HOSPITAL WASTE MANAGEMENT

CHHATTISGARH
ENVIRONMENT CONSERVATION BOARD
RAIPUR - 492 001 (C.G.)

HOSPITAL WASTE

Dangers of Bio-Medical Waste to the Community.

According to various surveys and reports, of the total waste generated by the hospitals only 10-15% of the waste is infectious and needs treatment. The rest of it comes under the category of general waste, which does not need any treatment. But, if all the waste is mixed, the total waste generated by a hospital becomes infectious. As the quantity of waste increases, the hospital fails to treat all its waste and a large chunk of this infectious waste reaches the municipal dumps, increasing the possibility of spreading infection.

Spread of infection through the recycling trade.

A lot of Hospital disposable items like syringes and IV bottles have been seen to enter the market again and reach the hospitals. This increases the risk of spreading infection in the community. Thus it is the duty of the nurse or any other person involved in the work to see that disposables are mutilated immediately after use to prevent their reuse.

In order to regulate the bio-medical waste, The Bio-Medical Waste (Management & Handling) Rules, 1998 had been framed under the powers conferred by section 6,8 and 25 of the Environment (Protection) Act, 1986. The salient features of which are:-

Section 4. Duty of Occupier

It shall be the duty of every occupier of an institution generating bio-medical waste which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called to take all steps to ensure that such waste is handled without any adverse effect to human health and the environment

Section 5. Treatment and Disposal

(1) Bio-medical waste shall be treated and disposed of in

accordance with Schedule I, and in compliance with the standards prescribed in Schedule V.

(2) Every occupier, where required shall set up requisite bio-medical waste treatment facilities like incinerator, autoclave, microwave system for treatment of waste or ensure requisite treatment of waste at a common waste treatment facility or any other waste treatment facility.

Section 6. Segregation, Packaging, Transportation and Storage

(1) Bio-medical waste shall not be mixed with other wastes.

(2) Bio-medical waste shall be segregated into containers/bags at the point of generation in accordance with Schedule II prior to its storage, transportation, treatment and disposal. The containers shall be labeled according to Schedule III.

(3) If a container is transported from the premises where bio-medical waste is generated to any facility outside the premises, the container shall, apart from the label prescribed in Schedule III, also carry information prescribed in Schedule IV.

(4) Not withstanding anything contained in the Motor Vehicle Act, 1988 or rules thereunder, untreated bio-medical waste shall be transported only in such vehicle as authorized for the purpose by the competent authority as specified by the government.

(5) No untreated bio-medical waste shall be stored beyond a period of 48 hours:

Provided that if for any reason it becomes necessary to store the waste beyond such peroiod, the authorized person must take permission of the prescribed authority and take measures to ensure that the waste does not adversely effect human health and the environment.

(6) The Municipal body of the area shall continue to pick up and transport segregated non bio-medical solid waste generated in hospitals and nursing homes as well as dully

treated bio-medical wastes for disposal at municipal dump site.

Segregation in a general set up would require three containers:-

Every occupier of an institution shall obtain Authorisation (Sec. 8), and submit Annual Report to the Prescribed Authority, ic. Chhattisgarh Envirnment Conservation Board (Sec. 10).

YOUR ACTION MATTERS A LOT

TREATMENT OF HOSPITAL WASTE

There are five broad categories of medical waste treatment technologies:

i. **Mechanical processes**:- are used to change the physical form or characteristics of the waste either to facilitate waste handling or to process the waste in conjunction with other treatments. The two primary mechanical processes are compaction and shredding. Compaction involves compressing the waste into containers to reduce its volume. Shredding, which also includes granulation, pulping etc. is used to break the waste into smaller pieces. Typically, compaction and shredding are adopted after the waste has been decontaminated in order to reduce the volume and make it unrecognizable.

ii. **Thermal Processes** :- use heat to decontaminate or destroy medical waste. Most microorganisms are rapidly destroyed at temperatures ranging from 49 degress Centigrade to 91°C and most living organisms are killed at 100°C. There are two categories of thermal process; namely

   a. Low-heat systems, which use steam, hot water, or electromagnetic rediation to heat and decontaminate the waste. They typically operate at temperatures of less than 150°C which is insufficient to combust or destroy the material. Autoclaving and microwave treatment are basic low-heat thermal process.

   b. High-heat systems employ combustion, pyrolysis and high-temperature plasma to decontaminate and destroy the waste. These systems operate at temperatures ranging from as low as 600°C to more than 5500°C. Incineration and plasma systems are high-heat thermal processes.

iii. **Chemical Processes** :- is synonymous with chemical disinfection. Disinfectants used are mostly chlorine compounds, iodine, alcohols, phenolic compounds,

hexachlorophene, formaldehydes, iodine-alcohol combinations, formaldehyde-alcohol combinations etc. Most chemical disinfectants are used aqueous solutions.

Water is needed to bring the chemicals and microoranisms together as necessary to achieve inactivation.

iv. **Irradiation Process**:- is synonymous with electromagnetic or ionizing radiation. Processes utilizing Cobalt 60, and electron beam accelerator unit or electron beam gun, for irradiating and sterilizing the medical waste have been developed. These systems require post-shredding to render the waste unrecognizable.

v. **Biological Process** :- is being developed using enzymes for treating medical waste. It is claimed that biological reactions will not only decontaminate the waste but also cause the destruction of all the organic constituents so that only plastics, glass and other inerts will remain in the residues.

YOU CAN MAKE A DIFFERENCE