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# INFECTION PREVENTION AND CONTROL MANUAL

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## 6.1 Antiseptics and Disinfectants

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### RATIONALE

**Approval of the Infection Control Committee should be obtained before new chemical disinfectants are introduced into the Health Service.**

Routine cleaning of the hospital environment (floors, benches, beds, tables, etc) should be done using a neutral detergent and water.

Additional cleaning and disinfection procedures may apply in laboratories or where certain resistant bacteria may be present (see specific procedure).

### DEFINITIONS

#### ANTISEPTIC

A chemical agent recommended for application to the skin or mucous membranes of a person to kill micro-organisms; or prevent the growth of micro-organisms to a level that may cause clinical infection and is not recommended as suitable for internal use.

#### SKIN DISINFECTANT

An antiseptic intended for application to intact, healthy skin to prevent the transmission of skin bacteria (transient or resident) from person to person or from the skin at a surgical site to underlying tissues. Skin disinfectants include antimicrobial/antiseptic soaps, hygienic hand rubs and surgical hand rubs, scrubs and washes.

#### DISINFECTANT

A chemical agent recommended by its manufacturer to be applied to inanimate objects to kill, or inactivate, a range of micro-organisms but may not inactivate more resistant bacteria, bacterial spores, viruses, fungi or protozoa and is not recommended for internal use.

#### STERILANT

Is taken to be a subgroup of disinfectants and usually needs a longer exposure time to achieve sterility.

### CHEMICAL DISINFECTANTS CATEGORIES

#### INSTRUMENT-GRADE DISINFECTANTS

Disinfectants used to sterilise/disinfect medical devices to prevent disease transmission between patients or between patient and user and are considered to be an accessory to a medical device. These disinfectants include low level, intermediate level and high level instrument grade disinfectants as per Therapeutic Goods Order (TGO) 54.

## **RECOMMENDED WHERE:**

- a) Sterility is not required
- b) Disinfection by heat is not possible (heat sensitive equipment)

Thorough cleaning of medical instruments with detergent and water must be done prior to using chemical disinfectants. This will reduce the microbial load and remove substances such as dirt and organic material, which may deactivate disinfectant solutions.

**Instrument Grade-High Level Disinfectants** - used to reprocess instruments and devices, which cannot be sterilised, for use in semicritical sites (intact nonsterile mucosa or nonintact skin) and is the minimum treatment recommended.

**Instrument Grade-Intermediate Level Disinfectants** – used as the minimum recommended treatment for reprocessing instruments and devices for use in noncritical sites (intact skin) or when there are specific concerns regarding contamination of surfaces.

**Instrument Grade-Low Level Disinfectants** – used as an alternative to cleaning alone for reprocessing devices used in noncritical sites when only vegetative bactericidal activity is needed.

## **HOSPITAL-GRADE DISINFECTANTS (GENERAL PURPOSE)**

**This type of disinfectant must not be used to disinfect medical instruments.**

A hospital grade disinfectant is a disinfectant suitable for disinfecting surfaces (e.g. walls, floors etc) not involving instruments or surfaces likely to come in contact with broken skin. The need to use disinfectant solutions in a hospital is limited. The recommended procedure for cleaning is the manual removal of visible soil and dirt, followed by cleaning with detergent and water.

## **HOUSE HOLD/COMMERCIAL-GRADE DISINFECTANTS**

These have limited use, as their efficacy has not been tested under healthcare environmental conditions.

### **Factors that affect the performance of disinfectants include:**

- Temperature
- Contact time
- Concentration
- pH
- Presence of residual organic and inorganic material, and initial bioburden on a surface.

## **SKIN DISINFECTANTS (ANTISEPTICS)**

These solutions are used to substantially reduce the microbial content on the skin or mucosal surfaces, and are not suitable for internal use. Skin disinfection before surgery/aseptic procedures should reduce the number of resident bacteria on the skin/mucosal tissue in the patient and on the hands of health care worker (HCW)

Mixing or sequential use of different antiseptic solutions is not recommended as inactivation due to incompatibility may occur.

Antiseptic solutions are not recommended for cleaning or packing infected wounds as they often have a detrimental effect on the tissue. Normal saline is recommended.

**Hand-wash/Hand rubs**

- Designed to reduce transient bacteria on hands and have a residual activity

**Surgical Scrub**

- Reduces the level of both transient and resident bacteria
- Should be used prior to performing an aseptic procedure

**Sachets of solutions are for single use only. All opened containers should be labelled with the date and time of opening and discarded within 24 hours.**

## RECOMMENDED SKIN DISINFECTANTS (ANTISEPTICS)

<u>SOLUTION</u>	<u>INDICATIONS</u>	<u>SPECIFIC RECOMMENDATIONS</u>
Chlorhexidine Aqueous 0.1%	Preparation of mucous membranes. Preparation of skin (neonates).	Single use item. Allow solution to dry before beginning procedure
Chlorhexidine 0.5% in 70% alcohol	Skin preparation	Single use item. Effective contact time is 1 minute. Allow to dry before beginning procedure or diathermy
Chlorhexidine 0.5% or 1% in alcohol 70% (Ethanol or Isopropanol) Alcohol Gel >60% Ethanol	Rapid decontamination of hands (where no gross soiling).	Contact time 10 -15 seconds.
Chlorhexidine 2% handwash	Handwashing prior to an antiseptic procedure.	Wet hands. Hands should be washed for 60 seconds, rinsed well and dried.
Chlorhexidine 4 % handwash	Handwashing prior to operative procedure Operating Room.	Invasive Procedures Theatre:- Hands should be washed for 3minutes
Chlorhexidine 1% Obstetric cream	Preparation of vagina and vulva area prior to delivery or examination.	Single patient use item.
Chlorhexidine 0.2% mouth Wash (200mls)	Mouth wash.	Single patient use
Chlorhexidine 0.1% and Cetrimide 1%	For cleaning of traumatic/ dirty wounds.	Single use item. <b>Note:</b> Cetrimide has very limited antiseptic properties and is mainly used for its detergent properties. Single use item.
Iodine 1% in 70% alcohol	Skin preparation (Intact skin) Theatre only.	Allow to dry before incision or diathermy.
Povidone Iodine 7.5% scrub (500mls) (Equivalent to 0.75% available iodine)	Handwashing prior to aseptic procedures	Wet hands. Wash for a minimum of 2 minutes. Rinse well and dry hands.
Povidone Iodine 10% Ointment equivalent to 1% available iodine)	For skin preparation.	Theatre and renal peritoneal dialysis use.
Isopropanol Alcohol 70% swab	Skin disinfection Injection site disinfection.	Single use Item
Triclosan 1%	Body Wash pre operative MRSA colonisation	Single use or single patient use item. Pre-op 3 sequential body washes required.

**NOTE: IODINE & POVIDONE IODINE skin testing should be performed pre-operatively. Should be used with caution on people with a history of hypersensitivity to iodine. In the rare instances of local irritation or sensitivity use should be discontinued**

## DISINFECTANTS

<u>SOLUTION</u>	<u>INDICATIONS</u>	<u>SPECIFIC RECOMMENDATIONS</u>
Alcohol 70%	Laboratory use only	Not suitable for use as a cleaning agent. Ensure adequate safety as solution is flammable.
Formalin 34-38% Formaldehyde	Laboratory and tissue fixative	Ensure adequate ventilation. Wear gloves to avoid skin contact. Wear glasses to protect eyes.
Sodium Hypochlorite	Equipment and environmental surface disinfection when patient has VRE. Environmental surfaces/patient equipment disinfection when patient has gastroenteritis and during gastroenteritis outbreaks Surfaces must be pre-cleaned.	Use only on inanimate/ environmental surfaces. Use a dilution of <b>500ppm</b> (VRE) Use a dilution of <b>1000ppm</b> (Gastro) A 10 minute contact time is required and must be followed by rinsing with water and surface dried. Do not use on carpets or fabric
Glutaraldehyde 2%  Orthophthalaldehyde (OPA)	High Level Instrument Grade Disinfectants used for disinfection of heat sensitive equipment to be used in semicritical sites	Articles should be soaked for a minimum 10 minutes to ensure disinfection. Article should be rinsed with sterile water before use. Adequate ventilation essential. Wear chemical resistant gloves to avoid skin contact. Wear glasses to protect eyes. (See DHS Guidelines)

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### REFERENCES:

Infection Control Guidelines for the prevention of transmission of infectious diseases in the health care setting. Australian Department of Health and ageing, 2004.

AS/NZS 4187:2003: Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities

Australia Government Department of Health and Ageing: Therapeutic Goods Administration [TGA]. Hard surface disinfectants and instrument grade disinfectants (including sterilants) Fact sheet no.28 October 2006 available at: <http://www.tga.gov.au/devices/fs-disinf.htm>

Australia Government Department of Health and Ageing: Therapeutic Goods Administration [TGA] Therapeutic Goods Order No. 54 STANDARD FOR DISINFECTANTS AND STERILANTS February 1998 available at: <http://www.tga.gov.au/docs/html/tgo/tgo54.htm>

Commonwealth Department of Health and Family Services 1996 TGA Guidelines for the Evaluation of Disinfectants and Sterilants, 1996

Department of Human Services: Guidelines for the use of Glutaraldehyde in the Health Care Industry 1998.

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# INFECTION PREVENTION AND CONTROL MANUAL

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## 6.2 Medications, Solutions and Injectables

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### RATIONALE

To prevent cross contamination between patients, sterile single use solutions, injectables, medications and equipment should be used.

### Single use Vials and Ampoules

- Single dose vials or ampoules, or prefilled syringes, should be used wherever these are available
- Strict aseptic (sterile) technique to be used when drawing up the contents of the vial or ampoule
- Single use sterile injecting equipment must be used each time an injection vial is used.
- The top of the vial (stopper) should be swabbed with a 70% isopropyl alcohol swab before it is entered with a needle. Rub stopper vigorously then squeeze a small amount of solution from the swab onto the stopper and allow drying time before the needle pierces the vial top.
- If injection vials become contaminated, they have the potential to become a source of infection to patients

### Multidose Vials and Products

- Multidose injectable products to be used only where the product is intended for the exclusive use of an individual patient (e.g. Insulin)
- Date and time of opening and patient name and UR number must be clearly recorded on the vial.
- A new sterile needle and syringe must be used to draw up remaining contents of the vial on every occasion.
- Multidose products used in routine medical and dental procedures (e.g. topical lubricants, eye drops, local anaesthetics for throat procedures etc) are individual patient items
- To prevent multi-patient use and to ensure that the products are used for an individual patient only all multidose products/injectables are specifically labelled with patient details and stored appropriately.
- Care must be taken to avoid contamination of the remaining contents
- All individual patient multidose products are discarded when no longer required or the patient is discharged.

### Injectable products for multi patient use

To minimise the risk of cross contamination when single-dose vials or ampoules are not available and multi-dose products are used for multiple persons:

- Use a new sterile needle and syringe each time the vial/ampoule is accessed to draw up a single patient dose.
- Draw up **ALL** the contents in the container in single dose syringes prior to administering to any person/patient.
- Place the drawn up medications in a separate area away from the immediate work area.
- Cover syringes of medication to avoid contamination.
- Maintain “cold chain” if applicable to medication in use
- Have current patient medication only in immediate work area.
- Discard all unused medication in syringes and/or open vial /ampoule at the end of the session.

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**REFERENCES:**

Infection control guidelines for the prevention of transmission of infectious diseases in the healthcare setting. Australian Government Department of Health and ageing, 2004.

Royal College of Nursing Australia: Nursing Review, Intravenous Antibiotic Practice: Safety Issues. February 2008

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# INFECTION PREVENTION AND CONTROL MANUAL

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## 6.3 Antibiotic Prescribing

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### RATIONALE

To minimise the selection of organisms resistant to antibiotics and promote effective and economical antibiotic prescribing, adherence to the principles of prudent antibiotic use is essential.

**The Multidisciplinary Therapeutic/Drug/Pharmacy Advisory Committee** is responsible for implementing policy to:

- Formulate appropriate prescribing strategies
- Guide and monitor antibiotic usage.
- Develop antibiotic policies that reflect the current version of Therapeutic Guidelines: Antibiotic
- Provide education programs to all relevant clinicians on all aspects of antibiotic use which includes current susceptibility patterns.
- Recognise influences on prescribing patterns
- Develop and sustain an antibiotic monitoring and evaluation program which includes approval, restriction and consumption.

The availability of agents should be stratified according to factors such as:

- Spectrum
- Cost
- Safety
- Prevalence of resistance
- Resistance-inducing potential
- Frequency of indication
- Patient hypersensitivity

Successful implementation of the Antibiotic Policy requires a multidisciplinary approach and interaction between the drug committee, quality improvement teams, medical, pharmacy and nursing departments and Infection Prevention and Control Unit.

**NB:** Further information for policy development is available from the listed references.

### **REFERENCES:**

Therapeutic Guidelines Limited: Therapeutic Guidelines: Antibiotic, Version 13, 2006 sourced November 2007 at <http://etg.hcn.net.au/tgc.htm>

Victorian Department of Human Services; Start Clean: Victorian Infection Control Strategy 2007-11. September 2007 at <http://www.health.vic.gov.au/ideas/>

Infection control guidelines for the prevention of transmission of infectious diseases in the healthcaresetting. Australian Department of Health and ageing, 2004