

dumped at public places and gives some guidelines for its proper disposal

**T**here are around 120 hospitals in Lahore that generate tons of clinical wastes every day. This hospital

waste ranges from biological wastes which includes human organs, tissues, dead foetus, placenta, blood, pus, sputum, excretion samples and culture plates, to hazardous waste such as sharps (disposable syringes, needles, scalpels and razors), discarded medicine, radioactive waste, antineoplastic drugs, chemicals, radiology effluents and urology washings, and suction fluids from operation theatres. The list is endless. The risks are multiple and solutions few. The standard practice of hospital waste disposal is dumping it in municipality containers. After the days work is over in the operation theatres, labour rooms, and Pathology labs, the sanitary workers set to work, brooming, mopping floors, handling left over infected tissue specimens and disposing off lab washings without using any protective gloves, clothing or shoes. All the biomedical waste from the wards, operation theatres, labour rooms and pathology labs ends up in the yellow MCL filth depots. Municipal corporations treat the waste as common waste. There is manual handling of all the infectious waste and it is dumped openly without proper arrangements. Such waste not only poses a threat to the hospital employees but also to the local people living in that locality because of the risk of contracting diseases like Hepatitis B, C and HIV. The syringes dumped in the waste may be reused,

either by addicts or unscrupulous traders. Open burning of such waste also poses serious health hazards.

Against this scenario of mismanagement of biomedical waste, the Private Sector Hospital Waste Management Programme came into existence. This project is the brainchild of Mr. E.C Kengen, Ex-first secretary environment of Netherlands Embassy Islamabad, and Mr. Akhtar Ali, Chief Executive pro-plan associates. In collaboration with Dr M Afzaal Sheikh, Chief Executive Shalamar Hospital the idea was put forward for approval to Ch. Ahmed Saeed, Chairman Board of Trustees Shalamar Hospital. The Project received

in June 1998. Under this project two incinerators have been installed and commissioned, one each at the two focal hospitals i.e. Shalamar and United Christian Hospitals. The incinerator comprises of the refractory lined combustion chamber into which waste is loaded. The Consutech incinerator uses two chambers for the controlled air incineration process. The waste is initially ignited by an auxiliary burner and undergoes essentially a pyrolysis process. Waste decomposes under quiescence; therefore carry over of particulate matter is minimised.

Initially a survey was carried out to study the existing system of Biomedical waste

collection of inhouse. Bio-medical waste (BMW), storage of BMW, its transport and disposal. Special waste containers were designed allowing minimal contact of the infected waste with the container. A system of colour coding for segregation of waste was formulated to decrease risk of any infection to the sanitary workers during handling of the waste. So sharps (e.g. broken medical glassware, slid razors, syringes, scalpel etc) are disposed off into a cardboard box. Biological and infectious waste (e.g. human organs, tissues, limbs, dead foetuses, placenta, dialysis waste, lab and plaster waste blood and blood products, used bandages, drips, surgeons gloves) is disposed off into a yellow plastic bag containers. Non-

all clinical / research labs at university campuses and hospitals. The practice to drain down all chemicals and liquid culture media into the sewage system and to dump all solid wastes into MCL containers should be discouraged.

All biological waste must be treated before disposal. This can be accomplished by autoclaving, chemical disinfection or incineration.

Autoclaving is widely used in hospitals and laboratory practice. Basically, the autoclave works on the same principle as the domestic pressure cooker. It generates steam under pressure, which is the most effective sterilising agent. A temperature of 121 degree Centigrade is maintained for 30 minutes under 15-lb/sq inch pressures which destroys all micro-organisms, including their spores. It is effective for sterilising linen, dressings, gloves, syringes, certain instruments and culture media and these can be reused, in Pakistan almost indefinitely.

Infectious waste, which is also radioactive, should first be chemically inactivated before being labelled and disposed of as radioactive waste. Do not autoclave radioactive infectious waste because the radioisotopes may volatilise and contaminate the autoclave and nearby workers.

Label each bag or container of biological waste with the Generator's name.

All animal carcasses, bedding, embryos, and eggs should be placed in the boxes or sharps containers, labelled, and incinerated. Liquid culture materials and biological specimens, including bacterial or primary and "normal" cell cultures must be treated with a freshly prepared 10 per cent chlorine bleach solution and can then be disposed of by flushing down the drain with copious amounts of tap water. The chlorine bleach solution should be fresh because free Chlorine ions are rapidly depleted. Solid and semi-solid biological waste should be placed in a biohazard bag and destroyed (e.g. incinerated). All needles, Pasteur pipettes, syringes, scalpels and other sharp objects must be placed in puncture-proof sharps disposal containers. All sharps containers must be labeled and treated as biological waste, and incinerated.

The biohazardous waste must be disposed off regularly and should not be allowed to accumulate longer than 48 hours. It should be stored away from general traffic in a secluded area near the hospital premises to be transported to an incinerator. ■

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his full support and patronage right from the initiation of the project to date. Now Shalamar Hospital boasts of an organised network for the disposal of hospital waste and a state of the art Bio-med waste incinerator. The Hospital Waste Management Programme is being executed by Shalamar Hospital under a grant/donation from the Dutch government of Netherlands. It enjoys the full support of Punjab Environmental Protection Department.

The project started to operate

disposal in all the private sector hospitals in the city of Lahore. These hospitals were informed about the project and inducted into the programme. Training workshops were conducted in the user hospitals to train the sanitary workers, nurses, paramedics, doctors and administrators in safe waste handling practices.

To prepare the hospital staff for the implementation of the waste disposal programme 'Advice and Assistance' was provided. During the 'Advice and Assistance' activity, the hospital administration was informed of the generation sites of Biomedical waste. They were briefed on the segregation

hazardous waste (e.g. paperboard, plastic bags, leftover food, vegetables, fruit peelings) goes into a white plastic bag containers. Posters highlighting the importance and use of segregation of waste are mounted and displayed at prominent places in focal hospitals to encourage hospital staff to use them correctly. These bags are then collected from the infectious waste from the doorsteps of the hospitals utilising this service.

Today about 37 hospitals and laboratories of Lahore are sending their infectious waste to the incinerators at Shalamar Hospital. But this is not enough. Most of the government hospitals that receive the greatest number of patients, and hence generate the greatest bulk of the hazardous biomedical waste, have yet to take the initiative towards adopting environmental protection policies. There is a need for all hospitals to realise the importance of proper biomedical waste disposal. Doctors should realise that waste management procedures will help in reducing nosocomial infections and will ensure not only the patients safety but their own as well. The government must provide initiatives to all hospitals to adopt measures for proper disposal of biomedical waste.

A set of guidelines should be

