

Medical Waste in Pakistan and Environment Law

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Abstract

Received: Nov, 28 2016
Revised: Apr, 18, 2017
Accepted: May, 9, 2017
Online:

Medical Waste produced by health care activities including a wide range of materials, from used syringes and needles to soiled dressings, diagnostic samples, body parts, pharmaceuticals, chemicals, blood, medical devices and radioactive materials. In most developing countries, proper waste management system does not exist. In Pakistan, Government hospitals, no special techniques for waste handling, and due to lack of awareness, hospital staff normally treats all solid wastes carelessly. The present study is to determine the frequency of attitudes and practices of hospital waste management and environmental laws. The study was conducted in the Multan from August, 2016 to September, 2016. The sample was consisted of 100 hospital staff including doctors, nurses, laboratory technicians and class IV employees through convenience sampling. They were interviewed and results were analyzed from the entries in a semi structured Performa. The study concluded that that in spite of all these laws and rules, the implementations, regulation and compliance still low have serious concerns for the environmental and public health due to unawareness, lack of strict hospital management and regular monitoring. There is gap between theory, rules, laws and its practices.

Keywords: Medical Waste, Environmental Law

Introduction

World Health Organization (WHO) defines the health care waste as “*Safe management of wastes from health-care activities*”. World Health Organization also developed a series of training on good practices in health care waste management. WHO classified hospital waste in which Infectious waste: waste contaminated with blood and other bodily fluids, pathological waste: human tissues, organs or fluids, body parts, sharps: syringes, needles, blades, chemicals: for example solvents used for laboratory preparations, pharmaceuticals: expired, unused and contaminated drugs and vaccines; genotoxic waste: highly hazardous, drugs used in cancer treatment and their metabolites, radioactive waste: such as products contaminated by radio nuclides and non-hazardous or general waste: waste that does not pose any particular biological, chemical, radioactive or physical hazard (WHO, 2015).

Hospital waste is major issue for public health and environment especially due to weak and in

appropriate management can create a serious problems. Per day 1.5-2 kg waste of the hospital wards because 75% beds occupied in a normal day by patients In Pakistan waste management practices of hospitals are not enough adequate and poor managed by staff and administration. Hospital waste is often disposed of along with other municipal waste components by the municipal and local government authorities without giving proper attention (Ali *et al.*, 2015). The Pakistan Environmental Protection Ordinance (PEPO) 1983 was the first piece of legislation that focused exclusively on the environment. Every hospital must comply with the Waste Management Rules 2005 (Environment Protection Act 1997), of the Government of Pakistan. According to it, level of service and waste management system must be according to international standards (Arshad *et al.*, 2011). In Pakistan most of the government and private hospitals do not often give proper attention to the waste produced on site in terms of storage, segregation, collection, transportation, treatment and disposal. Hospital staffs are also not properly trained in the handling of hospital wastes. General and infectious wastes are often mixed in the same

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container in hospital and result in a greater threat to the environment (Ahmed, 1997)

According to a Batter man, 2004, argued that careless disposal of sharps that are reused may lead the induction of hepatitis B, hepatitis C, HIV and other possible infectious diseases to the exposed population.

Kumar *et al.*, 2010) reported that In Pakistan, approximately 250, 000 tons of hospital waste is generated annually. A study done by Ahmed (2008) indicated that in Karachi alone, 100 tons of hospital waste is generated per day of which approximately 61% infectious waste and 39% general waste is produced in civil hospitals. Pakistan Environmental Protection Act (PEPA) 1997 replaced The Pakistan Environmental Protection Ordinance (PEPO) 1983. That is the most effective environmental legislation to date and basic milestone in the environmental regulatory framework of Pakistan. PEPA 1997, amended in 2012, provides a complete and comprehensive law for hospital waste handling. This Act also provides for the establishment of Pakistan Environmental Protection Agency (Pak-EPA). This agency has important role in Pakistan for the implementation, enforcement of laws and regulations on environmental issues. Environmental Protection Agencies (EPA's) on provisional level also established and effective implementation and regulation of environmental issues throughout the country (Irfan *et al.*, 2013). Hospital Waste Management Rules 2005 regarding to hospital provides for detail legislation regarding the management and disposal of hospital waste. According the Rules 2005, hospitals includes a clinic, laboratory, dispensary, pharmacy, nursing home, health unit, blood bank, autopsy centre, research institute and veterinary institutions, including any other facility involved in health care activities. The purpose of

these rules is to organize a waste management team, to prepare and enforce a waste management plan. These rules also explain the guidelines for hospital waste collection, segregation, storage, transportation, disposal methods, waste minimization techniques, color coding and protective clothing etc. (Rules, 2005).

Methodology

Present study was conducted on the different wards of 03 Government hospitals of Multan. The study population was nursing staff, laboratory technicians, and class IV employees (Sweeper and cleaner personnel) and data collected through convenience sampling, from August, 2016 to September, 2016. Written informed consent was taken into the matter. Confidentiality was also ensured. All the information regarding attitude and practices about hospital waste & environmental law and segregation of Hospital waste were collected on the prescribed proforma.

Results

The data was analyzed using Statistical Package for Social Sciences (SPSS) version 20.0. The results were depicted in the form of tables.

Attitudes and practices about hospital waste and environmental law are shown in Table 1.

Table 1: Attitudes and Practices about hospital waste and environmental law

Health Care Personnel	Percentage of Practices
Doctors	30%
Nurses	40%
Lab Technicians	20%
Class IV Employees	10%

Majority of the subjects were nursing staff, 40% that practicing some rules about hospital waste. The segregation of hospital waste for the color coding of hospital waste are shown in Table 2.

Table 2: Segregation of Hospital Waste

Coding	Waste Category
Red	Sharp waste: Syringes, Needles, Blades, Scissors, Scalpels, Knives, Broken glass and any other items that can cut and puncture etc
Yellow	Blood Stained waste like Blood bags, Bandage, Drips, tissues, organs and infected swabs, soiled dressings and gloves etc
Green	General Waste: Food waste , i. e., leftover food, fruit and vegetable peelings, Office waste, Paper, Cardboard and packaging etc

Discussion

Waste management regulations, monitoring and the maintaining of proper records is on the responsibility of hospital administration. Waste generated by patients and their visitors in the hospitals are kept in small baskets and pots placed under each bed. The waste is later on collected by floor sweepers and ward cleaners at the end of each shift and stored in a drum provided in each ward. Other waste also generated from nursing station, operation theatres, laboratory etc.

In this research, data collected from government hospitals of Multan. This is in accordance with other researches that done on Government Hospital, Amin *et al.*, 2013, Irfan *et al.*, 2013, Rasheed *et al.*, 2005, Ahmed, 2001, and Ali *et al.*, 2015.

In this study, segregation of hospital waste according to Hospital Waste Management by color coding, in which Red dustbin for Sharp waste: Syringes, Needles, Blades, Scissors, Scalpels, Knives, Broken glass and any other items that can cut and puncture etc, Yellow dustbin for Blood Stained waste like Blood bags, Bandage, Drips, tissues, organs and infected swabs, soiled dressings and gloves etc and Green dustbin for General Waste: Food waste, i. e., leftover food, fruit and vegetable peelings, Office waste, Paper, Cardboard and packaging etc but in many wards color coding is absent. Although some nursing staff follows color of plastic dustbin

according to waste but many of them does not follow rules due to poor monitoring and lack of knowledge. One study by Ali *et al.*, 2015 results showed that the waste is being segregated but the color coding for waste bags are not followed as suggested by Hospital Waste Management Rules 2005. Separation of waste is the most important and fundamental step in the effective hospital waste management rules in 2005.

In present study, all type of wastes, including infectious, general, food and hazardous chemical materials although separated plastic dustbin through color coding in wards and kept temporary storage area for 3-4 days but at end all mixed together and are collected, transported and finally disposed of collectively. Present research also shows, that class IV and ward cleaners are not using gloves during collection of waste. Laboratory technicians also very rear to use gloves during blood taking procedure. One study by Ali *et al.*, 2015 also showed that the practice is of the use of red and blue tapes on the local polythene bags which are liable to tear damage easily was increased the safety procedure. The collection and transportation from wards to dumping site are not being carried out as per international standards that study hospitals. The staff does not follow proper protection during collection, segregation and transportation in that hospitals. Temporary storage place also exists in hospital for 3 to 4 days. One more study by Rasheed *et al.*, 2005 showed only two (25%) hospitals had well documented guidelines for waste management and a proper waste management team.

Present study also indicated that doctors, nurses, laboratory technicians and class IV employees have not knowledge about Environmental Laws, Pakistan Environmental Protection Act (PEPA) and Hospital Waste Management Rules. There is

lack of awareness of the management regarding detailed laws and regulations governing health care waste management. This encourages reuse and unhygienic recycling of waste material (Rasheed *et al.*, 2005). One more study by Amin *et al.*, 2013 results indicated that 80% of the health personnel were aware of the hospital waste and its management and 66.67% of these considered the segregation and safe disposal of waste a proper issue.

Conclusion

It is concluded that in spite of all these laws and rules, the implementations, regulation and compliance still low have serious concerns for the environmental and public health due to unawareness, lack of strict hospital management and regular monitoring. There is gap between theory, rules, laws and its practices.

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