

STUDY TO ASSESS THE ATTITUDE AND PRACTICES OF BIO-MEDICAL WASTE MANAGEMENT AMONG INTERNS IN A TERTIARY CARE TEACHING INSTITUTE IN SOUTHERN INDIA

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Abstract:

Introduction

Effective management of biomedical waste is not only a legal necessity but also a social responsibility. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. However, lack of awareness has led to the hospitals becoming a hub of spreading disease rather than working toward eradicating them.

Aim & Objectives

The purpose of Bio Medical Waste is to reduce waste generation, to ensure its efficient collection, handling, as well as safe disposal in such a way that it controls infection and improves safety for healthcare professionals. The present study is to ascertain the levels of and the expanse of gaps in knowledge, attitudes and practices among the interns at Maheshwara Medical College, a tertiary care teaching institute.

Methodology

A cross sectional study was conducted among health care workers for period of two months; August & September 2021. A self-administered, piloted and validated questionnaire was administered to the interns working at Maheshwara Medical College.

Results

96 percentage of the respondents used color coding to identify and classify waste, and 98% have knowledge about diseases transmitted due to healthcare waste. which indicates a high level of understanding of BWM among the interns. Awareness of the legislation, Regulatory authority, Bar Coding on the BMW Bags was less than 55% among the interns.

Conclusion

Constant motivation, induction and training coupled with reinforcement is vital for implementation of BMW practices. Interns needs to be actively involved in the day-to-day disposal of the waste and educate of other staff working in the respective departments in the hospital.

Keywords:

Biomedical Waste, Induction Training, Infection Control, Segregation, Interns

INTRODUCTION

Health care waste is a unique category of waste by the quality of its composition, source of generation, its hazardous nature and the need for appropriate protection during handling, treatment and disposal. Mismanagement of the waste affects not only the generators, operators but also the common people too.¹

Internship is a phase of training wherein a candidate is expected to conduct actual practice of medical and healthcare and acquires skills under the supervision so that he/she may become capable of functioning independently.²

It is critical that the medical interns have adequate Knowledge, Attitudes and Practices (KAP) with respect to biomedical waste management. Effective management of biomedical waste is not only a legal necessity but also a social responsibility. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. However, lack of awareness has led to the hospitals becoming a hub of spreading disease rather than working toward eradicating them.

The purpose of Bio Medical Waste is to reduce waste generation, to ensure its efficient collection, handling, as well as safe disposal in such a way that it controls infection and improves safety for healthcare professionals. Adequate knowledge amongst the health care employees about the biomedical waste management rules and regulations, and their understanding of segregation, will help in the competent disposal of the waste.³

Acceptable management of biomedical waste management begins from the initial stage of generation of waste, segregation at the source, storage at the site, disinfection, and transfer to the terminal disposal site plays a critical role in the disposal of waste. Hence adequate knowledge, attitudes and practices of the staff of the health care institutes play a very important role.^{4,5}

The teaching institutes play a critical role in the health care setup as it is from these places that the future health care professionals.^{6,7}

The present study is to ascertain the levels of and the expanse of gaps in knowledge, attitudes and practices among the interns at Maheshwara Medical College, a tertiary care teaching institute. A cross sectional study was carried out using questionnaire as the study tool among the interns in a tertiary care teaching hospital.

METHODS & METHODOLOGY

A descriptive observational cross sectional study was conducted among health care workers for period of two months; August & September 2021. After briefing the study objectives and obtaining written informed consent from the participants of the present study: interns, we conducted the data collection process using a self-administered, standard, validated questionnaire at Maheshwara Medical College.

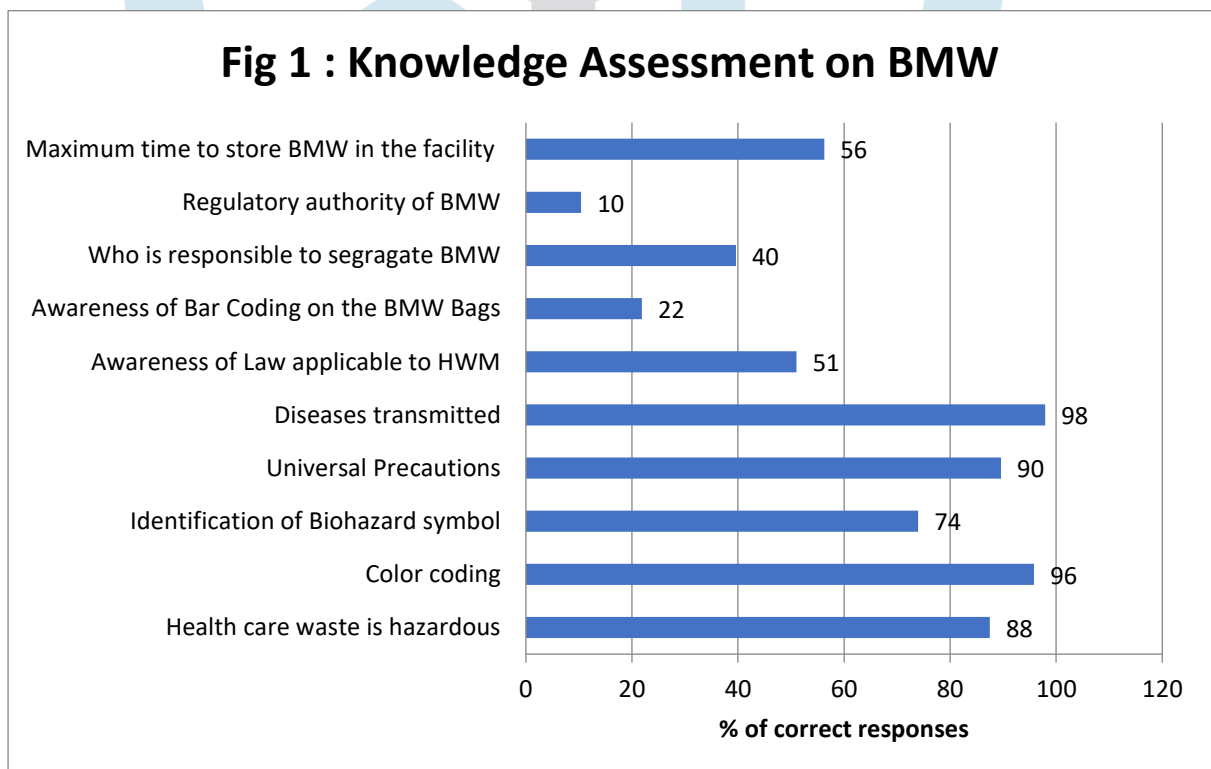
The study tool consisted of 24 questions assessing the knowledge, attitude and the practices of biomedical waste management among the interns. A questionnaire was distributed among the 136 interns out of which 124 members responded. A total of 96 participants response was considered after excluding the incomplete responses. The data was then tabulated and interpretation was done by using percentages Using MS excel.

RESULTS

Ninety six interns submitted the completed questionnaire. In the present study 88% believe that Health care waste is hazardous. 96% of the respondents have correctly identified the colour coding of the biomedical waste correctly and 74% identified the biohazard symbol correctly. 90% of the internees correctly identified the universal precautions. 98% of the participants have knowledge regarding the diseases transmitted due to Hospital waste.

Only 51% of the study participants are aware of the Laws applicable to Health Care Waste. 22% of the internees are of the knowledge that Bar Coding on BMW bags is mandatory. 40% of the participants having identified correctly the responsible personnel for Hospital waste segregation. Only 10% of the interns have correctly identified Pollution Control Board as Regulatory Authority of Bio Medical Waste. 56% of internees correctly identified 48hrs is the maximum time BMW stored in the facility.

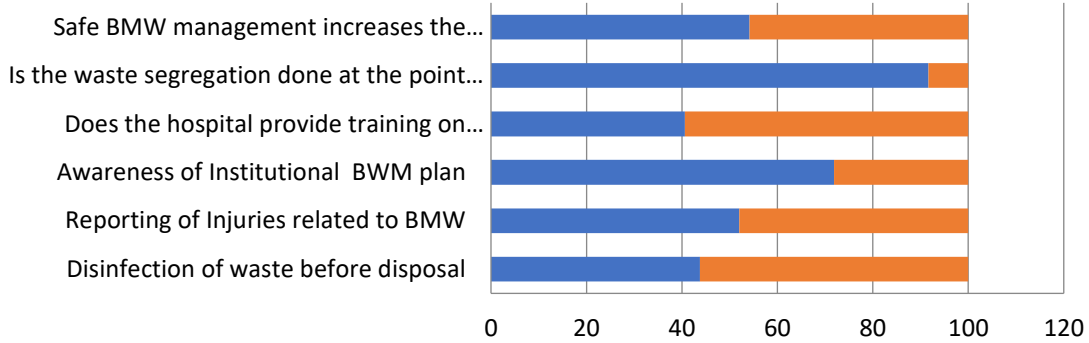
Only 44% participants are aware that waste should be disinfected of before disposal. Hardly 52% think Injuries related to BMW handling should be reported. 72% are aware of institutional biomedical waste disposal plan. 41% agreed that the hospital provide training on BMW management.



92% are aware that waste segregation done at the point of generation in the institute, not at the common collection point. 54% are aware that Safe BMW management increases the financial burden on the hospital. 79% were instructed to supervise the BMW disposal in ward. 77% agree that the BMW disposal activities are monitored by immediate higher Authorities. 80% agree that the importance of BMW management was discussed in the department.

93% of the participants are aware that the infectious waste is labelled with Biohazard symbol. 45% are aware BMW audit is done in the institute regularly. 9% agree that a record of BMW generated in the ward is maintained. Only 27% have been trained in handling the BMW management.

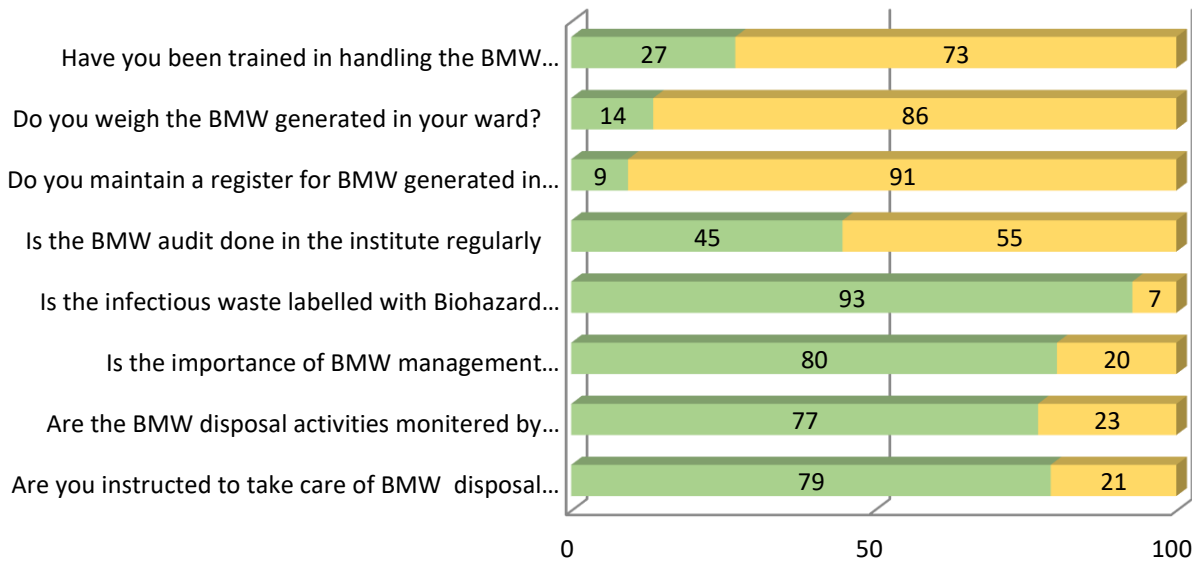
Fig 2: ATTITUDE OF THE INTERNS ON BMW MANAGEMENT



	Disinfection of waste before disposal	Reporting of Injuries related to BMW	Awareness of Institutional BWM plan	Does the hospital provide training on BMW management?	Is the waste segregation done at the point of generation in the institute?	Safe BMW management increases the financial burden on the hospital
■ Yes	44	52	72	41	92	54
■ No	56	48	28	59	8	46

	Parameter	% of correct responses	
		YES %	NO %
1	Health care waste is hazardous	88	
2	Color coding	96	
3	Identification of Biohazard symbol	74	
4	Universal Precautions	90	
5	Diseases transmitted	98	
6	Awareness of Law applicable to HWM	51	
7	Awareness of Bar Coding on the BMW Bags	22	
8	Who is responsible to segregate BMW	40	
9	Regulatory authority of BMW	10	
10	Maximum time to store BMW in the facility	56	
		YES %	NO %
11	Disinfection of waste before disposal	44	56
12	Reporting of Injuries related to BMW	52	48
13	Awareness of Institutional BWM plan	72	28
14	Does the hospital provide training on BMW management?	41	59
15	Is the waste segregation done at the point of generation in the institute?	92	8
16	Safe BMW management increases the financial burden on the hospital	54	46
17	Are you instructed to take care of BMW disposal in ward?	79	21
18	Are the BMW disposal activities monitored by your immediate higher Authority?	77	23
19	Is the importance of BMW management discussed in the department?	80	20
20	Is the infectious waste labelled with Biohazard symbol?	93	7
21	Is the BMW audit done in the institute regularly	45	55
22	Do you maintain a register for BMW generated in your ward?	9	91
23	Do you weigh the BMW generated in your ward?	14	86
24	Have you been trained in handling the BMW management?	27	73

Fig 3: BMW MANAGEMENT PRACTICE AMONG INTERNS



	Are you instructed to take care of BMW disposal in ward?	Are the BMW disposal activities monitored by your immediate higher Authority?	Is the importance of BMW management discussed in the department ?	Is the infectious waste labelled with Biohazard symbol?	Is the BMW audit done in the institute regularly	Do you maintain a register for BMW generated in your ward?	Do you weigh the BMW generated in your ward?	Have you been trained in handling the BMW management?
■ Yes %	79	77	80	93	45	9	14	27
■ No %	21	23	20	7	55	91	86	73

DISCUSSION

Report by (WHO, 2013) states that around 80% of medical waste generated is comparable to the domestic waste while remaining 20% is considered hazardous because it being infectious, toxic or radioactive. Here infectious waste constitutes (15% from all healthcare activities. Pharmaceuticals and chemicals constitute around 3% and the remaining 2% is constituted by heavy metals, genotoxic waste and sharp objects.⁷ The biomedical waste 2004 guidelines of WHO emphasize the importance of “human factor” over technology and equipment’s.^{8,9}

Biomedical waste management is a collective effort of many agencies and people, any breach in the process can result into failure of the whole process. The waste needs to be tackled carefully from the point of generation to the final destination keeping in mind the safety of patients, staff and environment. The present study was conducted to ascertain the levels of and the expanse of gaps in knowledge, attitudes and practices among the interns in the institute.

The interns had positive attitude towards biomedical waste management rules and its implementation. This is comparable to study done by Verma et al which showed that more than 70% of HCWs have good idea about biomedical waste management.

96 percentage of the respondents used color coding to identify and classify waste, and 98% have knowledge about diseases transmitted due to healthcare waste. which indicates a high level of understanding of BWM among the interns. The results of this study were better compared to the the study of Abdullah and Al-Mukhtar which found that 79.2% of the respondents at hospitals in Mosul, Iraq used the colour coding to properly identify medical waste.¹¹

Similar to the study by Bhagawati et al ¹⁰ in less than 50% of the participants had received training in biomedical waste management, therefore almost all of them wanted regular training programmes to enhance and upgrade their knowledge.

Awareness of the legislation, Regulatory authority, Bar Coding on the BMW Bags was less than 55% among the interns.

CONCLUSION & RECOMMENDATIONS

Knowledge of BMW was good among the interns. However, awareness and practice attitude need significant improvement.

A written policy, induction training of interns, constant and repetitive workshops, and motivation are important human factors to implement the biomedical waste practices in a healthcare organization. Single training session is not sufficient for effective BMW management and infection control, there is a need for intensive training: mock drills at regular intervals to reinforce the infection control practices

Interns need to be actively involved in the day-to-day disposal of the waste and educate other staff working in the respective departments in the hospital.

LIMITATIONS

The study was conducted among the medical interns at one medical college.

CONFLICT OF INTEREST

There is no conflict of interest.

FINANCIAL SUPPORT & SPONSORSHIP

NIL

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