

Evaluation of Hospital Waste Management in Public and Private Sector Hospitals of Faisalabad City, Pakistan

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Abstract

This study was conducted to evaluate the current situation, practices of segregation approaches, storage managements, collection and disposal system, awareness about hospital waste and impact on environment in Faisalabad city. This study was conducted in major hospitals of Faisalabad city which are generating massive waste. This investigation focused on different types of waste generated by hospitals in Faisalabad city. The universe of the present study was consisted on sanitary workers of the hospitals. A sample of 120 respondents selected randomly out of 350. Interview schedule was used to collect the data. Data exhibited that majority of the sanitary workers is untrained and they have no knowledge about environment protection act and hospital waste management rules. Medical Waste is not being segregated. It is suggested that sanitary worker should have trained, have better knowledge about hospital waste management. There should be enforcement of waste management laws and Environmental protection act.

Keywords: *Hospital Waste Management, Segregation, Storage, Environmental protection act and Pakistan environmental agency.*

1. Introduction

Hospital waste management means the management of waste produced by hospitals using techniques that will check the spread of diseases. In underdeveloped countries, knowledge regarding hospital waste management in term of its segregation, collection, storage, hauling and disposal is lacking.

Separation, collection, storage, carrying and disposal of hospital waste are important and ignoring issues in Pakistan. The research indicates that doctors and hospital management were totally irresponsible and unaware of basic methods of waste disposal (Ali H et al. 2012). Hospitals produce a tremendous amount of medical waste that is defined as any solid waste which is generated as a result of patient diagnosis, treatment, or immunization of humans or animals, in related research, and the waste capable of producing infectious disease (Sabiha et al., 2008). Management of medical wastes therefore work to eliminate the dangerous practice of incineration as well as to minimize the amount and toxicity of all waste streams generated by the hospitals. Despite the high level of waste generation from the hospital sources and the health implication, emphasis on waste generation and management have been on domestic sources (Ogbonna et al., 2007). Many hospitals simply dump all their wastes together from reception area trash to operating room waste without any form of segregation while in most cases, some hospitals use incinerators. However, in the recent times, these medical waste treatment technologies have not been cost-effective enough to render the wastes safer, cleaner and harmless in the environment (Jang et al., 2006). Health and environment are important issues throughout the world. The hospital waste management is one of the major environmental concerns in Pakistan, which may significantly increase the exposure of infectious Pollutants (Dodhy, 2006). In the leading national newspaper of the country, reports that even though there are Rules stipulating the method of safe disposal of Bio-medical Waste (BMW), hospital waste generated by

Government Hospitals is still largely being dumped in the open, waiting to be collected along with general waste (Lakshmi, 2003). Hospital wastes constitutes a problem because of the epidemiological and political considerations associated with increase in the incidences of viral blood infections such as the AIDS and Hepatitis B and C that was linked to discarded syringes (Coker and Sangodoyin 2000). The remaining 20% of wastes are considered hazardous and have been classified into nine categories: infectious waste, pathological waste, sharps, pharmaceutical waste, genotoxic waste, chemical waste, waste with high contents of heavy metals, pressurized containers and radioactive waste (WHO 1999, WHO 2000).

2. Materials and methods

This study was conducted to access the practices regarding hospital waste management and the awareness regarding hospital waste management among sanitary workers. The study was conducted in Faisalabad city. The universe of the present study was consisted on sanitary workers of eight major private and public sector hospitals in Faisalabad city. The hospitals were Allied hospital, DHQ hospital, National security hospital, Aziz Fatima hospital, Main trust hospital, Gulam-Abad hospital, Cardiology center, Faisal hospital. At the first stage four hospitals were selected randomly out of eight hospitals. At the second stage 120 respondents were selected conveniently out of 350 from available list of sanitary workers from four hospitals. Data were collected through face to face interview with the help of a well-designed interview schedule. Before actual data collection questionnaire was pre- tested to examine the work ability and sensitively of the questionnaire.

3. Results and Discussions

Table 1: Socio economic characteristic of the respondents

Sex	Frequency	Percentage
Male	79	65.8
Female	41	34.2
Age of the respondents (in years)		
Up to 30	49	40.8
31-45	42	35.0
46 and above	29	24.2
Religion		
Muslim	53	44.2
Christian	67	55.8

In this research all the respondents were sanitary workers and they specifically associated with hospital waste management. Data indicates that majority of the respondent were male 65.8% and 34.2% were female. Data exhibited that 40.8% of the respondents were up to 30 year of age group represent the younger age group. Data shows that 55.8% of the respondents were Christians while only 44.2% of the respondents were Muslims. These statics shows that majority of the sanitary workers belong to the minority group as Christian.

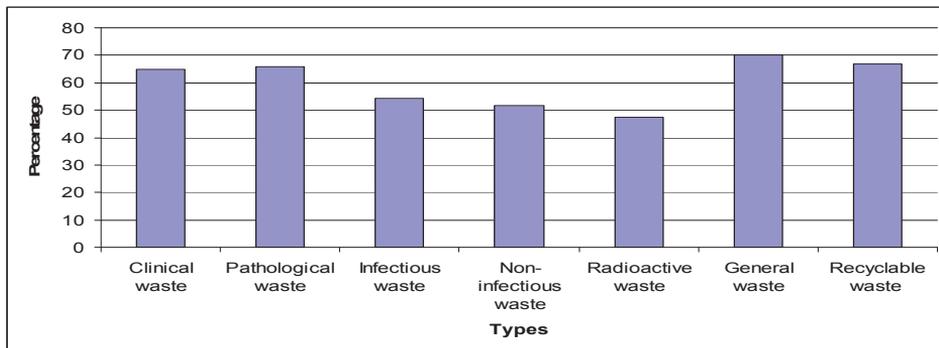
Table 2: Distribution of the respondents regarding to their knowledge about hospital waste management

No	Attitudinal statements	Yes		No	
		f	%	f	%
1	Getting training about hospital waste management	12	10.0	108	90.0
2	Vaccinated against communicable diseases	27	22.5	93	77.5
3	Knowledge about reuse of recyclable waste	34	28.5	86	71.5
4	Awareness about PEPA of hospital waste	48	40.0	72	60.0
5	Reception of notice from EPA about disposal of hospital waste	24	20.0	96	80.0

Above data shows that a huge majority 90.0% of the respondent was not trained about human waste management. It shows that it is a very critical condition regarding the human health. Collection, segregation and transportation are

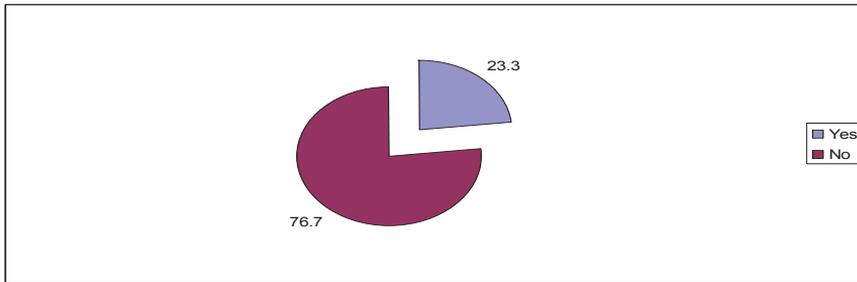
important steps in waste disposal but all these steps were taken by untrained sanitary workers. The researchers found that sanitary workers had no enough knowledge about these serious matters. Moreover, sanitary workers fused different infectious and non-infectious wastage together which may become more harmful for human health. Sanitary workers have not proper knowledge and method of proper disposal of waste. This led to improper disposal of waste which was dangerous for human health. Vaccination of sanitary workers gives them protection from different diseases which are caused by infectious waste. This study reveals that 77.5% of the respondents were not vaccinated. It is a threat for the life of sanitary workers. Recycle of different types of wastage has great impact on human health. In present study, it was found that 71.5% of the respondents had not knowledge about reuse of wastage. In Pakistan, environmental protection agency (EPA) made its own rules for proper disposal of hospital waste. EPA sent their rules and noticed to every hospital about their rules and regulations. But the above data exhibited that 60% of the respondents had not knowledge about environmental protection act. It shows that such type of situation could be harmful for the atmosphere. EPA plays a vital role in this regard in the developed societies. In developed countries EPA send notices for proper disposal and segregation. But the data shows that 80% of the respondents were in the opinion that they did not ever receive any notice from Pakistan environmental agency. It means that EPA was not interested in this matter. Due to EPA negligence, atmosphere is being polluted day by day.

Figure 1: Types of hospital waste produced by hospitals in Faisalabad city.



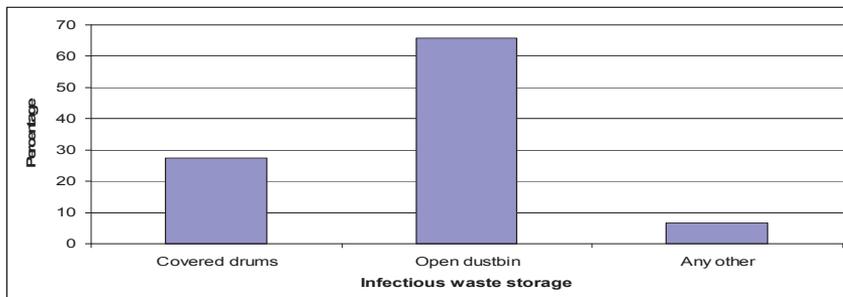
The above figure shows that all hospitals are producing both infectious and non-infectious waste. So, proper waste disposal is required in all hospitals. The generator of hospital waste is responsible for ensuring proper disposal. Hospitals are socially obliged to maintain a clean environment and dispose medical waste in order to prevent pollution and infection within and near hospital. WHO (2008), Infectious health-care waste is a major cause of HIV/AIDS, hepatitis B or C viral infections. These viruses are generally transmitted through injuries from needles and sharp objectives, which are contaminated with human blood. There are many other diseases which caused as similar way i.e. urinary infections, bacteremia, and skin infection etc. In Faisalabad city, all the hospitals were producing both infectious and non-infection waste as shown in figure 1. The data exhibited that practices regarding hospital waste disposal are not satisfied. Waste management is not following the rules regarding hospital waste management. All the hospitals received guideline by environmental protection agency but management is not interested in the implementation of rules. The guideline gives detail information covering all aspects of safe disposal of hospital waste.

Figure 2: Segregation of hospital waste in Faisalabad city



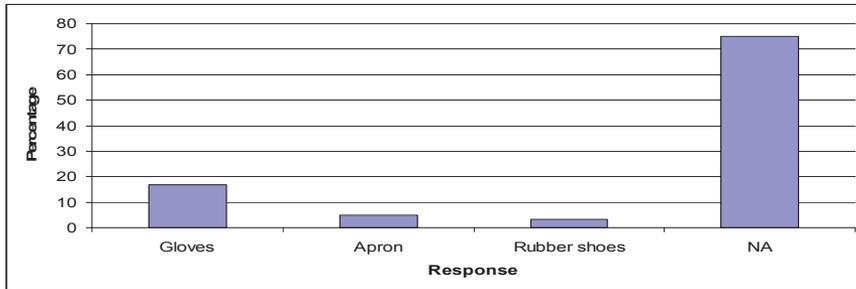
Segregation is an important step in hospital waste but unfortunately in Faisalabad, waste was not being segregated. As a result, infectious and non-infectious waste mixed together, this becomes more harmful for human being and atmosphere. Also, this study exposed that segregation at hospital was not found as it required. 76.7% of the respondent replied against segregation as shown in figure 3, which is alarming threat for inhabitant of Faisalabad city. Moreover, transportation of waste was also a major problem and unsafe in the study area. Waste was transported through municipal transport in open dustbins. So, steps were not approved by environmental protection agency. Transportation within hospital was also unsafe. Sanitary workers transport the waste without any protective measures. Waste also transported within hospital in open dustbins which is harmful for patients and paramedical staff.

Figure 3: The storage of the hospital infectious waste inside the hospitals



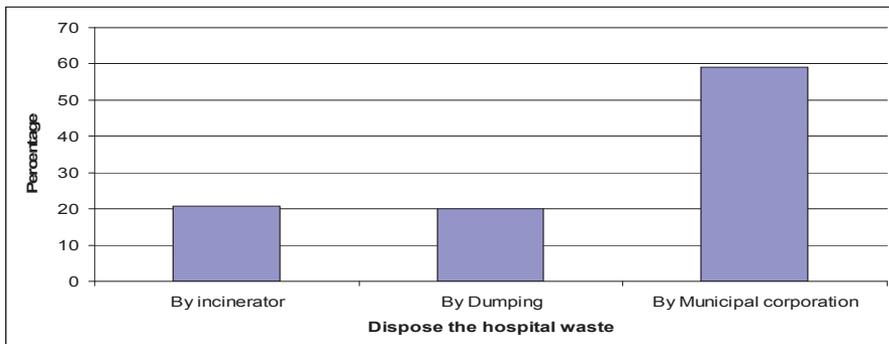
Storage of hospital waste inside the hospital is a sensitive issue for the lives of the people. Above figure shows that 65% of the sanitary workers stored waste in open dustbins instead of covered drums. It is a serious threat for human being and atmosphere. Due to improper storage of hospital waste, there is a great fear of spreading the different types of diseases. Storage of waste is an important part of waste disposal. One of the scholars Ali (2012) also consonance with present study, he found that Separation, collection, storage, carrying and disposal of hospital waste are important and ignoring issues in Pakistan. The research indicates that doctors and hospital management were totally irresponsible and unaware of basic methods of waste disposal. They were totally ignoring the WHO rules for hospital waste management.

Figure 4: Usage of protective measures during handling the hospital waste



Data exhibited the 75% of the respondent had never use any protective measures and remain insecure as shown in figure 4. Above results were not according to the hospital waste management rules and environmental protection act (EPA). Transportation of waste within hospital was also unsafe. Hospital waste was being transported within hospital in open dustbins instead of covered drums which was harmful for patients and paramedical staff. Meanwhile, the sanitary workers and other staff members had not habitual to use any protective measures. Hospital waste management was not providing such kinds of protective measures like gloves, rubber shoes etc. These kinds of unproductive measures could be harmful for the life sanitary workers. Jung *et al.* (2006), stated that many hospital only abandon all their waste together from reception are junk to operating room waste without any type of segregation while in most cases, some hospital use incinerators. In modern age, these types of medical waste treatment technologies have not been cost effective enough to render the wastes safer, cleaner and risk-free in environment.

Figure 5: Final disposal of hospital waste



Data reveals that 59% of the respondent disposed their hospital waste by municipal cooperation. Data exhibited that modern technology in disposal of hospital waste was not being used in hospitals. Only 20% of the respondents use incinerator for the disposal of hospital waste as shown in figure 5. In Faisalabad city, only 2 incinerators were working which are not fulfilling the needs of city. Abu Qdais (2006) said that in third world countries the municipalities had lack of resources and they needed skills and financial helps to cope with this crisis. Several countries have realized that the way they manage their hospital waste do not satisfy the objectives of sustainable development. Dumping is being used for disposal of hospital waste in Faisalabad city which is harmful for underground water. In Pakistan dumping is very common due to lack of resources. But in developed counties, they use modern technologies like incineration to dispose in this way they reduce it effect on atmosphere and they follow the guideline of environmental protection agencies. Also, they have modern equipments and technologies and most important their awareness regarding hospital waste management helps them to control its effect on human being and atmosphere.

4. Conclusion

It is concluded that there is not enough information on medical waste management technologies and its impact on public and environment. The process of proper disposal of medical waste is also inadequate. However, there is need for raising awareness about hospital waste and its related issues. Arrangement of proper training programs of hospital staff especially sanitary workers and health professionals. There is need for hospital waste management planning to facilitate the implementation of necessary measures to improve the present health care waste management situation.

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