Physical and quantitative study of hospital solid waste and suggested management strategy at Bhopal city

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ABSTRACT

Entire world is facing the problem of imbalance of nature associated with existing chronic problems of natural calamities. Besides major contributor of pollution there is major. The root cause of natural imbalance is pollution Hospital Solid Waste include- Anatomical waste, pathology and laboratory waste, office waste plastics and sharp. In present paper an attempt has to maid to characterize and quantify hospital solid waste generated from different wards and clinical areas of hospital.

Key words: Hospital solid waste, Management strategy, Bhopal city.

INTRODUCTION

A huge quantity of hospital waste is produced from health care institutions across the country, which poses health hazards Hamidia hospital of Bhopal city was selected to study the quantity of waste generated from different wards of hospital. The adopted waste management strategy in hospital, also studied during study period. The quantitative study of solid hospital waste helps in affective management of hospital waste as quantitative study helps to know the exact of waste generated from different wards of hospital which is turns will help in better handling and management of hospital waste.

Quantitative study of hospital waste also helps to decide the installation of treatment and disposal devices according to need, in this way quantitative study helps to eliminate installation of high capacity treatment and disposal devices like chemical treatment plant, incinerator etc. quantification of hospital waste helps in working out the shared cost of any combined treatment facilities if promoted by private of state agency.

The present study deals with the category wise quantification of hospital waste for the better management.

MATERIAL AND METHODS

The amount of hospital waste generated form different wards varies and have different combinations even if the total numbers of beds are same. Objective of present study was to quantity the hospital waste generated from different wards in hospital. For the study Hamidia hospital was selected which is the largest government hospital of Bhopal city with 885 beds. The study was conducted for one week.

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Source Department	Quantity of wa Range waste generated	iste (kg/Day) Average waste generated	Quantity of waste Percentage of total average waste generated	kg/Day/Bed/Occ Range waste generated waste genera	upied) Average waste generated :ed	Percentage of total average	Type of waste
Out patient departments	1.55-8.20	2.62	3.43	0.45-1.10	0.35	2.54	1&NI
Emergency ward	4.01-17.52	6.20	8.11	0.52-4.24	1.28	9.28	_
Gynecology department	*	*	*	*	*	*	
Anessthesia department	1.02-7.20	4.01	5.24	0.08-1.01	0.72	5.22	_
Denestry department	0.40-1.30	0.90	1.17	0.02-0.15	0.08	0.58	1&NI
X-ray/Imaging/Community	1.04-3.15	2.42	3.16	0.00-0.05	0.01	0.07	Radio-
medicine departement							active
Pediatric	1.20-3.10	2.30	3.01	0.80-1.02	0.95	6.88	1&NI
Operation therate	1.10-10.24	8.20	10.72	0.05-4.02	2.48	17.97	_
Genral wards	3.00-17.00	13.25	17.33	2.20-3.10	1.52	11.01	Z
Patholoy laboratories	1.75-532	3.24	4.24	×	×	×	_
sample collection room	1.05-3,50	1.72	2.25	×	×	×	_
Oncoloy department	1.21-3.28	2.12	2.77	0.00-0.15	0.11	0.80	I&Radio
							active
Blood bank	0.60-1.52	0.95	1.24	0-04-0.10	0.05	0.36	I&NI
Mortuary	0.0-9.20	6.12	8.00	×	×	×	_
Labour room	*	*	*	*	*	*	
Kitchen and canteen	14.01-36.28	22.42	29.32	4.25-7.30	6.25	45.28	G.W
Total		76.47	100		13.8	100	
X-Beds not exist NI-Non in	offection waste	*-Denartment not	exist I-Infectious	waste G	W-General waste		

Table 1: Physcio-chemical study and assessment of quantitative generation of hospital waste at samplings station no. MR-2 i.e., Govt. Hamidia hospital. Bhopal

226

Jain et al., Curr. World Environ., Vol. 2(2), 225-228 (2007)

During the study hospital solid waste was collected separately form each department mentioned in observations table. Waste was collected category wised coloured bags (prescribed by Bio medical waste handling and management rule 1998) were given to safai Karamcharies for collection of waste and display sheets also given which contain names of the content and pictures and figures as most of the karamcharies are illiterate collected waste again segregated and weighed. After weighing bags contain with waste returned to safai karamcharies for disposal.

RESULTS AND DICUSSION

Results are represented in table 1. which is shows ward wise quantity of generated hospital waste and its percentage also.



Suggested Eco-Friendly plan for disposal of hospital waste

Identification segregation of waste

Waste materials that always be considered as infectious and hazards, must be identified and segregate from the waste which is non infectious and non hazards.

Collection

Yellow bag is used to collect incineration waste (Human Anatomical waste). Red bag is used for highly infectious waste which is non incineration (contaminated solid waste) black bag is used for cytotoxic waste drugs, chemical waste, incineration ash and blue puncture proof bag is used to collect sharps.

Packaging and labeling

After collection of waste bags must be closed tightly and labeled indicating the contents, shift, time of collection, name of person etc. bags must be labeled with symbol of biohazard or cytotoxic

Treatment and disposal

Infectious waste must be treated chemically or thermally prior to dispose it. Waste of yellow bag must be incinerated at high temperature this waste must not be disinfected by chemicals waste of red bag be treated chemically and than finally disposal by deep buried method waste of blue bag (sharps) must be mutilate and disinfect first, then deep buried.

Recycling

Office and house hold goods can be recycled. This category of waste includes paper, aluminum foils, cans, newspaper, cardboards etc. X-ray films can be recycled for silver content. Mercury can be recovered from a variety of Equipments, brass can be recovered from anesthetic and other respiration fitting and plastics and glass can also recycled if segregate properly Degradable waste from kitchen can be converted into compost.

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