	POLICIES & PROCEDURES Number: **50-10** Title: **Antiseptics and Disinfectants**
Authorization: [🗐] SHR Infection Prevention & Control Committee [ ] Facility Board of Directors	Source**: Infection Prevention & Control** Date Initiated: June, 2003 Date Reaffirmed: Date Revised: May, 2007 Scope: SHR Agencies & Affiliates

Introduction

Antiseptics are products with antimicrobial activity that are designed for use on skin or other superficial tissues. They remove both transient and resident flora. The term is used for preparations applied to living tissue.

Disinfectants are chemicals that reduce or destroy pathogenic organisms but rarely kill all spores. This term refers to agents used on inanimate (non-living) objects.

Selection and use of antiseptics and disinfectants is dynamic, ever-changing as newer products become available. Selection should be based on information in scientific literature, federal Food and Drug Administration (FDA) registration and manufacturer's claims. Also to be considered are the cost, safety and acceptability by the user. Consultation with Infection Prevention & Control is recommended.

Policy

1. Antiseptics and disinfectants shall be used according to the WHMIS label.

Purpose

1. To prevent infection by reducing microbial contamination through the appropriate use of antiseptics and disinfectants.

2. To provide a range of agents that meet the needs of all healthcare facility departments while maintaining fiscal responsibility.

Procedure

1. Determine the level of sterilization or disinfection required by identifying what classification and what level is to be obtained.

    - Spaulding's Classification:

- Critical items - Objects that enter sterile tissue or the vascular system and must be sterile.

- Semi-critical items - Objects that come into contact with mucous membranes or skin that is not intact.

- Non-critical items - Objects that come in contact with intact skin.

- Levels of Disinfection:

  - High-level disinfection – destroys all microorganisms with the exception of high numbers of spores. May be sporocidal with long exposure time.

  - Intermediate-level disinfection – inactivates *M. tuberculosis*, vegetative bacteria, most viruses and most fungi but does not kill bacterial spores.

  - Low-level disinfection – kills most bacteria, some viruses and some fungi but cannot be relied upon to kill resistant microorganisms such as tubercle bacilli or bacterial spores.

- Efficacy of disinfection is affected by:

  - The nature of the object.
  - The organic load present.
  - Type and level of microbial contamination.
  - The concentration of and exposure time to the germicide.

2. Select the appropriate agent.

ANTISEPTICS

Groups	Gm+ bacteria	Gm- bacteria	Myco-bacteria	Fungi	Viruses	Speed of action	Comments
Alcohols	+++	+++	+++	+++	+++	Fast	Best concentration 60-95%; no persistent activity.
Chlorhexidine*	+++	++	+	+	+++	Inter-mediate/Fast	Persistent activity; rare allergic reactions. Highly effective as a surgical scrub when in combination with alcohol. Prolonged residual activity.
Iodine compounds	+++	+++	+++	++	+++	Intermediate	Causes skin burns; usually too irritating for hand hygiene.
Iodophors	+++	+++	+	++	++	Intermediate	Less irritating than iodine; acceptance varies
Phenol derivatives	+++	+	+	+	+	Intermediate	Activity neutralized by non-ionic surfactants.
Triclosan	+++	++	+	-	+++	Intermediate	Acceptability on hands varies.
Para-chloro-meta-xylenol (PCMX)	+++	++	++	++	++	Intermediate	Activity neutralized by non-ionic surfactants.

+++ = excellent; ++ = good, but does not include the entire bacterial spectrum; + = fair; - = no activity or not sufficient. Hexachlorophene is not included as it is no longer an accepted ingredient for hand disinfection.

* acceptable concentrations for chlorhexidine are 0.5%, 2.0% and 4.0%

DISINFECTANTS

Agent	Dilution	Level of Disinfection	Advantages	Disadvantages	Comments
Alcohol	60-95%	Intermediate	Fast-acting. No residue. Non-Staining.	Flammable. Inactivated by organic material. May harden rubber. Evaporates rapidly.	
Chlorines	100-1000 ppm free chlorine	High / Low	Low cost. Fast acting.	Corrosive to metals. Inactivated by organic material. Unstable when diluted. Produce toxic chlorine gas when mixed with acid.	
Formaldehyde (formalin)	10-40% aqueous	High / Intermediate	Kills all microorganisms.	Irritating fumes and pungent odor.	Potential carcinogen.
Glutaraldehyde	2%	High	Excellent biocidal. Active in the presence of organic material. Noncorrosive.	Irritating fumes and pungent odor.	Rapid high-level disinfection.
Orthophthal-aldehyde (OPA)	0.55%	High	No known eye/nasal irritation. Excellent stability. Low odor. Excellent material compatibility.	Stains proteins.	Discard down drain.
Stabilized Hydrogen Peroxide	3%	Low	Fast-acting. Breaks down into harmless chemicals.	Can be corrosive to aluminum, copper, brass or zinc.	Bactericidal including MRSA and VRE
Accelerated Hydrogen Peroxide	7%	Low/High level depending on concentration	Fast-acting. Breaks down into harmless chemicals.	Can be corrosive to aluminum, copper, brass or zinc.	Effective for norovirus
Peracetic Acid	-	High	Effective against all microorganisms. Innocuous decomposition Effective in the presence of organic material.	Can be corrosive. Unstable when diluted	High level disinfection of instruments.
Iodophors	30-50 ppm free iodine	Intermediate	Non-staining.	Must be used according to manufacturer's recommendations to achieve antimicrobial activity	Cannot be interchanged with antiseptic iodophor.
Phenolics	0.4-1.6% aqueous	Intermediate / Low	Leaves residual film on environmental surfaces. Available with added detergents.	May be absorbed through the skin.	Do not use in nurseries.
Quaternary ammonium compounds	2%	Low	Detergent properties	Do not use for disinfecting instruments. Inactivated by soap and organic material. Narrow microbiocidal spectrum.	

References:

1. Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Infect Control Hosp Epidemiol 2002;23(suppl):S3-S40.

2. APIC Guideline for Selection and Use of Disinfectants. AJIC 24;4:313-342, August 1996. Reviewed 2002.

3. Health Canada. Infection Control Guidelines*. Hand Washing, Cleaning, Disinfection and Sterilization in Health Care.* CCDR Vol;24S8. Dec 1998.