

## Safety And Measures For Auxiliary Staff Associated With Hospital Waste Disposal

### Abstract

Not much attention has been paid to the management of biomedical waste.(BMW) in recent years, in dental colleges and hospitals With increasing population, the number of dental colleges and hospitals has also increased. The medical waste generated by these hospitals are disposed of together with municipal and industrial solid wastes. There is no effective waste segregation, collection, transportation & disposal system. There is lack of segregation between infectious and non-infectious biomedical waste as well as failure to implement the prescribed rules for proper management of hospital waste and also inadequate training of personnel, insufficient protective equipment, and lack of knowledge regarding use of such equipment There is immediate and urgent need to train and educate all dental and paramedical staff to adopt effective waste management practises.. It is high time, we realize the importance of hospital waste management and the need of sensitizing the top level managers orienting them with various type of waste, their generation, segregation, collection, transportation & final disposal also, it is important that all the hospital waste is managed in a proper scientific fashion. The present paper describes various safety precautions to be taken for the hospital employee and measures to be adopted to minimise health risks due to hospital waste, and the implication of hospital waste on employee, public & environment.

### Key Words

Biomedical waste disposal (BMW), Infectious and Non infectious waste, Segregation

**Key Messages :** The mushrooming of various types of speciality and other hospitals and clinics has endangered the lives of the personnel not only working these health care providing institutes but also the lives of general public and the environment.

**Introduction:** Hospitals have existed in one form or the other since immemorial, but there has been so much concerned about the waste generated by them. The environmentalists have been up arms against the casual manner in which hospital waste is treated in our country. Recently there has been mushrooming of the hospitals both in government and corporate sector to cater to the needs and demand of the increased population. Correspondingly, there has been an increase in the quantum of waste generated by them. It is ironical that every hospital brings relief to the sick due to health hazards created due to improper management of the waste generated by them. The waste generated as a result of patient care activities like diagnosis, treatment, or research, has the potential to transmit various viral, bacterial or parasitic diseases to the staff, patients and population at large.

**The health hazards associated with poor hospital waste management.**

- A. Injuries from sharps in all categories of hospital personnel and waste handlers.
- B. Nosocomial infections to patients from poor infection control and poor waste management.
- C. Risks of infection outside hospitals for waste handlers, scavengers and eventually general public.

### Classification of waste (W.H.O)

**W.H.O has classified waste generated in hospital into the following types.**

- 1) General waste- These wastes are by & large generated from the offices, administration areas, stores, kitchen, laundry etc.
- 2) Sharps- Hypodermic needles, scalpel blades, razors etc.
- 3) Infected waste- Equipment & instruments used in various diagnostic & therapeutic procedures, laboratory waste e.g. -cultures, samples, waste generated from surgeries (tissues & organs removed from surgery).
- 4) Chemical waste- Formaldehyde used for preserving tissues, Fixer & developer used in radiology department, solvents used in laboratories, e.g.- xylene, acetone, ethanol, methanol, chloroform etc.
- 5) Radioactive waste- generated from

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research activities, clinical laboratories, and nuclear medicine laboratories.

- 6) Cytotoxic drugs- various anticancerous drugs used for treating malignant conditions are corrosive to human skin & tissue
- 7) General waste- These wastes are by & large generated from the offices, administration areas, stores, kitchen, laundry etc.
- 8) Sharps- Hypodermic needles, scalpel blades, razors, etc.
- 9) Infected waste- Equipment & instruments used in various diagnostic & therapeutic procedures, laboratory waste e.g. -cultures, samples, waste generated from surgeries (tissues & organs removed from surgery).
- 10) Chemical waste- Formaldehyde used for preserving tissues, Fixer & developer used in radiology department, solvents used in laboratories, e.g. - xylene, acetone, ethanol, methanol, chloroform etc.
- 11) Radioactive waste- generated from research activities, clinical laboratories, and nuclear medicine laboratories.
- 12) Cytotoxic drugs- various anti cancerous drugs used for treating malignant conditions are very corrosive to human skin & tissue.

### Quantity of hospital waste generated.

Various studies carried out by different groups revealed that the quantity of wastes generated from the hospitals ranges from 1-2kg/day/patient

### Implications of Hospital Waste.

On Hospital Employee- The hospital staffs are the ones who are involved in generating, collecting, storing and treating the wastes. All these personnel are exposed and are totally at risk of getting an infection which could be transmitted through air, blood, faeces and oral routes.

In day to day activities all personnel are working with needles, blades, glass and other sharp objects An injury due to these sharps is very common and this is the most common route of entry of pathogens. Air borne Infections like tuberculosis, dreaded diseases like AIDS, hepatitis are common diseases prevalent in hospital employees.

**On Public-** Hospital waste does have some impact on the health of the masses and also public or masses is becoming more aware of the possible harmful effect of hospital waste.

The heaps of waste dumped on a particular site in or outside the hospital are harmful to the society and also the activity of rag pickers also poses a threat to the society.

**On Environment-** The air inside the hospital could be contaminated and contain bacteria or viruses from a grossly infected patient of Tuberculosis, Chicken pox, Rabies. Also, waste accumulated for a greater period might be a breeding ground for many pathogens.

### Measures To Minimise Health Risks due to Hospital Waste.

- Select safe or less hazardous substitute for chemical agents.
- Use closed container for volatile chemicals.
- Use optimal ventilation and adequate exhaust fans.
- Use of colour & emblem code on the container bags.
- Introduce monitoring & surveillance for the areas.
- Proper sterilisation & disinfection practices to be followed.
- Universal precaution measures to be followed.
- Hospital infection control committee to be formed to monitor infection in the hospital.

### Safety Precautions for the Hospital Employee

- It is responsibility of management to ensure safety.
- Employee should be provided with approved protective clothing & footwear.
- Training & instructions should be imparted to drivers (transferring the waste) collectors, & other handlers on the risks of the waste, & also precautions to be taken in the event of accidental spillage.
- They should be protected by immunisation. (Tetanus toxoid, hepatitis B.)
- They should undergo regular medical check up.

The human element is more important than the technology. Almost any system of treatment and disposal that is operated by well trained and well motivated staff can provide more protection for staff, patients and the community than an expensive or sophisticated system that is managed by the staff who do not understand the risks and the importance of their contribution.

The management of Hospital waste requires diligence and care from a chain of people, starting with the nurse or doctor to ancillary staff who carries away the waste and finishing with the person responsible for ensuring that waste is disposed off in the correct way. If any of these are careless in their work, or allow scavengers access to the waste, the chain is broken and dangers follow.

The education of the general public is also important. Posters and Leaflets should be used to bring about awareness.

All staff, including those in waste disposal should have regular check-ups and information generated by these check-ups used to evaluate procedures and precautions. Information on disposal practises and facilities should be disseminated and used for the guidance of others and where there is a possibility of co-ordination or sharing facilities.

Issues for effective management of hospital waste-

- Basic – Water Supply, Cleanliness, Sanitation.
- Switch to recyclable – minimizes waste.
- Tighten security to avoid illegal trading of waste.
- Consider legal, controlled recycling.

- Education & awareness for proper segregation.
- Explore non –burn treatment/ disposal strategies.

### Training and Teaching

Training is an essential component of Hospital Waste Management and should involve all categories of staff in the hospital.

### Conclusion

In this era of nanotechnology and molecular biology, where research has been focused on the genetic level of analysis, the developing countries need to concentrate on the safe disposal of hospital waste to implement the prescribed rules of hospital waste management. There is need to emphasize the importance of management of hospital waste in the dental college and hospitals

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