CLEANING, DISINFECTION AND STERILIZATION GUIDELINES FOR RE-USABLE MEDICAL DEVICES

STANDARD: There is a system in place that ensures as far as reasonably practical that all re-usable medical devices are properly decontaminated prior to use.

OVERVIEW: The decontamination of re-usable medical devices is the combination of processes, which if not correctly undertaken, individually or collectively, may increase the likelihood of infectious agents being transferred to individuals, or the environment.

The re-usable medical device life cycle comprises all or some of the following processes: acquisition, cleaning, disinfection, inspection, disposal, packaging, sterilization, transportation and storage before use.

These guidelines apply to all re-usable medical devices whether owned by the Trust, rented, on loan or acquired by any other means. On no account should single use medical devices be re-used again after decontamination.

The decontamination process is required to make medical devices:

- Safe for users to handle
- Safe for use on the patient

CLASSIFICATION OF INFECTION RISK ASSOCIATED WITH THE DECONTAMINATION OF MEDICAL DEVICES

RISK	APPLICATION	RECOMMENDATION
High	Items in close contact with a break in the skin or mucus membrane or introduced into a sterile body area.	Sterilisation
Intermediate	Items in contact with intact skin, mucus membranes or body fluids, particularly after use on infected patients or prior to use on immunocompromised patients.	Sterilisation or disinfection required. Cleaning may be acceptable in some agreed situations.
Low	Items in contact with healthy skin or mucus membranes or not in contact with patient.	Cleaning

Definitions of decontamination terms:

CONTAMINATION – the soiling or pollution of inanimate objects or living material with harmful, potentially infectious or other unwanted material. In the clinical situation, this is most likely to be organic matter and micro-organisms but may also include other undesirable inorganic substances eg dust, soil, chemical residues, radioactive material, degradation products, packaging materials etc. Such contamination may have an adverse effect on the function of the inanimate object and may be transferred to a susceptible host during use or subsequent processing and storage.

The degree of risk to the host will depend on many factors, including the nature of the investigative or therapeutic procedure, the susceptibility of the host and the nature and extent of the contamination. The nature and extent of microbial contamination is referred to as the BIOBURDEN.

DECONTAMINATION – a process which removes or destroys contamination and thereby prevents micro-organisms or other contaminants reaching a susceptible site in sufficient quantities to initiate infection or any other harmful response.

CLEANING – a process which physically removes contamination but does not necessarily destroy micro-organisms. The reduction of microbial contamination cannot be defined and will depend on many factors including the efficiency of the cleaning process and the initial bioburden. Cleaning is an essential prerequisite of equipment decontamination to ensure effective disinfection or sterilization.

STERILIZATION – a process used to render the object free from viable micro-organisms, including bacterial spores and viruses. This can only be performed in a Sterile Services Department (SSD) as no bench top autoclaves are to be used in the Trust.

DISINFECTION – a process used to reduce the number of viable micro-organisms, which may not necessarily inactivate some viruses and bacterial spores. Disinfection may not necessarily achieve the same reduction in microbial contamination levels as sterilization.

DISINFECTANT – a chemical agent which under defined conditions is capable of disinfection.

<u>Some Guidelines for the Use of Disinfectants</u>

This document gives guidance on the choice of the correct disinfectant to use in particular situations and circumstances.

All the disinfectants in the policy are potentially hazardous to health and some have occupational exposure standards assigned to them.

It is a statutory requirement under the Control of Substances Hazardous to Health regulations (COSHH) that an assessment of the risks to health is made of all procedures involving the use of these disinfectants, and also the micro-organisms they are designed to eliminate.

Exposure

Prolonged contact with disinfectants can cause irritation. Wear rubber gloves, respiratory and eye protection and avoid inhalation of vapour, when exposure is necessary.

When treating large areas, care should be taken to ensure adequate ventilation.

Do not mix disinfectants with each other or with other chemicals.

Accidental spillage on to clothes or skin should be removed with plenty of cold water. Safety data sheets are available on wards and departments and should be kept with other COSHH assessment data.

Deterioration

Many disinfectants deteriorate after dilution. Follow manufacturers instructions for mixing. Do not store longer than advised. Organic material e.g. faeces, urine, pus and blood, inactivates all disinfectants. **Clean** before disinfecting in these circumstances.

Contact Period

All chemical disinfectants need time to work. This will vary considerably with the particular organism and conditions involved.

Concentration

Too low – useless.

Too high – wasteful and risk of sore eyes and hands.

The use of chemical disinfectants is only recommended for:

- Disinfection of heat sensitive instruments
- Decontamination of surfaces
- Making potentially infected items safe for subsequent handling.

All disinfectants work best in a clean environment and therefore liberal use of disinfectants is of no value as a substitute for a high level of general cleanliness.

All requests for disinfectants will be approved by the Trust Pharmacist who will check that the request is in agreement with the infection control team and facilities staff. In general, the Trust will only stock 1 neutral detergent, 1 hypochlorite containing powder and 1 combined detergent and hypochlorite product.

All re-usable medical devices should be cleaned after each patient/procedure use. Most equipment also requires disinfection, some will require sterilization. All should be stored clean and ready for use by the next patient preferably in an equipment library. Equipment sent to the Estates Department for servicing or repair must be accompanied by the appropriate decontamination card, (these should be readily available on the ward) and no equipment will be repaired unless this card is attached. **(APPENDIX 1)**

An alternative to re-usable medical devices are single use versions; purchase of these must be with the prior approval of the users.

All medical devices on loan to Trust staff, must be disinfected or sterilized before use [whichever is appropriate].

Prior to the acquisition of re-usable medical devices: the decontamination method provided by the manufacturer, which should be followed, must be considered prior to the acquisition of re-usable medical devices by staff making the request for purchase; if a new type of medical device is unable to be autoclaved, consultation with the infection control team should take place. **(APPENDIX 2)** There should also be consideration of the handling, collection and delivery of the medical device to ensure reduction of the risk of contamination to the device, patients, staff and the environment. A protocol for decontamination of equipment should be written by the users based on the advice from the manufacturers and the infection control team.

Planned replacement programme of medical devices: All medical devices that cannot be easily cleaned and for those in poor condition, should be identified and subject to a planned replacement programme with equipment that is easier to clean, or replaced by a single use alternative.

Education and training: education and training should be provided to relevant healthcare workers in appropriate aspects of the decontamination practice, including those working in a clinical environment.

Instructions for cleaning individual items that are the responsibility of the housekeeping staff, are in the Trust's Cleaning Manual. In addition to the day to day cleaning of these items, periodic deep cleaning is performed using steam cleaning followed by detergent and/or hypochlorite products as part of a routine programme which is also performed in situations where cross-infection of micro-organisms is suspected.

When cleaning spillages of blood and body fluids, refer to the "Universal Infection Control Precautions" document in the Infection Control Manual. This document contains basic guidance. For further advice, telephone a member of the infection control team.

DECONTAMINATION METHODS

Appropriate cleaning/decontamination/sterilisation is necessary after each patient use; alternatively single use equipment is disposed of after each patient use. Some medical devices e.g. tourniquet can be kept and re-used on the same patient if kept in a closed container. In general, nurses are responsible for cleaning medical equipment and housekeepers are responsible for cleaning fixtures, fittings and the ward environment; the nurse in charge of each ward/department should list the medical equipment in the cleaning book and ensure all other cleaning duties are part of the housekeepers' schedule and ensure that the standard of "no dust, no dirt" is adhered to.

The decontamination method detailed by the manufacturer should be followed. The following is general advice when the former is not available. Each ward and department should have written details on how to decontaminate the medical devices used.

Immediately after decontamination of a piece of equipment, a label should be attached to it, or equivalent record made, indicating that decontamination has occurred on that date by a specified member of staff. All equipment should be stored away from contaminated items following decontamination and labelling.

After the decontamination of each medical device, the device must be labelled stating who has carried out the decontamination and on which day. The medical device should then be stored in a clean area.

All equipment that is unfit for purpose eg rusty, torn cover must be appropriately discarded as soon as recognised.

SSD = Sterile Services Department

Item	Routine Method	Additional recommendations/ frequency of cleaning
Acupuncture needle	Single use only	
Airway	Single use only	
Anaesthetic machine and breathing equipment	Adopt basic hygienic measures. Ensure filters are in place and decontaminate according to manufacturers instructions.	Change airway filter between patients and change anaesthetic systems & tubing weekly in normal circumstances. Change immediately if used on a known infected patient. Always use an airway filter between the tubing & the patient. Anaesthetic machine finger buttons & control knobs should be cleaned with a detergent wipe after each patient.
Apnoea alarm	Use detergent wipe	After each use
Arthroscope	Return to SSD for autoclaving.	After each use
Aural speculum	Use disposable where available or return to SSD	After each use
Baby bath	Wash with hot water and detergent and dry thoroughly. Store inverted.	Dedicated bath for each baby.
Baby changing mat	Wash with hot water & detergent or detergent wipe & dry	After each use
Baby feeding equipment	Single use only	
Baby scale	Wash with hot water and detergent, rinse and store dry.	After each use.
Bag – valve mask	Decontaminate according to manufacturers guidelines between each patient use	Single patient use mask preferred
Bath	Wash with hot water and detergent	After each use
Bath hoist	Clean with hot water and detergent and dry	Clean after each use

Bed frame	Wash with detergent and hot water and dry	Clean after each use
Bedpan	Single use only. Dispose of immediately in macerator; if out of use, place in orange waste bag and seal	If macerator breaks down after 7pm, estates staff will attend the following day unless infected cases on the ward.
Bedpan carriers	Wash with detergent and hot water and store dry	After each use
Bedpan storage rack	Wipe with hot water & detergent or detergent wipe & dry	Daily
Bidet	Clean with hypochlorite powder after each use	See Cleaning Manual for method
Blind (window)	Damp dust as required to ensure no dust ever visible	Window blinds are not recommended in patient areas
Blood pressure cuff	Single patient use if barrier nursed Multiple -use cuffs should be cleaned with detergent wipe after each patient use	Keep covered in closed container at bedside
Bottle warmer	Wash with hot water and detergent and store dry	Descale as necessary
Bowl (patient washing)	Disposable	Dispose of after each use
Bowl (surgical)	If stainless steel, return to SSD	Single use preferred
Breast pump – machine - collection kit	Use filter to protect machine. Wipe with hot water and detergent, rinse and store dry Use sterile collecting kit	 Must be used each time the pump is used.
Carpet	Vacuum daily	For further details see Cleaning Manual These should not be in patient care areas
Chair	Damp dust with detergent and hot water	Only chairs with covers that can be wiped e.g. vinyl should be in patient areas.
Commode chair	Wash with hot water and detergent/ detergent wipes AFTER EACH PATIENT USE	Use hypochlorite solution if visible contamination with blood/bodily fluids and/or enteric infection. Consider use of cleaning label signed & dated by person who cleaned commode.

Computer keyboard	Wipe with detergent wipe at least daily	Only purchase type with smooth surface which is "water proof"
Contact lens	Single patient use only	
Cot and mattress	Wash with hot water and detergent and dry	After each use
Crockery and cutlery	Machine wash with rinse temperature above 80°c	After each use
Curtain	Should be changed as part of a rolling programme every 3-6 months	If visibly contaminated change when required. Change curtains on terminal cleaning of room/bedspace
Duvet	Wash with detergent, rinse and store dry.	Discard if there is a breach in the cover
Electrocautery device	Single patient use tip	
Endotracheal tube	Single patient use	
Entonox equipment	Wipe cylinder with detergent. Single patient use tubing. Single patient use mask/mouthpiece	After each use
Enuresis alarm and sensor	Wipe daily with detergent wipe	New sensor for each patient
Fibreoptic endoscopes	**See Infection Control Manual 2.08**	
Fibreoptic light	Wipe with detergent wipe	
Flower Vase	Wash with detergent & hot water & dry	After each use
Furniture and fittings	Damp dust with detergent and hot water	See Cleaning Manual for further details
Haemorrhoid ligating device	Return to SSD	After each use
Hair clipper	Return to SSD or use single use only type	After each use
Headbox	Wipe with hot water and detergent, rinse and store dry	After each use
Headphone	Disposable preferred. If multiple use, wipe with detergent wipe	After each use FOAM EARPIECES are single patient use only
Heat humidifier/heat moisture exchanger	Follow manufacturer's guidance	If evidence or suspicion of contamination, exchange
Hoist and sling	Clean hoist with detergent wipe	After each use

	Slings should be single patient use	Send to laundry unless disposable type
Ice pack	Single patient use; wipe with detergent wipe after each use.	When returned to freezer, ensure no contact with other packs occur
Incubator	Wash with detergent and hot water, rinse and store dry	After each use
Inhaler	Patient dedicated	If use of placebo inhaler is necessary, after each use dismantle and clean in hot water and detergent followed by 1,000ppm chlorine solution and use patient dedicated mouth piece if possible.
Instruments (surgical) SEE GUIDELINES ON MANAGEMENT OF PATIENTS WITH TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHIES	Single use where available Reusable should be returned to SSD	After each use
IV stand	Wipe with detergent wipe	After each use
Jug - measuring	Use sterile or disposable	After each use
Lanyard/identification badge	Identification badges should be clipped to clothing and cleaned with a detergent wipe	Lanyards should not be worn
Laryngeal mask airway	Single patient use preferred. Mulitple use type – return to SSD up to 40 times	After each use
Laryngeal mirror	Send to SSD	
Laryngoscope blade	Disposable use preferred or send to SSD	Risk assessment needs to be made in respect of using disposable blades **for tonsillectomy surgery** with regard to CJD/vCJD
Mammography plate	Wipe with detergent wipe	After each use
Masks & oxygen tubing	Anaesthetic masks Oxygen masks Oxygen tubing	Single patient use Single patient use Single patient use
Mattress, pillow, foam wedge	Use hot water and detergent wipe	After each patient use. Discard if cover not intact.
Medicine cup	Patient dedicated	Keep at bedside in sealed container

Mobile communication devices eg mobile telephones	Use detergent wipe frequently	Review appropriateness of their use in high risk areas eg ITU
Monitoring equipment - bedside and theatre Patient leads: $Sa0_2$ probe: Monitoring casing: Finger buttons and control knobs:	 Clean with detergent wipe after each patient use or earlier if contaminated. Clean with detergent wipe after each patient use. Clean regularly with detergent wipe. Clean with detergent wipe after each patient use.	
Mop	Refer to cleaning manual for appropriate colour coding instructions.	Mop and bucket must be dedicated for each patient in isolation. At the termination of isolation, these must be cleaned/handled as per isolation policy
Nasopharyngoscope	Disinfect in washer disinfector	After each patient use
Nebuliser	Single patient use. Clean and disinfect with sterile water and dry after each use.	Keep on covered tray at side of patient
Oesophageal manometer	Single use only	
Orthopaedic saw	Wipe with detergent wipe after each use.	If contaminated with body fluids, return to manufacturer.
PAT slide	Wipe with detergent wipe	After each use
Patient line equipment	Wipe with detergent wipe	After patient discharge as a minimum. Patient Line staff are responsible at other times.
Peakflow meter	Single patient use	
Pillow	See mattress	
Pool – birthing Pool - hydrotherapy	See Infection control manual part 3.14 See Infection control manual part 3.06	

Pulmonary function testing equipment	Spirometry mouthpieces should be single use only	Take precautions to reduce risks for all respiratory equipment where contamination by respiratory secretions is possible
Razor	Disposable	After each use
Sigmoidoscope	Disposable if used on ward	After each use
Sink /wash basin	Use detergent and hot water	Hand sinks must not be used for decontamination of equipment
Slide sheet	Launder as per manufacturers instructions, wipe with detergent and water, rinse and dry	After each patient use
Sphygmomanometer cuff	Wipe with detergent wipe	After each patient use
Stethoscope, tendon hammer and similar	Wipe with detergent wipe between each patient use.	Patients in isolation must have a stethoscope etc dedicated for their use only which is left in the room and disposed of when patient is discharged.
Suction catheter	Single use only	
Suction equipment	Use disposable liners	Change after each use
Suction filter tubing	Must be changed when wet, refer to manufacturers instructions Change when visibly contaminated and between patients	New filters should be dated on insertion
Surgical marker pen	Disposable	After each patient use
Syringe (glass/metal)	Return to SSD	After each patient use
Thermometer	Disposable	After each patient use
Toilet pan/seat	Use hypochlorite powder and hot water	See Cleaning Manual for method
Tongue depressor	Single patient use (wooden) Metal - return to SSD	
Tonometer prism & other lenses that touch the surface of the eye	Single patient use	If re-usable must be specified in DH CJD guidance
Tooth pot	Single patient use	Keep at bedside

Tourniquet	Use patient dedicated disposable type and keep in sealed container by bedside.	Multiple-patient cloth type should not be used
Toy	Only toys that can be cleaned with water and detergent should be available.	Clean regularly and when obviously soiled.
Trolley (hot locks/food/meal) Other – eg dressing	Wash thoroughly with detergent and hot water Wipe with detergent wipe	Return to kitchen after each use After each use
Ultrasound probe	Cover with condom for invasive procedures. Adhere to manufacturers' instructions	For skin procedures, wash with detergent and hot water, wipe with alcohol wipe. Where possible autoclavable probes should be used
Urinal	Disposable	After each patient use
Vaginal speculum	Stainless steel return to SSD. Plastic	After each patient use Single patient use
Ventilator	Damp dust external surface using detergent wipe	Daily
Ventilator circuits	New ventilator circuit tubing should be provided for each patient and need not be changed before 7 days if bacterial filter used. Nebulizer should be single use.	Facial protective and other personal protective equipment should be worn when closed breathing circuits are disconnected. Follow national guidelines re the use of expiratory filters for patients with highly communicable infections. Follow national guidelines for cleaning.
Vials	Wipe with alcohol wipe before each use and allow to dry before accessing with needle	
Volumetric infusion devices & syringe drivers	Clean outer casing with detergent wipe. Pay particular attention to cleaning finger buttons and control knobs	After each patient use or earlier if contaminated
Walking Aids	Detergent & hot water or detergent wipe and dry	After each patient use

Walls	As per cleaning manual	
Water dispensers	Monitor in accordance with manufacturers instructions	Ensure 0.5 litre is run off machine at beginning of each day.
Weighing scales	Detergent & hot water or detergent wipe and dry	After each patient use
Wheelchairs	Detergent & hot water or detergent wipe and dry	After each patient use

Royal College of Nursing (2005) 'wipe it out' Good practice in infection prevention and control - Guidance for nursing staff. London, RCN publishing.

Department of Health (2004) The NHS Healthcare Cleaning Manual. London, DH

Department of Health (2005) Saving Lives: a delivery programme to reduce healthcare-associated infection including MRSA, Department of Health, London.

Online training in Infection Control (2006)
http://www.corelearningunit.nhs.uk/

APPENDIX 1

United Lincolnshire Hospitals NHS
NHS Trust

Cleaning of Equipment

Please note that Clinical Engineering, Facilities and Sterile Services on any site do not routinely clean equipment.

- **Clean equipment at source where possible**
- **Place in clear bag**
- **Attach correct completed label /tag as shown below**
- **Send to recipient**

	Equipment bearing this label has been contaminated and cannot be cleaned satisfactorily. This label is not for MRSA infected items which should be cleaned **at source**
	This equipment had been contaminated but is now clean and decontaminated.
	This equipment has not been contaminated but has still been cleaned

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APPENDIX 2

Checklist for the Purchase of Medical Equipment

Please complete sections 1 to 9 then forward with your Purchase Requisition to Clinical Engineering, Lincoln County Hospital

1. Your Details		
Your Name:	Title:	Tel.
Clinical Area:		

2. What do you need, Where will it be used and Why do you need it?

3. Is this a device for biochemical analysis / Point of Care Testing Device (POCT) ?

y / n If yes, discuss with POCT lead, to get approval. Note detail here.

4. IT Connections

Will this equipment be connected to the computer network? y / n
If yes, have you costed and agreed the installation requirements with IT? y / n. If No, contact IT. Note detail here

5. Decontamination/Health & Safety/COSHH/Radiation Protection

Has the Infection Control Team agreed the decontamination process? y / n
Are appropriate decontamination facilities available? y / n
Any additional safety issues (e.g. lifting & handling)? y / n
Are chemicals involved in use or support (COSHH)? y / n
Does equipment emit radiation or laser energy (Radiation Protection)? y / n - if yes contact Radiation Protection. Note detail here.

6. Specialist Installation / Power requirements?

Note any special installation requirements - contact Capital Planning for assistance if necessary?

7. Purchase Costs

Device Cost ex VAT: £	Cost Centre / Account Code:

8. On-Costs

Declare On-costs - staff numbers/staff training/consumables?

9. Signature: Date:

Now send with Purchase Requisition to Clinical Engineering, Lincoln County Hospital

10. Equipment Management by?

Clinical Engineering / Estates / Radiology / Endoscopy / Radiotherapy / Medical Physics / POCT

How will this equipment be kept 'fit for purpose'?

Start Up Costs	Recurrent Labour	Recurrent Parts	Contract Labour	Contract Parts Est
£	£	£	£	£

Agreed by: **Signed:** **Date:**

*Forward to Directorate Lead/General Manager - **(NB It will not be ordered without their approval)***

11. Approval By Directorate Lead -

Name: **Signed:** **Date:**

Filename	Author	Issue date
checklist for the purchase of medical equipmentv5_0.doc	cjh	02/08/2007

PART 2
2.3