



## **GUIDELINES FOR THE HANDLING OF DEAD BODIES FOR OWNERS / OPERATORS OF FUNERAL HOME ESTABLISHMENTS**

### **Introduction**

All dead bodies are potentially infectious and “STANDARD PRECAUTIONS” should be implemented for every case. Infectious agents can be transmitted when persons are in contact with blood, body fluids or tissues of dead body of a person with infectious diseases.

To minimize the risks of transmission of known and unsuspected infectious diseases, dead bodies should be handled in a manner that will prevent direct exposure of workers to blood, body fluids and tissues.

A rational approach is needed and should include:

- ✓ staff training and education,
- ✓ safe working environment,
- ✓ appropriate safe work practices,
- ✓ the provision and proper use of recommended personal protective equipment (PPE),  
and
- ✓ vaccination against hepatitis B.

It is imperative that the operator and workers in these facilities be informed of the risk of infection that is associated with this service so that appropriate measures may be taken to guard against infection. The use of labels such as “Danger of Infection” on the dead body is considered appropriate.

The management staff and operators of funeral establishment and mortuaries, are urged to adopt the following guidelines to protect the health of all involved in handling bodies with infectious disease, including COVID-19. These should be widely disseminated to all staff involved.

## **Categorization of Dead Body according to Risk of Infection**

Based on the mode of transmission and the risk of infection to different diseases, the following categories are assigned due to the level of caution that is required for handling and disposal of dead bodies:

- **Category 1:** Standard precautions are recommended for all dead bodies other than those with infectious diseases
- **Category 2:** In addition to standard precautions, additional precautions are recommended for dead bodies with known:
  - (a) Human Immunodeficiency Virus infection (HIV)
  - (b) Hepatitis C
  - (c) Creutzfeldt-Jacob disease (CJD) without necropsy (Mad Cow)
  - (d) Severe Acute Respiratory Syndrome (SARS)
  - (e) Avian influenza
  - (f) Middle East Respiratory Syndrome (MERS)
  - (g) Coronavirus disease (COVID-19), and
  - (h) Other infectious diseases as advised
- **Category 3:** In addition to standard precautions, stringent precautions are recommended for dead bodies with known:
  - (a) Anthrax
  - (b) Plague
  - (c) Rabies
  - (d) Viral hemorrhagic fevers
  - (e) Creutzfeldt-Jacob disease (CJD) with necropsy, and
  - (f) Other infectious diseases as advised by the physician.

## **General Recommendations**

### **A. Vaccination**

Hepatitis B vaccination is required for all personnel who are likely to come into contact with dead bodies, such as health care worker, mortuary staff, funeral workers, etc.

### **B. Granting Viewing Privileges to Family of Deceased (in the context of COVID-19)**

In cases where family members wish to view the body, this should be done under strict supervision. Great emphasis should be placed on hand hygiene and family members should be instructed not to touch or kiss the body.

### **C. Personal Hygiene Practices and Use of Personal Protective Equipment**

1. All staff should be trained in infection prevention and control procedures. A high standard of personal hygiene should be adopted.
2. When handling dead bodies:
  - Avoid direct contact with blood or body fluids from the dead body.
  - Put on personal protective equipment (PPE) including:
    - ✓ Gloves
    - ✓ Water repellent gown
    - ✓ Long sleeved gowns
    - ✓ Surgical mask
    - ✓ Goggles or face shield to protect eyes
    - ✓ Appropriate footwear (example: water boots)
3. Make sure any wounds, cuts and abrasions, are covered with waterproof bandages or dressings.
4. Do NOT smoke, drink or eat. Do NOT touch eyes, mouth or nose whilst working with the dead body.
5. Observe strict personal hygiene practices.
6. Hands should be washed with liquid soap and running water



7. The use of alcohol-based (at least 62% alcohol content) hand sanitizers should be limited and same used on hands that are not visibly soiled.
8. Avoid injury, both during examination of dead body and in dealing with waste disposal and decontamination.
9. Remove and dispose of personal protective equipment properly after the handling of the dead body.
10. Wash hands with liquid soap and water immediately after handling the body.

#### **D. Precautions to be taken in handling dead bodies**

When handling dead bodies:

- (a) Avoid direct contact with blood or body fluids from the dead body.
- (b) Observe strict personal hygiene practices and put on appropriate personal protective equipment (including gloves, water repellent gown and surgical masks). Use goggles or face shield to protect eyes, in case there are splashes.
- (c) Ensure any wounds are covered with waterproof bandages or dressings.
- (d) Do NOT smoke, drink or eat. Do NOT touch eyes, mouth or nose.

*Note: Immediately after the handling of dead bodies, staff members are encouraged to ensure that:*

- Personal protective equipment is properly removed
- Hands are thoroughly washed with liquid soap and water

#### **Accidental exposure to blood or body fluids**

- 1) In case of accidental exposure to blood or body fluids, the injured or exposed areas should be washed with copious amounts of water.



- 2) All incidents of exposure should be reported to the supervisor. The injured or exposed person should immediately seek medical advice for proper wound care and post-exposure management.

## **E. Environmental Control**

It is important that surfaces be disinfected with 0.1% (1000 ppm) sodium hypochlorite or 62 – 71% ethanol, since these disinfectants significantly reduces coronavirus infectivity (COVID-19) on surfaces within a minute of exposure time.

The following environment cleaning and disinfection protocol should be observed:

- 1) The appropriate personal protective equipment should be worn
- 2) All surfaces which may be contaminated should be cleaned with water and detergent and then disinfected with “1 in 50 diluted household bleach” (mixing 1 part of 5.25% bleach with 49 parts of water), allowing it to remain for 15-30 minutes, or until air dried.
- 3) Surfaces visibly contaminated with blood, spills or body fluids; absorbent towels should be used to remove same, and then be immediately disposed as infectious waste.
  - i. Thereafter, clean surfaces with water and detergent;
  - ii. Apply a “1 in 49 diluted household bleach” (mixing 1 part of 5.25% bleach with 49 parts of water), leaving it for 10 minutes, and then rinse with clean water.
- 4) There should be wash cloths and mops that are solely dedicated for these purposes.

**Table 1: Disinfection Solution Concentration Guide**

Strength of bleach (Household bleach)	Dilution to achieve 1000 ppm available chlorine		Example of disinfection solution	
	Bleach proportion	Volume of water	Bleach to be used	Water to be used in solution
5.25%	1-part bleach	49 parts of water	1/3 cup	1 gallon
			18 cups	55 gallon

### **F. Inventory Management (in light of COVID-19)**

- Ensure adequate supply of personal protective equipment, detergent, alcohol-based hand rub and other disinfectants (such as household bleach) are readily available.
- Ensure that all disposable items such as gloves and protective clothing are disposed of in a dedicated, lined, waterproof container.
- Linen contaminated with blood or body fluids should be laundered in a washing machine with hot washing cycle (>70°C), otherwise, they should be soaked in freshly prepared “1 in 50 diluted household bleach” (mixing 1 part of 5.25% bleach with 49 parts of water) for 30 minutes before washing.

### **G. Handling Bodies of Unknown Category**

The steps outlined below are to be followed when handling dead bodies found on board conveyances from land, sea or air, with unclear history or suspected infectious disease:

- (a) Avoid direct contact with blood or body fluids from the dead body.
- (b) Observe strict personal hygiene practices and wear appropriate personal protective equipment (PPE) including gloves, water resistant gown / plastic apron over water repellent gown, and surgical masks. Use goggles or face shield to protect eyes, if there are splashes.
- (c) Ensure any wounds are covered with waterproof bandages or dressings.

- (d) Do NOT smoke, drink or eat. Do NOT touch your eyes, mouth or nose.
- (e) Place the dead body in a robust and leak-proof opaque plastic bag not less than 150µm thick, which should be zippered closed. Pins are NOT to be used (the bagged body should be placed in another opaque body bag if the deceased was suspected to be suffering from highly infectious diseases).
- (f) Attach an appropriate identity label to the body bag before transporting to public mortuary or funeral parlor as the case may warrant.
- (g) Remove personal protective equipment after handling of the dead body.
- (h) Wash hands with liquid soap and water immediately.

#### **H. Inventory Management and other Consideration for bodies of Unknown Category**

- Ensure that supply of disposable gloves, protective equipment, alcohol-based hand rub, detergent and disinfectant such as household bleach is readily available.
- After use, the disposable items such as gloves and protective clothing should be disposed of in a dedicated, lined waterproof container.
- Linen contaminated with blood or body fluids should be laundered in a washing machine with hot washing cycle (>70°C), otherwise, they should be soaked in freshly prepared “1 in 50 diluted household bleach” (mixing 1 part of 5.25% bleach with 49 parts of water) for 30 minutes before washing.
- All surfaces contaminated should be wiped with “1 in 50 diluted household bleach” solution (mixing 1 part of 5.25% bleach with 49 parts of water), leave it for 15-30 minutes, and then rinse with water. Metal surfaces could be wiped with 70% alcohol.
- Surfaces visibly contaminated with blood, spills or body fluids; absorbent towels should be used to remove same, and then be immediately disposed as infectious waste.
  - Thereafter, clean the surfaces with water and detergent;
  - Apply a “1 in 49 diluted household bleach dilution solution” (mixing 1 part of 5.25% bleach with 49 parts of water), leaving it for 10 minutes, and then rinse with clean water (**Refer to Table 1 for Dilution Solution Guide**).

## **I. Mortuary staff**

### **Precautions for all dead bodies**

- All dead bodies must be identified and correctly labeled with identity labels and category tags.
- Dead bodies found soiled with blood or body fluids should be placed in a disposable plastic bag instead of linen.
- Dead bodies should be stored in cold chambers maintained at approximately 4°C.
- Since each and every dead body brought to autopsy is a potential source of infection, at all times, pathologists and other support staff should observe standard precautions in the performance of any autopsy.

## **J. Mortuary Environmental Control Considerations**

- The mortuary must be kept clean and properly ventilated at all times.
- Lighting must be adequate. Surfaces and instruments should be made of materials which can be easily disinfected and maintained.
- Storage compartments for dead bodies should be easily accessible for both regular cleaning and maintenance.
- Smoking, drinking and eating are forbidden in autopsy room, body storage and viewing areas.
- All used linen should be handled with standard precautions. Used linen should be handled as little as possible with minimum agitation to prevent possible contamination of the person handling the linen and prevent the generation of potentially contaminated lint aerosols in the areas. Laundry bag should be securely tied.
- Staff should follow the established guidelines of their organizations on handling of soiled linen.
- Items classified as clinical or infectious waste must be handled and disposed of properly according to the legal requirements.
- Environmental surfaces, instruments and transport trolleys should be properly decontaminated immediately after use.



### **K. Recommendations for conducting Autopsies:**

Every dead body brought to autopsy is a potential source of infection, as such, pathologists and other support staff should observe standard precautions.

Safety procedures for deceased individuals infected with an acute respiratory illness (ARI), including COVID-19, should be consistent with those used for any autopsy procedure. In general, the known hazards of work in the autopsy room arise from contact with infectious materials and, particularly, with splashes onto body surfaces of health-care workers rather than from inhalation of infectious material.

It is therefore important to note that, if a patient with COVID-19 died during the infectious period, the lungs and other organs may still contain live viruses, as such, additional respiratory protection (N-95 or equivalent respirators) is needed during procedures that will generate small-particle aerosols (e.g. use of power saws and washing of intestines).

When performing autopsies on patients with COVID-19 the following precautions should be observed:

- Ensure that safety measures are observed including the collection of samples for microbiologic analyses.
- Engage a minimum number of staff in the procedure, and perform only if:
  - an adequately ventilated room suitable for the procedure is available.
  - appropriate PPE is available;
  - scrub suit, surgical mask, particulate respirator or N95 mask, long sleeved fluid-resistant gown, gloves (either two pairs or one pair autopsy gloves) and face shield (preferably) or goggles, boots.
- **Placement of PPE:** put on PPE in antechamber room (before entering autopsy room) and remove in designated dress-out room.
- Perform autopsies in an adequately ventilated room, that is, at least natural ventilation with at least 160L/s/person air flow or negative pressure rooms with at least 12 **air**



**changes per hour** (ACH) and controlled direction of air flow when using mechanical ventilation.

- Minimize Aerosol generating procedure (AGP) in the autopsy room (e.g. during lung excision) by avoiding the use of power saws whenever possible avoiding splashes when removing, handling or washing organs, especially lung tissue and the intestines; and
- Use exhaust ventilation to contain aerosols and reduce the volume of aerosols released into the ambient air environment; exhaust systems around the autopsy table should direct air and aerosols away from health-care workers performing the procedure (e.g. exhaust downward).

For reduction of Aerosol Generating Procedures (AGP) during autopsy:

- use vacuum shrouds for oscillating saws.
- do not use high-pressure water sprays. If opening intestines, do it under water.

## **L. Considerations for Burial**

- Dead bodies with COVID-19 can be buried or cremated.

## Appendix 1: Summary of Personal Protective Equipment needed for Handling COVID-19 Bodies

**Table 2: Personal Protective Equipment for Handling COVID-19 bodies**

Equipment	Details
Hand Hygiene	<ul style="list-style-type: none"> <li>• running water</li> <li>• liquid plain soap for hand hygiene</li> <li>• disposable towel for hand drying (paper or tissue)</li> <li>• alcohol based hand rub</li> </ul>
Personal Protective Equipment	<ul style="list-style-type: none"> <li>• gloves</li> <li>• waterproof plastic apron</li> <li>• long sleeve gowns</li> <li>• anti-fog goggles</li> <li>• face shield</li> <li>• N95 respirator</li> <li>• surgical mask</li> </ul>
Waste Management and Environmental Cleaning	<ul style="list-style-type: none"> <li>• disposal bag for bio-hazardous waste</li> <li>• Soap, detergent and water</li> <li>• disinfectant for surfaces – hypochlorite solution 0.1% (1000 ppm)</li> </ul>

*Extracted from WHO/PAHO document: Dead body management in the context of the Novel Coronavirus (COVID-19)*