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**Document Title:** Policy and Procedure for Decontamination and Disposal of Medical Mattress

**Approval Process**

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**Acronyms:**

CCHF	Crimean Congo Hemorrhagic Fever
DGDSC	Directorate General for Diseases Surveillance and Control
DGQAC	Directorate General of Quality Assurance Center
DIPC	Department of Infection Prevention and Control
HSE	Health Safety and Environment
IFU	Information of use
IPC	Infection Prevention and Control
IPCD	Infection Prevention and Control Department
MoH	Ministry of Health
PPE	Personal Protective Equipment
USAF	Undersecretary of Administrative Affairs
USHA	UnderSecretary of Health Affairs



## **Policy and Procedures of Decontamination and Disposal of Medical Mattress**

### **1. Introduction**

The medical mattresses may become contaminated with micro-organisms from patients, blood, body fluids, and environment of healthcare. The holes, tears and cracks of the mattress cover allow seepage of blood and body fluids into the inner core that may serve as reservoirs for pathogenic microorganism. This policy and procedures ensure following best standards in decontamination and disposal of medical mattress to minimize the risk of infection transmission.

### **2. Scope**

This document is applicable to all MoH healthcare establishments and can be used as reference by non MoH healthcare establishments.

### **3. Purpose**

- 3.1 This policy is provided to standardize the appropriate handling, storage, decontamination and disposal of medical mattress.
- 3.2 To reduce the risk of healthcare associated infections related to the use of contaminated mattress

### **4. Definitions**

- 4.1 Category A substance: An infectious substance that when exposure occurs, is capable of causing permanent disability, life-threatening or fatal disease in healthy humans or animals.
- 4.2 Cleaning: A process that physically removes visible dust, soil, blood, or body fluids from inanimate objects as well as removing sufficient numbers of microorganisms to reduce risk during skin contact or handle the object.



- 4.3 Contact time: The amount of time that disinfectant is in direct contact with the surface or item to be disinfected. For surface disinfection, this time period is framed by the application of disinfectant to the surface until the disinfectant has completely dried.
- 4.4 Decontamination: A process that makes inanimate objects safer to be handled by staff before cleaning reducing but not eliminating the number of contaminating microorganisms.
- 4.5 Disinfection: A process of reducing microbial load without complete sterilization. It refers to the use of physical process or chemical agent to destroy vegetative pathogens, but not bacterial spores.
- 4.6 Disinfectant: A product that is used on the surfaces of medical equipment/devices, which results in the disinfection of the equipment device. It is applied only on inanimate objects. Some products are combination of cleaner and disinfectant.
- 4.7 Disinfectant cleaning solution: A product that is a combination of detergent (soap) and chemical disinfectant.
- 4.8 Mattress: A soft-surface (upholstered) assets found on patient beds.
- 4.9 Mattress cover: Provides outer protection to a medical bed mattress coated with or contain a substance that kills germs (viruses or bacteria) by preventing blood and body fluids from entering the inside (inner core) of the mattress.
- 4.10 Water repellent: A material to keep liquid away from the material and prevents liquid from entering inside the material.

## 5. Policy

- 5.1 All healthcare establishments shall ensure adherence to this policy and procedures to prevent harm associated with contaminated medical mattress in the healthcare environment and community.

## 6. Procedure

- 6.1 Prepare the materials:
  - 6.1.1 Cleaning cloth – size 1foot X 1foot. Preferably, hospital approved microfiber cloth.
  - 6.1.2 Neutral detergent - approved by Central DIPC.



6.1.3 Disinfectant /cleaner approved by Central DIPC.

6.1.3.1 Avoid using alcohol wipes/solutions/sprays and chlorhexidine as it causes breakdown of the waterproof cover and abrasive or phenolic-based cleaners.

6.1.4 Color-coded hamper bags for linen.

6.1.5 Spray bottle container.

6.1.6 PPE - gloves, plastic aprons, mask, goggles.

6.2 Decontamination:

6.2.1 Follow the manufacturer's IFU for specific cleaning process. In case not available follow below.

6.2.2 Decontaminate the mattress between patient's uses.

6.2.3 Disconnect the hospital bed from the electricity source.

6.2.4 Perform hand washing.

6.2.5 Wear appropriate PPE (e.g. gloves, aprons and mask; and goggles if required).

6.2.6 Remove the linens.

6.2.7 Remove the mattress cover from the mattress, if available.

6.2.8 Remove the mattress from the bed, if needed.

6.2.9 Lower the bedframe side rails to provide easy access.

6.2.10 If the mattress needs to be on a bedframe during the cleaning process, ensure bedframe castors are in the braked position.

6.2.11 Clean the top surface of the mattress, sides and turn to the other sides.

6.2.12 See (Appendix 5) and follow the directions of cleaning using a cloth.

6.2.13 Clean the bed and mattresses either by two steps or one step.

6.2.13.1 Two steps cleaning process.

6.2.13.2 Use appropriate PPE e.g. gloves and gowns, (goggles and mask – if needed).

6.2.13.3 Clean the surface using cleaning cloth to remove the dirt.

6.2.13.4 Use water and detergent.

6.2.13.5 Apply disinfectant solution using cleaning cloth.

6.2.13.6 Wait for contact time for disinfectant - refer to the disinfectant label.



- 6.2.13.7 Rinse the disinfectant - refer to the disinfectant label.
- 6.2.13.8 Allow to dry.
- 6.2.13.9 One step cleaning process:
- 6.2.13.10 Clean the surface using cleaning cloth.
- 6.2.13.11 Use disinfectant cleaning solution.
- 6.2.13.12 Wait for contact time- refer to the disinfectant label.
- 6.2.13.13 Allow to dry.
- 6.2.14 Place the mattress back to the bed frame.
- 6.2.15 Cover with clean mattress cover (preferably water repellant) but if not available use the disposable cover.
- 6.2.16 Ensure the mattress cover is thoroughly dried before making the bed with clean linens.
- 6.2.17 Dispose PPE as per hospital policy and procedure.
- 6.2.18 Perform hand washing.
- 6.3 For special mattress e.g. alternating air flow mattresses - consult manufacturer's instructions for maintenance and care.
- 6.4 Audit and Monitoring:
  - 6.4.1 Designate a responsible department/unit or person to receive the mattress from any source.
  - 6.4.2 Record the date received and marks the serial number of the mattress.
  - 6.4.3 Conduct inspection for the surfaces of mattress covers and zip fasteners for:
    - 6.4.3.1 Soil
    - 6.4.3.2 Damage
    - 6.4.3.3 Crack
    - 6.4.3.4 Torn
    - 6.4.3.5 Puncture
    - 6.4.3.6 Stains
    - 6.4.3.7 Bad permanent odor
    - 6.4.3.8 Improperly operating zippers or closures
    - 6.4.3.9 Color deterioration.



- 6.4.4 If present change the covers.
- 6.4.5 Conduct periodic inspection of the mattress See (Appendix 1).
  - 6.4.5.1 Check if the mattress fails in the category 1-8. If one failed it should be condemned and replaced.
- 6.4.6 Conduct water penetration test.
  - 6.4.6.1 For the Mattresses with Zip cover:
    - 6.4.6.1.1 Perform permeability testing for the mattress covers every 6 months.
    - 6.4.6.1.2 Unzip and place a sheet of absorbent tissue (paper roll approximately 46cm x 46cm or 18inches x 18inches) between the top surface of the mattress and the cover.
    - 6.4.6.1.3 Fasten the zipper.
    - 6.4.6.1.4 Using the fist, indent the mattress over the area where the tissue is located to form a shallow well and pour tap water (about half a cup) into the well.
    - 6.4.6.1.5 Agitate the surface with the fist for one minute and then wipe up the water.
    - 6.4.6.1.6 Undo zip and inspect tissue for water spots.
    - 6.4.6.1.7 Repeat the procedure on the reverse side of the mattress.
    - 6.4.6.1.8 Replace both the cover and mattress when the test failed or if it is damaged.
  - 6.4.6.2 For Mattress with sealed cover without a zip:
    - 6.4.6.2.1 Using the fist, press the mattress cover to form a shallow well in the center of the mattress where it would have high usage or any areas of concern.
    - 6.4.6.2.2 Pour on a small volume of tap water (approximately ½ teacup/75 ml) in the well and agitate the area for about one minute.



6.4.6.2.3 Visually inspect for loss of water/water penetration, which indicates failure of the test. The mattress should be condemned and replace.

6.4.6.2.4 Dry up the water.

6.4.7 Conduct bottoming out test for non-electric mattress.

6.4.7.1 Perform bottoming out test every 6 months.

6.4.7.2 Place hand fist at central point of mattress using moderate pressure.

6.4.7.3 Push down fist.

6.4.7.4 If you feel the bed frame, the bottoming test fails. The mattress should be condemned and replaced.

6.5 Disposal:

6.5.1 See (Appendix 4) : Flow Chart of Disposal of Mattress.

## **7. Responsibilities**

7.1 Nursing Department

7.1.1 Conducting periodic testing e.g. water penetration test, bottoming and condemning of the mattress.

7.1.2 Coordinating with the Infection Control Department to categorize the condemned mattress.

7.1.3 Requesting for replacement of condemned mattress.

7.2 Infection Prevention and Control Department / Section.

7.2.1 Categorizing the mattress condemned mattress.

7.2.2 Coordinating with nursing staff.

7.2.3 Coordinating with the HSE technician for packing and disposal of infectious mattress.

7.2.4 Conducting training for basic infection prevention and control to the general services department.

7.3 General Store Department.

7.3.1 Receiving, keeping records and mark the serial number of mattresses.

7.3.2 Replacing condemned mattress.



- 7.3.3 Write for exemption letter from the item disposal to the USAF for immediate disposal, disbarment and donation of mattress.
- 7.4 Health Safety and Environment Technician.
  - 7.4.1 Supervising the proper packaging of infectious mattress.
  - 7.4.2 Coordinating with the general services department.
  - 7.4.3 Coordinating with the Beah Company for collection of infectious mattress.
  - 7.4.4 Conducting training to the general services department for proper packaging of infectious mattress.
- 7.5 General Services Department
  - 7.5.1 Maintaining and decontaminating of mattress in the wards daily.
  - 7.5.2 Decontaminating and facilitating the disposal of condemned non-infectious mattress.
  - 7.5.3 Ensuring that the packaging materials for infectious mattress are available at all times.
  - 7.5.4 Packing appropriately the infectious mattress.
  - 7.5.5 Attending any unit specific training sessions.
- 7.6 Committee for the Undersecretary for Administrative Affairs.
  - 7.6.1 Giving decision for the use of old unused mattress.



## 8. Document History and Version Control

Document History and Version Control			
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01	Initial Release	Dr. Khalid Al Harthi Mr. Noel S. Gonzaga	May 2022
02			
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05			
Written by		Reviewed by	Approved by
Dr. Khalid Al Harthi Mr. Noel S. Gonzaga		Task Force Dr Amal Saif AL Maani	Dr. Saif Bin Salim Al-Abri

## 9. Related Documents:

9.1 National Policy and Procedure for Healthcare Waste Management



## 10. References:

Title of book/ journal/ articles/ Website	Author	Year of publication	Page
1. US Healthcare Mattress Integrity, White paper	Heller, M Hicks, D	March 2014	1-6
2. Guidelines for management of mattresses and bed-frames, Northamptonshire Healthcare, NHS Policy and Procedure,	Northamptonshire Healthcare, NHS	2012	
3. Safe Use of Mattresses, Pressure Relieving Cushions and Pillows, Peninsula Community Health, NHS Policy and Procedure,	Peninsula Community Health, NHS	2012	
4. Linet Company, Work instruction On Site Mattress Cleaning Procedure, Letter to MoH, Oman, Issue No. #3	Communication	01/11/14	
5. Guidance on Regulations for the Transport of Infectious Substances.	WHO	2013-2014	6, 24, 25
6. <a href="http://www.infectionpreventioncontrol.co.uk/content/uploads/2015/07/Audit-Tool-Mattress-for-Care-Homes.pdf">http://www.infectionpreventioncontrol.co.uk/content/uploads/2015/07/Audit-Tool-Mattress-for-Care-Homes.pdf</a>			
7. Healthcare Associated Infection Control and Biocides	Najat Rashid, Ramnik Sood	2014	



مرفق رقم 1: معايير للتخلص من المراتب غير الكهربائي

Appentix 1: Criteria for condemning non-electrical mattress

Elements	العناصر	Yes نعم	No لا
1. Is the mattress fitted with waterproof cover?	1. هل المرتبة مزودة بغطاء مقاوم للماء؟		
2. Is the mattress free of stain?	2. هل المرتبة خالية من البقع والأوساخ؟		
3. Is the mattress free of tears?	3. هل المرتبة خالية من التمزق و الثقوب؟		
4. Are the zip fasteners in good state of repair?	4. هل سحابات المرتبة مغلقة و في حالة جيدة؟		
5. Is the mattress free of dipping? (sagging in the center)	5. هل المرتبة خالية من التغميس و الانحناءات السطحية (في وسط المرتبة)؟		
6. Has the mattress passed the water test?	6. هل اجتازت المرتبة اختبار مقاومة الماء؟		
7. Is the mattress a passed the bottoming up test?	7. هل اجتازت المرتبة اختبار مرونة السطح؟		
8. Is the mattress less than the life span recommended by manufacturers?	8. هل فترة استخدام المرتبة بالمؤسسة أقل من الفترة الموصي بها من قبل الشركات المصنعة؟		
9. Failure of the mattress to meet one or more of these items (from 1-8) means that the mattress should be condemned.	9. عناصر 1-8 هي المعايير الأساسية. • عدم الإجابة بنعم عن واحد أو أكثر من هذه العناصر يعني أن المرتبة غير صالحة للاستخدام الطبي.		



## Appendix 2: Categorization and Management of Medical Mattresses

Classification	Description	Management
Not potentially infectious Mattress:	Condemned, old un-used by patients	Can be re-used, upon approval by committee: <ul style="list-style-type: none"> <li>• Donate to other healthcare facility,</li> <li>• Patients who are bed ridden.</li> <li>• Selling to other healthcare facilities</li> </ul>
	-Condemned, used by the patients with unperceivable infections <i>but</i> NOT soaked, dripping and caked with blood and body fluids -With stubborn stain that cannot be removed	<ul style="list-style-type: none"> <li>• Clean and disinfect</li> <li>• Send to landfill</li> </ul>
Infectious Mattress :	-Used by viral hemorrhagic diseases patients and other diseases caused by organisms classified as category (A) substance (Appendix 3)	<ul style="list-style-type: none"> <li>• Packed properly (3 packing)</li> <li>• Send to Beah Company</li> </ul>
	-Condemned, and contaminated with blood, body fluids, secretions and excreta from patients' with highly transmissible disease. (e.g. TB, Leprosy, Cholera) --Consult hospital infection department for more listing. -Condemned, used in the isolation rooms (e.g. MRSA, MDROs) and hemodialysis wards, used by the patients with blood borne infections (e.g. HIV, Hepatitis B and C)	<ul style="list-style-type: none"> <li>• Clean and disinfect</li> <li>• Send to landfill</li> </ul>

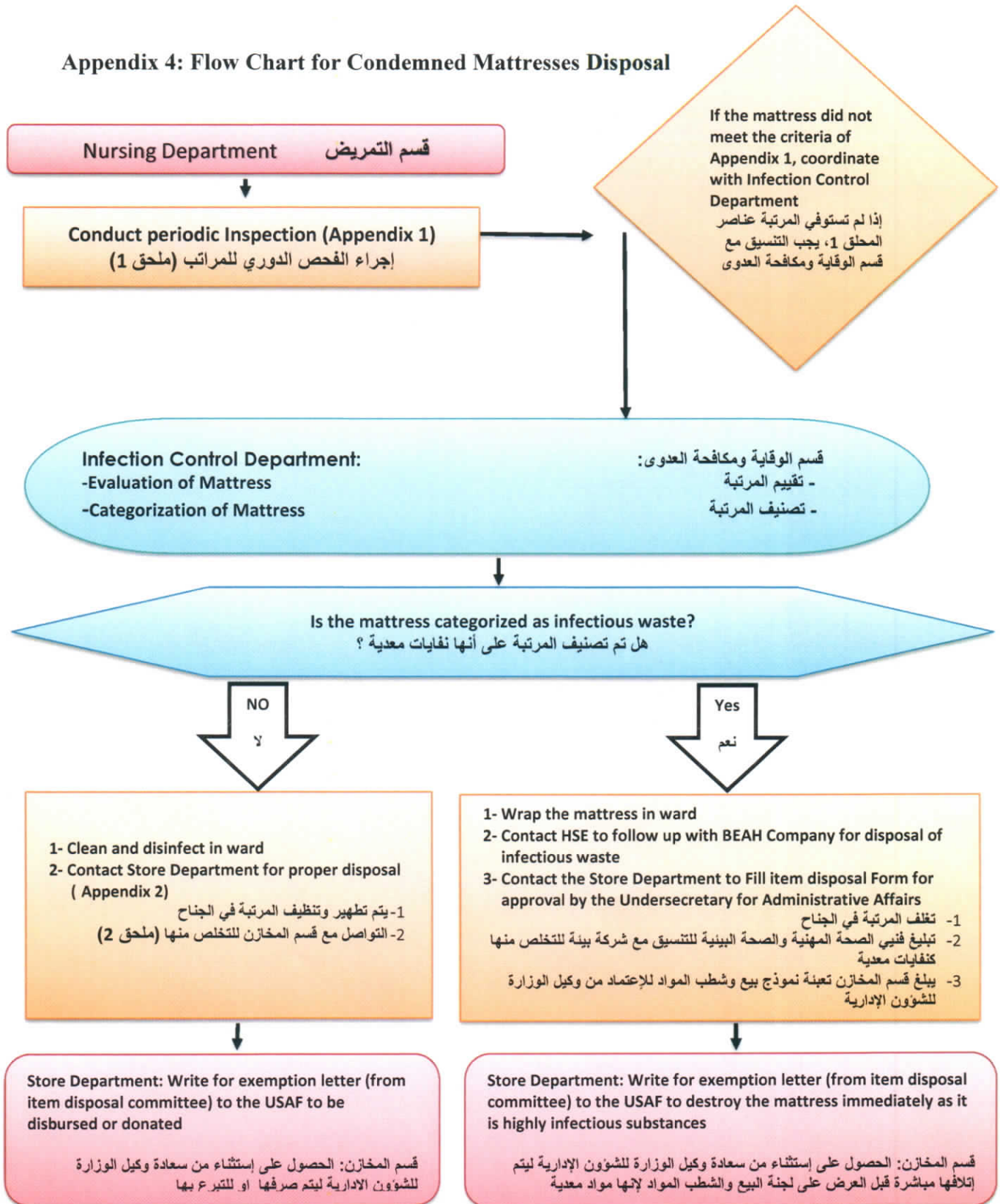


**Appendix 3: List of category (A) infectious substances:**

<i>Clostridium botulinum</i>
<i>Coccidioides immitis</i>
<i>Coxiella burnetti</i>
<i>Crimean – Congo hemorrhagic fever virus</i>
<i>Ebola virus</i>
<i>Flexal virus</i>
<i>Guanarito virus</i>
<i>Hantaan virus</i>
<i>Hantaviruses-(causing hantavirus pulmonary syndrome)</i>
<i>Hendra virus</i>
<i>Junin virus</i>
<i>Kyasanur Forest disease virus</i>
<i>Lassa virus</i>
<i>Machupo virus</i>
<i>Monkeypox virus</i>
<i>Nipah virus</i>
<i>Omsk hemorrhagic fever virus</i>
<i>Rabies virus</i>
<i>Rift Valley fever virus</i>
<i>Sabia virus</i>
<i>Variola virus</i>
<i>Venezuela equine encephalitis virus</i>



#### Appendix 4: Flow Chart for Condemned Mattresses Disposal





### Appendix 5: Directions of Cleaning:

1.Prepare the cleaning cloth



2.Fold the cloth in 4 sides and spray with cleaning/  
disinfectant solutions



3.Wring the cloth to remove excess moisture, if needed



4.Damp clean with flat cloth the surface evenly in S  
fashion and change to cleaning side on each different  
surfaces .



5.After use, dispose the cloth in appropriate container as  
per the hospital policy and procedures.

