

Knowledge, Attitude and Practice of Biomedical Waste Management among Non Teaching Staff of a Medical College and Hospital in Pune

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Abstract

Background:

A small percentage (15%) of waste produced by health care facilities is hazardous waste. Improper disposal of this can lead to complications and is of significant concern. The bio medical waste in hospitals is mainly handled by class IV (ward boys, female attendants, sweepers) and class III (nurses, laboratory technicians, social workers).

Objectives:-

- 1.To assess the knowledge, attitude and practice of class IV and class III staff regarding bio medical waste management.
- 2.To train the class IV and class III staff about bio medical waste management.
- 3.To evaluate the impact of training.
- 4.To provide recommendations for proper Biomedical waste management.

Materials and Methods

An interventional study was done in the month of November 2013 in MIMER Medical College and BSTR hospital in a semi urban area in Pune, Maharashtra. It was compulsory for class IV and class III staff to attend the workshop. Questionnaire was divided into four subparts pertaining to segregation, handling, colour coding and disposal of bio medical waste.

Results:-Our study showed that knowledge about segregation and disposal of bio medical waste improved after the training. As regards of handling, the staff had good prior knowledge. Regarding methods of disposal of waste the knowledge improved minimally after the workshop.

However the Knowledge about proper usage of colour coded containers improved dramatically after the training (class IV-72% and class III-77%).This is a significant improvement since colour coding is the most important step for proper disposal of bio medical waste.

Conclusion:

The class IV and class III employees had a basic knowledge of segregation and disposal of waste which increased after the workshop. Regarding handling of waste they had an initial good knowledge. Dramatic increase in the knowledge after the

workshop was observed about throwing waste in respective colour coded containers. Hence regular training sessions are needed from time to time.

KEYWORDS: Bio Medical waste , Disposal , Segregation

Introduction:

Biomedical waste has become a significant concern for both medical and general community. The waste produced in the course of health care activities carries a higher potential for infection and injury than any other type of waste.(1) It is estimated that the quantity of waste generated at hospitals in our country ranges between 0.5 to 2kg/bed/day. Hospitals that are committed to patient care and community health have paradoxically defied their own objectives. On one hand they cure patients and on the other they have emerged as a source of several diseases because not enough attention is being paid to the disposal of waste.(2)

For prevention of improper practices, " The Government of India" launched a law known as "Biomedical waste management and handling law 1998(3)". This is amended from time to time to provide a regulatory framework for management of biomedical waste generated in the country. The latest amendment is via a notification on 24th August 2011. This includes some changes to make it more environment friendly i.e. use of non-chlorinated plastic bags for waste types needing incineration. There has also been a change in colour coding for disposal of biomedical waste(4).

The biomedical waste in hospitals is mainly handled by class IV and class III employees. Class III includes nurses, laboratory technicians, social workers and others. Class IV includes wardboys, female attendants, sweepers and others. Proper handling of waste needs good knowledge and practice of biomedical waste disposal in these workers.

Even after implementation of biomedical waste management rules, improper handling has been occurring. This can be attributed to lack of knowledge, amongst the health care workers. Majority of problems can be avoided if biomedical waste is properly managed where it is produced.

Aims and Objectives:

1. To assess the knowledge, attitude and practice of class IV and class III staff regarding Biomedical waste management.
2. To train the staff (class IV and III) about disposal of waste.
3. To evaluate the impact of training.
4. To provide recommendations for proper Biomedical waste management.

Materials and Methods:

Study-design: Cross-sectional

Study period: Nov-2013

Study place and Study area: MIMER Medical College and BSTR Hospital, semi urban area in Pune, Maharashtra.

Study population: All class IV and class III staff i.e. non teaching staff of the college and BSTR Hospital.

It was compulsory for all the hospital and medical college staff. So no inclusion and exclusion criteria applied.

Questionnaire was divided into 4 subparts pertaining to segregation, handling, colour coding and disposal of biomedical waste.

Results:

A total of 156 employees, 65 employees from class IV and 91 from class III participated in the study. Knowledge about biomedical waste was summarized separately for both the groups. Scoring of 5 out of 5 was considered to be having good knowledge and 3 out of 5 was considered to be average, below 3 was considered to be having poor knowledge.

Data was summarized using simple statistical tools like percentages. 65 of class IV employees and 91 of class III employees participated in study.

Table 1- Knowledge about segregation of Biomedical waste:

Scoring:	Class IV:				Class III:			
Q1 score	5	4-3	<3	TOTAL	5	4-3	<3	TOTAL
before	5	38	22	65	11	62	18	91
after	27	33	5	65	34	57	0	91

5 out of 65 (7.69%) class IV employees and 11 out of 91 (12.08%) class III employees had good initial knowledge about segregation of biomedical waste. Improvement about this knowledge increased after the workshop. None of the class III participants scored less than 3 after the workshop. And 17 of class IV who had poor knowledge scored better.

Table II: Knowledge about handling Biomedical waste:

	Class IV:				Class III:			
Q2 score	5	4-3	<3	TOTAL	5	4-3	<3	TOTAL
before	51	13	1	65	63	28	0	91
after	53	10	2	65	73	18	0	91

More than 51/65 (78.46%) of class IV and 63/91(69.23%) of class III employees had good knowledge about handling biomedical waste. However improvement was not seen after the workshop.

Table III: Knowledge about colour coding of the container for disposing biomedical waste.

Class IV:

Class III:

Q3 score	5	4-3	<3	TOTAL	5	4-3	<3	TOTAL
Before	24	16	25	65	36	29	26	91
After	36	22	7	65	61	24	6	91

Improvement was seen in this regard after the workshop 18/25 (72%) of class IV employees and 20/26 (77%) of class III employees who had poor scores scored better after the workshop.

Table IV: Knowledge about disposal of biomedical waste

Class IV

Class III

Q4 score	5	4-3	<3	TOTAL	5	4-3	<3	TOTAL
Before	9	10	46	65	34	6	51	91
after	17	17	31	65	56	12	23	91

Knowledge about disposal of hospital waste in employees of class IV was poor in 46/65(70.76%) and in employees of class III was poor in 51/91(56.04%) employees. Though more than 50% of class III employees showed improvement in knowledge, only 23/65(35.38%) of class IV improved their knowledge regarding the same.

Discussion:

The last decade witnessed a significant increase of public concern regarding medical waste disposal. The Government of India reacted towards the global concern and notified the Biomedical Waste Management Rules 1998 (Ministry of Environment and Forests notification, New Delhi 28th July 1998). This is amended from time to time. The latest amendment is via a notification on 24th August 2011. The objectives and rationale of biomedical waste management are mainly segregation at the point of generation, efficient collection, handling and disposal in a way that it controls infection and provides safety to employees working in the system.(5)

To evaluate this knowledge and practice, in the present study, pre test of all the 156 employees were taken before the workshop and post test was taken after the hands on training.

The class IV and class III employees had a basic knowledge of segregation of waste (class IV- 7.69% and class III- 12.08%) which increased considerably after the workshop. Regarding handling of biomedical waste, the class IV (78.46%) and class III (69.23%) had already a good knowledge and no further improvement was seen after the workshop. Putting the biomedical waste in their respective colour coded container is the main idea of training the staff every 6 monthly. Improvement was seen in this regard after the workshop (class IV -72% and class III-77%)

Proper disposal of biomedical waste after collection is the ultimate goal of B.M.W management. In spite of repeated training, only 50% of class III employees and 35.4% of class IV employees had improvement in their knowledge after the workshop.

A study by S.Saini, S.S Nagrajan and R.K Sharma on knowledge, attitude and practices of Bio medical waste management amongst staff of a tertiary level hospital

in India, found that there were some gaps in knowledge of health care workers and current practices were inadequate.(6)

Our study found gross improvement in knowledge because of the six monthly workshop that we conduct in our hospital.

Conclusion:

In spite of regular training sessions, knowledge gap remains. So the need for constant action and continuous focus on Bio-medical waste management is a necessity.

It is essential to organize intensive training workshop periodically to keep the knowledge about Bio-medical waste management updated.

References:

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