



Endoscopy Cleaning, Disinfection & Sterilisation Procedure

Procedure Number

CHC-IC-0048

Version Nos:

6

1. Purpose

This Procedure outlines the process for the cleaning, disinfection and sterilisation of Endoscopes within West Coast District Health Board (WCDHB) facilities.

2. Application

This Procedure is to be followed by all clinical staff throughout the West Coast District Health Board (WCDHB).

3. Definitions

There are no definitions associated with this Procedure.

4. Responsibilities

For the purposes of this Procedure:

Clinical Nurse Specialist- Infection Control is required to:

- oversee all aspects of this Procedure
- monitor the performance of WCDHB staff members in relation to this Procedure;

Staff Members are required to:

- ensure they abide by the requirements of this Procedure;
- abide by all WCDHB Infection Control Policy and Procedures;
- abide by all WCDHB Health and Safety Policy and Procedure.

5. Resources Required

This Procedure requires:

- | | |
|----------------------------|-----------------------------------|
| i) Sterile Water | ii) Brushes and Clothes |
| iii) Detergents | iv) Electrical Protection Caps |
| v) Enzymatic Detergent | vi) Liquid Sterilant/Disinfectant |
| vii) 70% Isopropyl Alcohol | |
| ix) Monitoring Badges | x) PPE |
| xi) Chemical Spill Kit | |

6. Process

1.00 Introduction

- 1.01 WCDHB will purchase Endoscopes of a design that allows for easy cleaning, with no acute angles, rough or porous surfaces. They are also to be completely immersable.
- 1.02 If parts and accessories such as valves, forceps, brushes, snares, tubing and water bottles cannot be adequately cleaned before further sterilisation, then sterile disposable items should be used.
- 1.03 Sterile water should be used to fill the reservoir bottle for endoscopic irrigation and where ever necessary for patient procedures, e.g. flushing, rinsing forceps etc.



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2.00 Manual Cleaning

- 2.01 Manual cleaning refers to the physical task of removing secretions and contamination from the endoscope by hand using appropriate brushes, cloths, detergents and water. It should not be confused with "mechanical cleaning" (where a clean endoscope is placed in a machine which disinfects and rinses the instrument).
- 2.02 Electrical protection caps must be placed onto the endoscope before it is placed into water.
- 2.03 All Grey Base Hospital OR Unit staff members involved in the cleaning of endoscopes must have their endoscope cleaning competency validated yearly by an Olympus Company representative.
- 2.04 Cleaning audits are to be undertaken for flexible endoscope cleaning within the Grey Base Hospital OR Unit.
- 2.05 Cleaning of endoscopes and accessories should be performed with a manufacturer's recommended enzymatic detergent immediately after use to prevent drying of secretions. Before cleaning, all channels should be irrigated with copious amounts of enzymatic detergent and water to remove organic debris. Disposable lint free cloths should be available for washing the outside of the Endoscope. Substitute cleaning equipment should not be used unless approved by the supplier of the instrument.
- 2.06 Detachable parts, e.g. duodenoscope hoods and suction/air/water valves with tightly wound spring like configurations should be removed and soaked in enzymatic solution prior to brushing, ultrasonic cleaning then disinfection/sterilisation. Biopsy channel lids are single use.
- 2.07 The tip of the endoscope, control handles and around the valve ports' must be wiped/brushed with a soft toothbrush or cloth to remove any debris or tissue in or around these areas.
- 2.08 All fine bore items i.e. Cannula should be flushed through with enzymatic detergent, rinsed and air blown through them before sending to CSSD for sterilising.
- 2.09 Step by step procedures for cleaning of each individual flexible scope are enclosed in the endoscopic manual.
- 2.10 Cleaning brushes are single use, and are disposed of following cleaning of that particular endoscope.
- 2.11 If there are non-disposable cleaning brushes they are checked before each use, to ensure that they are not worn, as they will be ineffective in the cleaning process and place our patients at risk.
- 2.12 Care must be taken during procedures to ensure that the umbilical cable and insertion tube do not become kinked or acutely bent. Kinks in biopsy channels trap debris and can lead to failure of the cleaning process. Kinks can be felt during the manual clean brushing of the channel, and the scope should be sent to the manufacturer for repair.



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3.00 Function Checks

3.01 The endoscope should be inspected for any signs of damage at all stages of handling and a leak test is to be performed before submerging the entire instrument. If damage is detected, the endoscope is to be sent for repair and is not to be used.

4.00 Disinfection & Sterilisation

4.01 If endoscopes and accessories are not able to be autoclavable, chemical sterilisation and ethylene oxide (ETC) are to be used.

4.02 All endoscope surfaces, insertion tubes, umbilical light source cord, must be in contact with the disinfection solution.

4.03 Buttons and valves must be steam sterilized.

4.04 During the disinfection process, there must be visual checking of the flushing through of the chemical disinfection agent. This checking is to be documented as part of the cleaning documentation.

4.05 Endoscope water bottle and its connecting tube must be sterilized daily. Sterile water is to be used to fill the water bottle for endoscopic irrigation.

5.00 Solutions

5.01 The minimum recommended practice for endoscopes is for high level disinfection with an Environmental Protection Agency (EPA) registered liquid sterilant/disinfectant.

Recommended	Not Recommended
OPA(Ortho-phthaladehyde)	Gluteraldehyde with Phenol
Peracetic acid (Steris)	Iodophors, Hypochlorite's; Quaternary Ammonium Compounds, Phenolics,
Hydrogen Peroxide gas plasma (Sterrad)	Alcohol

6.00 Rinsing and Drying

6.01 Most Automatic Endoscopic Reprocessors (AER's) rinse before and after disinfection. Equipment must be rinsed thoroughly to remove chemical residues after disinfection. Sterile or filtered tap water (0.2 micron) must be used in the final rinsing of endoscopes.

6.02 Use of unfiltered tap water can be a significant source of contamination of endoscopes. Water guns should not be used for rinsing. All inner and outer surfaces of the endoscopes should be subjected to this rinsing.

6.03 To prevent the growth or transmission of contamination in the moist environment of the scope lumens, endoscopes should be rinsed with 70% isopropyl alcohol and dried by directing compressed air through the damp lumens: This is carried out before storage and in some situations between each cycle of disinfection/use.

6.04 Do not use alcohol between cases of bronchoscopy, or ERCP.



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7.00 Storage

- 7.01 Endoscopes should have a full disinfection process preformed prior to use (after storage) as well between patients and at the end of the list. Following the last disinfection process of the day 70% alcohol should be perfused through all lumens and air dried.
- 7.02 The Surgeon must be informed of any endoscope not processed due to an emergency situation. This is documented on the form "Scopes not processed before use", and this is also documented in the patient's clinical notes.
- 7.03 Endoscopes are to be stored in a way that permits full length hanging that protects the endoscope from damage, while minimising the potential for residual moisture accumulation. They are to be stored without valves, hoods, cap etc in place and so that they do not come into contact with another endoscope.
- 7.04 Closets or cabinets used for drying and storage are to be constructed of material that can be easily cleaned and that allows for circulation of air by ventilation holes within the cabinets. There must be enough endoscope cabinets to hang the current number of endoscopes.
- 7.05 Endoscopes are never to be stored in their traveling cases.

8.00 Design of Facilities for Cleaning and Disinfection of Endoscopes.

- 8.01 Endoscopy is to be performed in areas where adequate facilities for cleaning and disinfection are available.
- 8.02 There is to be a designated sink for the washing of hands.
- 8.03 Areas used for endoscopic procedures are to be separate from the area used for cleaning and disinfection of the endoscopy equipment. This area is to have adequate ventilation to exhaust toxic vapours and airborne pathogens. The area must also be large enough to accommodate the cleaning and rinsing of endoscopes and accessories.
- 8.04 If machines are used for disinfection, the area must be designed with adequate space and appropriate utilities specific to the machine used. The area should also be designed so that workflow can facilitate sound infection control practices.
- 8.05 Appropriate safety and protective equipment must be provided for the use of staff using the cleaning facility. Policies and procedures covering the cleaning of these areas are available.
- 8.06 Individualised validation of all processes must be recorded and signed by the staff member performing the tasks.

9.00 Quality Control of Endoscopes

- 9.01 Fortnightly microbiological monitoring of endoscopes is to be undertaken. Sampling of endoscopes should be preformed using sterile non-bacteriostatic water solution flushed through the channels in conjunction with brushing using a sterile cleaning brush.



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- 9.02 A log book is to be maintained in the Unit (responsibility of the Unit Manager) for each patient detailing patient's name, NHI Number, the procedure performed, endoscopist's name and identification of the scope used, and the staff member cleaning the scope.
- 9.03 A print out from the Lab caire unit is to be secured into the logbook, and a copy is also to be placed into the patient's clinical record.
- 9.04 Greymouth Base Hospital also has a service contract with Olympus to check all rigid and flexible endoscopes 3 monthly. A report is held in the Theatre Manager's office.
- 9.05 Yearly validation of flexible endoscopes is undertaken by the Olympus Company Representative who oversees the training and observing of all endoscope cleaning staff. A register is kept of all endoscope cleaners, and their signatures.
- 9.06 All endoscope cleaning staff attends a yearly unit validation in the use of the Lab Caire Unit. This is preformed by the Bio Lab Company Representatives, trained in the use of the Lab Caire.
- 9.07 Yearly validation of staff members will also occur in the use of the Steris Unit.
- 9.08 Three monthly endoscopy audits are run that audit covers all aspects of this Procedure
- 9.09 Individual cleaning audits are also preformed through out the year which includes PPE, and chemical changing.
- 9.10 Monitoring badges are run 6 monthly for chemical levels.

10.00 Endoscopy Personal/Staff Health

- 10.01 Standard precautions are applied to all patients during the endoscopic procedure and while cleaning endoscopes and accessories.
- 10.02 Only trained and validated staff should conduct cleaning and disinfection or sterilisation procedures. Endoscopy staff should be educated about the hazards of exposure to toxic chemicals and human pathogens, which includes Mycobacterium tuberculosis, Hepatitis B, Herpes Simplex and enteric pathogens.
- 10.03 Staff competency (audits) should be carried out regularly for scope cleaning. These should be kept on the staff file following completion.
- 10.04 Endoscopy staff is to wear protective attire which is to include long gloves, masks, eye protection, and moisture resistant long sleeved gowns. Respirators are also available for staff use.
- 10.05 A Chemical spill kit is available on site, along with PPE.
- 10.06 All blood and body fluids should be regarded as a potential source of infection. Personnel exposed to blood and body fluids e.g. splash injury or needle stick injury should follow the requirements of the *WCDHB Management of Blood and Body Fluid Exposure Procedure*.



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- 10.07 Hand washing is to be performed before and after each procedure, even if gloves are worn.
- 10.08 Endoscopy staff who may be exposed to Hepatitis B virus may wish to be immunised (this is available through WCDHB). Staff at risk of Mycobacterium tuberculosis should be offered Mantoux testing and BCG vaccination on recommendation by Physician.
- 10.09 Eating, drinking is prohibited in procedure rooms or clean up areas.
- 10.10 Proper handling and disposal of sharps should also be observed.

11.00 Automated Processing – Endoscopes

- 11.01 Endoscopes must be thoroughly pre-cleaned prior to mechanical disinfection. Appropriate disinfection change schedules must be observed.
- 11.02 On the recommendation of Standards NZ (8149:2001), automated machines do not need to be regularly tested for contamination. However, there are circumstances which suggests they may need to be sampled e.g. when positive samples are obtained from endoscopes, or other clinical similar clinical events.
- 11.03 Machines that are shown to be contaminated are to stop being used, and decontamination undertaken. The machine manufacturer is also to be notified.
- 11.04 The requirements for automated disinfection machines are:
- Should reduce/eliminate exposure of staff to toxic chemicals.
 - Be designed to irrigate the endoscope channels.
 - Allow setting of appropriate cycle times.
 - Incorporate adequate self-disinfection cycles
 - Eliminate large holding tanks of water/detergent mixtures.
 - Use freshwater for each cycle of which is filtered (0.2 micron) or sterile.
 - Allow a final filtered or sterile water rinse, and drying cycles.
 - Alert user to malfunctions during use.
 - Ideally record or store cycle information but this can be done manually, e.g. staff member loading scope into machine, time, monitoring of disinfectants/sterilants etc.

12.00 Microbiological Surveillance of Endoscopes

- 12.01 Microbiological screening is to be performed as per the requirements of SNZ Handbook 8149:2001 and carried out when:
- Major changes are made to the cleaning regime, chemicals, or personnel working in the area.
 - If there is clinical indication.
 - Regularly for endoscopes that enter sterile tissue as arranged with infection control.
 - On a regular cycle for all other endoscopes, but no longer than three monthly.



13.00 Aseptic Collection Procedure

- 13.01 Aseptic collection is to be performed as per the requirements of SNZ 8149:2001:
- wearing sterile gloves and gown
 - Flush 10mls of sterile water through each channel and accessory channels, collecting the water in a sterile laboratory container.
 - place sterile endoscope cleaning brush down each channel, withdraw and swill in container of sterile water;
 - label each container and send to WCDHB Laboratory with request form containing the following information:
 - i). type of endoscope sampled
 - ii). name and colour code of the endoscope
 - iii). date and time of sampling
 - iv). name of person report is to be sent to
 - v). request that copy of report to be sent to Clinical Nurse Specialist - Infection Control
 - vi). what tests are to be performed

14.00 Contingency Plan in the event of an Endoscopic Washing Machine Breakdown.

- 14.01 Manually clean the instrument and accessories thoroughly after each patient use as recommended by guidelines.
- 14.02 Instruments unable to withstand chemical disinfection can be sterilised by ethylene oxide (ETO). Non-immersable parts i.e. handles should be cleaned with water and detergent and dried and wiped with 70% alcohol e.g. TOE scopes.
- 14.03 Thorough pre-rinsing in clean water following manual cleaning is essential.
- 14.04 Wear protective apparel as required and supplied for both manual cleaning and for flushing and exposing to the disinfection/sterilant.
- 14.05 Soak scopes in chosen disinfectant/sterilant for the recommended exposure time, ensuring all lumens have been flushed with the disinfectant/sterilant.
- 14.06 Rinse thoroughly using copious amounts of sterile water - this is to avoid chemical exposure and possible chemical induced inflammation in patients.
- 14.07 Preparations not recommended for high-level disinfection of endoscopes include:
- Preparations of Glutaraldehyde with Phenol derivatives
 - Iodophors, hypochlorites, Quaternary Ammonium Compounds, Phenolics, and Alcohol.
- 14.08 Solutions recommended include:
- Steris system is a completely enclosed automated system for sterilisation of immersable heat labile medical equipment such as plastics, rigid and flexible endoscopes, laparoscopic and micro surgical instruments. The active sterilant is Peracetic Acid, which has long been shown to be an active sporicide, bactericide, fungicide, tuberculocide and virucide. Staff exposure to hazardous chemicals is reduced as the single use concentrate comes in a sealed container which is opened once inside the machine.
 - Further new technologies are under investigation e.g. Sterrad sterilisation system which utilizes hydrogen peroxide gas plasma as the sterilant.



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7. Precautions and Considerations

- ➔ Cleaning of endoscopes and accessories should be performed with a manufacturer's recommended enzymatic detergent immediately after use
- ➔ The endoscope should be inspected for any signs of damage at all stages of handling
- ➔ Only trained and validated staff should conduct cleaning and disinfection or sterilisation procedures.

8. References

New Zealand Standard – Infection Control (NZS 8142:2008)

New Zealand Standard - Microbiological Surveillance of Flexible Hollow Endoscopes (NZS 8149:2001)

Perioperative Standard and Recommended Practices 2009 Edition (AORN)

9. Related Documents

WCDHB Health and Safety Procedure Manual

WCDHB Infection Control Procedure Manual

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