Comply with Infection Control Policies and Procedures in Health Work

Unit: HLTINF001
Comply with infection prevention and control policies and procedures

HLTINF001
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Comply with infection prevention and control policies and procedures
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- Demonstration of hand-washing technique for aseptic (non-surgical) procedures
- Demonstration of hand hygiene alcohol hand rub

Competency checklist

Learning guide evaluation form
Introduction

Infection control is the way we eliminate or reduce the risk for the spread, or the potential to spread infection. When you visit or begin working in any workplace you will see that there is a specific way of doing things. Policies and procedures make sure workplaces are safe for you and clients. As health care workers we are faced with the challenge of maintaining an environment in which the transmission of micro-organisms is minimised.

Everybody who works in or visits a health workplace has a role in infection control. It is important all healthcare workers deliver a high standard of care while following infection control policies and procedures.

Prerequisites

There are no prerequisites for this unit.

Foundation Skills

Foundation Skills extend from the very basic to highly developed and specialist skills. They encompass the Core Skills of reading, writing, oral communication, numeracy and learning (as described by the ACSF—Australian Core Skills Framework) as well as the following Employability Skills: communication, teamwork, problem-solving, initiative and enterprise, planning and organising, self-management, learning and technology.

It is important to note that while this resource does its best to embed these skills, Registered Training Organisations (RTOs) are responsible for determining a delivery and assessment strategy to meet the individual needs of their learners, including addressing foundation skills training. Please contact your facilitator to arrange any learning support you require in foundation skills.

Unit descriptor

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.
Elements

When you have completed this competency you should be able to:

1. Follow standard and additional precautions for infection prevention and control
2. Identify infection hazards and assess risks
3. Follow procedures for managing risks associated with specific hazards

Recognition of prior learning (RPL)

If you believe you already perform to the standard expected (that is, you can demonstrate the performance knowledge and skills) in these learning resources please contact your training organisation facilitator/assessor to discuss RPL assessment.

The reflection and learning experiences in this resource might assist you to demonstrate your understanding and experience, for example you can send or discuss your responses as evidence for your assessor.

As you reflect on the research and review the experiences in this resource you may like to ‘document your own learning’ and provide evidence of your workplace experience. Write notes, key points or detailed responses (or provide other workplace documentation) and add these to your portfolio of evidence to discuss with your assessor. This will further demonstrate the required level of performance.

To assist with your recognition you may also like to use the Assessment Requirements and respond to the questions or tasks as additional and reliable evidence of your skills and knowledge.

We recommend you reflect on your current understanding and share this with your facilitator.

Time required

This unit is designed to be self-paced. Check with your facilitator/lecturer if you have any difficulties.

Getting started

There are three topics in this learning guide and a range of activities to assist your learning and analysis of the information and encourage some additional research. Spaces have been provided for you to record your answers, but you are not required to submit your responses unless specifically requested to do so.

Assessment

The assessment for this unit is at the end of this guide. When you have worked through this learning guide, go to the assessment and complete the required assessment tasks.

Where to go for help

If you have any problems with the learning materials for this unit, please contact your facilitator/lecturer at any time so that the problem can be discussed and resolved. Remember, we are here to help you. Good luck!
Resources

Australian Immunisation website

Hand Hygiene Australia
www.hha.org.au

Australian Commission on Safety and Quality in Health Care National infection control guidelines
TOPIC 1: Infection control

Performance criteria

When you have successfully completed this topic you will be able to:

2.1 Identify infection hazards associated with own role and work environment

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

2.3 Assess risk by determining the likelihood and severity of harm from identified hazards.

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

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

Introduction

Health care is delivered in many ways:

- clinics - medical, dental, allied health (physio, podiatry, complementary therapists etc)
- hospitals, aged care facilities
- home environments.

There are infection control routines that are used for health and complementary health services. These include:

- The use of good personal hygiene measures protect you as a health care worker and others when doing tasks related to waste management and cleaning
- Cleaning - the use of cleaning agents - disinfectants, bacteriostatic (those which inhibit the growth of bacterial) are used to protect the client and health care worker to clean equipment and protect the environment
- Sterilisation - any process, chemical or physical, which is bactericidal (kills all bacteria) is used for equipment and/or the environment.
Activity 1.1

Think about your home environment. What do you do at home to minimise the risk of infection? Think about the routine tasks that are performed.

In the health care setting we control risks by:

- keeping hazardous procedures to a minimum (for example, use invasive procedures on client only where essential)
- safe disposal of wastes
- cleaning of other contaminated materials
- the development and implementation of safe work practices
- good house-keeping in workplaces leading to hygienic environments
- good engineering design (ease of access for maintenance, appropriate construction materials)
- providing protective clothing where necessary
- developing and implementing clear policies about attendance at facilities by staff who have infectious diseases. This may mean staff are excluded from the facility while they are infectious. Where relevant or possible, immunisation policies for clients and staff may be introduced.

Always refer to your organisation’s Procedure Manual for the measures to control infection and the techniques required in each circumstance.

Infection control procedures such as:

- use of disposable equipment and dispose of same to prevent re-use
- disposal procedures - use of sharps containers prevents contamination and injury
- handling specimens and samples - avoid and clean up spills immediately
- cleaning up of infectious waste using correct protocols
- cleaning of contaminated material using correct protocols
- protective equipment and clothing, e.g. masks, eye goggles, gloves etc
- immunisation programs for staff, e.g. TB and Hep B.

With regard to immunisation, it is your choice as to whether you want to be immunised against specific diseases, however, for your own safety and as a precaution it is highly recommended that you consider your options. You should be prepared for industry placement and aware of any requirements from industry.
Activity 1.2

Go to:  http://www.immunise.health.gov.au

Read about immunisation for health care workers and consider the information as relevant to you. Speak with your lecturer about the requirements for any industry placements which may be required.

Risk assessment

As with all other areas of Workplace Health and Safety we have an obligation to assess the risk of infection in the workplace to our clients and ourselves. Specific information should be found in:

- Workplace Health and Safety Manuals
- Infection Control Manuals
- Policy and Procedure Manuals
- Departmental or Ward Work Manuals.

Many health facilities employ an Infection Control/Risk Management Officer who plays a vital role in ‘Infection Control’ and ‘Risk Management’ in the workplace.

Hazard identification

Hazards can be identified by the following:

- pathology findings
- sufficient client history
- doctor’s notification
- client screen (if policy of facility)
- accurate assessment and diagnosis at onset of symptoms (permission from client must be gained prior to collecting any pathology specimen)
- understanding of infection control principles by all facilities staff.

Management

Prevention is better than treatment if at all possible, ie:

- vaccination and immunisation program
- use of safety devices
- safe work practices
- standard and additional precautions
- educate and inform clients of infection and potential for transmission
- educate family/friends
- adequate and appropriate documentation and reporting
- adequate and appropriate treatment of the infection/disease once diagnosed.
Micro-organisms

Micro-organisms are everywhere around us. Everything we eat, touch, see, the air we breathe, the dust in the environment, the soil and the sea contains micro-organisms. Most of the micro-organisms have no effect on us or may even be beneficial.

Some micro-organisms perform functions that are essential for maintenance of the environment and our welfare. Particular micro-organisms are responsible for the breakdown of organic waste in our environment, thereby helping to maintain the composition of soil. Many of our foods and drinks rely on microbial activity in the manufacturing process. Examples are cheeses, soy sauce, cured hams, chocolate, green olives, sourdough bread, beer, whisky and wine.

Micro-organisms that live on our bodies, for example on our skin, in our mouth and intestines are called normal flora. We are described as a host to these microbes. Normal flora reside in their special human habitats without harming their hosts. In fact their presence is beneficial because whilst they occupy the space, use the food and secrete products and toxins, they also inhibit the invasion of the area by other micro-organisms which may be harmful.

Micro-organisms vary in their virulence, i.e. their ability to cause disease, known as pathogens (‘path’ meaning disease and ‘gen’ causing). Only a small percentage of micro-organisms (about 3%) are pathogenic. Normal flora can become pathogenic if they leave their normal place of residence in the body and travel to another area, for example, a micro-organism which is normal flora in the large intestine, or if it were to invade the urinary bladder it could cause infection. The capacity of the invading micro-organism to cause infection will be greater if the host has low resistance to disease and the growth conditions for the invading micro-organism are suitable. These micro-organisms are referred to as opportunistic pathogens.

Some of the causes of low resistance in the host are:
- age (the immune system may be incomplete and/or deteriorating)
- poor nutritional status (which impairs bodily functions and/or the immune system)
- chronic illness (which impairs bodily functions and/or the immune system)
- medications (impaired immune system)
- medical treatment (impaired defences, e.g. wound after surgery, invasive or indwelling devices, anaesthesia)
- illness/injury (body is already fully engaged fighting the problem)
- impaired bodily function (e.g. cough suppression due to pain which limits ventilation of lungs and removal of mucus)
- immunisation status.

What are micro-organisms?

Micro-organisms do not belong to the animal kingdom, and they are not bugs. Under a powerful microscope they appear to be small colourless sacs that are filled with a clear substance. They differ from plants commonly seen in nature in that they do not possess any green colouring matter, and further, all the vital functions necessary for their existence, such as nutrition, growth and reproduction are carried on in a single, simple, sexless cell.
The major groups of micro-organisms that are medically important are:

- **Bacteria** (the largest group of micro-organisms of medical significance)
  - Like all other living creatures, bacteria need food and water for growth and multiplication.
  - Most will not survive for long on clean dry surfaces but will readily multiply on poorly cleaned equipment, dirty water and even solutions of disinfectant.
  - The importance of water as a requirement for bacterial growth must be emphasised, because water is ever present in the healthcare environment. It is used to assist with cleaning of most instruments and equipment. One way of eliminating or decreasing the risk of bacterial spread is to ensure surfaces, instruments and other equipment are kept dry.
  - For each species of bacteria there is a definite temperature range within which growth takes place. However, the bacteria that grow in association with humans reproduce most rapidly around body temperature (37°C). Some bacteria grow in temperatures as low as 5°C and can spoil food.
  - Not all bacteria need oxygen to survive (they are anaerobic).
  - Most bacteria prefer solutions that are approximately neutral; however bacteria are known to survive in very acidic and alkaline environments.

- **Viruses**
  - Viruses are completely different from other organisms because they are entirely dependant on a host cell for replication/reproduction. A virus can enter a living cell and use the cell’s chemical contents to reproduce itself.
  - Sometimes viruses become dormant in cells, only to become activated at some time in the future, e.g. the chickenpox virus, which is the cause of herpes zoster or shingles.
  - Antibiotics are not effective against viral infections because the action of the antibiotic is directed at the metabolic activity of the cell and viruses are not capable of metabolic processes.

- **Protozoa**
  - Live mainly in water and ingest their food by engulfing it or by swallowing it through a specialised structure or ‘mouth’.
  - Some species of protozoa are the cause of serious disease, e.g. malaria which is caused by a form of protozoa carried by female Anopheles mosquitoes.

- **Fungi**
  - Fungi are important in the decomposition of organic matter and are important in the food industry
  - Some species are a source of antibiotics.
  - Very few fungi are harmful to humans, although the spores when wind-borne can be inhaled and cause lung infections or affect skin or mucosa (Thrush, athlete’s foot, tinea)

- **Algae**
  - Mainly aquatic organisms occurring in both fresh and salt water. Algae do not usually cause infections in humans but some species produce neurotoxins which can concentrate in fish and/or shellfish and cause poisoning when eaten by humans.

- **Parasites**
  - Organisms that derive their nutrition from other living organisms - the host.
Infection

Infection can be described as a condition in which all or part of the body is invaded by a pathogenic agent (bacteria, protozoan, virus) which multiplies to produce local and/or systemic injury.

Transmission of infection

Six elements can increase the likelihood of an infection being transmitted. Once these are understood, actions can be taken to interrupt the chain of infection.

Chain of infection

Micro-organisms

The causative agents in the chain include bacteria, viruses, fungi and protozoa.

Source

Source (reservoir) – the presence of pathogenic or disease-producing micro-organisms surviving in reservoirs such as people, food, water or equipment.

Prevention:

- immunisation
- staff health
- environmental cleaning
- disinfection
- sterilisation.
Portal of exit
There needs to be an exit for disease-producing micro-organisms from a reservoir, e.g. body fluids, skin or droplets.

Prevention:
- hand washing
- protective clothing
- control of body fluids
- waste disposal.

Method of transmission
Transmission of the disease-producing micro-organisms occurs by direct contact, swallowing, respiration or an article or substance other than food that may harbour and transmit microbes. A hospital is always a contaminated environment, because its main occupants are sick people. It follows then that the risk of infection in hospitals is greater than in most areas of human habitat.

Every person is a potential carrier of pathogenic organisms and/or non-pathogenic organisms. It is essential to understand this factor in order to prevent the spread of infection. Moreover, it must be recognised that all the common infectious agent transmission modes are present in the health care environment. Micro-organisms cannot travel around on their own spreading infection - they need a means of transportation, such as air, dust, water, food, humans, animals, insects or vermin.

Organisms capable of causing infection, a favourable environment, and susceptible hosts always exist in a healthcare environment; these factors can be reduced or separated but not necessarily eliminated. The provision of sterilised equipment, clean food, a well-ventilated and clean clinical area and safe disposal methods are of critical importance. However they will be ineffective in preventing infection, unless allied with good personal hygiene, hand hygiene, and careful application of aseptic techniques, e.g. the use of protective clothing and a conscientious attitude towards staff members with minor infections.

Spread of infection – direct contact
Direct contact means actually touching the infected person, animal or other reservoir of infection, i.e. direct physical contact.

Spread of infection – indirect contact
Indirect contact means not having direct physical contact with the person carrying the organisms, but having contact with animate or inanimate items, which have been in contact with a person carrying the organisms. Indirect contact can be spread by:
- fabrics, e.g. clothes, curtains and various other articles
- items in current use in hospitals, e.g. bed pans, instruments, syringes, needles, papers, food utensils, door handles
- food or water
- insects or vermin.

You may hear the term cross-infection used in a health care setting to describe the transmission of micro-organisms from one client to another in the same setting via a vehicle (e.g. health care personnel).
Airborne infection

Airborne infection occurs when organisms which cause infection/disease are transmitted through the air, by dust or droplets. Airborne infection can be spread by the following methods:

- Droplets transmitted from person to person through the air whenever a person coughs, sneezes or speaks.
- Droplets may fall onto equipment or on the floor.
- Smaller droplets may evaporate leaving infected particles known as droplet nuclei which are capable of remaining suspended for minutes, hours, or occasionally, days.
- Organisms may be spread by floor dust, which often contain large numbers of pathogenic bacteria which may remain alive and infective for weeks or months even in a dry state.
- Dust may also contain scales of skin, hair or fingernail cuttings, all of which may bear pathogenic bacteria and fungi.

If an infectious agent can be transmitted to an individual by direct or indirect contact, the resulting condition is called a communicable disease.

Prevention:
- isolation of infected clients
- hand washing
- care with food handling
- air flow control
- sterilisation.

Portal of entry

A person infected by a micro-organism may become a reservoir or source of infection, e.g. through mucous membranes, gastro-intestinal tract, respiratory tract or broken skin. This is the ‘place of entry’ or ‘portal of entry’.

Prevention:
- aseptic techniques
- wound care
- catheter care.

Susceptible host

Someone who suffers from immunosuppression, diabetes mellitus, cancer, immobility, or is elderly recovering from surgery is a particularly susceptible host in the transmission of infection.

Prevention:
- treatment of underlying diseases
- mobilisation
- recognition of high-risk client.
Activity 1.3

You have been rung at work by the child care centre that cares for your 10-month-old and 2-year-old children. They have asked you to come and collect your baby as he has diarrhoea and seems to have a fever. He is miserable and lethargic. There has recently been an outbreak of gastroenteritis at the child care centre and the local school. You also have a 5-year-old at school and your 80-year-old grandmother is staying with you.

Go to the SA Health website www.sahealth.sa.gov.au and type “You’ve got what?” in the search box.

Find the Campylobacter Infection information.

Using the information on Campylobacter Infection, complete the chain of infection diagram below by filling in the boxes with:

- the micro–organism that causes gastroenteritis
- the source of the micro–organism
- the portal of entry of the micro–organism
- the mode of transmission of the micro–organism
- the portal of exit of the micro–organism, and
- any other susceptible hosts in your family.

Chain of infection
Nosocomial infections

Nosocomial infections are classified as infections that are associated with the delivery of health care services in a health care facility and may be known as hospital acquired infections. Nosocomial infections can occur either during a client’s stay in a facility or manifest after discharge.

Nosocomial organisms may also be acquired by health personnel working in the facility (e.g. hepatitis, B&C and HIV infection) and can cause significant illness and time lost from work. The micro-organisms that cause nosocomial infections can originate from the clients themselves or from the healthcare environment and healthcare workers.

All health care facilities have a responsibility to develop policies and procedures which address the principles and recommendations of the Australian Infection Control Guidelines. Large facilities will have staff with specialist knowledge in infection control. They are usually supported by a multi-disciplinary infection control committee.

When you are working, it is your responsibility to ensure you are aware of and follow the organisation’s policies and procedures. Communicating and working as a team are vital in infection control and will become an integral part of your clinical practice.

Checkpoint

Now return to the performance criteria listed at the beginning of this topic. Have you achieved these outcomes? If you are unsure, talk to your lecturer/facilitator before you move on to the next topic.
TOPIC 2: Strategies to prevent infection

Performance criteria

When you have successfully completed this topic you will be able to:

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
Protection

The body is protected against invaders by three processes:

- External defences - the first line of defence is the skin and mucous membranes which are more commonly referred to as the 'external defences'.
- Inflammatory reaction is the second line of defence.
- Immune response is the third line of defence.

External defences

The skin - the first line of defence - has normal flora that help protect it from potentially pathogenic micro-organisms that may try to gain a foothold. Harmful organisms cause problems only if there is a break of the continuity of the skin. Functions of the skin include:

- protection from chemicals, bacteria and drying
- regulation of body temperature
- synthesis of proteins and Vitamin D
- sensing external stimuli - sensory receptors are located in the skin.

Factors which contribute to the frailty of skin include:

- soaps, which are usually more alkaline than skin
- medications, e.g. cortisone-based medications cause the skin to become thin
- pressure on the same area for lengthy periods can create pressure sores
- friction can cause underlying connective tissue and blood vessels to be torn
- chemical damage can result from incontinence of faeces or urine, which can burn the skin
- the mucous membranes provide various protective mechanisms.

Inflammatory reactions

Inflammatory reaction - the second line defence of the body - is non-specific. The classical manifestations are:

- redness
- heat
- tenderness
- pain
- swelling.

Immune responses

Immune response is the third line of defence. It is a specific response triggered by the presence in the body of foreign protein. These are called antigens. The body produces antibodies to counter the effect of antigens. Antibodies are produced by lymphocytes and have the ability to recognise, bind with, inactivate and destroy specific micro-organisms.

There are various types of immunity:

- Active natural immunity: the antibodies are formed in the presence of active infection in the body, e.g. influenza; this immunity is lifelong.
• Active artificial immunity: antigens (vaccines and toxoids) are administered to the person to stimulate antibody production; this immunity lasts for many years but must be reinforced by administration of booster inoculations.

• Passive immunity: antibodies are produced by another source, animal or human. For example, passive natural immunity exists where antibodies are transferred naturally from an immune mother to her baby through the placenta or in colostrum. Short-term immunity lasts six months to one year. Passive artificial immunity: immune serum containing antibodies from an animal or another human is injected, e.g. hepatitis A. Short-term immunity lasts 2–3 weeks.

Standard and additional transmission based precautions

The Workplace Safety and Health Act requires that precautions are taken to maintain infection control.

Standard precautions include work practices which are required to achieve a basic level of infection control and recommended for the treatment and care of all clients.

Standard precautions are the basic risk minimisation strategies for infection control required to protect clients and staff from infection transmission.

They consist of:

• Hand hygiene
• Personal hygiene
• The use of personal protective equipment (PPE)
• The safe handling and correct disposal of sharps
• Aseptic technique
• Environmental controls – design and maintenance of healthcare premises and cleaning and spills management
• Appropriate waste management
• Appropriate provision of support services such as laundry and food services
• Appropriate equipment/instrument reprocessing.

Additional transmission based precautions recommended for clients known, or suspected to be, infected or colonised with disease agents that cause infections in health care settings and may not be contained by standard precautions alone. Additional transmission based precautions are always used in addition to – not instead of – standard precautions.

Due to the nature of their work, health professionals are at significantly higher risk of encountering infectious diseases. Any strategy for infection control should be based on the use of standard precautions, as a minimal level of control, supplemented by additional transmission based precautions where standard precautions may be considered insufficient to prevent infection.

Additional transmission based precautions are based on three specific routes of disease transmission (airborne, droplet and contact). Infection control practices for each specific disease must take into account its mode of transmission.
They consist of:

- **Airborne precautions**: for clients known or suspected to be infected with micro-organisms transmitted by airborne route, e.g. TB, chickenpox, measles
  - single room
  - negative pressure room
  - high efficiency filter mask (N95 mask);

- **Contact transmission**: for specific clients infected or colonised with highly transmittable micro-organisms, e.g. MRSA, VRE, clostridium, difficile or shingles
  - single room or cohort
  - gloves and gown for direct contact
  - contact infection control for specific strategies;

- **Droplet transmission**: for clients known or suspected to be infected with micro-organisms transmitted by respiratory droplets, e.g. RSV, pertussis
  - single room or cohort
  - mask for close contact.

**Activity 2.1**

You have collected your 10-month-old after being contacted by the childcare centre in relation to him showing signs of having gastroenteritis. You realise that your other children and grandmother are most at risk of contracting gastroenteritis and you need to put some precautions in place to protect them. Your baby and toddler share a bedroom and a toy box. Thinking back to the Chain of Infection, outline the standard and/or additional precautions that you would put in place at each stage to break the Chain of Infection and ensure the rest of your family remain well.