

SOUTHERN . IML
PATHOLOGY

“Your local Laboratory with national resources, serving our community”

**Comply with Infection
Prevention and Control
Policies and Procedures
HLTINF001**

**Learner Guide
D1033**

A Control Sheet

Controlled Document

Copy Number

Manual Holder

Department

Issue	Revisio	Section	Page	Revision	Description
-------	---------	---------	------	----------	-------------

A	0				New Manual
---	---	--	--	--	------------

Identification source: G\Document Control\Manuals\D1031-D1040/D1033

Approved By 

Date _____

NOTE: THIS IS A NON CONTROLLED COPY OF THIS MANUAL, GIVEN TO STUDENTS.
THE STUDENT COPY IS CURRENT AT THE TIME OF ISSUE.
STUDENT COPIES WILL NOT BE UPDATED.

This publication may not be reproduced, stored in a retrieval system or transmitted in whole or in part, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of Southern.IML Pathology.

B Distribution List

Copy Number Document Holder

Collecting Trainer Co-ordinator

Students

Contents

Contents

Information for Learners	1
Assessment.....	1
GUIDE TO ASSESSMENT	2
1. Follow standard and additional precautions for infection prevention and control	1
1.1 Follow hand hygiene practices in accordance with organisations policies and procedures	1
1.2 Implement hand care procedures and cover cuts and abrasions	19
1.3 Follow organisation procedures for choice and use of personal protective equipment.....	21
1.4 Follow procedures for respiratory hygiene and cough etiquette.....	36
1.5 Follow procedures for environmental cleaning	36
1.5 Follow procedures for environmental cleaning	37
1.6 Follow procedures for handling, transporting and processing of linen in a manner that controls the spread of infection.....	40
1.7 Follow procedures for disposal of contaminated waste	41
1.8 Follow procedures for handling and cleaning client equipment that prevents skin mucous membranes exposure, contamination of clothing and transfer of pathogens.....	48
1.9 Identify and respond to situations where additional precautions may be required to prevent the transmission of infection.....	53
2. Identify infection hazards and assess risks	1
2.1 Identify infection hazards associated with own role and work environment.....	1
2.2 Identify own areas of responsibility in relation to infection prevention and control.....	4
2.3 Assess risks by determining the likelihood and severity of harm from identified risks	8
2.4 Document and report activities and tasks that put self, clients, visitors and / or other workers at risk.....	14
2.5 Identify appropriate control measures to minimise risk in accordance with organisations procedures	16
3. Follow procedures for managing risks associated with specific hazards.....	1
3.1 Follow protocols for care after exposure to blood or other body fluids as required.....	1
3.2 Place appropriate signs when and where appropriate	5
3.3 Remove spills in accordance with the policies and procedures of the organisation	9
3.4 Minimise contamination of materials, equipment and instruments by aerosols and splatter	13
3.5 Identify, separate and maintain clean and contaminated zones	13
3.6 Confine records, materials and medicaments to a well-designated clean zone	14
3.7. Confine contaminated instruments and equipment to a well-designated contaminated zone.....	14
ASSESSMENT REQUIREMENTS for HLTINF001 Comply with infection prevention and control policies and procedures	1
Assessment Task	4
2. Identify infection hazards and assess risks	15
2.1 Identify infection hazards associated with own role and work environment	15
RESOURCES FOR TRAINING AND ASSESSMENTGUIDE TO ASSESSMENT.....	22

D Manual Status

Distribution

The Comply with Infection Control Policies and Procedures in Health Work Manual will be approved by the Training Coordinator prior to release.

Each copy of the Manual will indicate whether it is a controlled or uncontrolled copy. All controlled copies shall be numbered.

The training Coordinator will be responsible for the issuing of controlled copies of the Manual.

Change Control

The Training Coordinator will be responsible for distributing all revisions of the Manual as and when changes are approved.

Uncontrolled copies of the Manual will not be maintained or updated by the Company, but shall be current at the time of issue.

All revisions and issues of the Manual will be approved by the Training Co-ordinator prior to release.

Revisions shall be made by replacement of the appropriate page(s). Each revised page will be identified by a revision number and the date of the revision. All revisions will be issued under cover of a Control Sheet (Section A), which shall also contain a description of the revision.

Revisions will be numbered consecutively (Rev:0, 1, 2, etc.), until such time as a new issue incorporates all previous changes.

After 10 revisions to one issue, the Manual will be re-issued. All new issues shall be released under cover of a Control Sheet which shall contain the reason for the issue.

Issues will be identified by an alpha notation (Issue: A,B,C, etc.), and each new issue will cancel and replace all previous issues and revisions.

It will be the responsibility of all holders of controlled copies of the manual to update, as required, the Manual assigned to them and return obsolete issues or pages to the holder of Copy No 1.

It will be the responsibility of the holder of Copy No 1 to update, as required the Master Manual and cross with a line any obsolete pages, which are to be kept in the master copy behind the current revision.

The revision status of individual manuals will be subject to audit as part of the Company documentation audit program.

Information for Learners

This learning guide will help you develop the skills and knowledge to work effectively in the health industry and to apply these skills to your workplace and daily tasks.

Competence means that you have the required knowledge and skills to do your job. These are described in the 'competency standards'. Your training will be based on these to ensure that it is relevant to the needs of your job and yourself.

The Participant Assessment Record and the pre-assessment checklist in the guide to assessment state the standards of competence.

The purpose of the training is to develop your workplace competence, so you will be expected to practice your skills whenever you can. This can be done through work experience, practical sessions in a training organisation or through your full time or part time job. It is important that you have both theoretical and practical skills and knowledge.

On and off the job training

Your training may consist of on the job coaching with your workplace supervisor and / or trainer on a one to one or small group basis. It may also involve formal training sessions conducted off the job in addition to working through the learning guide.

MAKE SURE YOU ASK LOTS OF QUESTIONS, COMPLETE THE ACTIVITIES, AND DO ADDITIONAL RESEARCH TO ENSURE YOU KNOW EVERYTHING LISTED IN THE PRE ASSESSMENT CHECKLIST.

If you do not understand any part of the unit please contact your trainer.

Assessment

Once you have completed your training and practiced your skills, you will be ready to have your skills and knowledge assessed. This is not to see if you can pass a test but to determine if you can perform work tasks competently.

Refer to the Guide to Assessment for detailed information on this unit's Assessment plan.

Complete the Pre Assessment Checklist in the Guide to assessment. This sets out the skills and knowledge you will need to demonstrate during your assessment to be deemed competent in this unit.

Read through the information in this guide carefully. Make sure that you understand the material. If you come to anything you do not understand:

Discuss your training with your trainer and make sure that you understand what is required and how the training will be organised.

Ask for feedback on your progress as you work through the activities

Ask for help when you need it. Talk to more experienced colleagues or your trainer and ask for guidance.

Listen, take notes, ask questions and practice your new skills as often as possible.

This will improve your speed memory and your confidence.

During your training you should seek other sources of information as well e.g. reference books, the internet, workplace documents and manuals. Some of these are suggested in the guide.

Try to relate the information presented in this guide to your own experiences and what you already know.

Work through the activities. They are for a reason and even if you have the knowledge or skills relating to a particular activity, doing them will help to reinforce what you already know. If you do not understand an activity, think carefully about the way the question or instructions are phrased.

GUIDE TO ASSESSMENT

Assessment Plan for the Participant

Unit of Competency:

HLTINF001-Comply with Infection Prevention and Control Policies and Procedures

Descriptor: This unit is concerned with the workers ability to carry out their work in a safe manner within the health care environment.

Work will usually be performed within a prescribed range of functions involving known routines and procedures

Employability Skills: The required outcomes described in this unit of competency contain applicable facets of Employability Skills.

The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements

Plan: Assessment

Training, mentoring and support in relation to each unit of competency will be provided to participant a regular basis in person, on the phone or via email.

More intensive training will be provided to participants if required, as identified by the trainer/ assessor (this may include off the job training)

Participants on the job performance/s are discussed with the coach / supervisor (through the use of the participant Assessment record).

Verbal and written instructions will be given to all participants prior to assessment. Ask your trainer / assessor for additional support if there are particular cultural; and language needs.

Alternative assessment methods are available

The assessment report is discussed with participant providing feedback on the outcomes of assessment and guidance on future options. Participant receives a copy of the final assessment report.



Before you submit your homework make sure you photocopy it and keep a copy in case the original goes missing.

Learning Outcomes

This unit describes the skills and knowledge required to follow organisational infection prevention and control procedures, including implementing standard and transmission-based precautions and responding to infection risks.

This unit applies to individuals working in health and direct client care contexts. The skills in this unit must be applied in accordance with Commonwealth and State/Territory legislation, Australian/New Zealand standards and industry codes of practice

Comply with infection control policies and procedures and procedures in health work.

ELEMENT

Elements define the essential outcomes of a unit of competency.

Follow Standard and additional precautions for infection control

PERFORMANCE CRITERIA

The Performance Criteria specify the level of performance required to demonstrate achievement of the Element. Terms in italics are elaborated in the Range Statement.

- 1.1 Follow hand hygiene practices in accordance with organisations policies and procedures
- 1.2 Implement hand care procedures and cover cuts and abrasions
- 1.3 Follow organisation procedures for choice and use of personal protection equipment
- 1.4 Follow procedures for respiratory hygiene and cough etiquette
- 1.5 Follow procedures for environmental cleaning
- 1.6 Follow procedures for handling, transporting and processing of linen in a manner that controls the spread of infection
- 1.7 Follow procedures for disposal of contaminated waste
- 1.8 Follow procedures for handling and cleaning client equipment that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of pathogens
- 1.9 Identify and respond to situations where additional precautions may be required to prevent transmission of infection

ELEMENT	PERFORMANCE CRITERIA
Elements define the essential outcomes of a unit of competency.	The Performance Criteria specify the level of performance required to demonstrate achievement of the Element. Terms in italics are elaborated in the Range Statement.
2. Identify infection hazards and assess risks	<p>2.1 Identify infection hazards associated with own role and work environment</p> <p>2.2 Identify own areas of responsibility in relation to infection prevention and control</p> <p>2.3 Assess risk by determining the likelihood and severity of harm from identified hazards.</p> <p>2.4 Document and report activities and tasks that put self, clients, visitors and/or other workers at risk</p> <p>2.5 Identify appropriate control measures to minimise risk in accordance with organisations procedures</p>
3. Follow procedures for managing risks associated with specific hazards	<p>3.1 Follow protocols for care after exposure to blood or other body fluids as required</p> <p>3.2 Place appropriate signs when and where appropriate</p> <p>3.3 Remove spills in accordance with the policies and procedures of the organisation</p> <p>3.4 Minimise contamination of materials, equipment and instruments by aerosols and splatter</p> <p>3.5 Identify, separate and maintain clean and contaminated zones</p> <p>3.6 Confine records, materials and medicaments to a well-designated clean zone</p> <p>3.7 Confine contaminated instruments and equipment to a well-designated contaminated zone</p>

1. Follow standard and additional precautions for infection prevention and control

1.1 Follow hand hygiene practices in accordance with organisations policies and procedures

Standard precautions

Standard precautions ensure a high level of protection against transmission of infection including blood-borne viruses in the health care setting and are recommended for the care and treatment of all patients and in the handling of:

- Blood including dried blood
- All other body substances, secretions and excretions (excluding sweat) regardless of whether they contain visible blood
- Non-intact skin
- Mucous membranes.

The universal application of standard precautions is the minimum level of infection control required in the treatment and care of all patients to prevent transmission of blood-borne viruses. These include personal hygiene practices, particularly hand washing; use of personal protective equipment such as gloves, gowns and protective eyewear; aseptic technique; safe disposal systems for sharps and contaminated matter; adequate sterilisation of reusable equipment and environmental controls.

Standard precautions should be implemented universally, regardless of information or assumptions about a patient's blood-borne virus status, and therefore assist to reduce potential stigma and discrimination in the health care setting.

Hand hygiene



These images illustrate the critical importance of hand hygiene in caring for patients, including those not known to carry antibiotic-resistant organisms. An imprint of a healthcare worker's ungloved hand was obtained after routine abdominal examination of a patient with no history of MRSA infection but found on routine surveillance to have MRSA colonisation. The resultant culture shows

MRSA colonies (image on left). Another hand imprint obtained after the worker's hand had been cleaned with alcohol-based hand rub was negative for MRSA (image on right).

Source: Donskey CJ & Eckstein BC (2009).

Hand washing

Hand-washing is generally considered the most important hygiene measure in preventing the spread of infection. Clinicians should wash their hands before and after significant contact with any patient and after activities that may cause contamination.

Everyday hand-washing should occur before:

- Every patient contact
- Performing any patient procedure
- Handling food
- Handling medication
- Taking a break
- Taking off gloves

Wash and dry hands after touching blood, body fluids, secretions, excretions and contaminated items such as equipment or instruments, regardless of whether gloves are worn or not.

Wash and dry hands immediately after gloves are removed, after significant patient contact such as contact with or physical examination, taking urine samples from drainage bags, undertaking venepuncture or delivery of an injection or receiving samples from patients.

Wash and dry hands following any activities that may transfer microorganisms to other patients or environments:

- after each clinical contact with a patient
- after handling food
- After using the toilet
- after using gloves
- After contact with used equipment
- Immediately following contact with body substances
- Taking a break

The major route of transmission of micro-organisms, including multi-resistant organisms (MRO) such as methicillin resistant *Staphylococcus aureus* (MRSA), in healthcare facilities has been determined as the unwashed hands of healthcare workers (HCWs). On average, infections affect 1 in 10 of hospital admissions.

Hand hygiene is the cornerstone of all infection prevention and control programs.

Hand hygiene is the most important measure in preventing or reducing healthcare associated infections (HAI). HCWs must perform hand hygiene before touching a patient, before a procedure, after a procedure or body fluid exposure, after touching a patient or after touching a patient's surroundings. Other opportunities for hand hygiene include but are not limited to food preparation, linen handling and staff involved in maintenance of facilities.

Is it important to wash your hands?

Simply put, yes. Hand washing is the single most effective way to prevent the spread of infections. You can spread certain "germs" (a general term for microbes like viruses and bacteria) casually by touching another person. You can also catch germs when you touch contaminated objects or surfaces and then you touch your face (mouth, eyes, and nose).

"Good" hand washing techniques include using an adequate amount of soap, rubbing the hands together to create friction, and rinsing under running water. The use of gloves is not a substitute for hand washing.

Please note: In pathology, universal precautions should be followed when workers are exposed to blood and certain other body fluids.

Ensuring that employees wash their hands properly after using the washroom is very important in reducing disease transmission of stomach "flus" (which really is not a "flu" or influenza) and other gastrointestinal infections.

Other aspects of hand hygiene

As intact skin is a natural defense against infection, cuts and abrasions reduce the effectiveness of hand hygiene practices. Breaks or lesions of the skin are possible sources of entry for infectious agents (Larson 1996) and may also be a source of them. Similarly, the presence of fingernail disease may reduce the efficacy of hand hygiene and result in the transmission of pathogens (WHO 2009). To reduce the risk of cross-transmission of infectious agents, cuts and abrasions should be covered with waterproof dressings.

The type and length of fingernails can have an impact on the effectiveness of hand hygiene. Artificial or false nails have been associated with higher levels of infectious agents, especially Gram-negative bacilli and yeasts, than natural fingernails should therefore be kept short (e.g. the length of the finger pad) and clean and artificial fingernails should not be worn. Studies have also demonstrated that chipped nail polish may support the growth of organisms on

the fingernails. It is good practice to not wear nail polish, but if it must be used it should not be chipped and should be removed every 4 days.

Although there is less evidence concerning the impact of jewellery on the effectiveness of hand hygiene, rings can interfere with the technique used to perform hand hygiene resulting in higher total bacterial counts. Hand contamination with infectious agents is increased with ring wearing, although no studies have related this practice to healthcare worker-to-patient transmission. The consensus recommendation is to strongly discourage the wearing of watches, rings or other jewellery during health care; however if jewellery must be worn in clinical areas it should be limited to a plain band (e.g. wedding ring) and this should be moved about on the finger during hand hygiene practices. In high-risk settings such as operating suites/rooms, any jewellery, even a plain band, should not be worn.

Each healthcare facility should develop policies on the wearing of jewellery, artificial fingernails or nail polish by healthcare workers.

Hand Hygiene with Artificial Nails & Wrist Jewellery

Fingernails and Artificial Nails

It has been shown that nails, including chipped nail polish, can harbour potentially harmful bacteria. Keeping nails clean and short is a key factor in maintaining good hand hygiene because the majority of organisms are found underneath and around the fingernails.

Caring for nails helps prevent the harbouring of micro-organisms, which could then be transmitted to patients.

Nails must be short enough to allow for access of skin cleaners to assist in cleaning underneath the nail thoroughly and to prevent gloves tearing.

Caring for fingernails:

- Nails must be kept clean and short.
- Fingernail tips should not be longer than 0.5 cm.
- Neutral nail polish only, no nail art; chipped polish may support the growth of large numbers of organisms.
- Artificial nails and extensions are not encouraged as it has been proven that they are more likely to harbour gram negative pathogens on the fingertips than those who have natural nails.
- Hand hygiene must be followed in order to ensure the nail area is cleaned thoroughly.

Studies have demonstrated that the skin under rings and jewellery is more heavily colonised with micro-organisms than comparable areas on the hands. These micro-organisms could potentially be transferred by contact with the patient and cause infection.

Jewellery must be kept to a minimum and never interfere with the ability of the staff member to perform correct hand hygiene. Multiple rings or large rings with multiple settings or detailed scroll work must not be worn.

It is important to remember:

- Hand and wrist jewellery should be removed, before the start of a shift.
- It is acceptable for a watch and one plain wedding style band to be worn.
- Staff must ensure that their hand hygiene reaches any micro-organisms that may be underneath jewellery.

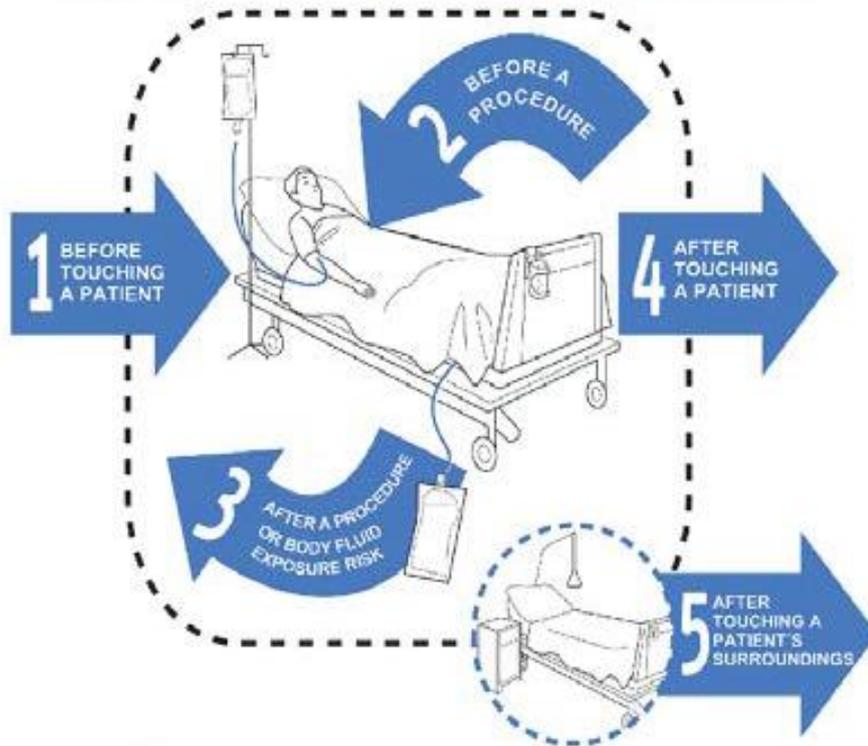
This document is based on recommendations from:
World Health Organisation (WHO) Guidelines on Hand Hygiene in Health Care and
Hand Hygiene Policy NSW Health.

The 5 Moments for Hand Hygiene

The 5 Moments for Hand Hygiene are described in the following figure. For more detailed information on implementation and auditing hand hygiene compliance refer to the Hand Hygiene Australia (HHA) 5 Moments for Hand Hygiene Manual available from:

www.hha.org.au/ForHealthcareWorkers/manual.aspx

5 Moments for HAND HYGIENE



1 BEFORE TOUCHING A PATIENT	When: Clean your hands before touching a patient and their immediate surroundings. Why: To protect the patient against acquiring harmful germs from the hands of the HCW.
2 BEFORE A PROCEDURE	When: Clean your hands immediately before a procedure. Why: To protect the patient from harmful germs (including their own) from entering their body during a procedure.
3 AFTER A PROCEDURE OR BODY FLUID EXPOSURE RISK	When: Clean your hands immediately after a procedure or body fluid exposure risk. Why: To protect the HCW and the healthcare surroundings from harmful patient germs.
4 AFTER TOUCHING A PATIENT	When: Clean your hands after touching a patient and their immediate surroundings. Why: To protect the HCW and the healthcare surroundings from harmful patient germs.
5 AFTER TOUCHING A PATIENT'S SURROUNDINGS	When: Clean your hands after touching any objects in a patient's surroundings when the patient has not been touched. Why: To protect the HCW and the healthcare surroundings from harmful patient germs.



Hand washing

Everyone has germs. Our bodies are covered with germs that help us stay healthy. In addition to the germs that are usually present on our skin, we also pick up germs from contact with other people or objects in our surroundings. These germs are easy to pick up and transfer. In this way, they can cause you, or others, to get sick. Although people usually think that germs are spread through the air, the fact is that germs are most easily spread through hand contact.

One of the best ways to stop the spread of germs is to wash OR decontaminate your hands. Hand hygiene is a new term to describe washing or decontaminating hands.

Washing hands helps to physically remove germs by friction, and to rinse them down the drain.

Decontaminating hands reduces the amount of germs present on hands through the use of special alcohol based preparations, in the form of solutions, gels or foams.

Alcohol based preparations have two distinct advantages over soap and water:

- 1 - They kill many more germs
- 2 - They are less drying to your skin

While alcohol based preparations reduce the germs on your hands, they cannot remove visible soil or contamination. It is always important to WASH hands with soap and water any time they are visibly dirty.

How do I properly wash my hands?

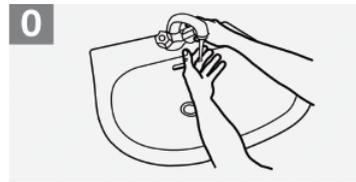
Routine/Social Hand Hygiene - Soap and Water:

- Ensure jewellery has been removed
- Wet hands thoroughly and lather vigorously using a neutral pH liquid soap for 15-30 seconds
- Rub hands palm to palm
- Right palm over left dorsum with interlaced fingers and vice versa
- Palm to palm with fingers interlaced
- Backs of fingers to opposing palms with fingers interlocked
- Rotational rubbing of left thumb clasped in right palm and vice versa
- Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
- Rinse under running water
- Do not touch taps with clean hands – if elbow or foot controls are not available, use paper towel to turn off taps
- Pat hands dry using paper towel

Duration of the hand wash (steps 2-7): 15-20 seconds



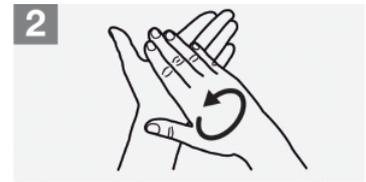
Duration of the entire procedure: 40-60 seconds



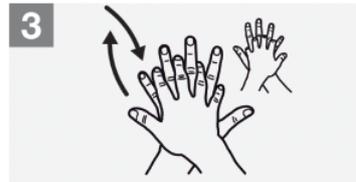
0 Wet hands with water;



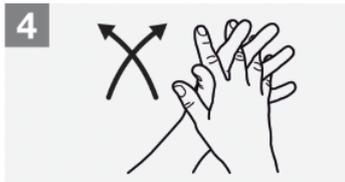
1 Apply enough soap to cover all hand surfaces;



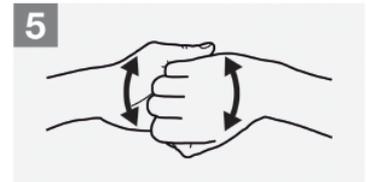
2 Rub hands palm to palm;



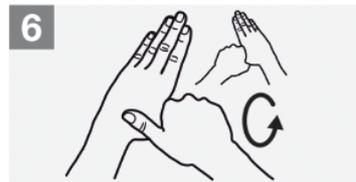
3 Right palm over left dorsum with interlaced fingers and vice versa;



4 Palm to palm with fingers interlaced;



5 Backs of fingers to opposing palms with fingers interlocked;



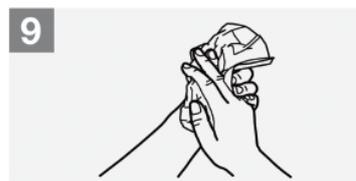
6 Rotational rubbing of left thumb clasped in right palm and vice versa;



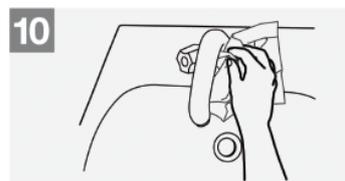
7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



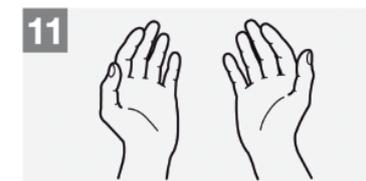
8 Rinse hands with water;



9 Dry hands thoroughly with a single use towel;



10 Use towel to turn off faucet;



11 Your hands are now safe.

What about antibacterial soaps and waterless hand scrubs?

While it is true that regular soap and water does not actually kill microorganisms (they create a slippery surface that allows the organisms to "slide off"), antibacterial soaps are typically considered to be "overkill" for most purposes. The exception may be in a hospital where special situations are present (e.g., before invasive procedures, when caring for severely immuno-compromised patients, critical care areas, intensive care nurseries, etc.). Antibacterial agents should be chosen carefully based on their active ingredients and characteristics, and when persistent antimicrobial activity on the hands is desired.

When there is no soap or water available, one alternative is to use waterless hand scrubs. Some of these products are made of ethyl alcohol mixed with emollients (skin softeners) and other agents. They are often available as a rinse, or on wipes or towelettes.

They can be used by pathology collectors performing daily collecting duties where running water is not available, or mobile collectors performing home visits where hand washing facilities are not available or not sanitary. However, these agents are not effective when the hands are heavily contaminated with dirt, blood, or other organic materials.



An example of how minuscule particles can be caught between dermal ridges in the hand, yet remain unseen by the naked eye. Washing one's hands removes such contaminants.

How to use antibacterial hand rubs

Routine/Social Hand Hygiene - Alcohol-based hand product (ABHP):

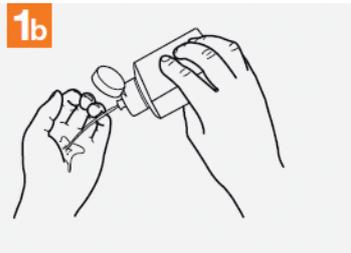
ABHPs are more effective against most bacteria and many viruses than either plain liquid soap or antimicrobial soap². If hands are visibly soiled they must be washed with soap and water. Hand hygiene should be performed using soap and water when *Clostridium difficile* or non-enveloped viruses (such as, norovirus) are known or suspected to be present.

1. Ensure jewellery has been removed
2. Apply quantity of alcohol-based hand hygiene product as per manufacturer's recommendations into cupped hand
3. Rub hands palm to palm
4. Right palm over left dorsum with interlaced fingers and vice versa
5. Palm to palm with fingers interlaced
6. Backs of fingers to opposing palms with fingers interlaced
7. Rotational rubbing of left thumb clasped in right palm and vice versa
8. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
9. Rubbing hands together until hands are dry before continuing with patient care, do not rub off excess product

Duration of the entire procedure : 20-30 seconds



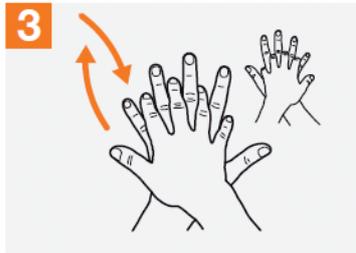
1a Apply a palmful of the product in a cupped hand, covering all surfaces;



1b Apply a palmful of the product in a cupped hand, covering all surfaces;



2 Rub hands palm to palm;



3 Right palm over left dorsum with interlaced fingers and vice versa;



4 Palm to palm with fingers interlaced;



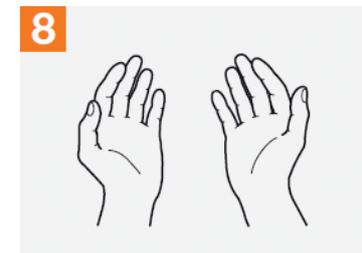
5 Backs of fingers to opposing palms with fingers interlocked;



6 Rotational rubbing of left thumb clasped in right palm and vice versa;

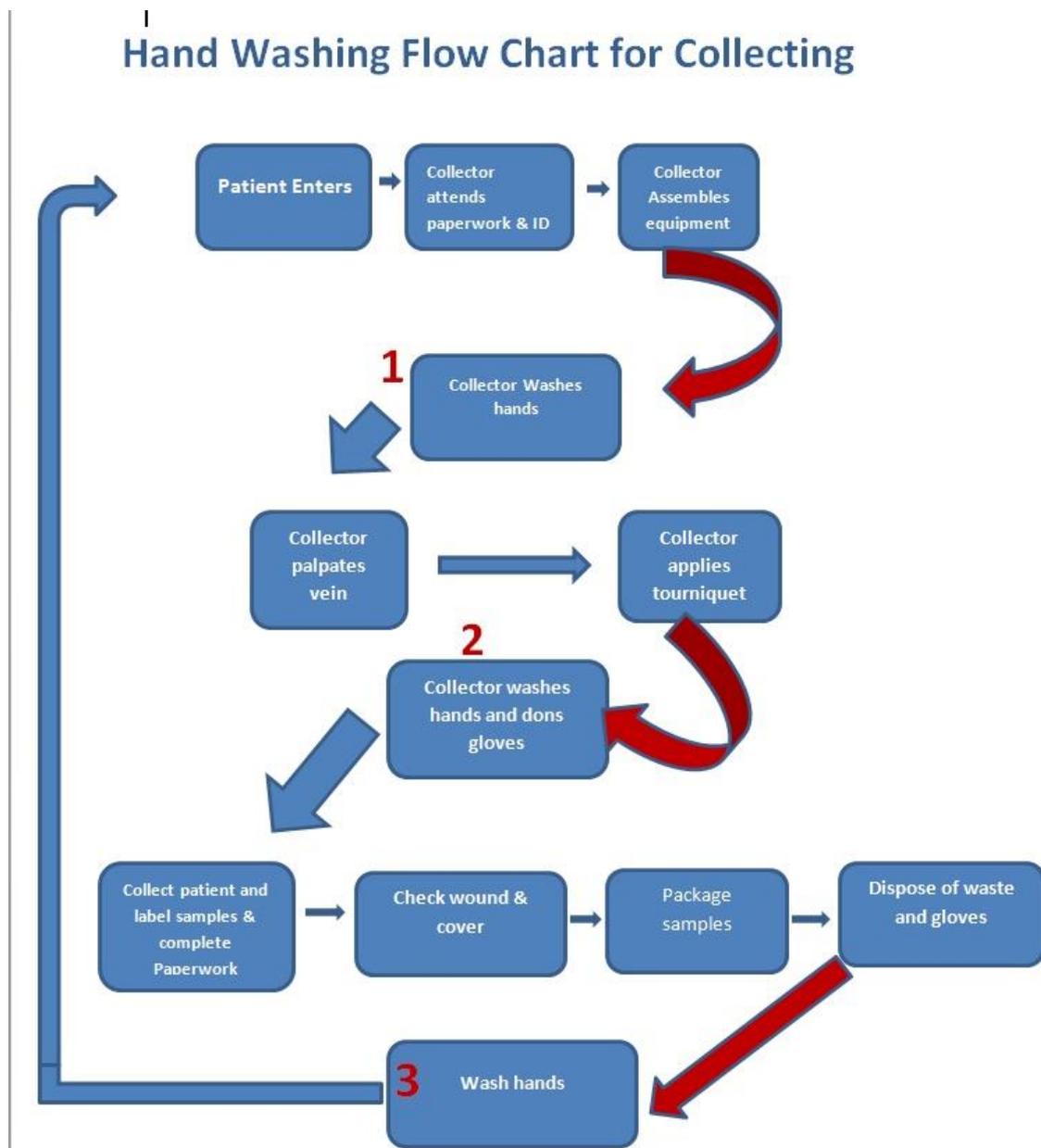


7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



8 Once dry, your hands are safe.

Hand washing flowchart – for sample collecting



Aseptic non touch technique for venipuncture

1. Perform hand hygiene
This will break any potential transmission of infection from the clinical ward environment to the clean preparation area/room. Effective hand hygiene is vital to reduce the risk of contaminating key parts/sites.
2. Collector attends to request form check and recording of patient details
Use a clean tray to collect equipment
Such a tray provides a sufficiently large, robust and controlled working area. Reprocess re-usable trays according to local policy. Hands are contaminated when gathering equipment from storage cupboards etc.

It's important therefore to gather all equipment before performing hand hygiene at Step 4.

3. Perform hand hygiene
This occurs immediately before assembly of equipment and the preparation of tubes specimen containers. This way, hands are optimally clean prior to glove application.
4. Apply tourniquet and palpate the vein
5. Perform hand hygiene. Apply non-sterile gloves. Primarily, gloves are worn to protect the user from blood products.
6. Assemble equipment, Clean patient collection site and perform venepuncture
A non-touch technique is the most important component of aseptic practice because a key part cannot be contaminated directly if it is not touched
7. Release tourniquet complete labelling, check wound and cover, package samples, dispose of used supplies.
8. Wash hands

User assessment:

If gloves become contaminated – decontaminate hands and re-glove

Surgical hand preparation

The information below is the current WHO Guidelines on Hand Hygiene in Health Care

Historically, Joseph Lister (1827–1912) demonstrated the effect of disinfection on the reduction of surgical site infections (SSIs). At that time, surgical gloves were not yet available, thereby making appropriate disinfection of the surgical site of the patient and hand antisepsis by the surgeon even more imperative. During the 19th century, surgical hand preparation consisted of washing the hands with antimicrobial soap and warm water, frequently with the use of a brush.

In 1894, three steps were suggested: 1) wash hands with hot water, medicated soap, and a brush for 5 minutes; 2) apply 90% ethanol for 3–5 minutes with a brush; and 3) rinse the hands with an "aseptic liquid".

In 1939, Price suggested a 7-minute hand wash with soap, water, and a brush, followed by 70% ethanol for 3 minutes after drying the hands with a towel. In the second half of the 20th century, the recommended time for surgical hand preparation decreased from >10 minutes to 5 minutes. Even today, 5-minute protocols are common. A comparison of different countries showed almost as many protocols as listed countries.

The introduction of sterile gloves does not render surgical hand preparation unnecessary. Sterile gloves contribute to preventing surgical site contamination and reduce the risk of blood borne pathogen transmission from patients to the surgical team. However, 18% (range: 5–82%) of gloves have tiny punctures after surgery, and more than 80% of cases go unnoticed by the surgeon.

After two hours of surgery, 35% of all gloves demonstrate puncture, thus allowing water (hence also body fluids) to penetrate the gloves without using pressure. A recent trial demonstrated that punctured gloves double the risk of SSIs. Double gloving decreases the risk of puncture during surgery, but punctures are still observed in 4% of cases after the procedure. In addition, even unused gloves do not fully prevent bacterial contamination of hands. Several reported outbreaks have been traced to contaminated hands from the surgical team despite wearing sterile gloves.

Aseptic/Clinical Hand Hygiene

Aseptic/clinical hand hygiene is undertaken to remove transient micro-organisms and inhibit the growth of resident micro-organisms prior to any care activity that implies a direct or indirect contact with a mucous membrane, non-intact skin or an invasive medical device. During such a procedure no micro-organisms should be transmitted.

1. Ensure jewellery has been removed
2. Wash hands thoroughly using an antimicrobial soap (e.g. chlorhexidine gluconate 2% soap) for one minute using the technique outlined in Routine/Social Hand Hygiene
3. Rinse carefully
4. Do not touch taps with clean hands – if elbow or foot controls are not available, use paper towel to turn off taps
5. Pat dry hands using clean paper towels

OR

1. If hands are not visibly soiled
2. Apply quantity of alcohol-based hand hygiene product as per manufacturer's recommendations into cupped hand
3. Perform hand hygiene using the technique outlined in Routine/Social Hand Hygiene-Alcohol Based Hand Product.

Surgical Hand Wash (extracted from ACORN Standards 2013)

- A five minute scrub which includes cleaning of the fingernails is to be undertaken as the first scrub of the day
- Subsequent scrubs of three minutes duration (which omit the fingernails) are undertaken between cases
- Hands are kept higher than the elbows at all times to allow water to run in one direction only – from clean to dirty (hands to elbows)
- The bristles of the nail brush are used to clean the fingernails only
- Arms are washed in a circular motion, from the hands to the elbows without returning to the hands
- The antimicrobial soap used for the first scrub of the day should continue to be used for subsequent scrubs

Procedure: First scrub of the day five minutes:Step 1: Duration 1 minute

1. Open and prepare a nail cleaner and scrub brush for later use. Note: single use disposable brush/sponges impregnated with antimicrobial soap are also available.
2. Rinse the hands and arms and wash with sufficient antimicrobial soap to ensure adequate skin coverage to 2.5 cm above the elbow and contact time with the antimicrobial soap
3. With the hands under gently running water, use the nail cleaner to remove debris from underneath the fingernails. The antimicrobial soap is left in contact with the forearms while the fingernails are cleaned
4. When finished with the nail cleaner discard in a safe manner and rinse the hands and forearms

Step 2: Duration 2 minutes

5. Apply antimicrobial soap to the bristles of the scrub brush and continue cleaning the fingernails.
6. Apply antimicrobial soap to the sponge side of the brush and wash all surfaces of hands and forearms working from the nail beds and between fingers before proceeding to wash the forearms (to the level of the elbow) using circular hand motions. Apply more antimicrobial soap if necessary. On completion, dispose of the scrub brush in a safe manner and rinse the hands and forearms.

Step 3: Duration 2 minutes

7. Hands and forearms are washed again using the same principles and procedures above, but stopping at mid forearm. On completion, rinse the hands and forearms.
8. Hands are washed again using the same principles and procedures.
9. Finally, the hands and forearms are rinsed thoroughly.
10. Remain at the scrub sink until the hands and arms are free of excess water, being careful to avoid splash, contamination or injury on wet surfaces.
11. Approach the gown trolley and grasp the sterile towel by one corner, being careful to avoid contamination of the sterile field with drips from hands (which are clean, not sterile).
12. Step back from the sterile field and with hands outstretched, allow the towel to unfold, being careful to avoid contamination by contact with unsterile scrub attire.
13. Using one half of the unfolded towel as a barrier between hands, pat dry or wipe the opposite fingers and hand, moving down the forearm to the elbow in a circular motion, without returning to the hand. This half of the towel comes in contact with skin above the elbow and is not used again.
14. Grasp the opposite half of the towel and release the contaminated half. Pat dry or wipe the opposite fingers and hand, moving down the forearm to the elbow in a circular motion, without returning to the hand.

15. Drop the used towel into an appropriate container being careful to avoid contamination from further handling of the towel. Hands are to remain above the waste level and away from the unsterile scrub suit at all times.

Procedure: Subsequent scrubs of the day three minutes:

Step 1: Duration two minutes

1. Preliminary step: Rinse the hands and arms and wash with sufficient antimicrobial soap to 2.5cm above the elbows (20 seconds). This preliminary step ensures adequate skin coverage and contact time during Step 1.
2. Without rinsing, apply additional antimicrobial soap and wash all surfaces of hands and forearms working from nail beds and between fingers before proceeding to wash the forearms (to the level of the elbows) using circular motions. Apply more antimicrobial soap if necessary.
3. On completion, rinse the hands and forearms

Step 2: Duration one minute

4. Hands and forearms are washed again using the same principles and procedures above, but stopping at mid forearm. On completion rinse the hands and forearms. Finally, the hands and forearms are rinsed thoroughly and steps 10-15 above are followed

Technique for the application of surgical hand preparation using alcohol-based handrub

The application technique has not been standardized throughout the world. The WHO approach for surgical hand preparation requires the six basic steps for the hands as for hygienic hand antisepsis, but requires additional steps for rubbing the forearms (see below). This simple procedure appears not to require training, though two studies provide evidence that training significantly improves bacterial killing. The hands should be wet from the alcohol-based rub during the whole procedure, which requires approximately 15 ml depending on the size of the hands.

The size of the hands and forearms ultimately determines the volume required to keep the skin area wet during the entire time of the handrub. Once the forearms and hands have been treated with an emphasis on the forearms – usually for approximately 1 minute – the second part of the surgical handrub should focus on the hands, following the identical technique as outlined for the hygienic handrub. The hands should be kept above the elbows during this step. The time required for surgical alcohol-based handrubbing depends on the compound used. Most commercially available products recommend a 3-minute exposure, although the application time may be longer for some formulations, but can be shortened to 1.5 minutes for a few of them. The manufacturer of the product must provide recommendations as to how long the product must be applied. Manufacturer's recommendations should be based on in vivo evidence at least, considering that clinical effectiveness testing is unrealistic.

Procedure: Scrubbing using an alcohol-based hand rub solution

To ensure hands and arms have no physical evidence of soiling. Step 1 of the 5 minute standardised scrubbing procedure is undertaken prior to the first scrubbing procedure of the day using an alcohol-based hand rub solution. Rinse and thoroughly dry hands prior to commencing the rub procedure.

A social hand wash must be performed prior to subsequent scrubbing procedures using alcohol based hand rub solution; ensuring hands are rinsed and dried.

Step 1: Rubbing hands and forearms to the elbow

1. Dispense approximately 5 ml (three doses) of alcohol-based hand rub in the palm of your left hand, using elbow of your other arm to operate the dispenser.
2. Dip the fingertips of your right hand in the hand rub to decontaminate under the nails.
3. Smear the hand rub on the right forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the hand rub has completely evaporated.
4. Repeat procedure for the left arm.
5. Dispense approximately 5 ml (three doses) of alcohol-based hand rub in the palm of your right hand, using elbow of your other arm to operate the dispenser.
6. Dip the fingertips of your left hand in the hand rub to decontaminate under the nails.
7. Smear the hand rub on the left forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the hand rub has completely evaporated.

Step 2 – Rubbing hands to mid-forearms

8. Cover the whole surface of the hands up to the wrist with alcohol-based hand rub, rubbing palm against palm with a rotating movement.

Step 3 – Rubbing hands only

9. Rub the back of the hands, including the wrists, moving back and forth.
 10. Rub palm against palm back and forth with fingers interlinked.
 11. Rub the back of the fingers in the palm of the other hand with a sideways back and forth movement and rub the thumbs by rotating in the clasped palm.
 12. When hands are dry, sterile surgical clothing and gloves can be donned.
- At all times, ensure sufficient surgical hand rub is used so as to keep hands and forearms wet throughout the procedure.

ACORN – in accordance with WHO – recommends a minimum of three (3) applications/steps are used, if not more, for a period of three (3) to five (5) minutes, in conjunction with the manufacturer's instruction

Bare Below the Elbows Initiative

The effectiveness of hand hygiene is improved when: skin is intact, nails are natural, short and unvarnished; hands and forearms are free of jewellery; and sleeves are above the elbow. Staff having direct contact with patients or a patient's environment should comply with the steps outlined below:

- Bracelets, wrist watches and rings with stones or ridges are not to be worn when providing clinical care. A single flat ring/band may be worn but should not interfere with effective hand hygiene practice
- Long sleeved clothing should be rolled up above the elbow so as not interfere with effective hand hygiene practice
- Nails should be kept short and clean and nail polish should not be worn. Artificial nails (gel or acrylic) must not be worn by any care staff/health care workers with direct patient contact
- Any breached skin (cuts, dermatitis or abrasion) should be covered with a waterproof film dressing. Staff with dermatitis should report for evaluation as per local procedures
- Long ties and lanyards are also not recommended. Retractable (or similar) ID card holders are recommended in place of lanyards and should be cleaned regularly. If ties are worn they should be tucked in or secured.

The handrubbing technique for surgical hand preparation must be performed on perfectly clean, dry hands. On arrival in the operating theatre and after having donned theatre clothing (cap/hat/bonnet and mask), hands must be washed with soap and water. After the operation when removing gloves, hands must be rubbed with an alcohol-based formulation or washed with soap and water if any residual talc or biological fluids are present (e.g. the glove is punctured).

Surgical procedures may be carried out one after the other without the need for handwashing, provided that the handrubbing technique for surgical hand preparation is followed (Images 1 to 17).



1
Put approximately 5ml (3 doses) of alcohol-based handrub in the palm of your left hand, using the elbow of your other arm to operate the dispenser



2
Dip the fingertips of your right hand in the handrub to decontaminate under the nails (5 seconds)



3
Images 3–7: Smear the handrub on the right forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the handrub has fully evaporated (10-15 seconds)



4
See legend for Image 3



5
See legend for Image 3



6
See legend for Image 3



7
See legend for Image 3



8
Put approximately 5ml (3 doses) of alcohol-based handrub in the palm of your right hand, using the elbow of your other arm to operate the dispenser



9
Dip the fingertips of your left hand in the handrub to decontaminate under the nails (5 seconds)

Surgical handscrub with medicated soap or surgical hand preparation with alcohol-based formulations

Both methods are suitable for the prevention of SSIs. However, although medicated soaps have been and are still used by many surgical teams worldwide for presurgical hand preparation, it is important to note that the antibacterial efficacy of products containing high concentrations of alcohol by far surpasses that of any medicated soap presently available. In addition, the initial reduction of the resident skin flora is so rapid and effective that bacterial regrowth to baseline on the gloved hand takes more than six hours.

For this reason, preference should be given to alcohol-based products. Furthermore, several factors including rapid action, time savings, less side-effects, and no risk of recontamination by rinsing hands with water, clearly favour the use of presurgical handrubbing.

Nevertheless, some surgeons consider the time taken for surgical handscrub as a ritual for the preparation of the intervention and a switch from handscrub to handrub must be prepared with caution.

In countries with limited resources, particularly when the availability, quantity or quality of water is doubtful, the current panel of experts clearly favours the use of alcohol-based handrub for presurgical hand preparation also for this reason.

1.2 Implement hand care procedures and cover cuts and abrasions

Won't frequent hand hygiene dry my skin?

Intact skin is the first line of defense against microorganisms, hence it is important to maintain good skin care. To prevent chafing, wet your hands before applying soap and use mild lotion soap with warm water; pat rather than rub hands dry; and apply lotion liberally and frequently. Skin lotions should be chosen that will not interfere with glove integrity.

The main type of skin irritation associated with hand hygiene, irritant contact dermatitis, includes symptoms such as dryness, irritation, itching and sometimes cracking and bleeding.

Allergic contact dermatitis is rare and represents an allergy, which may be to some ingredient in a hand hygiene product.

Generally, alcohol-based hand rubs cause significantly less skin reaction or irritation than hand hygiene with plain or antiseptic soaps (Pittet & Boyce 2001). Expert opinion concludes that (Pratt et al 2001; Boyce & Pittet 2002; Grayson et al 2009):

- skin damage is generally associated with the detergent base of the preparation, poor hand hygiene technique and/or frequent use of alcohol-based hand rub immediately before or after performing hand hygiene with soap
- Frequent use of hand hygiene agents may cause damage to the skin and alter normal hand flora

- Excoriated hands are associated with increased colonisation by potentially infectious agents
- The irritant and drying effects of hand preparations are one reason why healthcare workers fail to adhere to hand hygiene guidelines
- appropriate use of hand lotion or moisturisers added to hand hygiene preparations is an important factor in maintaining skin integrity, encouraging adherence to hand hygiene practices and assuring the health and safety of healthcare workers.

Use of hand cream

An emollient hand cream should be applied regularly, such as after performing hand hygiene before a break or going off duty, and when off duty. Hand hygiene technique should be reviewed if skin irritation occurs. If the irritation persists or if it caused by a particular soap, antiseptic agent or alcohol-based product, the person with designated responsibility for infection control or occupational health should be consulted.

If an individual develops compromised skin integrity, he/she should be referred to Occupational Health for assessment.

Cover cuts and abrasions with water-proof dressings and change as necessary. All cuts, sores and abrasions must be covered (waterproof dressing is preferable), and the covering will need to be changed between each patient and frequently each day. There is a large range of dressing available these days such as non-latex band aids, flexible and waterproof dressings and these should be readily available in the first aid kit.



It is important to note that gloves are not a substitute for effective hand-washing. A routine hand-wash should include removal of jewelry and use of a cleaning solution (detergent with or without disinfectant) and water for 15 to 20 seconds, followed by drying with a single-use towel.

Skin care is important because healthy, unbroken skin provides a valuable, natural barrier to infection.

Skin breaks should be covered with a water-resistant occlusive dressing. Alcohol-based hand rubs can be used in the absence of appropriate washing facilities.

Individual actions for reducing the risk

- Follow the 5 moments for hand hygiene, even when it seems that there is not enough time
- Become familiar with your facility policy on hand hygiene and follow it
- Use the appropriate product for the situation and use it as directed
- Follow facility policy on cuts and abrasions, fingernails, nail polish and jewellery
- Use hand-care products provided by your organisation; your own products may not be compatible with the hand hygiene products provided
- Minimise physical contact with patient surroundings

- Lead by example and champion hand hygiene in your setting
- Attend hand hygiene education sessions regularly to refresh your knowledge and skills
- Contact the person with designated responsibility for occupational health or infection prevention and control if you have a reaction to hand hygiene and hand-care products used in your setting
- If alcohol-based hand rub is not readily accessible at key points of care in a patient-care area, consider approaching management

1.3 Follow organisation procedures for choice and use of personal protective equipment

Personal protective equipment (PPE) should:

- be appropriate for the type of work
- give adequate protection to the user
- not create additional health or safety risks
- be compatible with other PPE being used
- fit properly
- not interfere with any medical conditions of the user
- be easy to use
- be comfortable
- comply with relevant Australian Standards

Consultation with workers when PPE is selected and consideration should be given to a person's individual characteristic and style preference.

Protective Clothing

Any infectious agent transmitted by the contact or droplet route can potentially be transmitted by contamination of healthcare workers' hands, skin or clothing. Cross-contamination can then occur between the healthcare worker and other patients or healthcare workers, or between the healthcare worker and the environment. Infectious agents transmitted through droplets can also come into contact with the mucous membranes of the healthcare worker.

Personal protective equipment (PPE) refers to a variety of barriers, used alone or in combination, to protect mucous membranes, airways, skin and clothing from contact with infectious agents.

PPE used as part of standard precautions includes aprons, gowns, gloves, surgical masks, and protective eyewear and face shields. Selection of PPE is based on the type of patient interaction, known or possible infectious agents, and/or the likely mode(s) of transmission.

There have been few controlled clinical studies evaluating the relationship between the use of PPE and risk of HAIs. However, the use of barriers reduces opportunities for transmission of infectious agents (Pratt et al 2001; Clark et al 2002). PPE also protects patients from exposure to infectious agents in the surrounding environment carried by healthcare workers.

Appropriate clothing is determined for each procedure by assessing the procedure, the likelihood of exposure and the quantity of fluid or blood involved.

Selection of protective equipment must be based on assessment of the risk of transmission of infectious agents to the patient or carer, and the risk of contamination of the clothing or skin of healthcare workers or other staff by patients' blood, body substances, secretions or excretions.

Local policies and current health and safety legislation should also be taken into account (Clark et al 2002).

Factors to be considered are:

- Probability of exposure to blood and body substances
- Type of body substance involved
- Probable type and probable route of transmission of infectious agents.

All PPE must meet relevant Therapeutic Goods Administration (TGA) criteria for listing on the Australian Register of Therapeutic Goods (ARTG) or equivalent and should be used in accordance with manufacturer's recommendations.

Where to wear PPE

PPE is designed and issued for a particular purpose in a protected environment and should not be worn outside that area. Protective clothing provided for staff in areas where there is high risk of contamination (e.g. operating suite/room) must be removed before leaving the area. Even where there is a lower risk of contamination, clothing that has been in contact with patients should not be worn outside the patient-care area. Inappropriate wearing of PPE (e.g. wearing operating suite/room attire in the public areas of a hospital or wearing such attire outside the facility) may also lead to a public perception of poor practice within the facility.

Gloves

Gloves are a form of personal protective equipment. Clinicians and other health care workers should wear gloves whenever there is a risk of exposure to blood or body substances, and should change their gloves and wash their hands after contact with each patient and during procedures with the same patient if there is a chance of cross contamination. They must be worn whenever in direct contact with blood or body fluid, or with contaminated items, equipment, or work surfaces (e.g. benches, floors). Gloves must be changed between patients and hands washed after removing gloves. Gloves must be used when.

- Handling blood and/or body substances
- Performing venepuncture
- Touching mucous membranes
- Touching non-intact skin
- Handling contaminated sharps
- Performing invasive procedures

- Cleaning body substances spills or any equipment (instruments) or materials (linen) or surface that may have been contaminated by body substances. Inappropriate glove use often undermines efforts to sustain correct hand hygiene according to the 5 Moments for Hand Hygiene.

Gloves can protect both patients and health care workers from exposure to infectious agents that may be carried on hands. As part of standard precautions gloves must be worn as a single-use item for each invasive procedure.

Contact with sterile sites and non-intact skin or mucous membranes

Gloves do not provide complete protection against hand contamination. Pathogens may gain access to the health care workers hands via small defects in gloves or by contamination of the hands during glove removal. Bacterial flora colonising patients may be recovered from the hands of approximately 30% of health care workers who wear gloves during patient contact.

The recommendation to wear gloves during an entire episode of care for a patient who requires contact precautions, without considering indications for their removal, such as for hand hygiene, could lead to the transmission of germs. Health care workers seldom enter patient rooms without touching the environment, and that 52% of health care workers whose hands were free of VRE (Vancomycin Resistant Enterococcus) upon entering rooms contaminated their hands or gloves with VRE after touching the environment without touching the patient.

Hand hygiene products and gloves should be made available inside isolation/contact precaution rooms to allow for appropriate hand hygiene to occur during the care of a patient.

Wearing gloves does not replace the need for hand hygiene.

When should gloves be changed? Gloves should be changed:
Between episodes of care for different patients, to prevent transmission of infectious material

During the care of each patient, to prevent cross-contamination of body sites
If the patient interaction involves touching portable computer keyboards or other mobile equipment that is transported from room to room.

Sterile gloves must be used for surgical ANTT procedures and contact with sterile sites. Single use gloves should always be discarded.

Hand hygiene is required with glove use at the following times:

- Before putting on gloves
- Immediately after removing gloves
- Gloves should be removed to perform HH during the care for a single patient as indicated by the 5 Moments for Hand Hygiene
- Hand hygiene products should not be applied to gloves

- Prolonged and indiscriminate use of gloves should be avoided as it may cause adverse reactions and skin sensitivity.

Latex allergy

Latex allergy is a reaction to certain proteins in latex rubber. The amount of latex exposure needed to produce sensitisation or an allergic reaction is unknown. However, current understanding of latex allergy is as follows (NIOSH 1998):

- increasing the exposure to latex proteins increases the risk of developing allergic symptoms—most people who are allergic to latex have had frequent exposure to latex over many years; the majority are nurses, doctors, dentists or patients who have had a number of operations
- in sensitised people, symptoms usually begin within minutes of exposure; but they can occur hours later and can be quite varied—mild reactions involve skin redness, rash, hives, or itching; more severe reactions may involve respiratory symptoms such as runny nose, sneezing, itchy eyes, scratchy throat, and asthma (difficult breathing, coughing spells, and wheezing); and rarely, shock may occur although a life-threatening reaction is seldom the first sign of latex allergy
- The risk of latex allergy is influenced by the amount of protein/allergen and powder in the latex glove; not by powder alone (Hunt et al 2002). Healthcare workers with latex allergies should inform their managers to ensure that their work areas can be latex free.

If latex gloves are used, they should be non-powdered due to the risks associated with aerosolisation and an increased risk of latex allergies.

Removing and disposing of gloves

Gloves (other than utility gloves) should be treated as single-use items. They should be put on immediately before a procedure and removed as soon as the procedure is completed.

When removing gloves, care should be taken not to contaminate the hands. After gloves have been removed, hand hygiene should be performed in case infectious agents have penetrated through unrecognised tears or have contaminated the hands during glove removal (Olsen et al 1993; Tenorio et al 2001; Boyce & Pittet 2002).

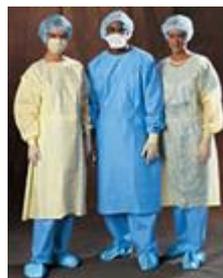
Gloves must not be washed for subsequent re-use—infectious agents cannot be removed reliably from glove surfaces and continued glove integrity cannot be ensured. Glove re-use has been associated with transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) and Gramnegative bacilli (Doebbeling et al 1988; Maki et al 1990; Olsen et al 1993).

Gloves should be disposed of as soon as they are removed, with disposal complying with local policies and standards.

Selection of Glove type

Glove	Indications for use	Examples
Non-sterile gloves	<ul style="list-style-type: none"> • Potential for exposure to blood, body substances, secretions or excretions • Contact with non-intact skin or mucous membranes 	<ul style="list-style-type: none"> • Venepuncture • Vaginal examination • Dental examination • Emptying a urinary catheter bag • Naso-gastric aspiration • Management of minor cuts and abrasions
Sterile gloves	<ul style="list-style-type: none"> • Potential for exposure to blood, body substances, secretions or excretions • Contact with susceptible sites or clinical devices where sterile conditions should be maintained 	Surgical aseptic technique procedures e.g. <ul style="list-style-type: none"> • Urinary catheter insertion • Complex dressings • Central venous line insertion site dressing • Lumbar puncture • Clinical care of surgical wounds or drainage sites • Dental procedures requiring a sterile field
Reusable utility gloves	<ul style="list-style-type: none"> • Indicated for non-patient-care activities 	<ul style="list-style-type: none"> • Handling or cleaning contaminated equipment or surfaces • General cleaning duties • Instrument cleaning in sterilising services unit
Gloves suitable for clinical use		
NRL (latex) gloves	<ul style="list-style-type: none"> • Preferable for clinical procedures that require manual dexterity and/or will involve more than brief patient contact • Select powder-free latex gloves to minimise the risk of latex sensitivity or allergies 	
Synthetic gloves (e.g. nitrile)	<ul style="list-style-type: none"> • Procedures involving high risk of exposure to blood-borne virus and where high barrier protection is needed • Provides suitable alternative to latex if there are no issues with glove fit or sensitivity 	
Utility/cleaning gloves		
<ul style="list-style-type: none"> • Intended for use when a more physically protective glove is required (e.g. for instrument cleaning and housekeeping activities) • Reusable, cleaned according to the manufacturer's instructions and stored dry between uses • Should be replaced when they are showing signs of deterioration 		

Sources: Derived from Kotilainen et al 1989; Korniewicz et al 1989; Korniewicz et al 1993; Rego & Roley 1999; Pratt et al 2001; Korniewicz et al 2002; Schulster & Chinn 2003; Siegel et al 2007; Queensland Health 2010.



Aprons and gowns

International guidelines recommend that protective clothing (apron or gown) be worn by all healthcare workers when (Garner 1996; Pratt et al 2001; Clark et al 2002; Pratt et al 2007):

- close contact with the patient, materials or equipment may lead to contamination of skin, uniforms or other clothing with infectious agents
- there is a risk of contamination with blood, body substances, secretions or excretions (except sweat).

The type of apron or gown required depends on the degree of risk, including the anticipated degree of contact with infectious material and the potential for blood and body substances to penetrate through to clothes or skin:

- a clean non-sterile apron or gown is generally adequate to protect skin and prevent soiling of clothing during procedures and/or patient-care activities that are likely to generate splashing or sprays of blood or body substances
- a fluid-resistant apron or gown should be worn when there is a risk that clothing may become contaminated with blood, body substances, secretions or excretions (except sweat).

Gowns and aprons must be changed between patients.

Clinical and laboratory coats or jackets worn over personal clothing for comfort and/or purposes of identity are not considered to be PPE. These items of clothing need to be changed dependent on activity and the extent of exposure to potential pathogens.

Gowns

Gowns are used to protect the healthcare worker's exposed body areas and prevent contamination of clothing with blood, body substances, and other potentially infectious material.

Considerations in choosing a type of gown (e.g. long or short-sleeved) that is appropriate for the activity are:

- the volume of body substances likely to be encountered
- the extent and type of exposure to blood and body substances
- the probable type and route of transmission of infectious agents.

If a fluid-resistant full body gown is required, it is always worn in combination with gloves, and with other PPE when indicated. Full coverage of the arms and body front, from neck to the mid-thigh or below, ensures that clothing and exposed upper body areas are protected.

Table BI.4: Characteristics of aprons/gowns

Plastic apron	<ul style="list-style-type: none"> • Impervious /fluid resistant • Single-use, for one procedure or episode of patient care • Disposable • Worn when there is a risk that clothing may become exposed to blood or body substances (usually from the environment) during low-risk procedures and where there is low risk of contamination to the healthcare worker's arms • Worn during contact precautions when contact with the patient or the patient environment is likely
Gown	<ul style="list-style-type: none"> • Single-use* • Disposable • Worn to protect skin and prevent soiling of clothing during procedures and/or patient-care activities that are likely to generate splashing or sprays of blood or body substances • Choice of sleeve length depends on the procedure being undertaken and the extent of risk of exposure of the healthcare worker's arms
Full body gown	<ul style="list-style-type: none"> • Fluid resistant • Single-use* • Long sleeved • Worn when there is a risk of contact of the healthcare worker's skin with a patient's broken skin, extensive skin to skin contact (e.g. lifting a patient with scabies or non-intact skin), or a risk of contact with blood and body substances which are not contained (e.g. vomiting, uncontrolled faecal matter) • Worn when there is the possibility of extensive splashing of blood and body substances • Worn when there is a risk of exposure to large amounts of body substances eg in some operative procedures
Sterile gown*	<ul style="list-style-type: none"> • Pre-packaged • Used for procedures requiring an aseptic field

* Some gown types can be re-used. Reusable gowns need to be laundered or reprocessed according to AS/NZS4146—2000 Laundry Practice

Removing aprons and gowns

Removal of aprons and gowns before leaving the patient-care area (e.g. in the room or anteroom) prevents possible contamination of the environment outside the patient's room. Aprons and gowns should be removed in a manner that prevents contamination of clothing or skin. The outer, 'contaminated', side of the gown is turned inward and rolled into a bundle, and then discarded into a designated container for waste or linen to contain contamination.

Face and eye protection

The mucous membranes of the mouth, nose and eyes are portals of entry for infectious agents, as are other skin surfaces if skin integrity is compromised (e.g. by acne, dermatitis)

Face and eye protection reduces the risk of exposure of healthcare workers to splashes or sprays of blood and body substances (Dancer 1999; Pratt et al 2001; Clark et al 2002) and is an important part of standard precautions. Procedures that generate splashes or sprays of blood, body substances, secretions or excretions require either a face shield or a mask worn with protective eyewear

Protective Eyewear must be worn wherever there is risk of aerosols being created or of blood splattering. This includes collecting non-vacuumed blood samples, opening sample tubes, separating serum from sample tubes, and taking nail clippings

Surgical masks

Surgical masks are loose fitting, single-use items that cover the nose and mouth. They are used as part of standard precautions to keep splashes or sprays from reaching the mouth and nose of the person wearing them. They also provide some protection from respiratory secretions and are worn when caring for patients on droplet precautions. Surgical masks differ from P2 respirators

Properties of different types of masks

Properties	Surgical masks	P2 respirator (see Section B2.4.3)
Other names	Single-use face mask, medical mask, patient-care mask, general purpose mask	P2 respirator; N95 respirator; respiratory protection device, particulate respirator
Characteristics	<ul style="list-style-type: none"> Pleated face 2–3 polypropylene layers Filtration through mechanical impaction Fluid resistant 	<ul style="list-style-type: none"> Raised dome or duckbill 4–5 layers (outer polypropylene, central layers electret [charged polypropylene]) Filtration through mechanical impaction and electrostatic capture
Sealing	<ul style="list-style-type: none"> Ties at crown and bottom of head 	<ul style="list-style-type: none"> Ties at crown and bottom of head, pliable metal nose bridge Fit testing and fit checking required (see B2.4.3)
Australian standards	<ul style="list-style-type: none"> AS4381:2002 	<ul style="list-style-type: none"> AS1715:2009
Intended use	<ul style="list-style-type: none"> Procedures that generate splashes or sprays of large droplets of blood, body substances, secretions and excretions Procedures requiring a surgical aseptic technique (to protect patients from exposure to infectious agents carried in a healthcare worker's mouth or nose) Routine care of patients on droplet precautions 	<ul style="list-style-type: none"> Routine care of patients on airborne precautions High-risk procedures such as bronchoscopy when the patient's infectious status is unknown Procedures that involve aerosolisation of particles that may contain specific known pathogens
Notes		<ul style="list-style-type: none"> Care must be taken when placing respirators on patients and must suit clinical need (i.e. if the patient has chronic obstructive airways disease [COAD] or is in respiratory distress, the respirator will exacerbate symptoms).

Masks – must be worn when there is any perceived risk of splash or droplet contamination. There are many different types of masks made for specific purposes.

General purpose face masks



- Protective four-layer construction
- Adequate protection when exposure to blood and/or body fluids is not a concern
- Appropriate for general patient care and isolation
- Surgical masks can be placed on coughing patients to limit potential dissemination of infectious respiratory secretions from the patient to others

Considerations when using a surgical mask include:

- masks should be changed when they become soiled or wet
- masks should never be reapplied after they have been removed
- masks should not be left dangling around the neck
- touching the front of the mask while wearing it should be avoided
- hand hygiene should be performed upon touching or discarding a used mask.

Children should wear a specifically designed child mask and their oxygen saturation should be monitored

PFR95* particulate filter respirators

Process for putting on a P2 respirator



- NIOSH (National Institute for Occupational Safety and Health) approved
- Meet the CDC Guidelines for protection against the transmission of M.tuberculosis
- Optional Fluidshield® protection
- Available in a variety of sizes
- Used when there is a perceived risk to potentially dangerous airborne contaminants for example bird flu

Eye protection

Goggles with a manufacturer's anti-fog coating provide reliable, practical eye protection from splashes, sprays, and respiratory droplets from multiple angles. Newer styles of goggles fit adequately over prescription glasses with minimal gaps (to be efficacious, goggles must fit snugly, particularly from the corners of the eye across the brow).

Other types of protective eyewear include safety glasses with side-shield protection, which are widely used in dentistry and other specialties that use operating microscopes (ADA 2008).

While effective as eye protection, goggles and safety glasses do not provide splash or spray protection to other parts of the face.

Personal eyeglasses and contact lenses are not considered adequate eye protection.

Face shields

Single-use or reusable face shields may be used in addition to surgical masks, as an alternative to protective eyewear. Compared with other forms of protective eyewear, a face shield can provide protection to other parts of the face as well as the eyes. Face shields extending from chin to crown provide better face and eye protection from splashes and sprays; face shields that wrap around the sides may reduce splashes around the edge of the shield.

Removing face and eye protection

Removal of a face shield, protective eyewear and surgical mask can be performed safely after gloves have been removed and hand hygiene performed. The ties, earpieces and/or headband used to secure the equipment to the head are considered 'clean' and therefore safe to touch with bare hands. The front of a mask, protective eyewear or face shield is considered contaminated.

Cleaning reusable face and eye protection

Reusable face shields and protective eyewear should be cleaned according to the manufacturer's instructions, generally with detergent solution, and be completely dry before being stored. If they are to be disinfected, they should be disinfected using either a TGA-registered instrument grade disinfectant - low level, or by heat as per AS/NZS 4187:2003

Other items of clothing

Ties and lanyards -There is some evidence to suggest that lanyards and neckties may play a role in transmission of infection but it is difficult to demonstrate the precise role (Kotsanas et al 2008).

Footwear - Footwear suitable for the duties being undertaken must be worn and preferably be designed to minimise the risk of injury from dropped sharps.

Uniforms- In areas of clinical practice where there is a high risk of repeated exposure to blood and other body substances, it is recommended that uniforms be worn as well as the appropriate PPE.

While some studies show that uniforms and white coats become progressively contaminated during clinical care, no studies have demonstrated that uniforms transmit infectious agents. (Loveday et al 2007).

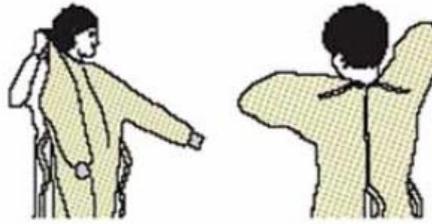
Uniforms should be washed daily. There is no evidence to suggest that home laundering is inferior to commercial reprocessing of uniforms (Loveday et al 2007).

Sequence for putting on and removing PPE

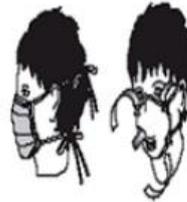
To reduce the risk of transmission of infectious agents, PPE must be used appropriately. The following table outlines sequences and procedures for putting on and removing PPE.

SEQUENCE FOR PUTTING ON PPE**GOWN**

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten at the back of neck and waist

**MASK**

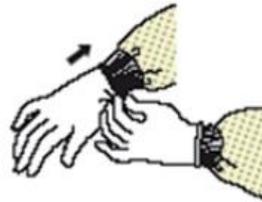
- Secure ties or elastic bands at middle of head and neck

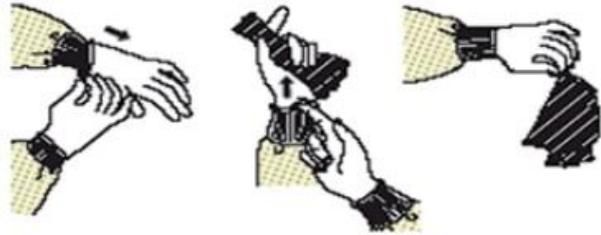
**PROTECTIVE EYEWEAR OR FACE SHIELD**

- Place over face and eyes and adjust to fit

**GLOVES**

- Extend to cover wrist of isolation gown



SEQUENCE FOR REMOVING PPE	Remove PPE at doorway or in anteroom.
<p>GLOVES</p> <ul style="list-style-type: none"> • Outside of gloves is contaminated! • Grasp outside of glove with opposite gloved hand; peel off • Hold removed glove in gloved hand • Slide fingers of ungloved hand under remaining glove at wrist • Peel glove off over first glove • Discard gloves in waste container 	
PERFORM HAND HYGIENE	
<p>PROTECTIVE EYEWEAR OR FACE SHIELD</p> <ul style="list-style-type: none"> • Outside of eye protection or face shield is contaminated! • To remove, handle by head band or ear pieces • Place in designated receptacle for reprocessing or in waste container 	
<p>GOWN</p> <ul style="list-style-type: none"> • Gown front and sleeves are contaminated! • Unfasten ties • Pull away from neck and shoulders, touching inside of gown only • Turn gown inside out • Fold or roll into a bundle and discard 	
<p>MASK*</p> <ul style="list-style-type: none"> • Front of mask is contaminated—DO NOT TOUCH! • Grasp bottom, then top ties or elastics and remove • Discard in waste container 	
PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE	

Surgical masks can be removed at the point of care. To remove a P2 respirator, perform hand hygiene and step outside the room or into an anteroom before removing and disposing of the respirator in a closed container and performing hand hygiene again.

Putting it into practice

Individual actions for reducing the risk

- Before putting on PPE explain to the patient that it is a routine part of infection prevention and control
- Assess the risk of spraying or splashing in the specific situation and choose PPE accordingly
- If you have a sensitivity or allergy to latex, inform your manager and ensure you always use an alternative glove type
- Follow appropriate sequence and procedure for putting on and removing PPE
- Remove PPE before leaving the patient-care area and follow the sequence and procedure
- Lead by example and champion the appropriate use of PPE in your setting involving patients in their care

The following information may be provided to patients to assist them in becoming involved in identifying and reducing risks related to the use of PPE.

- The wearing of PPE such as gowns, masks and gloves is a routine part of infection prevention and control in healthcare—it is used for everybody's safety
- The use of PPE alone is not enough—healthcare workers should perform hand hygiene before putting on and after removing the protective items
- PPE is used in the patient care area only—healthcare workers remove the equipment before they leave the area to reduce the risk of spreading infection
- Gowns or aprons are used so that the healthcare worker's clothing or skin does not become contaminated
- Healthcare workers wear a mask if there is risk of them inhaling an infectious agent
- Masks, eye protection or face shields are worn by a healthcare worker in situations where the patient's body substances may splash onto his or her face
- Healthcare workers wear gloves when they will have direct hand contact with blood or body substances, mucous membranes or wounds or if there is a chance that touching the patient could transmit infection.
- Patients who are sensitive or allergic to latex should tell their healthcare workers so that an alternative glove type can be used
- It's okay to question a healthcare worker about whether they should be using protective personal equipment or whether they are using it properly

1.4 Follow procedures for respiratory hygiene and cough etiquette

Respiratory hygiene and cough etiquette

Respiratory hygiene and cough etiquette should be applied as a standard infection control precaution at all times. Covering sneezes and coughs prevents infected persons from dispersing respiratory secretions into the air. Hands should be washed with soap and water after coughing, sneezing, using tissues, or after contact with respiratory secretions or objects contaminated by these secretions.

Steps in respiratory hygiene and cough etiquette

Anyone with signs and symptoms of a respiratory infection, regardless of the cause, should follow or be instructed to follow respiratory hygiene and cough etiquette as follows:

- Cover the nose/mouth with disposable single-use tissues when coughing, sneezing, wiping and blowing noses
- Use tissues to contain respiratory secretions
- Dispose of tissues in the nearest waste receptacle or bin after use
- If no tissues are available, cough or sneeze into the inner elbow rather than the hand
- Practice hand hygiene after contact with respiratory secretions and contaminated objects/materials
- Keep contaminated hands away from the mucous membranes of the eyes and nose

Health care/social workers should also assist patients (e.g. elderly, children) who need assistance with containment of respiratory secretions. Those who are immobile will need a receptacle (e.g. plastic bag) readily at hand for the immediate disposal of used tissues and will need to be offered hand hygiene facilities.

1.5 Follow procedures for environmental cleaning

Infectious agents can be widely found in healthcare settings and there is a body of clinical evidence, derived from case reports and outbreak investigations, suggesting an association between poor environmental hygiene and the transmission of infectious agents in healthcare settings (Garner & Favero 1986; Dancer 1999). Transmission of infectious agents from the environment to patients may occur through direct contact with contaminated equipment, or indirectly, for example, in the acute-care setting, via hands that are in contact with contaminated equipment or the environment and then touch a patient (Dancer 2008).

Incorrect and correct cough / sneeze etiquette

A sign
patient
for a r

These
soon c
poten
poten

1.5 Fo

of any collection center advising
ng that they should ask the receptionist

n others if possible and attended to as
ot to use the magazines as they are a
nd all surfaces that they touch or
leaned as soon as the patient leaves.

cleaning

Environmental surfaces can be safely decontaminated using less rigorous methods than those used on medical instruments and devices. The level of cleaning required depends on the objects involved and the risk of contamination—for example, surfaces that are likely to be contaminated with infectious agents (e.g. shared clinical equipment) require cleaning between patient uses, which is more often than general surfaces and fittings. However, all surfaces require regular cleaning. Thorough cleaning of all surfaces is necessary after spills and between patient uses of a room or patient-care area, especially in acute-care settings.

Routine environmental cleaning

General surfaces can be divided into two groups—those with minimal hand contact (e.g. floors and ceilings) and those with frequent skin contact ('frequently touched' or 'high risk' surfaces).

The methods, thoroughness and frequency of cleaning and the products used are determined by risk analysis and reflected in healthcare facility policy. Frequently touched surfaces in patient-care areas should be cleaned using a

detergent solution and more frequently than surfaces with minimal hand contact. Infection control professionals typically use a risk-assessment approach to identify frequently touched surfaces and then coordinate an appropriately thorough cleaning strategy and schedule with the housekeeping staff. When Multi resistant organisms (MROs) are suspected or known to be present, routine cleaning is intensified and the use of a detergent solution is followed by the use of a disinfectant so that surfaces are cleaned twice.

Cleaning schedules

The recommendations outlined for cleaning should be justified by the risk of transmission of infection within a particular healthcare facility. All organisations should have a documented cleaning schedule that outlines clear responsibilities of staff, a roster of duties and the frequency of cleaning required and the products that should be used to clean specific areas. Organisations should also facilitate job or task-specific education and training by accredited bodies for general and special cleaning of the physical environment.

If cleaning is outsourced to cleaning service providers, all cleaning service delivery procedures should be documented, including details of how the cleaning service will be undertaken. The procedures must include the following:

- Minimum cleaning frequencies and methods: cleaning service providers are required to provide cleaning services at whatever frequencies are deemed necessary in order to meet required standards.
- Staffing: including rosters for full-time, part-time and relief staffing members, as well as for management and supervisory positions.
- Equipment: including provision of consumable items (such as cleaning fluids and toilet paper) and facilities to be used to deliver each cleaning service.
- Management of the cleaning service: how the cleaning services will be managed and controlled at the service level, including specific details of the on-site management functions.

The risk of transmission of particular infections should be assessed and the cleaning schedule should be adjusted if a known infectious agent is present (e.g. an outbreak of *C. difficile* requires surfaces to be disinfected with sodium hypochlorite after cleaning with detergent).

Cleaning

Most hard surfaces can be adequately cleaned with warm water and detergent as per manufactures instructions. Allowing the cleaned surface to dry is an important aspect of cleaning.

Minimal touch surfaces

A detergent solution (diluted as per manufacturer's instructions) is adequate for cleaning general surfaces (e.g. floors, walls), as well as non-patient-care areas (e.g. administrative offices).

Damp mopping is preferable to dry mopping for routine cleaning (Andersen et al 2009).

Walls and blinds in patient-care areas should be cleaned with detergent solution when they are visibly dusty or soiled. Window curtains should be regularly changed in addition to being cleaned when soiled or exposed to MROs. Sinks and washbasins should be cleaned with a detergent solution on a regular basis as set by facility policy.

Frequently touched surfaces

Surfaces that are in close proximity to the patient and frequently touched surfaces in the patient care areas should be cleaned more frequently than minimal touch surfaces. Examples include Collection benches, patient collection chairs, waiting room chairs and surfaces, doorknobs, bedrails, light switches, table tops and wall areas around the patient, patient toilets.

Frequently touched surfaces can be cleaned with a detergent solution designed for general purpose cleaning. The exact choice of detergent will depend on the nature of the surface and the likely degree of contamination. Detergent-impregnated wipes may be used to clean single pieces of equipment and small surface areas. This method is not normally used for general cleaning and should not be considered a replacement for clean cloths and detergent solution.

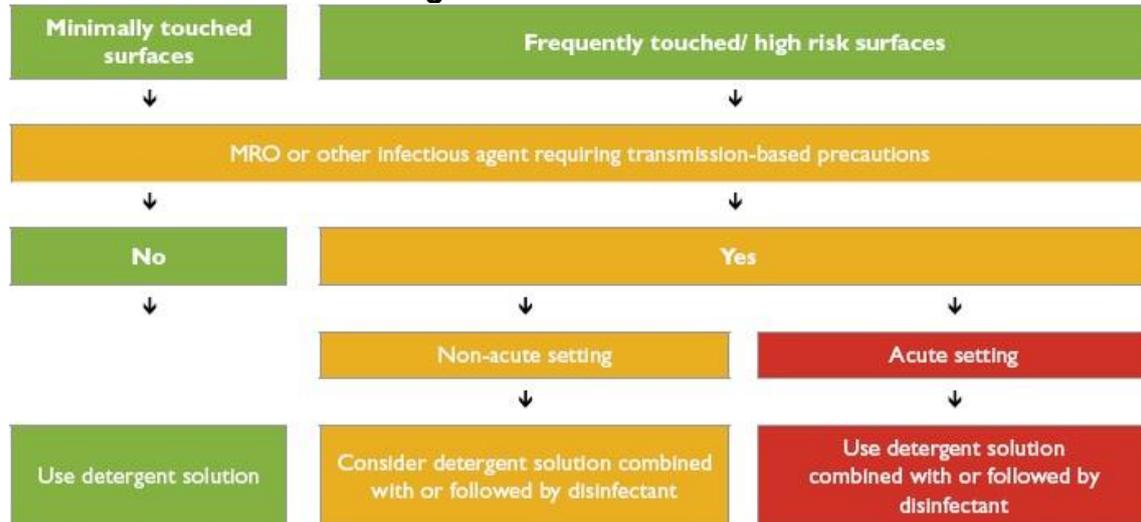
Use of disinfectants

In acute-care settings where there is uncertainty about the nature of soiling on the surface (e.g. blood or body fluid contamination versus routine dust or dirt) or the presence of MROs (including *C. difficile*) or other infectious agents requiring transmission-based precautions (e.g. pulmonary tuberculosis) is known or suspected, surfaces should be physically cleaned with a detergent solution, followed or combined with a TGA-registered disinfectant with label claims specifying its effectiveness against specific infectious organisms. This process must involve either:

- a physical clean using detergent followed by a chemical disinfectant (2-step clean) i.e. clean with detergent, then clean with a disinfectant
- a physical clean using a detergent and chemical disinfectant (2-in-1 clean) i.e. a combined detergent/disinfectant wipe or solution could be used if this process involves mechanical/ manual cleaning.
- Physical (mechanical or manual) cleaning is the most important step in cleaning. Sole reliance on a disinfectant without mechanical/manual cleaning is therefore not recommended.

In office-based practice and less acute patient-care areas (e.g. long-term care facilities), the risk of contamination, mode of transmission and risk to others should be used to determine whether disinfectants are required.

Procedure for routine cleaning



High-level disinfectants or liquid chemical sterilants are not appropriate for general cleaning; such use is counter to manufacturers' instructions for these hazardous chemicals. Instrument disinfectants should not be used for surface disinfection. Alcohol should not be used to disinfect large environmental surfaces, given the risk of additional hazards such as flammability.

1.6 Follow procedures for handling, transporting and processing of linen in a manner that controls the spread of infection

Handling of linen

Most Pathology practices have evolved to being a totally disposable linen practice. All bed covers and pillow covers are of a disposable material and are discarded after each patient use. Plastic backed disposable bed protectors are used when there is a risk of bodily fluid contamination.

All disposable linen is disposed of in a contaminated waste garbage. Healthcare facilities must have documented policies on the collection, transport and storage of linen. Healthcare facilities that process or launder linen must have documented operating policies consistent with AS/NZS 4146.

All used linen should be handled with care to avoid dispersal of microorganisms into the environment and to avoid contact with staff clothing. The following principles apply for linen used for all patients (i.e. whether or not transmission-based precautions are required):

- Appropriate PPE is worn during handling of soiled linen to prevent skin and mucous membrane exposure to blood and body substances

- Used linen is 'bagged' at the location of use into an appropriate laundry receptacle
- Used linen must not be rinsed or sorted in patient-care areas or washed in domestic washing machines
- Linen soiled with body substances should be placed into leak-proof laundry bags for safe transport
- Hand hygiene is performed following the handling of used linen.

Clean linen must be stored in a clean dry place that prevents contamination by aerosols, dust, moisture and vermin and is separate from used linen.

1.7 Follow procedures for disposal of contaminated waste

Waste management

As there is currently no national definition of clinical waste in Australian, healthcare facilities need to conform to relevant State or Territory legislation and regulations on the management of clinical and related wastes. Healthcare facilities should also refer to AS/NZS 3816.

When handling waste:

- apply standard precautions to protect against exposure to blood and body substances during handling of waste; wash hands following procedure
- segregation should occur at the point of generation
- waste should be contained in the appropriate receptacle (identified by colour and label) and disposed of according to the facility waste management plan
- health care workers should be trained in the correct procedures for waste handling.

Regardless of where waste is generated (e.g. isolation rooms/patient versus routine patient-care areas), the principles of determining whether it is to be treated as clinical or general waste remain the same.

Management practices

Many of the management practices recommended contribute to a reduction in risk for personnel who handle health-care waste; these are summarized as follows:

- Waste segregation: careful separation of different types of waste into different and distinct containers or bags defines the risk linked to each waste package.
- Appropriate packaging: prevents spillage of waste and protects worker from contact with waste.

- Waste identification (through distinct packaging and labelling): allows for easy recognition of the class of waste and of its source.
- Appropriate waste storage: limits the access to authorized individuals only, protects against infestation by insects and rodents, and prevents contamination of surrounding areas.
- Appropriate transportation: reduces risks of workers being exposed to waste.

Clinical Waste

These are wastes that have the potential to cause disease, sharps injury or public offence including sharps, human tissue waste, laboratory waste and animal waste resulting from medical or veterinary research or treatment or any other waste as specified by the WA Health facility. Clinical waste is further categorised into:

- Animal waste: waste arising from the whole or any part of an animal, or excreta.
- Sharps waste: objects or devices having sharp points or protuberances or cutting edges capable of causing a penetrating injury to humans.
- Human tissue waste: body tissue, organs, limbs and any free-flowing liquid body substance e.g. blood; Excludes teeth, hair and nails.
- Laboratory waste: a specimen or culture discarded in the course of medical, dental or veterinary practice or research, including genetically manipulated material and imported biological material or any material grossly contaminated thereby.

Related Waste

Other wastes generated within health care settings which are contaminated with cytotoxic drugs or other pharmaceuticals, chemicals and radioactive materials and can be further categorised into:

- Chemical waste: waste material generated from the use of chemicals in medical, dental, veterinary, laboratory, ancillary and disposal procedures
- Cytotoxic waste: waste material, including sharps, contaminated with a cytotoxic drug.
- Pharmaceutical waste: may be generated by various means including, but not limited to:
 - Expired pharmaceutical products
 - Pharmaceutical products discarded due to being in a substandard state (e.g. non-compliant storage, damaged or contaminated packaging, failed quality control specifications during manufacture)
 - Pharmaceutical products returned by patients, discarded by the public, no longer required by the public or no longer required by a healthcare facility
 - Waste generated by the manufacture or via the administration of pharmaceutical products
 - Preparations of drugs added to an intravenous solution

- Other waste contaminated with pharmaceuticals

Pharmaceutical wastes exclude:

- Pharmaceutical drugs and their metabolic by-products excreted by patients undergoing therapy
- Empty bottles (containing no liquid), empty pill bottles or strip packages where all tablets/capsules have been removed or other similar uncontaminated packaging
- Materials with trace quantities of pharmaceutical products (with the exception of cytotoxic drugs) such as used syringes and used intravenous sets (although they may be classed as clinical waste including sharps). Empty glass ampoules are classed as sharps and should be disposed of accordingly.
- Simple intravenous solutions such as saline or dextrose, liquid nutrient preparations and electrolyte solutions. These may be disposed of as normal liquids through the sewage system.

- Radioactive waste:

Waste material, including sharps, contaminated with a radioisotope which arises from the medical or research use of radionuclide, e.g. during nuclear medicine, radioimmunoassay and bacteriological procedures, which may be of solid, liquid or gaseous form, and which emit a level of radiation above the level set by regulatory authorities as exempt.

General Waste

This waste stream comprises any waste material which is not otherwise specified in the above definitions.

Recyclable Waste

Are those products, packages or element thereof that can be diverted from the waste stream and through existing processes, be collected, processed and returned to use in the form of raw materials or products.

Clinical waste

Three different coloured bins are used to collect clinical and related wastes:

- Clinical Waste Yellow Waste bins – marked “Clinical Waste”, with the International “Biohazard” symbol
- Cytotoxic Waste Purple Waste bins – marked “Cytotoxic Waste”, with the cell in “telophase” symbol
- Clinical Waste Orange Waste bins – marked “Pharmaceutical/Anatomical Waste”, with the International “Biohazard” symbol



Sharps

Sharps include objects with sharp points or edges, capable of cutting or piercing the skin. When sharps containers are collected, another one is delivered, eliminating any risk of cross-contamination.

The yellow coloured sharps containers are:

- Available in a variety of sizes to fit the range of environments where sharps are generated
- Puncture and leak proof with a fully sealable lid and are also suitable to manage clinical fluids
- Accompanied by bin stickers to ensure clear identification
- Available also with a flip lid for easy access



Cytotoxic Waste

Cytotoxic waste containers are available to manage material which is, or may have been contaminated with cytotoxic drugs in the preparation, transport or administration of cytotoxic therapy. This waste stream requires incineration as a method of disposal and must be packaged in purple containers that bear the 'cytotoxic symbol'. Cytotoxic items for incineration vary by State and Territory.



Pharmaceutical Waste

Pharmaceutical waste consists of pharmaceutical (drug, remedy/medicinal substances) or other chemical substances specified in the Poisons List (Poisons and Therapeutic Goods Act 1996). Pharmaceutical waste includes expired or discarded pharmaceuticals, substances no longer required by patients or departments and waste materials/substances generated during the

manufacture and administration of pharmaceuticals. All pharmaceutical bins are lockable, lined with orange PVC plastic bags, have orange lids and/or bodies and are accompanied by bin stickers to ensure clear identification.



Medical wastes are stored, transported and disposed of differently to general waste and the management of clinical wastes must comply with specific Legislative and Occupational Health and Safety guidelines.

All Clinical waste must be stored in an area that is out of the reach of any member of the public. Sharps containers must be secured to a bench or wall well out of the reach of children.

Contaminated waste bins must have a closable lid and not able to be accessed by any member of the public.

Bins stored outside a building must be locked and secured in a lockable compound.

Clinical or related wastes must be packaged, labeled, handled and transported appropriately to minimise the potential for contact with the waste and reduce the risk to the environment from accidental releases. Schedule 8 of the Environmental Protection (Waste Management) Regulation 2000 (Waste Regulation) contains requirements (known as the design rules) for waste containers and waste transport vehicles.

Containers and identification

Clinical or related waste container colours / symbol coding

WASTE	CONTAINER COLOUR	LABEL COLOUR	SYMBOL	LABELLING
CLINICAL	YELLOW (vivid yellow Y13)	BLACK	BIOHAZARD SYMBOL 	CLINICAL WASTE
CYTOTOXIC	LILAC (lilac P23)	WHITE	CELL IN TELOPHASE 	CYTOTOXIC WASTE
GENERAL	-----	-----	-----	-----
RADIOACTIVE	RED (scarlet R12)	BLACK	RADIOACTIVE SYMBOL 	RADIOACTIVE WASTE

The table on this page is based on the design requirements for waste containers from schedule 4 of the Waste Regulation. Under r. 47 of the Waste Regulation a person who operates premises at which these types of clinical or related waste is generated must ensure all bags and other containers used at the establishment for the collection, storage, transport or disposal of clinical and related waste comply with the requirements in the schedule.

Sharps

Sharps produced by premises generating clinical or related waste must be placed into a rigid-walled, puncture-resistant container that meets the relevant Australian Standard for the type of container, and is the appropriate colour for the type of sharp.

For example, if the sharps waste is contaminated with a cytotoxic drug, the container should be purple. If it is contaminated with blood, the container should be yellow. If the sharps waste is contaminated with blood and a cytotoxic drug, the container used should be the colour of the highest level waste present — this being the cytotoxic drug (the container should be purple). Sharps discarded in other areas (e.g. public toilets, hotels, shopping centres, restaurants, parks, or skin penetration premises) must be placed into rigid-walled containers and should be disposed in accordance with local government requirements.

Once the sharps container has been sealed and secured, it can be placed directly into a secondary container for transportation. There is no requirement to first place the sharps container into a plastic bag before disposal into a secondary container, as they are already contained.

Clinical waste

Clinical waste must be placed in yellow bags and containers identified with the Biohazard symbol and the words "CLINICAL WASTE" marked prominently and permanently in black.

Cytotoxic waste

Cytotoxic wastes require careful handling and containment. All cytotoxic waste must be placed into purple bags and containers that are identified with the cell in telophase symbol and the wording "CYTOTOXIC WASTE" in white.

Radioactive waste

Radioactive waste must be placed into red bags and containers that are marked with the radiation warning symbol and the words "RADIOACTIVE WASTE" in black. The Radiation Safety Act 1999 contains requirements for the management of radioactive substances.

The lid of the secondary container should be capable of being secured once the waste has been deposited. Once sealed, neither the primary nor secondary container should be opened on-site, unless for the purposes of conducting a waste assessment or audit.

Internal movement and transporting of clinical or related waste

Internal movement

Internal movement is the movement of containerised clinical or related waste from its source to the storage, treatment or collection point. Waste should be moved around premises in rigid-walled, puncture resistant containers. A rigid-walled container is one that has hard, unbending sides and is resistant to splitting, breaking and puncturing.

The container must not allow liquids to leak or soak through. A mobile garbage bin is an example of a rigid-walled container suitable for the transportation of clinical or related waste. The movement of loose waste or waste carried in plastic bags should be avoided or, where necessary, limited to short distances, light waste loads and low risk wastes.

Good waste management practice involves minimising exposure to the waste. To facilitate this, all movement of wastes throughout the premises should be planned to avoid peak activity times, such as visiting hours, meal times and change of shifts.

Clinical or related wastes should not be moved through public areas or general staff thoroughfares.

Trolleys and bins should not be overfilled, to avoid potential spillage.

The practice of double-bagging waste should be carefully considered before it is used. Double-bagging means using two bags to contain one waste load. It potentially doubles the thickness of the plastic skin and gives added strength. Double-bagging may be used in situations where heavy loads of waste are moved from generation areas to bins. However, care must be taken when placing a bag containing waste into an empty bag so that the contents are not spilled, or staff does not come in contact with the waste. The risks associated with this double handling may reduce the value of double-bagging.

All waste must be transported in rigid-walled, puncture resistant containers. The container used must have a lid that is capable of being secured during transportation. Plastic bags alone may not be strong enough to ensure the safe handling and transportation of these wastes.

It is important to ensure that any reusable containers are in good condition and are not split, cracked or damaged in any way.

It is preferable that any vehicle used for the transportation of clinical or related waste should be used solely for that purpose. The transport vehicle should be designed to protect the driver, public and environment from contact with the waste during transportation and in the event of an accident. The driver area should be separated from the waste transport area to minimise risk of exposure.

1.8 Follow procedures for handling and cleaning client equipment that prevents skin mucous membranes exposure, contamination of clothing and transfer of pathogens.

This section gives core principles for reprocessing of reusable instruments and equipment in any healthcare setting. Healthcare facilities should develop local policies and procedures relevant to their setting and may also need to consult relevant Australian standards and discipline-specific guidelines for further advice on reprocessing requirements.

What are the risks?

Any infectious agents introduced into the body can establish infection. In all healthcare settings, reusable instruments and equipment should be handled in a manner that will prevent patient, healthcare worker and environmental contact with potentially infectious material. Principles of reprocessing reusable instruments and equipment include (TGA 1998):

- all reusable medical devices and patient-care equipment used in the clinical environment should be reprocessed according to their intended use and manufacturer's advice
- only TGA-registered reusable medical devices should be used; before purchase, healthcare facilities should ensure that manufacturer's reprocessing instructions are provided and are able to be followed by the healthcare facility
- single-use medical devices should not be reprocessed

- if a healthcare facility takes a decision to reprocess single-use devices, the facility must be licensed by the TGA
- will be considered a manufacturer
- will be subject to audit for conformance

Assessing the degree of risk

Any instrument or piece of equipment that is to be reused requires reprocessing—cleaning, disinfection and/or sterilisation. The minimum level of reprocessing required for reusable instruments and equipment depends on the individual situation (i.e. the body site and the nature by which the instrument will be used).

The approach to disinfection and sterilisation of patient-care items and equipment devised by Spaulding over 30 years ago has been retained and refined and is still successfully used by infection control professionals and others when planning methods for disinfection or sterilisation (Rutala & Weber 2008). The system is based on instruments and items for patient care being categorised into critical, semi-critical and non-critical, according to the degree of risk for infection involved in use of the items.

Categories of items for patient care

Critical	These items confer a high risk for infection if they are contaminated with any microorganism and must be sterile at the time of use. This includes any objects that enter sterile tissue or the vascular system, because any microbial contamination could transmit disease.
Semi-critical	These items come into contact with mucous membranes or non-intact skin, and should be single use or sterilised after each use. If this is not possible, high-level disinfection is the minimum level of reprocessing that is acceptable.
Non-critical	These items come into contact with intact skin but not mucous membranes. Thorough cleaning is sufficient for most non-critical items after each individual use, although either intermediate or low-level disinfection may be appropriate in specific circumstances.

Computers and personal digital assistants (PDAs) used in patient care should be included in policies for cleaning non-critical items. Although keyboard covers and washable keyboards that can be easily cleaned are in use, the infection control benefit of these items and optimal management are yet to be determined.

Cleaning

Cleaning is the removal of foreign material (e.g. soil and organic material) from objects and is normally accomplished using detergent solution.

Cleaning to remove organic material must always precede high-level disinfection and sterilisation of critical and semi-critical instruments and devices

as residual material reduces the effectiveness of the disinfection and sterilisation processes. If an item cannot be cleaned, it cannot be disinfected or sterilised. Instruments should be cleaned as soon as practical after use (e.g. preferably at the point of use) before soiled materials become dried onto the instruments.

Dried or baked materials on the instrument make the removal process more difficult and the disinfection or sterilisation process less effective or ineffective. Instruments that can be disassembled must be disassembled before the cleaning and the disinfection/sterilisation process.

Methods of cleaning

Automated

Automated cleaners (ultrasonic cleaners and washer-disinfectors) reduce the handling of instruments and are recommended for cleaning basic instruments that can withstand the process.

- Ultrasonic cleaners work by subjecting instruments to high frequency, high-energy sound waves, thereby loosening and dislodging dirt.
- Washer-disinfectors use detergent solutions at high temperatures to wash instruments.

When a washer-disinfector is used, care should be taken in loading instruments: hinged instruments should be opened fully to allow adequate contact with the detergent solution; stacking of instruments in washers should be avoided; and instruments should be disassembled as much as possible.

Manual

Cleaning is done manually for fragile or difficult-to-clean instruments and in areas without automatic units.

The two essential components of manual cleaning are:

- Friction—rubbing/scrubbing the soiled area with a soft brush
- Fluidics—use of fluids to remove soil and debris from internal channels after brushing and when the design does not allow passage of a brush through a channel.

Healthcare workers should wear appropriate PPE for the task—plastic apron, utility gloves and face protection (protective eyewear and mask or face shield).

Care should be taken to prevent splashes to mucous membranes or penetration of the skin by sharp instruments.

Cleaning agents

The cleaning solution and style must be appropriate for each instrument and equipment.

The manufacturer's instructions will guide the type of cleaning agent required. This is usually neutral pH or mildly alkaline as such solutions generally provide the best material compatibility profile and good soil removal and mildly acidic solutions may damage instruments.

Enzymes, usually proteases, are sometimes added to neutral pH solutions to assist in removing organic material such as blood and pus. Cleaning solutions can also contain lipases (enzymes active on fats) and amylases (enzymes active on starches). Enzymatic cleaners are not disinfectants, and proteinaceous enzymes can be inactivated by germicides.

As with all chemicals, enzymes must be rinsed from the equipment or adverse reactions could result.

Work Practices and Protective Equipment

These must be followed and used. This includes following work instructions for decontamination and safe use of equipment, using protective shields or safety guards that minimise risk.

Disinfection

Disinfection is a process that inactivates non-spore forming infectious agents, using either thermal (moist or dry heat) or chemical means. Items need to be cleaned before being disinfected.

Instruments should be removed from the disinfectant after reprocessing and stored dry.

To preserve the surfaces of the instruments, dissimilar metals should be separated before cleaning

- Thermal disinfection uses heat and water, at temperatures that destroy infectious agents and is appropriate for items that are heat and moisture resistant and do not require sterilisation.
- Thermal disinfection, is the simplest, most efficient and cost-effective method of disinfection.
- It can be achieved in an automated thermal washer-disinfector by choosing the appropriate cycle.
- Chemical disinfection can be achieved with a compatible TGA-registered instrument-grade disinfectant, used alone or together with an automated washer-disinfector. Chemical disinfectants include alcohols, chlorine and chlorine compounds, formaldehyde, hydrogen peroxide, phenolics and quaternary ammonium compounds. Commercial

formulations based on these chemicals are considered unique products and must be registered with the TGA. In most instances, each product is designed for a specific purpose; therefore, users should read labels carefully to ensure the correct product is selected for the intended use and applied efficiently.

There are three levels of disinfection, depending on the intended use of the instruments.

Disinfection is not a sterilising process. Wherever possible, sterilise items to be used in semi-critical sites, or employ single-use items.

Sterilisation

Sterilisation destroys all microorganisms on the surface of an instrument or device, to prevent disease transmission associated with the use of that item. While the use of inadequately sterilised critical items represents a high risk of transmitting infectious agents, documented transmission associated with an inadequately sterilised critical item is rare. This is probably due to the wide safety margin associated with the sterilisation processes used in healthcare facilities.

- Reprocessing of heat resistant items is recommended by steam sterilisation due to the safety margin, reliability, validity and lethality.
- Reprocessing heat and moisture-sensitive items requires use of a low-temperature sterilisation technology (e.g. ethylene oxide, hydrogen peroxide plasma, peracetic acid, aldehyde).

Sterilisation methods are designed to give a sterility assurance level (SAL) of at least 10^{-6} , provided the sterilisation process is validated by the user. Records of sterilisation must also be kept to verify that an appropriate reprocessing system is in place according to state and federal legislation. Details of the documentation required can be found in Australian Standards AS/NZS 4187 and AS/NZS 4815.

In this rapidly changing area, reprocessing standards should evolve to accommodate changes in equipment design and emerging technologies in sterilisation.

Individual actions for reducing risk

- Become familiar with standards and facility protocols on cleaning, disinfecting and sterilising
- Use the appropriate product for the situation and use it as directed
- Participate in education sessions and professional development sessions on reprocessing instruments and equipment, particularly when new sterilising or disinfecting equipment is introduced

Involving patients in their care

The following information may be provided to patients to assist them in becoming involved in identifying and reducing risks related to reprocessing of instruments and equipment.

- Many instruments and equipment in the hospital are reusable
- All reusable instruments and equipment are cleaned thoroughly and then either disinfected or sterilised before being used on the next patient
- The system for cleaning, disinfecting and sterilising instruments and equipment protects patients and healthcare workers from contact with potentially infectious material
- Any instrument that enters a part of the body (e.g. in surgery) is sterilised and completely free of all potentially harmful organisms
- Any instrument that goes inside the nose, mouth or other orifice, or touches broken skin, is either sterilised or disinfected to a high level
- Any equipment that touches the patient or is touched by the patient, is cleaned thoroughly and if necessary disinfected
- It's okay to ask about the cleaning and sterilising practices in the hospital

1.9 Identify and respond to situations where additional precautions may be required to prevent the transmission of infection

Infectious agents are biological agents that cause disease or illness to their hosts. Many infectious agents are present in healthcare settings. Patients and healthcare workers are the most likely sources of infectious agents and are also the most common susceptible hosts. Other people visiting and working in health care may also be at risk of both infection and transmission.

A human with an infection has another organism inside them which gets its sustenance (nourishment) from that person, it colonizes that person and reproduces inside them. The human with that organism (germ) inside is called the host, while the germ or pathogen is referred to as a parasitic organism. Another name for an organism that causes infection is an infectious agent.

It is only an infection if the colonization harms the host. It uses the host to feed on and multiply at the expense of the host to such an extent that his/her health is affected. The normal growth of the bacterial flora in the intestine is not an infection, because the bacteria are not harming the host.

An organism which colonizes and harms a host's health is often called a pathogen. Examples include:

- Parasites
- Fungi
- Bacteria
- Prions
- Viroids (plant pathogens, they affect the health of plants)

We all develop a wide range of infections, but fight them off rapidly. Some people, however, develop persistent, long-term (chronic) infections. The majority of chronic infections are caused by viruses, such as hepatitis or herpes. Chronic bacterial infections are more likely to affect patients with diabetes, as well as those with weakened immune systems.

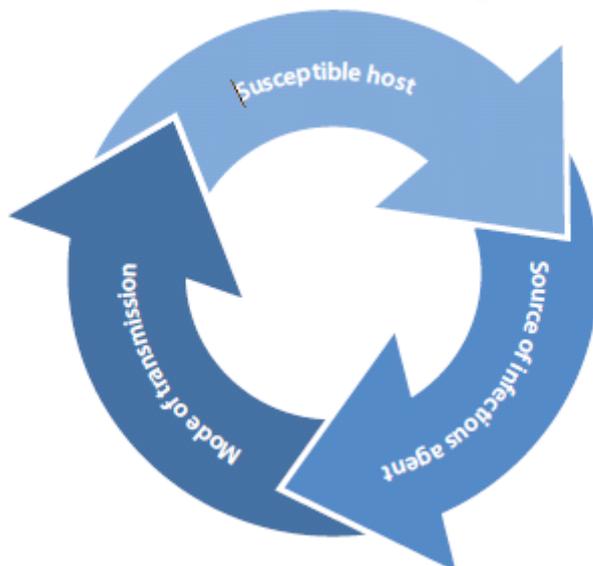
Sometimes, if two organisms are present in the host together, they fight each other instead of the human body, and the levels of each colony remain balanced - their presence, together does not pose a problem for the host. An example could be some skin bacteria and yeast. Antibiotics may, in fact, upset the balance by destroying the good bacteria, allowing the other potential pathogen to multiply faster and cause health problems.

Infection requires three main elements

- a source of the infectious agent,
- a mode of transmission and
- a susceptible host.

This is known as the chain of infection.

Interruption of this cycle is a strategy to limit the spread of infection



Chain of infection

The modes of transmission

In healthcare settings infectious agents can be transmitted by:

- Contact
- Droplet
- Airborne

Health care workers come into contact with many potentially contagious diseases. You may feel concern about the number of infections to which you could be exposed. However, in order to be exposed to and contract an infectious disease, all elements of the Chain of Infection must be intact. If any link in the chain is broken, there is no infection. By knowing the elements of the chain and by following some key practices, you will gain peace of mind because you can break the chain.

What are the typical incubation periods?

The incubation period is the time between exposure of the pathogen and the first sign of illness. Incubation periods differ with each infection. Here are some typical incubation periods for common infections.

Infectious Agents	Period of incubation	Symptoms
Rhinovirus (Common cold)	From 8 - 10 hours to 2 days	Coughing, sneezing, runny nose
Gastroenteritis (Tummy bug)	As little as a couple of hours, but often 24 hours and onwards	Diarrhoea, stomach cramps, vomiting, nausea, fever, headache
Tinea capitis (Ringworm on the scalp - This strain mainly affects children)	10 - 14 days	Scaly patches of temporary baldness. Infected hairs become brittle and break off easily.
Influenza (Flu)	1 - 4 days	Fever over 38°C, plus at least one systemic symptom, such as myalgia, and one respiratory symptom

Common cold and flu - When are you contagious?

People are contagious from the day before they start experiencing symptoms of a cold and three or four days into the cold. For the flu, the contagious period extends five to seven days into the illness, although children can be contagious for much longer than adults.

Susceptible host

A susceptible or non-immune person is one who has little resistance against a particular organism and who, if exposed to this organism, is likely to contract disease. By contrast, an immune person is one who has a high degree of resistance to the organism and who, when exposed, does not develop the disease. Immunity to many diseases is relative and can be overcome by

sufficient exposure to the diseases. The term host is used to connote the living body upon which or in which a disease agent or parasite lives--the final recipient of an infectious agent. The susceptibility of a host to invasion by infectious agents is dependent upon a number of factors.

- **Age.** The very young and the very old are usually more susceptible to diseases than older children and young adults. In addition, certain diseases have a natural affinity for persons in certain age groups. Examples of these diseases are measles, chickenpox, mumps, and other diseases normally associated with childhood and adolescence.
- **Physical Condition.** Persons who are in a state of malnutrition, suffering from extreme fatigue or exposure to the elements, or suffering from an imbalance in normal body functions have weakened resistance to the invasion of pathogenic organisms.
- **Immunity.** The natural immunity acquired by an individual by virtue of having been infected by, or exposed to, an infectious organism and having developed antibodies against the agent reduces the likelihood of further or repeated infection. Similarly, one who has been artificially immunized against a disease will be similarly protected.
- **Habits and Customs.** Local mores--particularly those found in undeveloped and underdeveloped regions--may be the cause of increased susceptibility to disease. Although these conditions are more appropriately discussed under sanitary practices than as host factors, their longstanding acceptance by certain cultures makes them inseparable from the host. Examples of these practices are the custom of rubbing the umbilical cord with dirt (in some South American cultures) and of defecating directly into rice paddies (as in Vietnam and other Asian cultures).
- **Other Factors.** A number of other factors tend to predispose an individual to various diseases--not necessarily communicable diseases, but infirmities in general. Among these factors are race (hypertensive heart disease and sickle cell anemia in blacks); sex (breast cancer in women); occupation (lung cancer in asbestos workers); geographical location; socioeconomic status; and others.

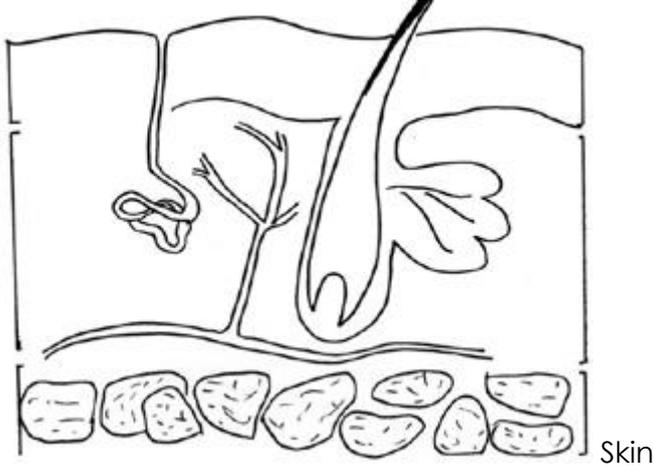
Germs look for a reservoir in which to hide. This is where they live, grow, and increase in numbers. A reservoir may be another person, an animal, or other places in the environment such as water or dirt. For example, rotavirus is a germ which causes gastroenteritis. It can live for up to 20 minutes on dry, hard surfaces such as tables or toys.

If the reservoir is a person, then the germs may be in the skin, blood, respiratory tract, or digestive tract. Some people may be healthy even though they carry these germs; others may have sickness due to these germs. Some people may not show symptoms of infection but may still infect others. These people are called 'carriers'.

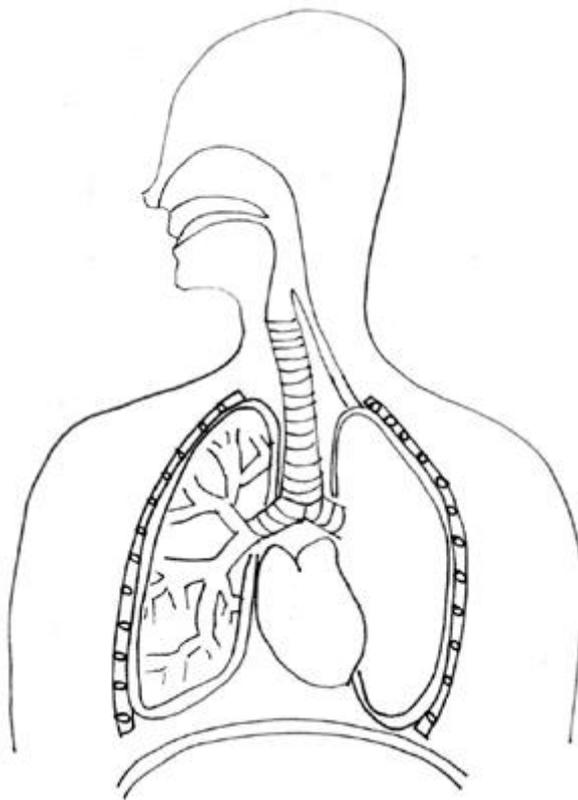
A germ uses a portal of entry to get into a susceptible host. Typically this is the same way that a germ may get out of someone.

Portals of entry include:

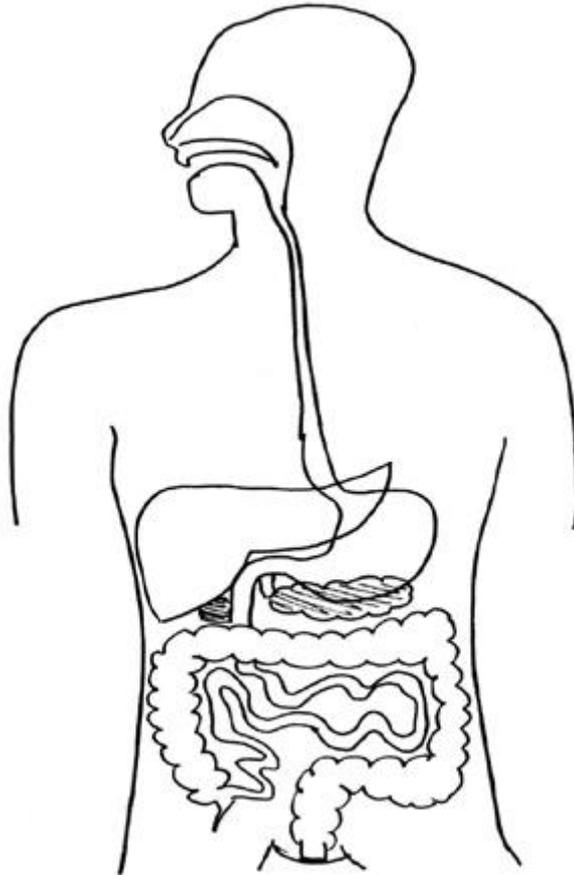
- Skin - Via any breaks, tears, open sores, or cracked skin; direct contact with others; contact with contaminated blood, pus, or other bodily fluids



- Nose or mouth - Breathing in harmful germs; via contaminated saliva (i.e. kissing)



- Gastrointestinal tract - Eating or drinking infected things



Gastrointestinal system

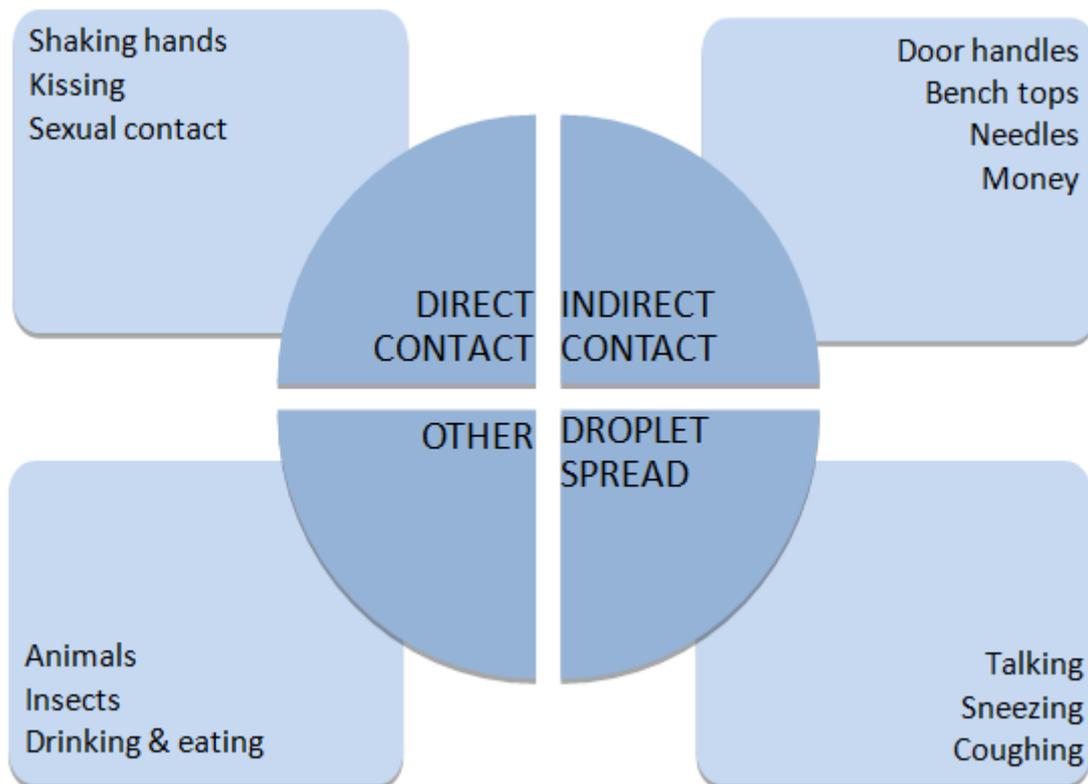
Mode of transmission

Germs are able to spread from person to person by air, food, water, objects, or insects, or by direct contact with an infected person. However, the most common way germs travel from one person to another is by hand contact. Our hands may come into contact with germs when we sneeze, wipe our nose, or use the toilet.

How are diseases spread?

These are the main ways that diseases are spread:

- Direct contact
- Indirect contact
- Droplet spread
- Other



Contact transmission

Diseases can be spread through direct contact, which is when one person spreads an infection to another person via close physical contact. Typical contact includes shaking hands, kissing, and sexual contact. Herpes simplex (cold sore virus) is transmitted via direct contact.

How do we infect ourselves?

Sometimes we can host an infection in one part of our body without symptoms, but when the infection is transmitted to another part of our body, we can infect ourselves and develop symptoms of the disease. For example, our hands may often carry high concentrations of organisms such as the common cold virus (rhinovirus). We may be symptomless until we transmit the virus from our hands to other parts of our body, such as when we rub our eyes or touch an uncovered wound or abrasion.

Direct transmission occurs when the transfer of microorganisms results from direct physical contact between an infected or colonised individual and a susceptible host, for example a HCW's contaminated hands touch a vulnerable site (such as a wound) on a patient.

Indirect transmission involves the passive transfer of an infectious agent to a susceptible host via an intermediate object or formite. Examples of intermediate objects include instruments, bed rails over bed tables and other environmental surfaces.

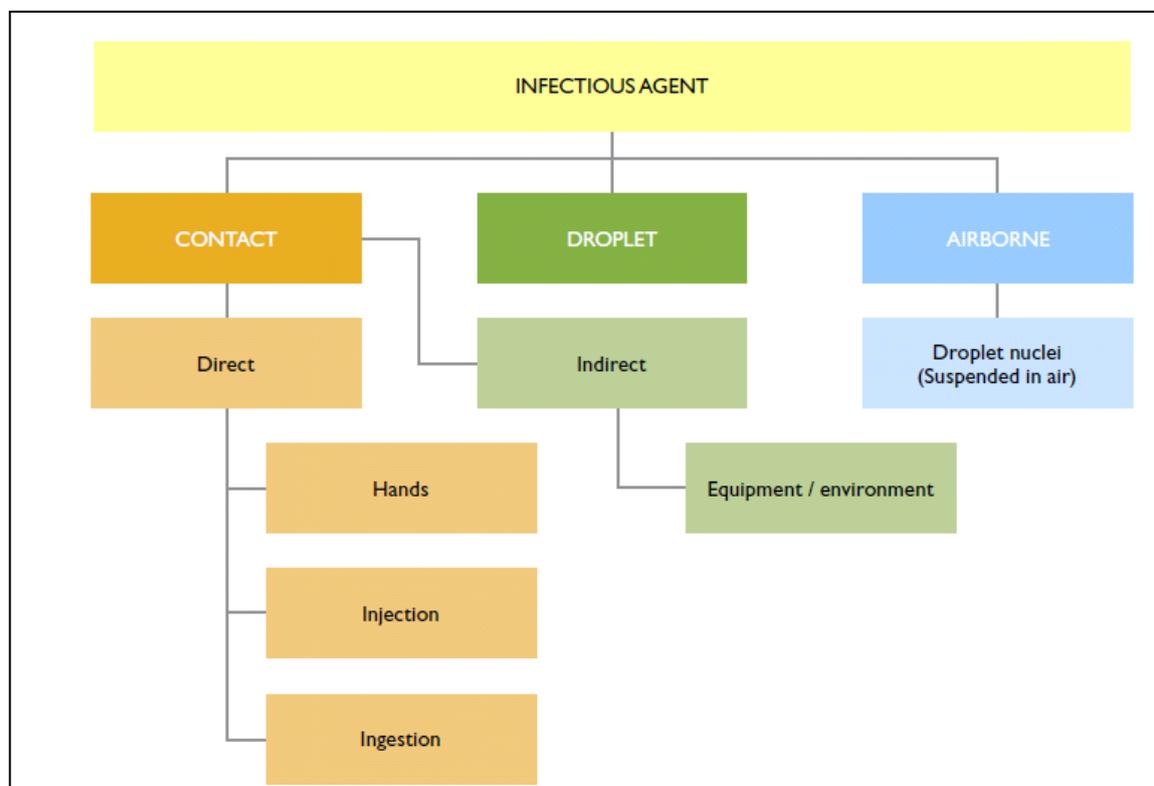
Droplet transmission

Droplet transmission occurs when respiratory droplets generated via coughing, sneezing or talking contact susceptible mucosal surfaces, such as the eyes, nose or mouth. Transmission may also occur indirectly via contact with contaminated fomites with hands and then mucosal surfaces.

Respiratory droplets are large and are not able to remain suspended in the air thus they are usually dispersed over short distances.

Airborne transmission

Airborne transmission refers to infectious agents that are spread via droplet nuclei (residue from evaporated droplets) containing infective microorganisms. These organisms can survive outside the body and remain suspended in the air for long periods of time. They infect others via the upper and lower respiratory



tracts.

There are many ways of preventing the spread of infectious disease. Firstly, good hygiene is important wherever you work as this acts to minimise cross-infection. Secondly, physical barriers such as protective clothing are necessary to prevent initial contact with bio-hazardous substances. Thirdly, immunisation where possible, is available to cover the unexpected exposures which can occur.

Standard precautions

Standard precautions are a set of guidelines produced to protect employees from the risks of exposure to blood and body fluids. They are based on the presumption that everyone is a potential carrier of blood borne and other infectious diseases.

The potentially infectious nature of all blood and body substances necessitates the implementation of infection control practices and policies. In Australia, infection control guidelines have been developed based on the United States Centres for Disease Control and Prevention model, in terms of 'standard precautions' and transmission based precautions. Standard precautions ensure a high level of protection against transmission of blood borne viruses in the health care setting and the universal application reduces the potential for stigma and discrimination. Standard precautions are the minimum level of infection control required in the treatment and care of all patients to prevent transmission of blood-borne infections including HIV, HBV and HCV. Standard precautions should be implemented universally, regardless of information or assumptions about a patient's infection status.

Additional precautions are further measures required to protect against transmission of infections such as tuberculosis.

Implementation of standard precautions minimises the risk of transmission of blood-borne and other infections from health care worker to patient, from patient to health care worker and from patient to patient. Infection control guidelines are relevant in social and domestic contexts as well as occupational settings. The clinician should be ready to answer patients' questions about their clinic's infection control policies and provide advice for patients in relation to infection control in their daily environment.

Additional precautions

Additional Precautions are used for patients known or suspected to be infected or colonised with epidemiologically important or highly transmissible pathogens that can transmit/cause infection by the following means: airborne transmission (e.g. pulmonary tuberculosis, chickenpox, measles) droplet transmission of respiratory secretions (e.g. rubella, pertussis, influenza) contact transmission (direct or indirect) with patients who may be disseminators of infectious agents of special concern (e.g. the dry skin of those colonised with Multi-resistant *Staphylococcus aureus* [MRSA], faecal contamination from carriers of vancomycin-resistant enterococci [VRE] or contaminated surfaces) inherent resistance to standard sterilisation procedures or other disease-specific means of transmission where standard precautions are not sufficient (e.g. patients with known or suspected Creutzfeldt-Jakob disease) any combination of these routes.

Additional precautions are designed to interrupt transmission of infection by these routes and should be used, in addition to standard precautions, when standard precautions alone might not contain transmission of infection. Additional precautions may be specific to the situation for which they are

required, or may be combined where microorganisms have multiple routes of transmission.

Additional precautions should be tailored to the particular infectious agent involved and the mode of transmission, and may include one or any combination of the following:

- allocation of a single room with ensuite facilities
- a dedicated toilet (to prevent transmission of infections that are transmitted primarily by contact with faecal material, such as for patients with infectious diarrhoea or gastroenteritis caused by enteric bacteria or viruses)
- cohorting (room sharing by people with the same infection) may be an alternative if single rooms are not available
- special ventilation requirements (e.g. monitored negative air pressure in relation to surrounding areas)
- additional use of personal protective equipment (e.g. health care workers attending to patients in respiratory isolation should wear a well-fitting mask: a 0.3-mm particulate filter mask (P2 or N95 mask) is recommended for tuberculosis)
- rostering of immune health care workers to care for certain classes of infectious patients (eg chickenpox)
- dedicated patient equipment
- restricted movement of both patients and health care workers.

Additional precautions are not required for patients with blood borne viruses, such as HIV, hepatitis B virus or hepatitis C virus, unless there are complicating infections, such as pulmonary tuberculosis.

To minimise the exposure time of other people in office practices or hospital waiting rooms, people identified as 'at risk' of transmitting droplet or airborne diseases (e.g. a child with suspected chicken pox) should be subject to additional precautions including isolation and should be attended to before other people waiting for treatment.

An outline of the application of additional precautions for infections with airborne, droplet or contact transmission is shown in the following table.

Requirement		Additional precautions by transmission route	
Item / device	Airborne	Droplet	Contact
Gloves	Nil	NIL	For all manual contact with patient, associated devices and immediate environmental surfaces
Impermeable gown	Nil	Nil	When health care worker's clothing is in substantial contact with the patient, items in

			contact with the patient, and their immediate environment
Respirator or mask.	P2/N95 particulate respirator for tuberculosis only. All others, use face mask suited to the purpose such as a mask that filters to 0.1 microns and has a splash resistant shield.	Yes —mask*	Protect face if splash likely
Goggles/face-shields	Protect face if splash likely	As per standard precautions	Protect face if splash likely
Special handling of equipment	As per standard precautions	As per standard precautions	Single use or reprocess before reuse on next patient (includes all equipment in contact with patient)
Single room	Yes or Cohort patients with same infection. Door closed.	Yes or Cohort patients with same infection. Door closed.	If possible, or cohort with patient with the same infection (eg methicillin-resistant <i>Staphylococcus aureus</i>)
Negative pressure	Essential for pulmonary TB	No	No
Transport of patients	Appropriate mask* for patient Notify area receiving patient	Appropriate mask* for patient Notify area receiving patient	Notify area receiving patient
Other	Encourage patients to cover nose and mouth when coughing or sneezing and wash their hands after blowing nose. Provide one metre of separation between patients in ward accommodation	Provide one metre of separation between patients in ward accommodation	Remove gloves and gown, and wash hands before leaving patient's room

Hand washing

- Wash and dry hands after touching blood, body fluids, secretions, excretions and contaminated items such as equipment or instruments, regardless of whether gloves are worn or not.
- Wash and dry hands immediately after gloves are removed, after significant patient contact such as contact with or physical examination, emptying drainage bags, undertaking venepuncture or delivery of an injection or going to the toilet.
- Wash and dry hands following any activities that may transfer microorganisms to other patients or environments.
- Use plain liquid soap for routine hand washing. Antimicrobial liquid soap solutions are required for invasive procedures and in some situations such as those patients with VRE and MRSA.
- A 70% alcohol-based chlorhexidine (0.5%) hand rub solution may be used as an adjunct to hand washing and in situations where water is not readily available.

Personal protective equipment

The use of personal protective equipment (PPE) protects the health care worker and others from exposure to blood and body fluids/substances. PPE that complies with relevant Australian Standards should be readily available and accessible in all health services.

Gloves

- Wear gloves (clean non sterile gloves are adequate) when touching blood, body fluids, secretions, excretions and contaminated items; put on clean gloves just before touching mucous membrane and non-intact skin. Sterile gloves are required for invasive procedures.
- Change gloves between tasks and procedures on the same patient after contact with material that may contain a high concentration of microorganisms.
- Remove gloves promptly after use, before touching non-contaminated items and environmental surfaces and before going to another patient. Dispose of gloves in the clinical (infectious) waste or place in a plastic bag and tie before disposing of it in the general household waste.
- Wash and dry hands immediately after removing gloves to avoid transfer of microorganisms to other patients or environments.

Gowns

- Wear a gown (a clean non-sterile gown is adequate) to protect skin and prevent soiling of clothing during procedures and patient care activities that are likely to generate splashing or sprays of blood, body fluids, secretions, or excretions or cause soiling of clothing.
- Select a gown (long- or short-sleeved) that is appropriate for the activity and the amount of fluid likely to be encountered.

- Remove the used gown as promptly as possible using gloved hands, roll up carefully and place in a linen receptacle for laundering.
- Wash and dry hands to avoid transfer of microorganisms to other patients and environments.

Masks, eye protection, face shields

Wear a mask and eye protection or a face shield to protect mucous membranes of the eyes, nose and mouth:

- during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions
- during cleaning activities.

Remove the mask by holding the ties only and dispose of the mask into a clinical waste bin. Reusable face shields or goggles should be removed carefully and placed in a receptacle for cleaning.

Waterproof aprons

Wear waterproof aprons when splashes or sprays of blood or body fluids/substances are likely such as during cleaning activities.

Remove the used apron as promptly as possible using gloved hands, roll up carefully and place in a clinical waste bin.

Environmental control

Ensure that the health service has adequate procedures for the routine care, cleaning, and disinfection of environmental surfaces, and other frequently touched surfaces and that these procedures are being followed.

2. Identify infection hazards and assess risks

2.1 Identify infection hazards associated with own role and work environment

The potentially infectious nature of all blood and body substances necessitates the implementation of infection control practices and policies in the health care setting.

The universal application of standard precautions is the minimum level of infection control required in the treatment and care of all patients to prevent transmission of HIV, HBV and HCV. These include personal hygiene practices particularly hand-washing, use of personal protective equipment such as gloves, gowns and protective eye wear, aseptic technique, safe disposal systems for sharps and contaminated matter, adequate sterilisation of reusable equipment and environmental controls.

Vaccination is an important infection control strategy for HBV and HAV; all health care workers should be aware of their immune status and be vaccinated if appropriate.

Clinicians and other health care workers who regularly perform exposure-prone procedures have a responsibility to be regularly tested for HIV, HCV and HBV if not immune. Health care workers who are aware that they are infected with HIV, HBV or HCV should not perform exposure-prone procedures.

The current best practice guidelines for infection control procedures in Australian health care settings are outlined in Infection Control Guidelines for the Prevention of Transmission of Infectious Diseases in the Health Care Setting (2004).

TABLE 13.1 Precautions for preventing transmission of blood-borne viruses¹			
Disease	Mode of transmission	Recommended precautions	Immunisation
HAV	Contact (oral-faecal route)	Standard precautions Additional precautions for incontinent patients	Immunise health care workers at high risk
HBV	Blood-borne (direct contact with blood or body substances)	Standard precautions	Immunise all health care workers. Test for seroconversion 4–8 weeks after 3rd dose of vaccine
HCV	Blood-borne (direct contact with blood)	Standard precautions	No vaccine available
HIV	Blood-borne (direct contact with blood or body substances)	Standard precautions. Additional precautions may be required in the presence of complicating condition (e.g. Tuberculosis)	No vaccine available

Transmission of HBV (hepatitis B virus) is approximately 100 times more efficient than transmission of HIV and approximately 10 times more efficient than HCV. The risk of blood-borne virus transmission is dependent on a number of factors. Incidents involving blood-to-blood contact with infectious blood are associated with a high risk of infection when:

- There is a large quantity of blood, indicated by visible contamination
- There is insertion of a needle directly into a vein or artery or deep cavity

The patient has advanced HIV disease and/or high HIV viral load; high levels of HBV DNA and detectable HBeAg; HCV RNA detected by PCR



Transmission of blood-borne viruses in the health care setting is generally associated with failure to comply with recommended infection control guidelines and/or cleaning and disinfection protocols.

In the case of HCV (hepatitis C virus), patient-to-patient transmission has been associated with endoscopic procedures. The risk of transmission of HIV is estimated to be approximately 0.3% after a percutaneous needle stick injury with HIV-infected blood and 0.09% after a mucous membrane exposure. Transmission of HBV in the health care setting can be prevented through health care worker, patient and community hepatitis B vaccination programs.

Other personal protective equipment

Personal protective equipment should be readily available and accessible in all health care settings.

The type of protective equipment required depends on the nature of the procedure, the equipment used and the skill of the operator. For example, the use of protective equipment is recommended in the following circumstances:

- Protective eyewear and face shields must be worn during procedures where there is potential for splashing, splattering or spraying of blood or other body substances
- Impermeable gowns and plastic aprons should be worn to protect clothing and skin from contamination with blood and body substances
- Footwear should be enclosed to protect against injury or contact with sharp objects

Needle stick or sharps injury prevention

Inappropriate handling of sharps is a major cause of accidental exposure to blood-borne viruses in health care settings. To minimise the risk of a needle stick or sharps injury, needles, sharps and clinical waste should be handled carefully at all times. Specifically, clinicians and other health care workers should:

Minimise their handling of needles, sharps and clinical waste
Not bend or recap needles or remove needles from disposable syringes
Use safe needle-handling systems including rigid containers for disposal, which should be kept out of the reach of toddlers and small children
Ensure 'sharps' containers are available at the point of use or in close proximity to work sites to aid easy and immediate disposal.



Importantly, the person who has used a sharp instrument or needle must be responsible for the immediate and safe disposal of the sharp following its use.

Health care workers

Vaccination

Vaccination is an important infection control strategy to prevent the transmission of HBV (Hepatitis B) and HAV (Hepatitis A).

The Australian Immunisation Handbook 2 provides guidelines on the vaccination of health care workers.

All clinicians and other health care workers who may come into contact with blood or body substances should be aware of their HBV vaccination status and be vaccinated if appropriate. Post-vaccination serological testing is recommended four to eight weeks after completion of the primary course, for people in the following categories:

- People at significant occupational risk (e.g. Clinicians and other health care workers whose work involves frequent exposure to blood and body substances)
- People at risk of severe or complicated disease (e.g. people with impaired immunity and people with pre-existing liver disease not related to HBV)
- People in whom a poor response to HBV vaccination is expected (e.g. patients undergoing haemodialysis)
- Sexual partners and household contacts of people with hepatitis B

Testing

The mandatory testing of clinicians and other health care workers for HIV, HBV and HCV is not warranted due to the low risk of transmission if standard precautions are followed. Testing for blood-borne viruses should only be undertaken on the basis of clinical assessment or where testing is in the interest of patients and health care workers. Clinicians and other health care workers who regularly perform exposure prone procedures (refer to Table 13.2) have a responsibility to be regularly tested for HIV and HCV, and for HBV if they are not

TABLE 13.2 Exposure-prone procedures

High-risk or exposure-prone procedures

- Any submucosal invasion with sharp, hand-held instruments or procedures dealing with sharp pathology and bone spicules, usually in confined spaces or where visibility is poor (e.g. orthopaedic surgery, trauma, internal cavity surgery)

Variable-risk procedures

- Minor dental procedures (excluding examination) and routine dental extractions
- Endoscopic instrument examination and biopsy (e.g. endoscopy, sigmoidoscopy, laparoscopy)
- Minor skin surgery

Low-risk procedures

- Interview consultation and dental examination
- Non-invasive examinations or procedures (aural testing, electrocardiograph, abdominal ultrasound)
- Intact skin palpation (gloves not required)
- Injections and venipuncture (gloves required)

immune. The provision of confidentiality, privacy and consent for testing should be applied.

2.2 Identify own areas of responsibility in relation to infection prevention and control

To successfully identify and respond to infection risks we must understand and follow safe work practices that prevent the transmission of infections. There are a great number of interesting web sites relating to infection control. A good site to go to is: www.vicniss.org.au.

Healthcare workers have an obligation to always follow specific established infection prevention and control policies as part of their contract of employment. This includes reporting their infectious status if it places others at risk as well as any known potential exposures to blood and/or body substances. Failure to follow infection prevention and control policies and procedures may be grounds for disciplinary action. Some states/territories have statutory infection prevention and control requirements for healthcare workers.

Healthcare workers with infections should seek appropriate medical care from a doctor qualified to manage their condition. Where there is a risk of a healthcare worker transmitting infection to a patient or other healthcare worker (e.g. if he or she is infected with an acute or other transmissible infection, carries a blood borne virus, or has a predisposing skin condition), the healthcare worker should be counselled about work options and either rostered appropriately or provided with equipment, information and facilities to enable him or her to perform their duties without placing others at risk.

The appropriate work option will depend on the specific circumstances:

- healthcare workers with symptoms of acute infections (e.g. vomiting, diarrhoea, flu symptoms) should not come to work for the specified exclusion period
- healthcare workers who carry a bloodborne virus (e.g. hepatitis B, hepatitis C, HIV) may need to accept that their duties may be modified if they perform exposure-prone procedures that pose a potential risk to patients and other staff. In some jurisdictions, healthcare workers who carry a bloodborne virus are legally obliged to declare their infectious status.
- Healthcare workers should be aware of their requirements for immunisation against infectious diseases and maintain personal immunisation records.
- Healthcare workers in specific circumstances (e.g. pregnant healthcare workers) may be particularly susceptible to some infections and should work with occupational health and safety officers to ensure their safety.
- Employers should take all reasonable steps to ensure that staff members are protected against vaccine-preventable diseases. Where healthcare workers may be at significant occupational risk of acquiring or transmitting a vaccine-preventable disease, a comprehensive occupational vaccination program should be implemented. Such a program should include:
 - a vaccination policy
 - maintenance of current staff vaccination records
 - provision of information about the relevant vaccine-preventable diseases
 - the management of vaccine refusal (which should, for example, include reducing the risk of a healthcare worker transmitting disease to a vulnerable patient).

Healthcare facilities should advise healthcare workers of the potential consequences if they refuse reasonable requests for immunisation. Such advice and refusal to comply should be documented.

Duties may be modified if healthcare workers have a confirmed infection that may directly affect the risk of transmission of infection during exposure-prone procedures. This is determined at the local facility level.

Vaccine refusal, contraindication to vaccination and vaccine non-response may be managed by ensuring appropriate work placements, work adjustments and work restrictions.

Determining the risk categories for pre-employment screening and immunisation

Category	Risk	Examples
A	Direct contact with blood or body substances This category includes all persons who have physical contact with, or potential exposure to, blood or body substances	dentists, medical practitioners, nurses, allied health practitioners, health care students, laboratory staff, maintenance engineers who service equipment, sterilising service staff, cleaners, and staff responsible for the decontamination and disposal of contaminated materials.
B	Indirect contact with blood and body substances Rarely have direct contact with blood or body substances. These employees may be exposed to infections spread by the airborne or droplet routes, but are unlikely to be at occupational risk from blood borne diseases.	catering staff and ward clerks
C	Minimal patient contact Occupational groups that have no greater exposure to infectious diseases than do the general public. The exact nature of job responsibilities should be taken into account when deciding immunisation requirements, and all staff should be encouraged to be fully vaccinated.	office clerical staff, gardening staff and kitchen staff
Laboratory staff	May have additional vaccination requirements if they are working with or may be exposed to specific agents, e.g. Q Fever; anthrax, poliomyelitis, Japanese encephalitis	

Source: Adapted by the Committee from NSW policy *Occupational Assessment, Screening and Vaccination Against Specific Infectious Diseases PD2007_006*.

Vaccine	Risk category	Vaccination/ screening notes	Occupational considerations
Hepatitis A	A		Recommended for healthcare workers who work with remote indigenous communities, persons with intellectual disabilities childcare staff, maintenance staff in contact with sewage.
Hepatitis B	A	To be considered immune a blood test result (anti-HBs) must be provided. Anti-HBs >10 at any stage post vaccination indicates lifelong immunity to hepatitis B.	Healthcare workers must be aware of their status if performing exposure prone procedures (EPP) by undertaking testing every 12 months (refer to guidelines).
Hepatitis C	A		
HIV	A		
Influenza	A,B		Annual seasonal influenza vaccine may be offered to all staff
Measles Mumps Rubella (MMR)	A,B,C	Birthdate prior to 1966 or documented history of 2 measles-containing vaccines. Serology to confirm immunity to all three if uncertain.	Cat C staff should be included as measles is highly infectious
Pertussis	A,B	One booster dose (or full course if not previously vaccinated)	Staff working with neonates and pregnant women are at high risk of exposure and of transmitting infection to vulnerable patients
Tuberculosis (TB)	A	Tuberculin skin test prior to commencement of employment; record to be available for subsequent placements. Chest x-ray report is required for healthcare workers with positive Mantoux result.	Vaccination of healthcare worker who may be at high risk of exposure to drug-resistant cases of tuberculosis
Chicken Pox (Varicella)	A,B	Healthcare workers can be considered immune if they have a documented medical history of chicken pox or shingles. Healthcare workers with an unsure history should have serological screening.	To be considered for healthcare workers with patient contact

Employers have the responsibility of providing a safe workplace. However, it is also your responsibility to follow recommended procedures in your workplace and take adequate precautions to protect yourself from injury and infection.

At a minimum, all staff (both clinical and non-clinical) should be aware and understand the organisational policies and procedures about:

- modes of transmission of infectious agents
- risk identification, assessment and management strategies including transmission-based precautions
- orientation to the physical work environment with a focus on its risks for infection

- safe work procedures
- correct use of standard precautions
- correct choice and use of PPE, including procedures for putting on and removing PPE and fit checking of respirators
- appropriate attire (shoes/hair/nails/jewellery)
- hand hygiene practices
- levels of cleaning required for clinical areas and equipment
- how to deal with spills
- safe handling and disposal of sharps
- reporting requirements of incidents such as sharps injuries and exposures
- waste management

2.3 Assess risks by determining the likelihood and severity of harm from identified risks

Risk management is the process of making health care safer for the patient, staff and visitors by identifying hazards in the workplace and taking action to minimise their harm wherever possible. There are a number of steps in the risk management process:

- identifying the hazard
- assessing the risks
- using control measures

Identifying a hazard

A hazard is anything with the potential to cause harm to you, the patients, your co-workers or visitors to the work area. In the sterilisation setting this includes chemicals, sharps such as needles, soiled instruments, power, water, steam, noise, and heat.

In developing procedures or buying new equipment, identify these risks early so that work practices can be developed that ensure the hazard is eliminated as much as possible. Regular safety inspections and audits can help identify and manage hazards.

All employees, patients, volunteers, contractors and visitors that enter the work place have a responsibility to behave in a safe and responsible manner and report any hazards or near accidents.

Assessing the risks

It is important to assess the risks associated with each hazard to determine how it can be eliminated. Is there a high risk of injury or is the hazard a result of a combination of unusual circumstances that may never re-occur?

Budgets are limited in health care settings, so it is important to look at all the options for dealing with a hazard. You should also document the process to seek additional support for action.

Factors that support risk management across the organisation include development of a risk-management policy; staff training in risk management; implementation of a risk register, risk treatment schedule and integrated action plans; monitoring and audit; and risk-management reporting.

An infrastructure and environment that encourages two-way communication between management and healthcare workers and among healthcare workers is an important factor in increasing the level of support for and compliance with IPC programs.

How do you do a risk assessment?

Assessments should be done by a competent team of individuals who have a good working knowledge of the workplace. Staff should be involved always include supervisors and workers who work with the process under review as they are the most familiar with the operation.

In general, to do an assessment, you should:

- Identify hazards.
- Evaluate the likelihood of an injury or illness occurring, and its severity.
- Consider normal operational situations as well as non-standard events such as shutdowns, power outages, emergencies, etc.
- Review all available health and safety information about the hazard such as MSDSs, manufacturer's literature, information from reputable organizations, results of testing, etc.
- Identify actions necessary to eliminate or control the risk.
- Monitor and evaluate to confirm the risk is controlled.
- Keep any documentation or records that may be necessary.

Documentation may include detailing the process used to assess the risk, outlining any evaluations, or detailing how conclusions were made.

When doing an assessment, you must take into account:

- the methods and procedures used in the processing, use, handling or storage of the substance, etc.
- the actual and the potential exposure of workers
- the measures and procedures necessary to control such exposure by means of engineering controls, work practices, and hygiene practices and facilities

By determining the level of risk associated with the hazard, the employer and the joint health and safety committee can decide whether a control program is required.

It is important to remember that the assessment must take into account not only the current state of the workplace but any potential situations as well.

How can risks be assessed?

Risks should be systematically identified and reviewed to ensure those things, activities, situations, processes, etc. that cause harm to people or property are controlled. One way to ensure that all risks are evaluated in the same way is to use a risk assessment form. This procedure should be carried out by someone who is experienced and fully familiar with the activity (e.g., a "competent person").

Documenting tasks that put workers at risk

Firstly identify the task or activity that you carry out:

Activity/task

- Disposal of sharp
- Preparing instruments for sterilisation

What might the hazard be associated with this task?

Hazard

- Sharps injury
- Chemical exposure
- Biological exposure

What risk do you place on this activity?

- Risk High
- High/Medium

Now what procedures can you put in to place in your workplace to avoid this?

Workplace procedure

- Guidelines for sharps disposal to be followed at all times.
- Refer to 'sharps injury protocol'
- PPE to be used at all times

- Instruments to be held low in sink to avoid splashing
- Now put all this information together and you have an example of documentation that you can prepare and refer to:

Activity / Task	Hazard	Risk	Workplace procedure
Disposal of sharp	Sharps injury	High	Guidelines for sharps disposal to be followed at all times. Refer to 'sharps injury protocol'
Preparing instruments for sterilisation	Sharps injury Chemical exposure Biological exposure	High/medium	PPE to be used at all times Instruments to be held low in sink to avoid splashing

Is there a procedure for identifying risks?

The risk assessment form should be completed for any activity, task, etc. before the activity begins.

Step	Action	Deliverable
1	Identify hazards and their potential for causing harm.	An inventory of hazards.
2	Rank hazards by priority A ranked list of hazards.	This list will be useful in planning further action.
3	Determine hazard control measures.	A record of hazard control measures at various locations. Adequacy of hazard control measures.
4	Implement controls.	Controls are in place and functioning appropriately.
5	Measure the effectiveness of controls.	Monitor periodically to confirm controls continue to function.
6	Make changes to improve continuously.	Monitor for improvements.

What is a sample risk assessment form?

The following is a sample. Be sure to customize it for your needs at your workplace.

Sample Risk Assessment Form	
Name of person doing assessment:	
Date:	
Activity / Procedure being assessed:	
Known or expected hazards associated with the activity:	
The risk of injury and its severity likely to arise from these hazards:	
Who is at risk?	
Measure to be taken to reduce the level of risk:	
Training prerequisites:	
Level of risk remaining:	
Action to be taken in an emergency:	
References, if any:	
Signature of Assessor:	

How are the hazards identified?

Overall, the goal is to find and record possible hazards that may be present in your workplace. As mentioned, it may help to work as a team and include both people familiar with the work area, as well as people who are not - this way you have both the "experienced" and "fresh" eye to conduct the inspection.

To be sure that all hazards are found:

- Look at all aspects of the work.
- Include non-routine activities such as maintenance, repair, or cleaning.
- Look at accident / incident / near-miss records.
- Include people who work "off site" either at home, on other job sites, drivers, teleworkers, with clients, etc.
- Look at the way the work is organised or "done" (include experience and age of people doing the work, systems being used, etc).
- Look at foreseeable unusual conditions (for example: possible impact on hazard control procedures that may be unavailable in an emergency situation, power outage, etc.).
- Examine risks to visitors or the public.
- Include an assessment of groups that may have a different level of risk such as young or inexperienced workers, persons with disabilities, or new or expectant mothers.

How do you know if the hazard is serious (poses a risk)?

Each hazard should be studied to determine its' level of risk. To research the hazard, you can look at:

- product information / manufacturer documentation
- past experience (workers, etc)
- legislated requirements and/or applicable standards
- industry codes of practice / best practices
- health and safety material about the hazard such as material safety data sheets (MSDSs), or other manufacturer information
- information from reputable organizations
- results of testing (atmospheric, air sampling of workplace, biological, etc)
- the expertise of a occupational health and safety professional
- information about previous injuries, illnesses, "near misses", accident reports, etc.

Remember to include factors that contribute to the level of risk such as the:

- work environment (layout, condition, etc.)
- capability, skill, experience of workers who do the work
- systems of work being used

- range of foreseeable conditions

How do you rank or prioritize the risks?

Ranking or prioritizing hazards is one way to help determine which hazard is the most serious and thus which hazard to control first. Priority is usually established by taking into account the employee exposure and the potential for accident, injury or illness. By assigning a priority to the hazards, you are creating a ranking or an action list. The following factors play an important role:

- percentage of workforce exposed
- frequency of exposure
- degree of harm likely to result from the exposure
- probability of occurrence

There is no one simple or single way to determine the level of risk. Ranking hazards requires the knowledge of the workplace activities, urgency of situations, and most importantly, objective judgment.

2.4 Document and report activities and tasks that put self, clients, visitors and / or other workers at risk

Workers can contribute to safety in the workplace in a significant way by keeping management and WHS representatives and committees informed of WHS issues. Staff provide information about identified hazards and contribute to the development of risk control measures to address these hazards, providing feedback about the effectiveness and reliability of these measures. Staff may also be involved in identifying inadequacies in risk controls.

Reporting incidents

Every occupational incident and injury must be reported and investigated immediately. This especially applies to any injury from sharp items such as needles or scalpel blades. HIV, Hepatitis B and C are significant blood borne pathogen risks to health care workers. Every health care setting should have in place a protocol for staff to follow when this occurs.

What if the injury is related to blood from a specific patient? Blood is usually obtained from the source patient, if known, and tested for blood borne viruses. The person injured may be offered counselling as this can be a very stressful time. Blood from the person with the injury may also be collected. Further action in relation to testing, follow up and possible treatment with anti-viral drugs is dependent on the source of the injury or other degree of risks.

When completing an incident form, include the following information to assist with follow up:

- date and time of exposure
- how the incident occurred

- name of the source person (if known).
- site of injury.

Reporting

Organisational policies and procedures provide guidance about how to report hazards, giving details of the reporting process, the time frame for reporting and who to report to. All organisations require employees to report identified hazards and risk control measures that are not adequate. Reporting can be done by:

- completing the required documentation; for example, a hazard identification form, Incident ,Accident, near miss form
- advising your supervisor or designated person verbally and in writing.

Designated persons are those people within an organisation who have a formalised role to provide WHS support. They may include:

- team leaders
- supervisors
- WHS representatives or WHS committee members
- organisation WHS personnel such as safety officers
- managers and supervisors
- other persons designated by the organisation.

If a hazard or emergency situation is reported early, sometimes the impact can be reduced. For example, if you smell smoke and report it immediately, your quick action may mean a fire is found and put out while it is still small and not much damage has been done.

The legislation also outlines the requirement to establish a **Work Health & Safety Committee**, or the election or nomination of health and safety representatives. The WHS committee must be comprised of more members elected by the staff, than management representatives. This also provides opportunity to discuss and resolve WHS issues between employer and employees.

Provision for Penalties.

Where employers and employees neglect their responsibilities regarding WH&S, the legislation sets out penalties for breaches of different sections of the legislation. The largest penalties are applied for not fulfilling the "duty of care".

This legislation provides a system to manage WHS aimed towards producing outcomes, rather than detailing a set of rules that have to be followed.

2.5 Identify appropriate control measures to minimise risk in accordance with organisations procedures

Risk controls

'Risk control' is the term used to describe the devices and methods used to eliminate the hazard or, where this is not practicable, minimise the risk/s associated with the hazard.

Staff and support workers should be consulted for their opinions about effective control measures as they will have good ideas about how to manage a hazard as they are very familiar with the work environment.

In addition, an organisation will have in place risk control measures as part of a hierarchy of control. The hierarchy of control is a framework for prioritising the implementation of the most effective and reliable measures, starting with the goal of eliminating a hazard at the source. The hierarchy recognises that the best controls act on the environment rather than the people in it.

Wherever possible strategies should be used that are less subject to human failure and are less disruptive and uncomfortable for people working in an area. A combination of controls may be necessary if no single measure is enough to reduce risk to the lowest practicable level. The effectiveness of the control measure should be monitored regularly.

Personal protective equipment should be used as part of an integrated organisational approach to health and safety management. It should complement other control methods, not replace them.

Workers have the experience within the workplace to make a valuable contribution to safety by providing input into the development and implementation of control measures.

The hierarchy of control provides a framework for the development of these measures.

For the greatest level of reliability and effectiveness, elimination of the hazard should be the goal; however, if this is not possible then the risk should be minimised using other strategies such as engineering or administrative controls

Monitoring control measures

Once control measures have been implemented it is important to monitor and re-evaluate practice to ensure compliance with new practice.

Think about the hazards you have come up with. Can they be eliminated?
Would a change in the work procedure reduce the hazard?

For example:

- What procedure do you have in place to avoid sharps injuries from occurring?

- If an injury does occur how to you deal with this injury?

Refer back to the table we discussed previously. We have said that when sharps are being disposed of there is a high risk of an injury occurring. If we wear the correct PPE then that will lessen the risk of an injury occurring. If we follow the latest guidelines for sharps disposal as well then that will lessen the risk of an injury occurring even more. We will look at the correct procedure to follow for this particular situation later.

Development of a risk control program to minimise the transmission of disease, or Infection Control, is described in the Code of Practice.

The code describes the processes of risk identification, assessment, control measures and monitoring of procedures. It has been to develop procedures for handling and disposing of specimens, handling and disposing of sharps, cleaning up hazardous spills, and managing exposures to biological hazards.

As we can't eliminate the biohazards because our job is to collect and test specimens, many controls have been put in place to minimise the risk of the hazard.

Some of these controls are obvious and create a barrier between you and the biohazard.

- Personal protective clothing
- gloves for skin
- safety glasses for eyes
- gowns in case of splashes

3. Follow procedures for managing risks associated with specific hazards

3.1 Follow protocols for care after exposure to blood or other body fluids as required



After exposure to blood or other body substances you should as soon as possible do the following:

- encourage bleeding if exposure involves a cut or puncture, then wash with soap and water
- wash with soap and water where the exposure does not involve a cut or puncture
- if eyes are contaminated then rinse them, while they are open, gently but thoroughly with water or normal saline
- if blood or other body substances get in the mouth, spit it out and then rinse the mouth with water several times
- if clothing is contaminated remove clothing and shower if necessary
- Inform an appropriate person to ensure that necessary further action is taken.
- Factors which need to be documented:
 - nature and extent of the injury
 - nature of the item which caused the injury e.g. gauge of needle
 - nature of body substance involved
 - Volume of blood and body substances to which HCW was exposed.

All occupational exposures must be fully documented to meet legal requirements to ensure that workers are able to obtain the support to which they are entitled.

Process following a sharps injury

'Sharps' is the terminology used for the items that can cut or penetrate the skin, and in doing so, potentially cause cross-infection of micro-organisms.

Sharps

These include syringes, razors, scalpels etc.

Sharps must NOT be passed by hand between people, but in a puncture resistant tray.

Syringes should not be re-sheathed (unless it is specifically required, e.g. dental practice)



NSW Needle Stick Injury Hotline — 1800 804 823

Management will ensure that you get counseling quickly, and arrange a test for infectious diseases such as Hepatitis B, C and HIV. The opportunities for counseling continue right through the process. Both you and the person who you have just used the needle on (who we call the 'source') should be tested. Follow-up testing continues. For the 'source' this continues for 3 months, or 6 months if the person is in a high risk group. The worker is retested after 6 weeks and 3 months. If at any time you start to test positive, you will be advised regarding further treatment.

There is a 24hour needle stick Hotline in NSW 1800 804823. Your employer should also provide you with a local number which can be called at any time for advice in the event of a significant exposure to body fluids.

Contact ANCA (Australian national Council on AIDS) or the representative in the state where you work to set up a procedure for your workplace. A suggested protocol is:

First thing you MUST do is safely dispose of the sharp that caused the injury. There is a potential if the sharp is not disposed of correctly that a person who may come to the injured person's assistance could be also injured by the same sharp. Then make sure you inform the patient that you were collecting that you pricked yourself so they understand why you are attending to your own first aid. The next step is gain the assistance of a colleague to attend to the patient while you attend to your own first aid.

Immediate Care of the Exposed Person

Immediately following exposure to blood or body fluids, it is recommended that the exposed person undertakes the following steps as soon as possible:

- wash wounds and skin sites that have been in contact with blood or body fluids with soap and water
- apply a sterile dressing as necessary, and apply pressure through the dressing if bleeding is still occurring.
- do not squeeze or rub the injury site
 - if blood gets on the skin, irrespective of whether there are cuts or abrasions, wash well with soap and water
 - irrigate mucous membranes and eyes (remove contact lenses) with water or normal saline
- if eyes are contaminated, rinse while they are open, gently but thoroughly (for at least 30 seconds) with water or normal saline
- if blood or body fluids get in the mouth, spit them out and then rinse the mouth with water several times
- if clothing is contaminated, remove clothing and shower if necessary.

When water is not available, use of non-water cleanser or antiseptic should replace the use of soap and water for washing cuts or punctures of the skin or intact skin. The application of strong solutions (for example, bleach or iodine) to wounds or skin sites is not recommended.

For human bites, the clinical evaluation should include the possibility that both the person bitten and the person who inflicted the bite were exposed to BBVs.

- Complete an incident report form. Request the client consent to testing for HCV, HBC, HIV.
- report immediately to a supervisor or WH&S officer
- make sure your workplace has a policy/protocol in the event of a sharps injury, and make sure every staff member knows what to do.

Incidents are categorised because some are not as likely to carry as much risk of disease transmission as others. The follow-up procedures will also vary depending on the degree of risk. Every incident, therefore, must be assessed to give appropriate support for the exposed staff member. It is important to report an incident immediately to your safety officer, your team leader or a pathologist.

How do I manage an incident?

The nature of the incident determines how the staff member is managed. Each incident should be assessed for the degree of risk of transmission of disease (e.g. HIV, HCV, HBV).

Where the staff member has been exposed to a patient with known HIV, HCV, HBV, a large volume of blood, or other blood, the exposed staff member should be counseled at the local STD clinic within 1 to 2 hours of the incident. This will be organised by a pathologist once they are informed of the incident. Alternatively, the NSW Needlestick Hotline can be contacted 24 hours a day on 1800 804 823 for immediate concerns.

Testing is necessary for the both the staff member and patient due to the high risk of infection. Confidentiality of results will be maintained at all times.

Where the staff member has exposed to a low risk patient, the likelihood of the patient having HIV, HBV or HCV must be considered before contacting the local STD clinic. If there are no obvious risk factors, the staff member and patient will be tested if consent is given.

Once testing has been completed and reviewed by the safety officer, the staff member and patient will be notified if further testing is required. Where the test results are positive for the staff member or patient, the staff member will be referred to the STD clinic for counseling and follow-up. Even where the test results are negative, follow-up is required at six weeks and three months after exposure for HCV and HBV.

All results from the staff member and patient tests should be filed in the staff member's personnel file.

Where the staff member has been exposed to blood from an unknown source patient, the staff manager is assessed as for a low risk patient. The staff member is tested if consent is given. Once all results have been reviewed by the safety officer, the staff member will be notified. If the HCV or HIV tests are positive, the staff member will be referred to the STD clinic for counseling and follow-up. Where the test results are negative, follow-up testing is required at six weeks, three months and six months after exposure. For any follow-up test results that are positive, the staff member is referred to the STD clinic. A staff member can also request further follow-up testing at 12 months.

All results from the staff member should be filed in the staff member's personnel file.



Please note: Where the exposure is percutaneous or mucous membrane to non-blood stained fluids (e.g. urine or saliva), the staff member and patient do not require blood tests or counseling. The body fluid should be washed from the exposed area immediately and reported on an incident report form. This information is then given to the safety officer.

Request Form for Blood Testing:

For the staff member, you need to complete the following details:

- Name
- Address
- Date of birth

- Where you would like a copy of the results to go to their family doctor, include those details at the bottom of the form

For the patient, you need to complete the following details:

- Name
- Address
- Date of birth
- Note any relevant patient history
- Where you would like a copy of the results to go to their family doctor, include those details at the bottom of the form

The staff member and patient must sign the reverse side of an incident form to show that consent has been given for the blood tests to be carried out. Specific request forms should accompany the blood samples and they can generally be found in a needle stick injury folder at each collection Centre. If you have difficulty locating this form, you should speak with the safety officer.

3.2 Place appropriate signs when and where appropriate

Place appropriate signage in facilities to ensure both staff and clients are aware of hazards and procedures.

Please see examples below:

1. To contain droplet hazards you may see signs at the entrance to collection centres and medical practices:



2. Hand washing signs over scrub sinks and bathrooms



3. Clinical waste



4. Hazardous waste



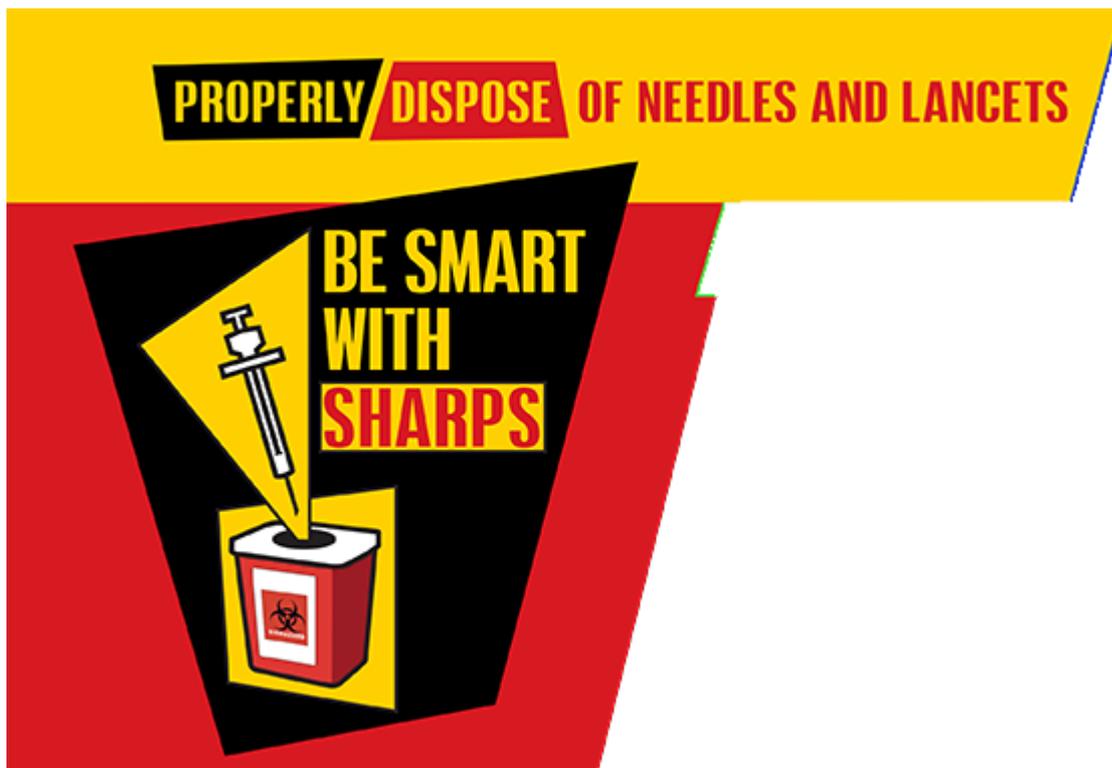
5. Toxic waste



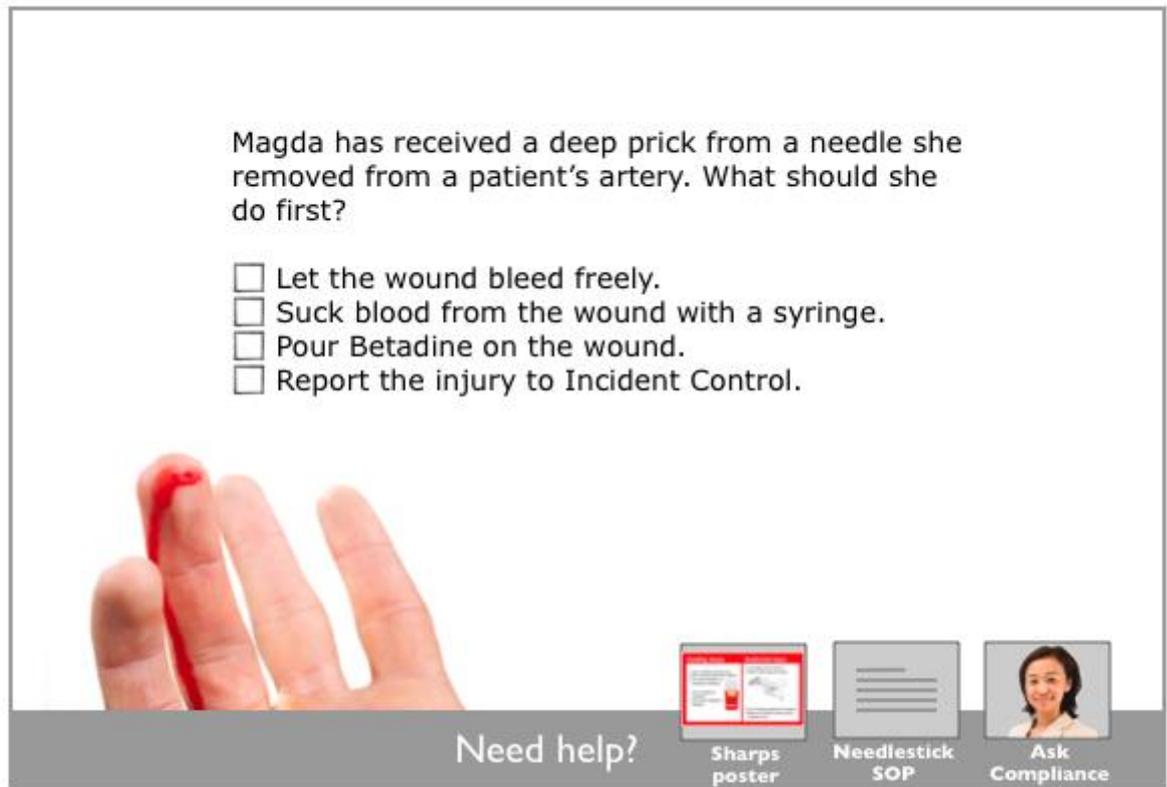
6. Respiratory etiquette



7. Disposal of sharps



8. Needle stick action plan poster



Magda has received a deep prick from a needle she removed from a patient's artery. What should she do first?

- Let the wound bleed freely.
- Suck blood from the wound with a syringe.
- Pour Betadine on the wound.
- Report the injury to Incident Control.

Need help?

Sharps poster Needlestick SOP Ask Compliance

3.3 Remove spills in accordance with the policies and procedures of the organisation

Spills Management

Unfortunately no matter how careful we are there are occasions that spills do occur. When this does happen we need to refer to our MSDS (material data sheets) if the spill is a chemical and find what we can use to contain the spill.

It is your responsibility to:

Clean up the spill following the protocols in the safety manual or report the spill immediately to a team leader or safety officer

Document the incident on an incident report form

When cleaning up spills, you should follow these 6 steps after you have cordoned off the area.

Step 1: Protect yourself using personal protective equipment (PPE)

Examples of PPE include the 3 Gs (i.e. gowns, gloves and glasses), as well as boots, aprons, overalls, respirators and helmets.

Step 2: Contain the spill

Use the following products to contain spills:

- Biological fluids – paper towel or absorbent granules.
- Contaminated sharps – tongs or tweezers are used to collect these spills into a sharps container.
- Chemical spills – absorbent granules, detoxifying agents, saw dust or neutralising compounds.

Step 3: Decontaminate the area

Depending upon the type of spill, decontaminate the area in the following ways:

- Biological fluids and contaminated sharps – use anti-viral and anti-bacterial solution, allow time for the granules and solutions to do their job.
- Chemical spills – use detoxifying agents for specific chemicals and ventilate the area.

Step 4: Dispose of the spill properly

Depending upon the spill, dispose of the waste accordingly:

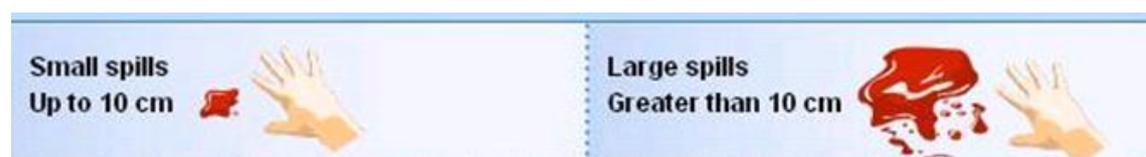
- Biological fluids – place all contaminated material into yellow biohazard bags or bins.
- Contaminated sharps – place sharps into yellow sharps containers, lock the lids and tape when full to ensure safety. Never overfill the sharps containers past the fill line and always follow the instructions for using needle removal in the lids of small sharps containers.
- Chemical spills - segregate the waste according to the specific chemicals.

Step 5: Wash hands well

It is very important that hands are washed well after completing the clean up. Hand washing instructions are at all hand washing sinks. They should also be washed after each work session, before going to eat or drink and on leaving your work area.

Step 6: Report the incident using the incident report form

After cleaning up the spill or when reporting it to a team leader, always report the spill on an incident report form. Your team leader can complete the form and also the assessment of the incident if doing the clean up procedure. This report is given to the safety officer in your area.

**Size of spills****For small spills**

- Wipe immediately with paper towel. Clean with water and detergent. Use the following steps when cleaning up a small spill.
- Collect cleaning materials and equipment (e.g. spills kit).
- Wear disposable gloves. Eyewear and a plastic apron should be worn where there is a risk of splashing occurring.
- Wipe up the spill immediately with absorbent material (eg paper hand towelling). Place any contaminated absorbent material into an impervious container or plastic bag for disposal.
- Clean the area with warm water and detergent using a disposable cleaning cloth or sponge.
- Where contact with bare skin is likely, disinfect the area by wiping with sodium hypochlorite 1,000 ppm available chlorine (or other suitable disinfectant solution) and allow to dry. (To make up 1,000 ppm, 5 litres of water can be added to 125 ml of any in-date household bleach.)
- Discard contaminated materials (absorbent towelling, cleaning cloths, disposable gloves and plastic apron) in accordance with state/territory Regulations.
- Wash hands.
- Clean and disinfect reusable eyewear before reuse.

For larger spills

- Scrape the bulk of the spill into a pan for disposal, then clean the residue.
- Use the following steps when cleaning up a large spill. Within each step, any instructions specific to that size of spill are shown in bold.
- Collect cleaning materials and equipment (eg spills kit).
- Wear disposable gloves, eyewear, mask and a plastic apron.
- Cover the area of the spill with granular chlorine releasing agent (1,000 ppm available chlorine) or other equivalent acting granular disinfectant and leave for three to ten minutes, depending on formulation and labelling instructions.
- Use a disposable scraper (eg cardboard) and pan to scoop up granular disinfectant and any unabsorbed blood or body substances.
- Place all contaminated items into impervious container or plastic bag for disposal.
- Wipe the area with absorbent paper towelling to remove any remaining blood and other body fluids place in container for disposal.
- Use ward cleaning materials to mop up with water and detergent.
- Discard contaminated materials (absorbent towelling, cleaning cloths, disposable gloves and plastic apron) in accordance with state/territory Regulations.
- Wash hands.
- Wash the mop and bucket with detergent and hot water. Rinse and allow to dry.
- Clean and disinfect reusable eyewear before reuse.

Blood and body substance spills

- Protect yourself, wear gloves (and face protection if needed).
- If possible, isolate the area.
- For a small spill, wipe immediately with paper towel, then clean with water and detergent.
- In a 'dry' area, use absorbent paper or granular chlorine to absorb the spill. (This avoids increasing the size of the spill and/or releasing contaminants into the air.) Then scrape up the absorbed material into a pan and clean the affected area with water and detergent. Dispose of spilt material, paper or granules and gloves in a sealed container.

- In a 'wet' area, wash the spill into the sewerage system. Flush area with water and detergent.
- You can use hospital-grade disinfectant on the area after cleaning if you wish.
- Equipment needed for cleaning blood and body substance spills
- The following items should be included in the spills kit:
 - A mop, a bucket and detergent.
 - Leak-proof bags and containers for disposal of waste material.
 - A scraper and pan for spills (similar to a pooper scooper.) Alternatively, a few pieces of firm cardboard which can be disposed of with the waste.
 - Paper towel to wipe up spills.
 - About five granular disinfectant sachets containing 10,000 ppm available chlorine or equivalent. (Each sachet should contain sufficient granules to cover a 10 cm diameter spill.) These form the spill into a gel that can be scraped up, preventing splashes.
 - Disposable rubber gloves that are suitable for cleaning. Note that vinyl gloves are not recommended for handling blood.
 - Eye protection (disposable or reusable).
 - A plastic apron.
- A mask for protection against inhalation of powder from the disinfection granules or aerosols that may be generated from high-risk spills during the cleaning process
- Forceps for picking up glass, etc.

Source: *Infection Control (Health) Toolbox* © Australian National Training Authority (ANTA) 2004.

3.4 Minimise contamination of materials, equipment and instruments by aerosols and splatter

Aerosols and splatter are a common occurrence in a clinical environment. Anything that applies force to a surface has the potential to create aerosols and splatter which might contain infective material.

Water from the tap

When you wash your contaminated hands, contaminated instruments or any article that is dirty, in the sink, there is the potential for splatter to occur. Hands should be washed in a sink allocated for hand washing only. Dirty instruments should be washed in a sink in the dirty zone of your clinic, and once there should be held low in the sink to eliminate as much splatter as possible.

3.5 Identify, separate and maintain clean and contaminated zones

A 'clean' area is a specifically designated area for non-contaminated items. These would include items that are sterile, or have been disinfected. At no stage are any contaminated items to be placed in this area.

The 'contaminated' area is a specifically designated area for placement of contaminated items, such as instruments and trays that have been used, or unused during patient treatment.

Clean and contaminated areas should be clearly marked so that all staff are aware of these areas and can follow a safe workflow. Workflow should always be from contaminated to clean areas and care should be taken to avoid contaminated items re-entering the clean area.

Clean areas may include storage areas for materials and equipment, sterile areas and administration areas.

Contaminated zones may be areas for processing used instruments, or an area that has become contaminated during a treatment procedure.



Dirty Area



Clean Area

There may be signs such as 'no gloved hands past this point' to remind staff to remove contaminated gloves before leaving a designated contaminated area.

3.6 Confine records, materials and medicaments to a well-designated clean zone

All records that are kept and archived should be kept in a clean zone. All packaging materials and medicaments should be kept in a clean zone. These items should not be stored in a contaminated zone or a risk of cross contamination will occur.

3.7. Confine contaminated instruments and equipment to a well-designated contaminated zone

When items are received into the sterilising facility, all reusable items that have been used or unused during patient treatment need to be cleaned in a physically separate area to prevent possible contamination of processed items.

ASSESSMENT REQUIREMENTS for HLTINF001 Comply with infection prevention and control policies and procedures**Performance evidence:**

The candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role. There must be evidence that the candidate has:

- followed established organisation infection prevention and control procedures on at least 3 separate occasions
- followed established organisation infection prevention and control procedures at least once for each of the following:
 - hand hygiene and care of hand
 - use of personal protective equipment
 - handling of waste
 - enforcing clean and contaminated zones
 - limitation of contamination
 - surface cleaning

Knowledge evidence:

The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the work role. This includes knowledge of:

- established guidelines for the prevention and control of infection, including those for:
 - personal and hand hygiene:
 - how to hand wash
 - how to hand rub
 - pre-surgical hand preparation
 - clinical moments when hand hygiene should be performed with soap and water rather than alcohol-based hand rub
 - non-clinical moments for hand hygiene hand care, including guidelines on maintaining intact skin, fingernails and jewellery/watches

- use and scope of personal protective equipment guidelines for:
 - glove use
 - wearing gowns and waterproof aprons
 - wearing masks
 - wearing protective glasses
 - surface cleaning:
 - cleaning procedures and their specified times
 - routine surface cleaning
- managing a blood or body fluid spill
- sharps handling and disposal techniques
- reprocessing procedures for equipment
- types of additional precautions and their relevance to particular areas of work or client groups
- types of hazards in the work environment and associated risks and control measures
- chain of infection:
 - source of infectious agent
 - mode of transmission
 - susceptible host
- basis of infection, including:
 - bacteria and bacterial spores
 - difference between harmless microorganisms and pathogens
 - difference between colonisation, infection and disease
 - fungi
 - viruses
- key modes of disease transmission – contact, airborne and droplet:
 - paths of transmission including direct contact, aerosols and penetrating injuries
 - risk of acquisition

- sources of infecting microorganisms including persons who are carriers, in the incubation phase of the disease or those who are acutely ill

factors that increase the susceptibility to infection:

- immune status
- wounds or devices
- medications and comorbidities
- age

Assessment conditions:

Skills must have been demonstrated in the workplace with the addition of simulations and scenarios where the full range of contexts and situations have not been provided in the workplace or may occur only rarely.

The following conditions must be met for this unit:

use of suitable facilities, equipment and resources, including:

- organisational infection prevention and control guidelines
- personal protective equipment
- hand hygiene facilities and equipment
- medical or client care equipment relevant to the workplace
- clinical and other waste and waste disposal equipment
- areas for cleaning
- equipment for cleaning, including sterilised sharps if relevant to roll

modelling of industry operating conditions, including integration of problem solving activities to which the candidate responds

Assessment Task

There may be more than one correct answer.

1. Follow standard and additional precautions for infection prevention and control

1.1 Follow hand hygiene practices in accordance with organisations policies and procedures

1. Standard precautions are:

- a. The minimum level of infection control required
- b. The universal standard of infection control
- c. The highest standard of infection control

Answer:

2. Do standard precautions include personal hygiene practices?

- a. Yes
- b. No

Answer:

3. When a patient states that their infection status is negative, are we able to do away with standard precautions?

- a. Yes
- b. No

Answer:

4. Everyday hand washing should occur before:

- a. Contact with used equipment
- b. Every patient contact
- c. Handling food
- d. Performing a patient procedure

Answer:

5. Artificial nails :

- a. Are fine as long as they are kept clean and relatively short
- b. Associated with higher levels of Gram-negative bacilli and yeast infections

Answer:

6. The five moments of hand hygiene are:

- a. Before touching a patient, before a procedure, after procedure or body fluid exposure, after touching a patient, after touching a patient's surroundings

- b. Before touching a patient, before a procedure, after procedure or body fluid exposure, after touching a patient, after touching a patient

Answer:

7. Hand washing physically removes germs by:
- By friction and then rinsing them down the drain
 - Killing them by sterilising the germs

Answer:

8. Alcohol based hand washes:
- Are not as effective as soap and water washes
 - Are more effective than soap and water washes

Answer:

9. The duration for routine soap and water hand washing should be:
- 40-60 seconds
 - 15- 20 seconds

Answer:

10. The duration for routine alcohol based hand washing should be:
- 40-60 seconds
 - 30- 40 seconds

Answer:

11. A pre-surgical first scrub of the day with soap and water must be done for:
- 3 minutes
 - 5 minutes
 - 2 minutes

Answer:

12. Subsequent per surgical scrubs with soap and water must be for:
- 2 minutes
 - 1 minute
 - 5 minutes
 - 3 minutes

Answer:

13. Is soap and water pre-surgical scrub, more effective in eliminating bacteria than alcohol based handrub?
- Yes
 - No

Answer:

1.2 Implement hand care procedures and cover cuts and abrasions

14. The first line of defence against microorganisms is:

- a. Sterilisation
- b. Cleaning
- c. Glove use
- d. Intact skin

Answer:

15. Significantly less skin damage is caused by:

- a. Detergent based hand washing
- b. Alcohol based hand rubs

Answer:

16. Hand creams :

- a. Should never be used healthcare workers as they pose a infection control risk
- b. Should be applied regularly

Answer:

17. If a health care worker has a cut or abrasion on their hands they must:

- a. Must not cover with band aids as they harbour germs
- b. Cover with a band aid
- c. Cover with a band aid and change the band aid between patients and frequently each day

Answer:

1.3 Follow organisation procedures for choice and use of personal protective equipment

18. PPE stands for:

- a. Personal presentation and etiquette
- b. Patient protective equipment
- c. Personal protective equipment
- d. Personal protective environment

Answer:

19. PPE includes the following:

- a) Sick leave, antibiotics, immunisation, proper diet, rest
- b) Aprons, masks, gloves, face shields, eyewear

Answer:

20. Appropriate PPE is selected by:

- a) Assessing the procedure
- b) Likelihood of exposure
- c) Whenever we perform a patient procedure we don, gloves, gown, mask

Answer:

21. It is procedure to keep your PPE on when leaving the building.

- a) Correct
- b) Incorrect

Answer:

22. We change our gloves only when they are visibly contaminated.

- a) Correct
- b) Incorrect

Answer:

23. When we wear gloves we do not need to wash our hands between patients.

- a) Correct
- b) Incorrect

Answer:

24. It is acceptable to wash your hands wearing gloves between patients to negate to need to change gloves.

- a) Correct
- b) Incorrect

Answer:

25.

Match the apron gown appropriate for the procedure.

Types of apron / gown:

- a) Plastic apron
- b) Gown
- c) Full body gown
- d) Sterile gown

Procedure:

- a) Low risk procedures where there is a risk of contamination to the Health care worker

Answer:

- b) Used for procedures in an aseptic field

Answer:

- c) Worn to protect skin and prevent soiling of clothing during procedures and or patient care that is likely to generate splashing of blood or bodily substances

Answer:

- d) Worn during contact precautions when contact with the patient or the patient environment is likely

Answer:

- e) Worn when there is a risk of contact of the healthcare workers skin with a patients broken skin, extensive skin to skin contact

Answer:

26. Should eye protection be used when collecting non-vacuumed blood samples?

- a) Yes
- b) No

Answer:

27. Should eyewear be used if a vacuumed tube needed to be opened?

- a) Yes
- b) No

Answer:

28. Masks are used :

- a) As standard precaution
- b) As additional precaution only

Answer:

29. General purpose masks:

- a) Appropriate for general patient care and isolation
- b) Used in procedures that involve aerosolisation of particles that may contain specific known pathogens

Answer:

30. If you wear prescription glasses you do not need to wear protective goggles.

- a) Correct
- b) Incorrect

Answer:

31. Removal of face shields, masks and protective goggles/ glasses is performed:

- a) Before gloves are removed and hand hygiene performed
- b) After gloves are removed and hand hygiene performed

Answer:

32. The sequence for putting on PPE is:

- a) Gloves, Protective eyewear or face shields ,mask, gown
- b) Protective eyewear or face shields, gloves, mask, gown
- c) Gown, mask, protective eyewear or face shield, gloves
- d) Gloves, mask, protective eyewear or face shield, gown

Answer:

33. Sequence for removing PPE is:

- a) Gloves, Protective eyewear or face shields , gown, mask
- b) Protective eyewear or face shields, gloves, mask, gown
- c) Gown, mask, protective eyewear or face shield, gloves
- d) Gloves, mask, protective eyewear or face shield, gown

Answer:

1.4 Follow procedures for respiratory hygiene and cough etiquette

34. Respiratory hygiene and cough etiquette should be applied as:

- a) Additional precautions
- b) Standard precaution

Answer:

35. Cough etiquette is that you should cough into your elbow:

- a) Correct
- b) Incorrect

Answer:

36. Patients with a cough or sneezing should wear a mask in the waiting room:

- a) Correct
- b) Incorrect

Answer:

1.5 Follow procedures for environmental cleaning

37. What are most hard surfaces cleaned with?

- a) Disinfectant
- b) Detergent and water
- c) Alcohol

Answer:

38. Minimally touched surfaces should be cleaned with:

- a) Detergent and disinfectant
- b) Detergent
- c) Disinfectant

Answer:

39. Multi-resistant or other infectious contaminated surfaces should be cleaned with:

- a) Detergent and disinfectant
- b) Detergent
- c) Disinfectant

Answer:

1.6 Follow procedures for handling, transporting and processing of linen in a manner that controls the spread of infection

40. Disposable linen is discarded:

- a) When visibly soiled
- b) At the end of each day
- c) After every patient

Answer:

41. You should always wear PPE when discarding soiled linen:

- a) Correct
- b) Incorrect

Answer:

42. When transporting soiled linen it should be placed in:

- a) Calico linen bags
- b) Cotton linen bags
- c) Leak proof bags
- d) Washing baskets

Answer:

43. Following any handling of used linen:

- a) Hand Hygiene must be performed
- b) We must restock with clean linen
- c) Clean linen should replace the used linen

Answer:

1.7 Follow procedures for disposal of contaminated waste

44. Segregation of waste should:

- a) Occur at the waste disposal facility
- b) Occur at the point of generation
- c) Be performed by the garbage disposal team

Answer:

45. Clinical waste includes:

- a) Animal waste
- b) Sharps waste
- c) Human tissue
- d) Laboratory waste
- e) All of the above

Answer:



46.

This waste bin is for:

- a) Pharmaceutical/Anatomical Waste
- b) Cytotoxic Waste
- c) Clinical Waste

Answer:



47.

This waste bin is for:

- a) Pharmaceutical/Anatomical Waste
- b) Cytotoxic Waste
- c) Clinical Waste

Answer:



48.

This waste bin is for:

- a) Pharmaceutical/Anatomical Waste
- b) Cytotoxic Waste
- c) Clinical Waste

Answer:

49. A radioactive waste bin is coloured:

- a) Green
- b) Red
- c) Orange
- d) Blue

Answer:

50. Sharps are disposed of into a:

- a) Yellow container if the sharp is contaminated with blood
- b) A Purple container if the sharp is contaminated with blood
- c) A purple container if the sharp is contaminated with cytotoxic drugs
- d) Always into a yellow container

Answer:

1.8 Follow procedures for handling and cleaning client equipment that prevents skin mucous membranes exposure, contamination of clothing and transfer of pathogens.

51. Examples of automated cleaning devices are:

- a) Friction, Fluidics
- b) Ultrasonic
- c) Washer-disinfector

Answer:

52. What PPE should a healthcare worker use when cleaning equipment?

- a) Rubber gloves

- b) Apron
- c) Plastic apron, utility gloves, face shield and or and eye protection
- d) Face shield
- e) Water resistant boots

Answer:

53. The simplest, most efficient and cost effective method of disinfection of equipment is:

- a) Sterilisation
- b) Thermal disinfection
- c) Alcohol disinfection
- d) Chemical disinfection

Answer:

1.9 Identify and respond to situations where additional precautions may be required to prevent the transmission of infection

54. Examples of organisms that harm a person's health are:

- a) SARS, Bird flu, Legionaries disease
- b) Parasites, Fungi, Bacteria, prions, viruses

Answer;

55. An infection requires the following to be grown:

- a) Heat, moisture, nourishment
- b) A source of infectious agent
- c) Mode of transmission
- d) A susceptible host
- e) Antibiotics

Answer:

56. Modes of transmission are:

- a) Food, waste, disease
- b) Contact, droplet, touch
- c) Airborne, Droplet, contact

Answer:

57. An incubation period is:

- a) The time a person should be isolated if they become contagious
- b) The time between becoming sick and getting better
- c) The time between exposure to a disease and having symptoms

Answer:

57. The incubation period for influenza is:

- a) 10-14 days
- b) 8-10 hours
- c) 1-4 days
- d) 24 hours

Answer:

58. During which time frame is a person considered to be contagious, when they have the common cold or flu?

- a) Two days after symptoms arise
- b) The first day of the symptoms
- c) The day before they get symptoms

Answer;

59. An immune person is:

- a) someone who if exposed to an organism is likely to get the disease
- b) A person who when exposed to the organism will not get the disease

Answer:

60. The following are portals for germs to enter a person:

- a) Medication, poor nutrition
- b) Existing illness, age
- c) Non intact skin, nose, mouth

Answer:

61. An example of direct contact in the spread of disease is:

- a) Door handles
- b) Kissing
- c) Needles
- d) Insects

Answer:

62. An example of indirect contact in the spread of disease is:

- a) Sexual contact
- b) Money
- c) Shaking hands
- d) Eating

Answer:

63. An example of droplet transmission is:

- a) Door handles
- b) Talking
- c) Insects
- d) Sexual contact

Answer:

64. Additional precautions are used:

- a) Whenever we suspect infection
- b) When we know or suspect a patient is infected with a highly transmissible pathogen

Answer:

65. Additional precautions are required for patients with Hepatitis C, HIV.

- a) Correct
- b) Incorrect

Answer:

66. Additional precautions are required for patients with Chicken pox.

- a) Correct
- b) Incorrect

Answer:

67. Additional precautions are required for patients with Tuberculosis.

- a) Correct
- b) Incorrect

Answer:

2. Identify infection hazards and assess risks

2.1 Identify infection hazards associated with own role and work environment

68. Hepatitis A (HAV) is a disease that is contacted via the oral faecal route and you are able to be vaccinated against this disease.

- a) Correct
- b) Incorrect

Answer:

69. Hepatitis C (HCV) is a disease that is contacted by direct contact with blood and you are able to be vaccinated against this disease.

- a) Correct
- b) Incorrect

Answer:

70. Hepatitis B (HBV) is a disease that is contacted by direct contact with blood or body substances and you are able to be vaccinated against this disease.

- a) Correct
- b) Incorrect

Answer:

2.2 Identify own areas of responsibility in relation to infection prevention and control

71. Is it advisable for a healthcare worker to come to work if they have symptoms of the flu?

- a) Yes
- b) No

Answer:

72. If a healthcare worker has a blood borne disease is it acceptable for their work duties to be modified if they perform exposure prone duties?

- a) Yes
- b) No

Answer:

73. Is it the employer's responsibility to ensure that all workers are immunised in high risk jobs?

- a) Yes
- b) No

Answer:

74. Is it a healthcare workers responsibility to understand organisational policies about infection control?

- a) Yes
- b) No

Answer:

2.3 Assess risks by determining the likelihood and severity of harm from identified risks

75. What is risk management?

- a) Managing staff who are at risk
- b) Managing workplace risks and minimising the affect

Answer:

76. The steps involved in risk management are:

- a) Elimination of the risk, substituting the risk, controlling the risk
- b) Identifying the hazard, Assessing the risk, Using control measures

Answer:

77. In Pathology collecting, the most dangerous hazard that a collector has is:

- a) People
- b) Contaminated needles
- c) Trip, slip falls

Answer:

2.4 Document and report activities and tasks that put self, clients, visitors and / or other workers at risk

78. Persons that you can report and incident to in the workplace are:

- a) Your supervisor only
- b) WHS committee member only
- c) Safety officer
- d) Team leader

Answer;

79. When an incident happens we report the incident on an:

- a) Complaints form
- b) Incident report form
- c) Customer feedback form

Answer:

80. If an incident has not happened but you see something that has the potential to cause and accident should you report this?

- a) Yes
- b) No

Answer:

2.5 Identify appropriate control measures to minimise risk in accordance with organisations procedures

81. A risk control is:

- a) Procedure for controlling incidents and accidents
- b) Used to eliminate the hazard
- c) Used to minimise the hazard risk if it can't be eliminated

Answer:

82. Is PPE a risk control?

- a) Yes
- b) No

Answer:

3. Follow procedures for managing risks associated with specific hazards

3.1 Follow protocols for care after exposure to blood or other body fluids as required

83. If you do receive a needle stick injury the first thing you should do is:

- a) Wash the wound under running water
- b) Tell the patient
- c) Call for assistance
- d) Safely and appropriately dispose of the sharp

Answer:

84. Do we encourage the needle stick injury site to bleed?

- a) Yes
- b) No

Answer:

85. If you were to have a patient spit in your eye what should you do?

- a) Wash your eyes with soap and water
- b) Rise with water
- c) Rise with normal saline

Answer:

86. If blood gets into your mouth from a patient:

- a) Swallow and drink plenty of water
- b) Spit out what you can and rinse your mouth out
- c) Drink copious amounts of water to dilute the blood

Answer:

3.2 Place appropriate signs when and where appropriate

87. What infection control signs do you expect to see at the entrance of a collection centre or doctors surgery?

- a) Billing policy
- b) Wash hands signs
- c) Respiratory infection etiquette

Answer:

88. What signs do you expect to see over sinks in a medical facility?

- a) Caution! Hazard signs
- b) Respiratory etiquette
- c) Clinical waste sign
- d) Correct hand washing procedure signs

Answer:

3.3 Remove spills in accordance with the policies and procedures of the organisation

89. When a spill occurs in a medical facility involving a chemical the first thing we should do to ensure safety in cleaning the spill is:

- a) Wear PPE
- b) Look up the chemical in the MSDS sheets
- c) Call your supervisor

Answer:

90. When cleaning up a biological spill the appropriate PPE is:

- a) Gloves
- b) Gloves and Face shield
- c) Gown and gloves
- d) Gown, Gloves and Goggles

Answer:

91. When cleaning biological spills we use the following to decontaminate:

- a) Detoxifying agents and ventilate the area
- b) Anti- viral and anti-bacterial agents

Answer:

92. When cleaning chemical spills we use the following to decontaminate the spill:

- a) Detoxifying agents and ventilate the area
- b) Anti- viral and anti-bacterial agents

Answer:

93. When we have cleaned up a spill we dispose of the waste material for a biological fluid spill:

- a) In the general waste
- b) Down the sink
- c) In a contaminated waste container
- d) In a sharps container

Answer:

3.4 Minimise contamination of materials, equipment and instruments by aerosols and splatter

94. Is it acceptable to clean dirty equipment in a sink that is also used for hand washing?

- a) Yes
- b) No

Answer:

3.5 Identify, separate and maintain clean and contaminated zones

95. What is the best way to identify a clean and dirty zone in a medical facility?

- a) Record it in the work instructions
- b) Place signs
- c) Inform people at induction

Answer:

3.6 Confine records, materials and medicaments to a well-designated clean zone

96. Patient records should be kept:

- a) In a clean zone
- b) Dirty zone next to the patient so there are no mix ups

Answer:

97. Medications are kept in:

- a) Clean zone
- b) Dirty zone

Answer:

3.7. Confine contaminated instruments and equipment to a well-designated contaminated zone

98. Contaminated instruments are kept in:

- a) Clean zone
- b) Dirty zone

Answer:

Feedback to the Participant on Written Activities

Assessors Name: _____
Assessors Signature: _____ Date: _____

Strategies for further improvement

RESOURCES FOR TRAINING AND ASSESSMENT GUIDE TO ASSESSMENT

	Assessment Type	Assessment Task	Brief description of Task	Resources required
1	Written Assessment	Knowledge-based assessment	Directed activities and written questions in Learning Guide and Guide to Assessment	Learning Guide
2	Direct Observation	Work reflects the organisation's values and mission	Direct observation of performance in workplace or Simulated environment.	Workplace Organisation's policies/procedures Assessment Tool
3	Oral Questioning	Oral questions	These questions will accompany observation of workplace tasks and participating in the work environment	Organisation's policies/procedures Assessment Tool
4	Third Party Report	Workplace performance	Consultation with supervisor by assessor as to ongoing work Performance of participant.	Participant's Record Book

Competency review tool: Elements and performance criteria

Elements of competency: The elements of competency are the basic building blocks of the unit of competency. They describe in terms of outcomes the significant functions and tasks that make up the competency.

Performance criteria: The performance criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance

Element	Performance criteria	Assessed in this learning resource by:	Assessment methods used by the RTO	Evidence provided by the learner
1. Follow standard and additional precautions for infection prevention and control.	1.1 Follow hand hygiene practices in accordance with organisations policies and procedures	Written questions	Q1- 13	
	1.2 Implement hand care procedures and cover cuts and abrasions		Q14-17	
	1.3 Follow organisation procedures for choice and use of personal protective equipment		Q 18-33	
	1.4 Follow procedures for respiratory hygiene and cough etiquette		Q34-36	
	1.5 Follow procedures for environmental cleaning		Q37-39	
	1.6 Follow procedures for handling, transporting and processing of linen in a manner that controls the spread of infection		Q40-43	
	1.7 Follow procedures for disposal of contaminated		Q44-50	

	waste			
	1.8 Follow procedures for handling and cleaning client equipment that prevents skin mucous membranes exposure, contamination of clothing and transfer of pathogens.		Q51-53	
	1.9 Identify and respond to situations where additional precautions may be required to prevent the transmission of infection		Q54-67	
2. Identify infection hazards and assess risks	2.1 Identify infection hazards associated with own role and work environment		Q68-70	
	2.2 Identify own areas of responsibility in relation to infection prevention and control		Q71-74	
	2.3 Assess risks by determining the likelihood and severity of harm from identified risks		Q 75-77	
	2.4 Document and report activities and tasks that put self, clients, visitors and / or other workers at risk		Q78-80	
	2.5 Identify appropriate control measures to minimise risk in accordance with organisations		Q81-82	

	procedures			
3. Follow procedures for managing risks associated with specific hazards	3.1 Follow protocols for care after exposure to blood or other body fluids as required		Q83-86	
	3.2 Place appropriate signs when and where appropriate		Q87-88	
	3.3 Remove spills in accordance with the policies and procedures of the organisation		Q89-93	
	3.4 Minimise contamination of materials, equipment and instruments by aerosols and splatter		Q94	
	3.5 Identify, separate and maintain clean and contaminated zones		Q 95	
	3.6 Confine records, materials and medicaments to a well-designated clean zone		Q96-97	
	3.7. Confine contaminated instruments and equipment to a well-designated contaminated zone		Q98	