Infection Prevention & Control Program

Module #8: Cleaning, Disinfection & Sterilization of Medical Equipment and Devices

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Winnipeg Regional Health Authority
Caring for Health
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MODULE #8: CLEANING, DISINFECTION AND STERILIZATION OF MEDICAL EQUIPMENT AND DEVICES

OBJECTIVES

At the completion of this module you will be able to:

1. **Demonstrate** the basic knowledge of cleaning, disinfection and sterilization of medical equipment/devices by completing the following exercises in this module
2. **Describe** Spaulding Classifications System and give examples of each category
3. **Outline** the key points for workflow, transportation and storage of medical equipment/devices for the Medical Device Reprocessing Department and Operating Rooms (OR)

Number of Hours

- Key Concepts ~ 4hrs
- Methods ~ 4 hrs

Required Readings

☐ Best Practices for Cleaning, Disinfection and Sterilization of Critical and Semi-Critical Medical Devices, BC Ministry of Health Best Practice Guidelines For Cleaning, Disinfection and Sterilization in Health Authorities (gov.bc.ca)

☐ Disinfection 101 https://youtu.be/jJu961eZeoo

☐ LTC WRHA MDR Tour https://youtu.be/k9krcVj6YFc

☐ As applicable:

- ☐ **Acute:** Cleaning and Disinfection of Non-Critical Reusable Equipment for Patients in Hospital
- ☐ **LTC:** Cleaning and Disinfecting or Reprocessing of Non-Critical Reusable Resident Equipment/Items
- ☐ **Community:** Cleaning and Disinfection of Non-Critical Reusable Equipment/Items for Clients in Community Health Services

☐ Cleaning, Disinfection & Sterilization of Medical Equipment and Devices Orientation Module Review

Suggested Readings

- [ ] APIC Text of Infection Control and Epidemiology 4th Edition- Chapter31. Cleaning, Disinfection, and Sterilization in Healthcare Facilities

Instructions

Read the material. Write out your answers to the questions and discuss them with your preceptor. It is recommended your preceptor should contact the department manager to arrange the appropriate tours if applicable.

OVERVIEW

This module is designed to help you become familiar with the processes involved in the reprocessing of medical devices/equipment. The goals of safe reprocessing of medical equipment/devices include:

- Preventing transmission of microorganisms to personnel and clients/patients/residents
- Minimizing damage to medical equipment/devices from foreign material (e.g., blood, body fluids, saline and medications) or inappropriate handling (PIDAC, 2010)

One of the roles of infection prevention & control is to provide advice on the cleaning, disinfection, and sterilization of patient care equipment, in accordance with the scope of your role. In this module you will be asked to become familiar with key concepts for reprocessing.

KEY CONCEPTS

An important place to start is with **Spaulding's Classification System**. This system was first proposed in 1968 and is so clear and logical that it has been retained by the Infection Control community and others involved in cleaning, disinfection and sterilization processes. Spaulding believed that the nature of disinfection could be understood more readily if instruments and items for patient care were divided into three categories based on the degree of risk of infection involved in the use of the items.

In the section below define each of the device classifications. Identify the method of reprocessing used for each of the classifications and then give an example of medical devices that fall into each of the categories based on the definition of each device classification.

Spaulding Classification

DEVICE CLASSIFICATION	DEFINITION	DEVICE EXAMPLE	METHOD FOR REPROCESSING
Critical			
Semi-Critical			
Non-Critical			

Define key terms about cleaning and disinfection and then give examples: **CLEANING**

TERM	DEFINITION	EXAMPLES
Cleaning		
Detergents		
Enzymatic Cleaner		

Define key terms about cleaning and disinfection and then give examples: **DISINFECTION**

TERM	DEFINITION	EXAMPLES
Disinfection		
Disinfectant		
Antiseptic		
Low level Disinfection		
High Level Disinfection		

Disinfectants

DISINFECTANT	ADVANTAGES	DISADVANTAGES	USE IN FACILITY?
Chlorine (bleach)			
Alcohol			
Accelerated Hydrogen Peroxide			
Glutaraldehyde			
Quaternary ammonium compounds			

Which product/products are used at your facility/in your areas? Who makes this decision? Often chemical high level disinfectants/sterilants have a process in place to test the quality of the product. Review products that must be tested with quality indicator strips in your facility.

INDICATOR	DEFINE	EXAMPLES OF PRODUCTS THEY ARE USED WITH
Test Strips		

Sterilization

TERM	DEFINITION
Sterilization	

STERILIZATION METHODS	DEFINITION	DISADVANTAGES	ADVANTAGES
Steam Sterilization			
Hydrogen peroxide gas plasma			
100% Ethylene Oxide (ETO)			
Chemical sterilant			
Flash sterilization or immediate-use sterilization			
Event related sterility			

INDICATOR	DEFINE	TYPE USED
Biological Indicator		
Chemical Indicator		
Physical Indicator		

Manufacturer's Recommendations

Manufacture's information for all medical devices/equipment must be easily accessible to staff carrying out the reprocessing.

What information must the manufacturer provide with each medical device?

METHODS

Read and understand Best Practice Guidelines for Cleaning, Disinfection and Sterilization of Critical and Semi-Critical Medical Devices, BC Ministry of Health (required reading).

- Why is cleaning the first step in reprocessing? How is this done?
- How should contaminated equipment/devices be transported to the reprocessing area?
- What is the difference between cleaning and disinfection?
- What is the difference between disinfection and sterilization?

Cleaning/Disinfection (C/D) of Non-Critical Items

ITEM	C/D RECOMMENDATIONS	PRODUCT USED IN YOUR FACILITY FOR C/D	WHO IS RESPONSIBLE FOR C/D?	HOW OFTEN? IS IT SINGLE USE?
BP Cuff				
Patient Slider				
Bed pan				
Stethoscope				
Glucometer				
Electronic thermometers				
wheelchair				

Cleaning/Disinfection of Semi-Critical Items as Pertains to your Site

ITEM	C/D RECOMMENDATIONS	PRODUCT USED IN YOUR FACILITY FOR C/D	WHO IS RESPONSIBLE FOR C/D?	HOW OFTEN? IS IT SINGLE USE?
Flexible Endoscopes (no sterile cavities)				
Endotracheal Tubes				
Anaesthia Equipment				
Breast Pump Accessories				

Sterilization Methods of Critical Items

STERILIZATION METHODS	WHERE IS IT DONE IN YOUR FACILITY?	EXAMPLES OF MEDICAL DEVICE
Steam sterilization		
Hydrogen peroxide gas plasma		
100% Ethylene Oxide (ETO)		
Chemical Sterilant		
Flash Sterilization		

What is the best practice for storage of reprocessed medical devices?

Tours of Key Reprocessing Areas

There are specific departments within facilities which perform the majority of the cleaning, disinfection, and sterilization of medical devices. For example, these departments include the Medical Device Reprocessing (MDR) and the Operating Room (OR). Discuss with your preceptor and determine if a tour in person, or via video of the above noted areas is required. If a tour is available please see below:

Following your tour in MDR did you see the following? Please describe.	
☐ **Workflow – follow an item from start to finish**	
☐ **Biological indicators**	
☐ **Chemical indicators**	
☐ **Physical indicators**	
☐ **Documentation of indicators**	
Does the MDR have policies and procedures?	
Where do they keep manufacturer's recommendations?	

Following an OR tour, did you see the following? Please describe.
Is there any reprocessing occurring within the OR?
Are items cleaned in the OR prior to being sent to MDR? If yes, by whom?
Is flash sterilization being done in the OR?
Are there policies in place for reprocessing devices in the OR?

Transportation and Handling of Contaminated Medical Equipment/Devices
How is contaminated equipment transported to the reprocessing department within your facility from an inpatient/outpatient unit?
Does this meet best practice?
Does the available policy on Medical Devices include information on transportation of contaminated equipment/medical devices?

Storage of Reprocessed Medical Equipment/Devices
Where are sterile items stored on the unit?
Are items stored in a way that meets the best practice standards?
Is there a policy regarding the storage of sterile equipment?

1. Is there a policy for reprocessing reusable medical devices?

2. Is there a policy on the management of single use devices?

The WRHA would like to thank the Provincial Infection Control Network of British Columbia (PICNET) for allowing the use of their ICP Orientation Manual.

IP&C ORIENTATION MODULE EVALUATION - CLEANING, DISINFECTION, AND STERILIZATION OF MEDICAL EQUIPMENT

These modules have been developed in order to make your orientation to the WRHA Infection Prevention & Control Program a good experience. Please complete the below evaluation for each module so any necessary changes can be made to improve the manual for future use. Your thoughts and comments are greatly appreciated, thank you.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The material was presented in a clear and organized way.	☐	☐	☐	☐
2. The information in the module was consistent with the objectives stated.	☐	☐	☐	☐
3. The required readings were useful.	☐	☐	☐	☐
4. The instructions with in the module were clear.	☐	☐	☐	☐
5. The amount of time given for the module was adequate.	☐	☐	☐	☐
6. The module provided information that I needed in order to do my job.	☐	☐	☐	☐
7. The module helped me to develop my critical thinking by using examples of IP&C situations.	☐	☐	☐	☐

COMMENTS

1. Do you now feel better prepared to begin your job, recognizing that this is an orientation manual and not meant to replace an accredited infection control course?

2. Do you have any suggestions on how this module can be improved?

3. Are there any additional topics that should be included in this module?

4. Any further comments?