

# Management Of Dead Bodies in Mass Disaster

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**Abstract:** A mass disaster is a catastrophic event resulting in a huge loss of life stocks and structural destruction. It may be due to natural causes or man-made. It demands an urgent response from the people, society, and the government. The management of dead bodies under such circumstances is very crucial for speedy identification and early disposal. It involves a series of activities beginning with the search, in situ identification of the body, and its transfer to the facility that serves as a mortuary. It also encompasses delivery of the body to family members, and assistance from the State for the final disposal of the body, in accordance with the wishes of the family and the religious and cultural norms of the community.

**Key Words:** —Mass Disaster, Structural Destruction, Management.

## I. INTRODUCTION

A mass disaster may be defined as an event, man-made or natural, resulting in a large number of victims that need to be identified and subject to medico-legal investigation<sup>1</sup>. According to WHO, a disaster is defined as “A sudden ecologic phenomenon of sufficient magnitude to require external assistance”<sup>2</sup>. According to The National Disaster Management Authority, Government of India, any event resulting in a number of victims large enough to disrupt the normal course of emergency and health care services is called a mass casualty event<sup>3</sup>. There is not only a huge loss of human lives but also massive structural damage. Such a situation always poses a great challenge to the nation to curb it, thus always remains a threat<sup>4</sup>.

Proper identification of the victims of these mass disaster events is important not only for the deceased but also for surviving families. Early search works enable timely recovery of some live victims too. In addition, identification of the deceased may also be needed legally to help the administration in the settlement of the estate and/or inheritance and sometimes to aid criminal proceedings, or the right of the remaining partner to re-marry.

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## II. LITERATURE REVIEW

### 2.1 Mass Disaster in India:<sup>3,4,5</sup>

India is more prone to natural disasters like floods, drought, cyclones, earthquakes, etc. due to its unique geo-climatic conditions (3). Some important mass disasters in the last decade are the Orissa Super Cyclone in October 1999 caused more than 9,000 deaths; the Bhuj Earthquake of January 2001 resulted in 20,000 deaths while the Indian Ocean Tsunami in December 2004 accounted for the death of nearly 15,000 victims (3). In recent years India witnessed natural mass disasters like the Kashmir Flood – 2014, Uttarakhand Flash Flood – 2013 and Bihar Flood Disaster – 2007. It leads to a large number of deaths and destruction of structures within a very short span of time placing overwhelming stress on individuals, society, and administration by and large.

### 2.2 Dead Body Recovery & Retrieval:<sup>3,4,6</sup>

It is not urgent work and, in the beginning, just after a disaster, the available resources must be utilized to rescue lives. There is a widespread but erroneous belief, even among some health professionals, that dead bodies are a source of disease, and therefore, a threat to public health. This is wrong and irrational, and there is no proof that an epidemic occurred due to exposure to dead bodies (3).

It is done under the supervision of the Dead Body Management Group in charge of the Incident Response System (IRS) appointed by District Authorities. It is teamwork consisting of doctors, health care workers, and other volunteers. The following steps must be kept in mind: -

- Enter the area for dead body search & recovery only after safety clearance is issued by the government

authority.

- Always first look for signs of life.
- All efforts to be made to recover the body as a whole & prevent mutilation.
- An identification number must be allotted serially to every dead body.
- All available dead body parts are also to be treated as individual bodies and so must be allotted separate identification numbers. Attempts will not be made to match the body parts to reconstruct the individual at the disaster site.
- Personal belongings or jewelry shall not be separated from a dead body or body parts.
- All bodies must be digitally photographed with their identification label. The minimum number of photographs will include the frontal view of the full body, whole face, and any distinguishing marks of identification.
- Each dead body must be wrapped in a separate plastic bag or cloth with waterproof labeling before transportation.
- Dead body identification form must be filled in duplicate for every dead body or body part.

Before entering, the team workers must also follow the following guidelines for safety reasons: -

- The recovery team must use Basic Personal Protective Kit.
- All team members must be protected against Tetanus & Hepatitis B by prior immuno-prophylaxis.
- Strictly follow universal guidelines like avoiding wiping face or mouth with hands while handling dead bodies.
- Never leave a dead body uncovered to prevent environmental risks.
- All clothes, equipment, and vehicles used will be decontaminated and disinfected.

### 2.3 Transportation of Dead Bodies:<sup>3</sup>

Dead Body Management Group-in-charge will predetermine or select the site for storage of bodies before transportation. Large trucks, with sufficient space and canopy to maintain the privacy and dignity of the dead, will be used for transportation

wherever an adequate number of hearse vans are not available. Stretchers, or make-shift stretchers, will be used, instead of manual lifting, for loading the bodies onto the transportation vehicles. Different means of transport like bullock carts, tractor-trolleys, and other animal transport may be used, if necessary. Ideally, the bodies will not be put in layers, one above the other, but will be placed appropriately in an individual manner. Chemical Agent contaminated dead bodies will be decontaminated before. The vehicle, used for the transportation of dead bodies, will be thoroughly decontaminated and disinfected before it is put back into routine use. Ambulances will not be used for the transportation of dead bodies.

### 2.4 Storage of Dead Bodies:<sup>3,6,7</sup>

It becomes a big challenge for healthcare providers to make emergency accommodations for a large number of dead bodies within a short notice time. Mortuaries in the existing hospitals are not also sufficient to accommodate such a huge number of dead bodies. So, abandoned buildings, government buildings, or storehouses may be used for storing dead bodies. The large hospitals in disaster-prone areas may enhance their capacities by building bigger mortuaries on a permanent basis. Temporary mortuary blocks may be created with the following features: -

- *Holding area*: - to facilitate the identification of dead bodies, a provisional holding area, which is typically an open space, should be set up to receive the dead bodies, consequent to their removal from the disaster site.
- *Viewing area*: - Should be designated where family members and others will view photographs of the bodies, objects pertaining to the deceased, and finally, the bodies themselves.
- *Examination area*: - It will be needed if it is necessary to conduct a more detailed exterior assessment of the body, to provide a detailed description of the dead body or body parts.

### 2.5 Preservation of Dead Bodies:<sup>3,5,6</sup>

- *Refrigeration*: - Refrigeration between 2°C and 4°C is the best method for prolonged storage and preservation of bodies in mortuaries.
- *Dry Ice*: - Carbon dioxide frozen -78.5°C, which can be utilized for short-term preservation. A low wall of dry ice which is 0.5 meters high is formed around groups of 20 bodies and covered with a plastic sheet,

tarpaulin, or tent. It has been computed those ten kilograms of dry ice, per body, per day, is needed depending on outside environmental temperature. Avoid direct contact of dry ice with the bodies and the handlers to prevent cold burns. It is essential to provide good natural ventilation in the storage facility where the bodies are stored and preserved with dry ice to prevent harmful effects of carbon dioxide, liberated by the melting of dry ice.

- *Chemical Methods:* - They are used where bodies are to be preserved for longer periods. There is no need for refrigeration for dead bodies, preserved by chemical methods. Different methods used are: - (a) Formalin: A mixture of 20% to 30% formalin, methylated spirit, phenol, and water can be injected with a wide bore needle into a major artery (carotid or femoral). Major internal organs like the liver, spleen, and kidneys are also injected with the above solution by penetrating through the chest and abdomen. (b) Sanitizing: This process is also known as topical or surface embalming. The method can be used where the blood vessels cannot be secured because of the mutilation of body parts. Bleaching powder mixed with Potassium permanganate (KMnO<sub>4</sub>), is applied over the surface of the body, along with the infiltration and injection of 20% formalin saline in the skin and underneath. (c) Embalming: This is a process by which the bodies can be preserved for a longer period and can be transported to distant places. A mixture of formalin, methylated spirit, phenol, and glycerol is generally used for embalming. It is a specialized process that can only be carried out in well-equipped mortuaries by trained staff.
- *Temporary Burial:* The principle of temporary burial is based on the fact that underground temperature is much lower than the atmospheric temperature, thus providing natural cooling, and aiding in the temporary preservation of dead bodies before final disposal. Depending upon the local conditions, the modality of temporary burial for a short duration may only be adopted when there is a complete absence of facilities for storage and proper preservation. However, temporary burial will not be used as a method of choice.

## 2.6 Disposal of Dead Bodies:<sup>3,5,6,7</sup>

It is the final step in dead body handling in a mass disaster. It is a highly sensitive and very important step because of cultural, ethnic, and religious sensitivities, varying from community to community, in our country (3). Some important issues that may arise are: -

- *Death Certificate:* - This is essential for the purposes of final rituals, compensation, claims, special legal provisions wherever applicable, and for repatriation of the dead bodies of foreign nationals. The Death Certificate will clearly indicate the immediate cause of death in a disaster situation. The antecedent causes, which usually state the underlying conditions or diseases, may not be essential as it requires a postmortem Examination.
- *Release of the Dead Body:* - (A) FOR IDENTIFIED BODY: - All identified dead bodies will be handed over to their relatives. In the absence of relatives, the body can be handed over to the community representative, duly authorized by the Panchayat/Urban Local Body. The authorities, responsible for handing over the dead body to relatives or to the authorized person, will maintain a complete record of the dead, along with the allocated reference number and details of the relative(s) or the authorized person collecting the dead body. A Death Certificate will be provided with the dead body. (B) FOR UNIDENTIFIED OR BODY PARTS: - Unidentified bodies or body parts will not be released unless identified and certified by forensic experts and district authorities. A dead body or body part, whose identity cannot be established, will be disposed of by the District Authorities, in the presence of the community representative(s) after collecting biological samples for the possibility of future identification. (C) FOR FOREIGN DEAD BODIES: - Ministry of External Affairs, Government of India, in consultation with the Consular offices of the concerned countries and other actors such as the International Committee of the Red Cross, if necessary and possible, for appropriate identification, documentation, and then the embalmed dead body will be handed over to the authorized person(s).

### III. CONCLUSIONS

Dead body management remains a challenge in mass disasters as there is always a chance of dead body mutilation and intermingling of the body remains. Mass casualties' management following disasters needs to be handled by team works. Proper dead body identification is very important for final body disposal. Dead bodies must be handled with care and dignity.

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