and equipment
- inform and educate members about potential hazards in the immediate work environment
- ensure access to appropriately experienced counselling services for those members who may become anxious about their health as a result of exposure to a potential hazard, whether actual or perceived.

INDIVIDUAL RESPONSIBILITY

Members who are aware that they are infected with a bloodborne virus have a personal responsibility to advise the State/Territory Medical/Professional Officer. Operations Branch members who are infected with a bloodborne virus, as well as members who have any other transmissible infection or pre-disposing skin conditions, should seek appropriate medical care from a doctor qualified to manage infectious diseases.

Where there is a risk of a member transmitting infection to a casualty, the member should be counselled about their options regarding fulfilling Operations Branch activities.

It is the member's responsibility to minimise the potential for cross infection between patients and members. Refer section 2 these guidelines.

CASUALTIES' RESPONSIBILITY

Although there is no legal requirement for persons who know they are infectious to declare their infectious status to health care facilities, there is a responsibility for casualties to declare any infectious status if there is a known risk to others associated with their treatment. In addition, as is the case with any other members of the community, casualties who know, or have reason to believe, that they are infectious may be subject to both civil and criminal liability if they knowingly transmit infections.

In those situations where there is a need to know the infectious status of a casualty (such as sharps/blood accident) the casualty has a responsibility to provide information or consent for testing which enables the hospital or responsible person to ensure the safe management of the injured member.

When obtaining consent, the casualty should be offered pre-test counselling to advise them of the types of tests that may be needed and to outline the consequences to the casualty of doing such tests. Post-test counselling may also be required, particularly if the test is positive.

PRIVACY AND CONFIDENTIALITY

Privacy and confidentiality are important considerations in the relationship between the casualty and member and must be observed to the extent that this does not detract from providing a safe environment, for both casualty and member.

The Privacy Act 1988, as amended 2000, regulates the way that the organisation can collect, keep secure, use and disclose personal information. Confidential information should be strictly limited to those members providing care to a casualty and all documentation should be transported and stored accordingly.

MANDATORY REPORTING

A Medical Officer has a legal responsibility to report specific infectious diseases to the respective local health authority in each state/territory.

How to wash and dry hands with soap and water



During the lather, pay particular attention to the backs of hands and fingers, fingernails, fingertips and the webbing between fingers.

Hand hygiene is crucial in reducing transmission of infections. It includes both hand washing with plain or antimicrobial soap and water, and use of alcohol-based products (gels, rinses, foams) containing an emollient that do not require the use of water.

If hands are visibly soiled or contaminated with respiratory secretions, wash hands with soap (either non-antimicrobial or antimicrobial) and water.

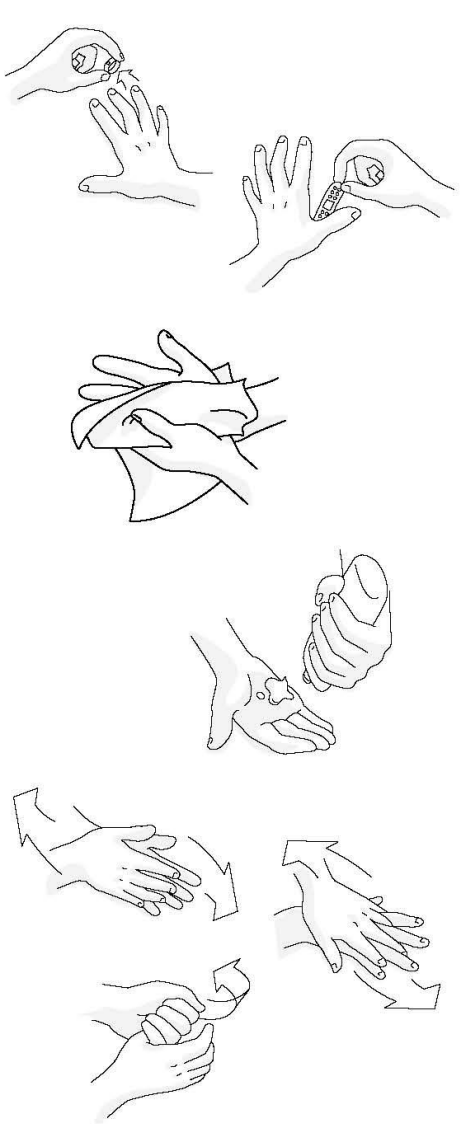
In the absence of visible soiling of hands, approved alcohol-based products for hand disinfection may be used. Ensure you have facilities for hand washing (i.e. sinks with warm and cold running water, plain or antimicrobial soap, and disposable paper towels) and hand disinfection (i.e. alcohol-based products) readily accessible.



Australian Government

Department of Health and Ageing

How to clean hands using an alcohol-based liquid or hand rub



- Remove jewellery and cover abrasions
- Use water or a wet wipe to remove visible soiling
- Dispense product into dry hands
- Rub all surfaces of hands for one minute

When rubbing, pay particular attention to the backs of hands and fingers, fingernails, fingertips and the webbing between fingers.

APPENDIX C

Preparation of sodium hypochlorite (chlorine) solutions from household bleach

Concentration refers to the available chlorine. This is expressed as a percent or part per million (ppm). One percent corresponds to 10,000 ppm available chlorine.

	Desired concentration of chlorine 500 ppm
Dilution of bleach (5.25% NaOCl) prepared fresh for use within 24 hours (Black and Gold Domestic Cleaner, Domestos).	1 part bleach plus 99 parts water
Dilution of bleach (4% NaOCl) prepared fresh for use within 24 hours (White King).	1 part bleach plus 79 parts water
Dilution of bleach (1% NaOCl) prepared fresh for use within 24 hours (an example is Milton).	1 part bleach plus 19 parts water
Dilution of bleach (5.25% NaOCl) prepared fresh and used for 1-30 days.	1 part bleach plus 49 parts water