GUIDELINES FOR THE CLEANING, MAINTENANCE, AUDIT AND REPLACEMENT OF MATTRESSES

1. INTRODUCTION

1.1 The poor state of hospital mattresses has been recognised for many years. Poor maintenance of foam mattresses and their covers may lead to staining of the foam or inner surfaces of the mattress covers. Recent research highlights that different types of trauma to the mattress cover can result in damage which is invisible to the naked eye, but which can still allow fluid to enter the mattress. (Russell 2001)

1.2 Infection Control

The first outbreak of hospital acquired infection attributed to mattresses was reported by Stead 1979. Several studies have subsequently replicated these findings, demonstrating that damaged mattresses can harbour micro-organisms and be a potential cause of cross infection. (Moore 1991, Ndwala 1991). Proper care, maintenance and cleaning of mattresses and covers can minimise this risk.

1.3 Tissue Viability

Studies have shown that interface pressure between the mattress and the patients skin need only be 40 mmHg before occlusion of blood capillaries and ischaemia develop (Peto 1996). The standard NHS mattress has been found to produce pressure as high as 70 mmHg and even higher over areas of body prominences (Wild 1991). Foam mattresses have a relatively short life expectancy and if used for longer periods will experience core fatigue. This can result in the patient sinking through the foam and being supported by the underlying bed base (Dunford 1994).

1.4 These guidelines recognise these problems and have been prepared to:-

1.4.1 Adhere to the Department of Health specification No 98. “That all aids and equipment used need to be suitable for the purpose intended, well maintained in a safe and reliable condition and to be readily available” (DOH 1990).

1.4.2 Adhere to the Medical Devices Agency recommendations. Foam Mattresses: Prevention of Cross Infection MDA SN 1999 (31)).

1.4.3 Ensure there is cost effectiveness in the future allocation of capital expenditure for the planned funding of replacement mattresses.

2. CLEANING

2.1.1 The user should consult the manufacturer’s recommendations before cleaning the mattress cover (Loomes 1988).
2.1.2 The way in which the mattress is cleaned depends upon the nature of the contamination and the susceptibility of the patient (Viant 1992).

2.1.3 Phenolic disinfectant (Hycolin) should not be used as it causes breakdown of the waterproof cover and can be toxic to both patient and staff (Viant 1992).

2.1.4 Alcohol based solutions and sprays should not be used. These may be flammable and potentially disastrous where a foam mattress is set on fire (Larcombe 1998).

2.1.5 In the absence of gross contamination or unusual risk, the removal of dirt and spillages with clean, warm water, neutral detergent and manual dexterity should be sufficient (Viant 1992).

2.1.6 In cases of gross contamination the mattress cover should be cleaned first with detergent and water then with a 1000 ppm sodium hypochlorite solution, or NaDCC (eg Haztab, Precept). Ensure adequate ventilation.

2.1.7 Disposable gloves and aprons should be worn. If splashing could occur eye/face protection should also be worn. On removal of gloves, hands should be washed.

2.1.8 Ensure mattress cover is thoroughly dried before remaking the bed.

2.1.9 Inspect the inner and outer surfaces of covers and their zip fasteners regularly for signs of damage. If the cover is stained, soiled or torn, the foam core should be examined. Damaged/soiled covers and mattresses should be reported to the ward/department manager. If the core of the mattress is wet or badly stained, the mattress should be withdrawn from service.

2.1.10 **BED FRAMES SHOULD BE CLEANED INBETWEEN EACH PATIENT USE.**

3. **AUDIT**

3.1 It is recommended that a six monthly audit of all mattresses within a ward/department etc be undertaken by ward/department managers (See Appendix 1).

4. **DISPOSAL AND REPLACEMENT**

4.1 In order to minimise risk, the most appropriate option is that mattresses with gross obvious body fluid contamination are placed in a sealed bag prior to removal and disposal by portering staff. These will be disposed of as clinical waste ie incinerated.

4.2 Prior to the purchasing of new mattresses or covers, consideration should be given to ensuring adequate cleaning and disinfection can occur. Liaison with the Infection Control Team is recommended.
### NHS MATTRESS AUDIT

(This should be completed annually)

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<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>1. Is it fitted with a waterproof cover?</td>
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<td>2. Is it free of stains?</td>
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<td>3. Is it free of tears?</td>
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<td>4. Are the zip fasteners in a good state of repair?</td>
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<td>5. Is it free of dipping? (see below)</td>
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<td>6. Has the mattress passed the water test? (see below)</td>
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<td>7. Is the mattress a minimum or five inches deep?</td>
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<td>8. Is the bed base mesh?</td>
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<td>9. Is the bed frame solid?</td>
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<td>10. Is the bed frame free of contamination with blood and other body fluids?</td>
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Items 1-7 are essential criteria. Failure of one or more of these items means that the mattress should be condemned or the mattress cover replaced.
1. **WATER PENETRATION TEST**

1.1 Undo the zip and place a sheet of absorbent tissue between the cover and the foam.

1.2 Using the fist, indent the mattress to form a shallow well and pour tap water (about half a cup) into the well.

1.3 Agitate the surface with the fist for one minute to increase contact and then mop up water.

1.4 Inspect tissue for water marking.

1.5 Repeat procedure on reverse side of the mattress.

1.6 The cover should be replaced if it is found to fail the above test or it is damaged (Dunford 1994).

2. **HAND COMPRESSION ASSESSMENT**

2.1 Adjust the height of bed so that it is at the same level as the tester’s head of trochanter (hip).

2.2 Link hand to form a fist and place them on the mattress.

2.3 Keep elbows straight and lean forward, applying the full body weight to the mattress.

2.4 Repeat the hand compression along the entire length of the mattress.

2.5 Note any variation in the density of the foam including whether the base of the bed can be felt through the foam.

2.6 The mattress should be condemned if it is found to bottom out or if the foam is found to be stained, damp or odorous (Dunford 1994).
LINCOLNSHIRE HEALTHCARE NHS TRUST

MATTRESS AUDIT RETURN FORM

Ward/Department .................................................................

Number of mattresses checked ..............................................

Number of mattresses condemned (if applicable) .................

Date of Completion ..............................................................

Signature ............................................................................

Please return this completed audit form to:
The Tissue Viability Nurse
DECONTAMINATION GUIDELINES FOR
SPECIALISED PRESSURE RELIEVING MATTRESSES

It is recommended that all specialised pressure relieving mattresses/beds within the Trust are cleaned following manufactures recommendations where applicable.

A. AFTER EACH PATIENT USE – If the mattress has not been used in an infectious environment or contaminated with blood or body fluids.

1. Switch off the pump and disconnect the power source.
2. Always wash hands before and after cleaning equipment.
3. Disposable apron and non-sterile gloves should be worn. Eye/face protection should be worn if splashing of the face if going to occur.
4. A solution of mild, neutral detergent and warm water should be used.
5. The solution should be applied with disposable cloths and dried using paper towels.
6. It is recommended that cleaning is undertaken as follows:- Pump, hanging bracket, tubing, mains lead, mattress sides, mattress cover.
7. Ensure that all surfaces are thoroughly cleaned and dried.
B. **AFTER EACH PATIENT USE** – If the mattress has been used in an infectious environment.

1. Switch off the pump and disconnect the power source.

2. Always wash hands before and after cleaning the equipment.

3. Disposable apron and gloves should be worn. If there is the possibility of facial splashing eye/face protection should be worn.

4. After first cleaning with a solution of neutral, detergent and warm water, then disinfect using a solution of sodium hypochlorite 1,000 ppm or NaDCC 1,000 ppm eg Haztabs, Precept). Ensure cleaning environment is well ventilated.

5. The solutions should be applied with disposable cloths and dried using paper towels.

6. It is recommended that the cleaning is undertaken as follows:- Pump, hanging bracket, tubing, mains lead, mattress sides, mattress cover.

7. Ensure all surfaces are thoroughly cleaned and dried.

**PHENOLIC STERICOL AND HIBISCRUB SHOULD NOT BE USED ON ANY OF THE EQUIPMENT.**

Weekly cleaning of the equipment whilst in use will reduce the number of microorganisms and make final cleaning of the system more effective.
REFERENCES


