

Situation analysis of health care waste management in private sector hospitals in Federal Capital Territory, Islamabad, Pakistan

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Objective: To find the deficiencies in the knowledge of optimal disposal of health care waste management in the vicinity of Islamabad and to work on the probable solution.

Methodology: A descriptive cross sectional survey with a sample of 32 hospitals, clinics and laboratories was done using a structured questionnaire. The area was divided into four Zones (I to IV). The sampling was done by using simple random technique. The duration of study was three months from November 1, 2014 to January 31, 2015. Data analysis was performed by using SPSS 21.

Results: 33.3% of the hospitals, clinics and laboratories in zone I were following the proper methods of disposal of clinical wastes. 22.90% of the institutes, though well aware about the risk associated with mal handling of hospital wastes,

were not exercising the correct protocol. Awareness about segregation and training of staff about Health Care Waste Management (HCWM) was 33.3% in zone I. In zone II, this percentage dropped down to 22.20%. In the Zone III and IV, this percentage dropped and 0 % of health personnel were aware of methods of disposal of clinical wastes in these zones.

Conclusion: Hospitals and clinics in Zones I to IV were mostly unaware of the proper segregation, collection, transportation and final disposal of risk waste being produced during the health care delivery. Also, the staff of these facilities was untrained and unfamiliar about HCWM. (Rawal Med J 201;40:437-440).

Key words: Hospital, segregation, collection, incineration.

INTRODUCTION

Health care activities are a means of protecting health, curing patients and saving lives, but they also generate waste, 20 percent of which causes risk; either of infection, trauma or chemical and radiation exposure. The institutions involved in generation of biomedical waste are public and private hospitals, nursing homes, dispensaries, clinics.¹ The health care staff and surrounding population are exposed to risks due to poor handling of waste.² About 75-90% of health care waste (HCW) is non-risk waste (paper, packaging, food waste etc), which is same as our domestic waste and it does not need to be disinfected. The remaining 10-25% (USA 15%, India 15 to 35%, and Pakistan 20%) of HCW is regarded as risk waste (infectious, pathological, sharps etc) and create a variety of health risk and this waste needs to be properly disinfected by specific methods before disposal.³⁻⁵ In USA, total Biomedical waste (BMW) generated is 3,361,100 tones/year (8 kg/bed/day).⁶ In Bangalore, India, 0.5-4 kg/bed/day in Government hospitals and 0.5-2.0 kg/bed/day in

private hospitals HCW is generated.⁶ In Pakistan, 250,000 tones/year HCW is generated; (0.5-2.0 kg/bed/day)⁷ and in Punjab it is 15 tones/day.⁸ Out of all the hazardous waste generated by hospitals all over the world, sharp objects have the highest rate of causing injuries to hospital staff and transmission of infections.⁹ About 12,000 million injections are used every year. Approximately 15% waste is anatomical with infectious and sharps constituting 1% of total health care waste globally. Out of all, the sharp related injuries constitute the highest threat for the hospital staff. According to a WHO assessment, there were about 22 countries in 2002, which had about 64% hospitals with no proper waste disposal methods. Studies from Pakistan show that around 1.35 Kg of waste is produced every day for each hospital bed occupied.¹¹ This non-segregated collection and disposal of infectious/risk waste poses a serious threat to the exposed persons including high incidence of HBV, HCV and HIV. Use of Radioactive elements leads to development of

different cancers.¹² As there are no recent studies available that would provide data specifically about the hospital waste management from the federal territory Islamabad, this descriptive study was conducted in order to determine the current position of this very vital health issue in hospitals, clinics, labs and diagnostic facilities.

METHODOLOGY

A descriptive cross sectional survey with a sample of 32 hospitals, clinics and laboratories was conducted in federal territory Islamabad, Pakistan. We interviewed a total of 150 staff members in 32 hospitals through a specially designed semi-structured questionnaire. We interviewed similar groups of staff in each of the 32 hospitals including the doctors, nurses, sanitary workers, ward boys, nurses aides, besides the administrative staff and Medical Superintendents of hospitals. The study included all the hospitals, clinics and laboratories of private setup situated in the urban and rural areas of Islamabad. All the public hospitals that are funded by the government were excluded from the study. The sample was selected by using probability

sampling. The total area for the purpose of convenience was divided in to four Zones (I to IV).

ZONE I: Comprising of 9 hospitals and clinics situated in urban area comprising of I-9, I-10, H-8, F-10 and G-10.

ZONE II: Comprising of 9 hospitals and clinics in the vicinity of Blue area, Islamabad.

ZONE III: Comprising of 9 hospitals and clinics situated in the periphery of Islamabad including Khana Dak, Tarlai Kalan, Ali pur Farash, Shahzad Town and Rawat.

ZONE IV: Comprising of 5 hospitals and clinics also situated in the periphery of Islamabad including Bhara Kahu.

The total time duration for the collection of data was 3 months from November 1, 2014 to January 31, 2015. Data were analyzed using SPSS 21.

RESULTS

It was found that majority of the staff was not following the methods of segregation according to the recommendations set by the WHO guidelines on HCWM, and Hospital Waste Management Rules 2005.

Table showing proper waste disposal and awareness in all zones.

Zones	No of Beds	Quantity of risk waste (kg)/day	Quantity of non Risk waste (Kg)/day	Method of disposal of Clinical Waste	Awareness about waste Management	Awareness about segregation	Training of staff about waste management
Zone I	749	230	1146	33.30%	22.90%	33.30%	22.20%
Zone II	52	114	550	22.20%	22.20%	22.20%	22.20%
Zone III	274	55	420	0%	0%	0%	0%
Zone IV	14	50	350	0%	0%	0%	0%

Zone I and III had most beds but zones I and II generated the most risk waste. Institutions in zones I and II proper method of disposal of waste and were also aware of segregation techniques. Institutions in zones III and IV lacked methods of waste management, had lack the awareness about waste management, awareness about segregation and there was no training of the staff about waste management (Table).

DISCUSSION

Under section 31 of the Pakistan Environment

Protection Act, 1997, the Federal Government made the rules called hospital waste management rules 2005, endorsed in Islamabad on the 3rd of August 2005. According to the rules, every hospital shall be responsible for the proper management of the waste generated by them till its final disposal in accordance with the provision of the Act. Hospital waste refers to all waste generated, discarded and not intended for further use in the hospital. This waste is classified into many different types; the important ones being general waste composed of domestic or house hold type waste. It is non-

hazardous to human beings, e.g. kitchen waste, packaging material, paper, wrappers, plastics. The pathological waste comprises of tissue, organ, body part, human fetuses, blood and body fluid. It is hazardous waste. The infectious waste including the surgical wastes and pharmaceutical waste including drugs, and chemicals that have been returned from wards, have been spilled, are outdated, or contaminated. The most hazardous of all the wastes being the used syringes, bandages, used blood bags, used cannulae and intravenous drip sets.

Our study showed that there was no proper disposal of hospital waste in majority of the hospitals. There was no training of the staff and no existence of methods and protocols of risk waste management. The administration of private labs, hospitals and clinics were least interested or were not familiar in directing staff to segregate the waste, and there was no proper supervision for waste management practices in all of these places with exception of few in zone I & II. These results are inconsistent with the studies from different areas of Pakistan that also suggest that most hospitals and independently working physicians do not comply with HCWM practices exposing themselves, other staff, and patients to sharp injuries and infection.^{12,13}

Observation of a few of these private facilities showed that they were frequently practicing open dumping of waste around their vicinities and plastic wastes were usually being sold. Contents aimed for various colored baskets were found to be mixed in one container. General waste collected from these facilities was dumped along with municipal solid waste for further disposal. Studies done in other areas of Pakistan also show that, in most of healthcare centers of Pakistan, hospital wastes are simply mixed with the municipal waste and disposed off similarly.¹⁴ This non-segregated collection and disposal of infectious/risk waste poses a serious threat to the exposed persons. Main groups at risk are medical doctors, nurses, health care auxiliaries, and hospital maintenance personnel, patients, visitors, workers etc.

Another important aspect regarding HCWM that was also found in the current study was that waste segregation issues were due to lack of training of medical and other staff including sweepers and ward

servants. Studies show that hospitals in developing countries including Asia suffer from a lack of proper management of waste. The clinical staff in developing countries lacks knowledge about the transmission of hospital acquired infections caused by poor handling of health care waste, poor attitude of staff towards hospital discipline, and improper training of staff on HCWM.^{15,17} A study from Nepal showed that it was due to the lack of waste management plan and carelessness of doctors, patients and visitors.¹⁸ Similar results were found in the current study, as only Zone I and Zone II were found to give training to their staff about HCWM to some extent but Zone III and Zone IV were found to be totally untrained regarding HCWM.

CONCLUSION

The health facilities in Zones I to IV of Islamabad were mostly unaware of the proper segregation, collection, transportation and final disposal of risk waste being produced during the health care delivery. Moreover, the staff working over these facilities was untrained about the Health Care Waste Management. Proper segregation should be performed at each hospital before incineration or treatment of waste. All medical graduates including paramedics and nurses should have extensive basic training on HCWM. Training sessions must be arranged for hospitals, clinics and laboratories in public and private sector in Islamabad. Periodic monitoring and assessment should be made by competent government authorities. A comprehensive survey is necessary for planning an effective waste management program for formulating a strategy.

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