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DISINFECTION OF MINDRAY ENDOCAVITY ULTRASOUND PROBE

1. Probe should be used with a probe cover during use.
2. Attached excerpt from probe manual. Pages 6-1 to 6-4
Gluteraldehyde is not used in Australian hospitals and the manufacturer now recommends Cidex OPA (See attached). Guidelines on the Cidex OPA to be followed.
3. Sterrad sterilization is also recommended by the manufacturer (See attached)
4. EtO is also permitted with this probe

6.1 Cleaning

1. Wear sterile gloves to prevent infection.
2. Wash the transducer with water and remove all foreign matter. Soapy water may be used. A soft urethane sponge can be used to wash the transducer. Avoid using a brush, because it may damage the transducer.
3. Wipe off water on the transducer using sterile cloth or gauze after washing it. Do not dry the transducer by heating.

6.2 Disinfections

1. Wear sterile gloves to prevent infection.
2. Clean the transducer before disinfecting it. MINDRAY recommends the following solutions to disinfect the transducer.

Glutaraldehyde-based disinfectant:

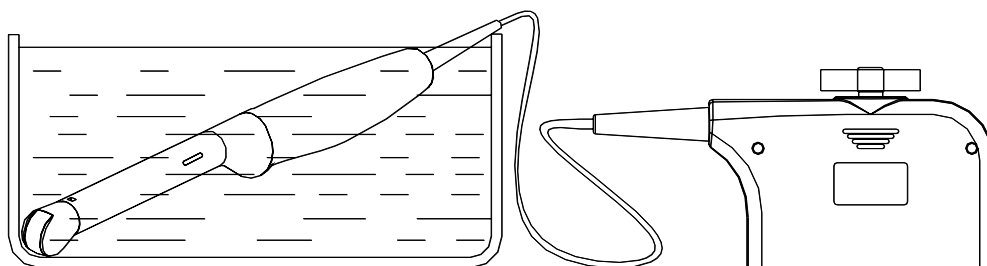
Chemical name	Trade name	Procedures
Glutaraldehyde (2.4%)	Cidex Activated Dialdehyde Solution	Please refer to the instructions provided by the manufacturer of the solution for details.

Non-glutaraldehyde based disinfectant:

Chemical name	Trade name	Procedures
ortho-Phthalaldehyde (0.55%)	Cidex OPA	Please refer to the instructions provided by the manufacturer of the solution for details.

- Refer to the instructions provided by the chemical manufacturer concerning concentration of the disinfectant solution, method of disinfection and dilution and cautions during use.
- Do not soak the transducer connector or the cable near it into water or any solution.
- Soak the transducer into the disinfectant solution for the shortest time the manufacturer recommends (for example, the shortest time recommended by the manufacturer for soaking CIDEX OPA is 12 minutes).
- Follow local regulations when selecting and using the disinfectant.

3. Rinse the transducer with plenty of sterile water (about 2 gallons) for at least 1 minute to remove all chemical residues on it. Or, follow the rinsing method recommended by the disinfectant manufacturer to rinse the transducer.
4. Wipe off the water on the transducer with sterile cloth or gauze after rinsing it. Do not dry the transducer by heating.



a. Figure 6-1 Immerse the transducer in the solution

6.3 Sterilization

1. Wear sterile gloves to prevent infection.
2. Clean the needle-guided bracket before sterilizing it. MINDRAY recommends the following solution or sterilizing system to sterilize the needle-guided bracket.
3. Follow local regulations when selecting and using the disinfectant.

Glutaraldehyde-based disinfectant:

Chemical name	Trade name	Procedures
Glutaraldehyde (2.4%)	Cidex Activated Dialdehyde Solution	Please refer to the instructions provided by the producer of the solution for details.

- Refer to the instructions provided by the chemical manufacturer concerning concentration of the solution, and method of disinfections and dilution. Note that the glutaraldehyde disinfectant solution need an activating solution.
- Rinse the needle-guided bracket thoroughly with sterile water to remove all chemical residues on it.
- Wipe off the water on the needle-guided bracket with sterile cloth or gauze after rinsing it.

STERRAD 100S low-temperature hydrogen peroxide gas plasma sterilization system

Chemical name	Trade name	Procedures
Hydrogen peroxide gas plasma	Hydrogen peroxide vapor	Please refer to the instructions provided by the producer of the solution for details.

- Refer to the instruction of STERRAD 100S sterilizing system provided by the manufacturer for operation instructions and cautions.

CAUTION:

1. The lens may be discolored, the label on the transducer may fade. These are not abnormalities.
2. Repeated disinfection and sterilization will eventually damage the transducer. Minimize disinfection and sterilization.



Promoting Excellence In Ultrasound

Policies and Statements

B2

Guidelines For Disinfection Of Intracavitary Transducers

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Guidelines For Disinfection Of Intracavitary Transducers

May 1996, Reaffirmed September 1999, Revised July 2005, September 2007

Every patient must be regarded as a potential source of infection and appropriate precautions should be taken to prevent cross-infection between patient and operator. These are known as “Universal Precautions” and are promoted throughout all health care institutions. Particularly important is the washing of hands both before and after direct patient contact¹. Other precautions will include use of personal protective equipment (PPE) where appropriate and correct handling and disposal of waste and maintenance of a clean working environment.

Potential sources of infection associated with vaginal ultrasound scanning include those organisms transmitted by blood and genital secretions such as HIV, HBV, HCV, Cytomegalovirus, Neisseria gonorrhoea, Chlamydia trachomatis, Trichomonas vaginalis¹ and Human Papilloma Virus. It should be remembered that some organisms, including some viruses, can remain infectious for days outside the body, particularly if kept moist in blood or serum.

All sterilisation/disinfection represents a statistical reduction in the number of microbes present on a surface. Meticulous cleaning of the instrument is the essential key to an initial reduction of the microbial/organic load by at least 99%².

The following protocol is recommended for the cleaning and preparing of intracavitary transducers between patients. These will include transvaginal, transrectal, transoesophageal and endoscopic transducers. The principles are the same for any transducers that may come into contact with body secretions.

1. **CLEANING**

After removing the cover from the transducer, all gel and any extraneous material should be removed from the transducer preferably under running water. Gel used can be a potential source of infection. For some procedures the use of sterile gel should be considered. The transducer should then be cleaned with soap and water (dishwashing liquid may be used), rinsed thoroughly and dried with a paper towel.

2. **DISINFECTION**

The cleaning of the transducer is the main disinfection process. However, high-level disinfection with a chemical agent is necessary for further statistical reduction in the number of infective agents on the transducer, particularly because of possible rupture of the transducer cover. A high-level instrument grade disinfectant should be used for this purpose. It is recommended that the manufacturer of your ultrasound equipment be consulted before using a specific chemical agent on a transducer.

Currently the only available high-level instrument grade disinfectant is glutaraldehyde, which requires special facilities for safe handling. Where the use of glutaraldehyde is precluded, and other high-level instrument grade disinfectants are not available, Hypochlorite solution or Ortho-phthalaldehyde solution might be used.

Recommendations for the use of Disinfectants:

- a) *2% Glutaraldehyde.* Soak the transducer in the glutaraldehyde for twenty minutes followed by rinsing under running tap water then drying.
Note: Buffered glutaraldehyde as a cold disinfectant has a broad spectrum of activity with rapid microbiocidal action. It is non-corrosive to most materials, including metals and rubber. "Aidal Plus" is a satisfactory glutaraldehyde preparation and is available from Whiteley Industries Pty Ltd, PO Box 785, Rosebery, NSW 2018 (Ph: 61 2 9700 9799). Because of potential irritant effects of glutaraldehyde extreme care must be taken with its use, and manufacturers' instructions on usage should be followed strictly. Spent glutaraldehyde solutions disposed of to the sewer should be flushed with copious amounts of water³.
- b) *Sodium hypochlorite diluted to 500 ppm.* Soak the transducer in the sodium hypochlorite for two minutes followed by rinsing under running tap water and drying.
Note: Hypochlorite solution requires changing daily as it deteriorates rapidly. It can be made up with 50 ml of "Milton" solution (1% sodium hypochlorite) in one litre of tap water. Hypochlorites have bactericidal, fungicidal and virucidal activity. Their decomposition is accelerated by the presence of metals, sunlight and heat. Some water supplies, particularly in remote areas, may contain oxidisable (e.g. organic) materials that could reduce the amount of free chlorine available. If the quality of the water supply is uncertain the free chlorine should be measured with a high range test kit such as those manufactured by Hach, Lovibond or Palm, or deionised water should be used.
- c) *Ortho-phthalaldehyde 0.55%.* Soak the transducer in the solution for a minimum of ten minutes at twenty degrees Celsius (20° C), or higher, followed by rinsing under running tap water then drying. Ortho-phthalaldehyde has a broad spectrum of activity with rapid microbiocidal effects, with the exception of some bacterial endospores; it is non-corrosive to most materials including metals and rubber. Cidex OPA is a satisfactory preparation available from Johnson and Johnson Medical Pty Limited, 1-5 Khartoum Road, North Ryde NSW 2113, Australia. Usual precautions must be taken with its use with regard to protection from irritant effects. Regular testing needs to be performed to ensure a minimal effective concentration with the use of test strips. Spent solutions disposed of to the sewer should be flushed with copious amounts of water.

Other products may be used to disinfect intracavity transducers provided that they have TGA approval.

3. TRANSDUCER COVERS

The transducer should be covered before intracavitary insertion with an appropriate barrier where thickness is at least 38 microns. This may include plastic surgical drapes, other purpose specific probe covers or surgical gloves. Prior to the use of a transducer cover, specific enquiry should be directed towards latex sensitivity. Covering the transducer without prior cleaning and disinfecting is inadequate because there is an incidence of perforation of any transducer cover.

4. APPROPRIATE TECHNIQUE

The operator must wear a disposable (non-sterile) glove on the hand used during passage of the transducer. Care must be taken to ensure that contaminated gloves do not contact the ultrasound machine's control panel or exposed transducer cable. The transducer cover

should be removed and disposed of carefully to prevent contamination of surroundings by bodily fluids/secretions. At the completion of the procedure, gloves should be removed and hands washed thoroughly with soap and water.

IMPORTANT NOTE

Compliance with the National Guidelines on Disinfecting and Sterilising Pre-useable Medical and Surgical Instruments – Australian Standard (AS) 4187 – is recommended. The ASUM guidelines should be read in conjunction with that Standard, which is available from Standards Australia.

Infection control guidelines will only be useful if they are followed and form part of an overall approach to Universal Precautions in minimising infection risk. The ASUM guidelines are provided as a mechanism to assist you in the development of appropriate risk management compliance processes.

The use of sodium hypochlorite is not recognised by the NHMRC.

References

1. Garland SM and de Crespigny L (1996). Prevention of infection in obstetric and gynaecological ultrasound practice. *Ultrasound Obstet. Gynaecol*, 7, 1-4.
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4. Australian Government, Department of Health and Ageing. Infection Control Guidelines for the prevention of transmission of infectious diseases in the health care setting (2004). ISBN 0 642 82292 1.