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RESEARCH ARTICLE

IMPACT OF TRAINING SESSION ON BIOMEDICAL WASTE MANAGEMENT - AN ANALYSIS

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ABSTRACT

Proper management of biomedical waste is a crucial issue for maintaining human health and the environment. The waste generated in the hospitals has the potential for spreading infections and causing diseases. The study was conducted by visiting a nearby hospital in order to get acquainted with the generation of the biomedical waste and their disposal strategies. The study includes an assortment of details about the quantity of different types of waste generated, their handling, treatment, final disposal and various management strategies adopted by the hospital. The survey was conducted by asking various questions regarding the issue by the waste management team and the workers involved in managing the waste.

Key words:

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INTRODUCTION

Hospital could be a place of almighty, an area to serve the patient. The hospitals are legendary for the treatment of sick persons. However we are unaware the concerned the adverse effects of the rubbish and filth generated by them on soma and atmosphere. Currently it's a well established incontrovertible fact that there are several adverse and harmful effects to the atmosphere together with kinsmen that are caused by the "Hospital waste" generated throughout the patient care. Hospital waste could be a potential hazard to the health care employees, public and flora and fauna of the world. In the persuasion of the aim of reducing health problems, eliminating potential risks, and treating sick people, healthcare services inevitably create waste which itself may be hazardous to health. The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. It is estimated that annually about 0.33 million tonnes of hospital waste is generated in India and, the waste generation rate ranges from 0.5 to 2.0 kg per bed per day.(1) Though legal provisions [Biomedical Waste (management and handling) Rules 1998] (2) exist to mitigate the impact of hazardous and infectious hospital waste on the community, still these provisions are yet to be fully implemented. The absence of proper waste management, lack of awareness about the health

hazards from biomedical wastes, insufficient financial and human resources, and poor control of waste disposal are the most critical problems connected with healthcare waste. (3). Although, there is an increased global awareness among health professionals about the hazards and also appropriate management techniques but the level of awareness in India is found to be unsatisfactory. (4,5,6). Adequate knowledge about the health hazard of hospital waste, proper technique and methods of handling the waste, and practice of safety measures can go a long way toward the safe disposal of hazardous hospital waste and protect the community from various adverse effects of the hazardous waste. With this background, this study was conducted with the main objective of assessing knowledge, attitude, and practices of doctors, nurses, laboratory technicians, and sanitary staff regarding biomedical waste management.

MATERIALS AND METHODS

The cross-sectional study was conducted as a part of a larger study of assessing biomedical waste management in Advanced Cancer research hospitals with bed capacity >100 within bathinda city. The study was conducted in 1 year. Study participants included healthcare personnel working in different departments of the hospitals. A total of 100 healthcare personnel consented for interview (93% response rate) which included 10 doctors, 10 nurses, 10 laboratory technicians, and 60 sanitary staff, who were interviewed and observed for

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biomedical waste management practices. These interviews and observations were conducted on a predesigned and a pretested questionnaire and checklist. A group of health care workers were given a training session consisting of lectures in morning session and a demonstrations in the after-noon session on Biomedical waste management. The training module consisted of elaboration on the rules and regulations, demonstration of the segregation of waste, disinfection methods for various categories of waste and interactive methods. The pre and post training analysis was done by calculating the number of marks obtained in the questionnaire test for the total groups.

RESULTS

The knowledge in critical steps have been found to be enhanced after training session. Analysis of data revealed that on all counts, doctors, nurses, and laboratory technicians have better knowledge than sanitary staff regarding biomedical waste management. Knowledge regarding the colour coding and waste segregation at source was found to be better among nurses and laboratory staff as compared to doctors. Regarding practices related to biomedical waste management, sanitary staff were ignorant on all the counts. No sanitary staff ever reported any injury which would have occurred due to improperly disposed waste. However, injury reporting was low across all the groups of health professionals. The results of the pre and post training tests. The minimum marks obtained was 10 in pre test as against 18 in post test. The maximum marks have increased from 20 to 25. All the (Q=25) questionnaire were evaluated for the right and wrong answers before and after training session to know the gain in knowledge and to identify the areas that require reinforcement. The questionnaire analysis showed that the knowledge was enhanced especially that of the definition, categories of waste, classification and process of waste management. Definition of biomedical waste was not known to 33.33% of the staff. 89.74% of the participants were not aware of the categories of biomedical waste. 51.28% staff did not know about the category in which the animal and human wastes are categorized.

However 80% of the participants were aware of the color coding used for the bags used for disposal of specific wastes from the wards (Eg: IV set, blood swabs, sharp items etc). However after the training there was appreciable increase in the knowledge about the definition of biomedical waste which was not known to 33.33% of the staff but after training in post training questionnaire this number became low to 20%. 89.74% of the participants who were not aware of the categories of biomedical waste after the post training questionnaire this number drastically went down to 40%. 51.28% staff did not know about the category in which the animal and human wastes are categorized this number went to 30% after the training.

However 80% of the participants were aware of the colour coding used for the bags used for disposal of specific wastes from the wards (Eg: IV set, blood swabs, sharp items etc) before the training this number went to 98% after the training. So, there is a clear indication of gain of knowledge due to training.

DISCUSSION

The environment protection act (1986) of Govt of India has given a notification in 1998, to regulate the Biomedical Waste Management in the country (7,8,9). The implementation of this act involves not only a thorough knowledge of it but also proper attitude and practice by various categories of employees in the hospital. The knowledge on these guidelines is to be acquired and practiced. The learning by the individuals depends on the design and proper delivery of the training sessions and teaching tools. The 'on job' training for various categories of employees involved in direct patient care is very critical in effective implementation of biomedical waste management handling rules and regulations. The study was conducted on predesigned and pretested questionnaire and a cross-sectional study design was selected as a similar design was adopted in other studies. (4,5,6,10). Knowledge about biomedical waste management rules among the technically qualified personnel like the doctors, nurses, and laboratory staff was high but was low among the sanitary staff; this was similar to the findings from other studies.(4,11). Similarly, knowledge about colour coding of containers, and waste segregation which itself is probably the most important pivotal point and crucial for further waste management, was also found to be better among the technically qualified staff as compared to that of the sanitary staff. Low level of knowledge is mainly attributed to poor training facilities and also to relatively low educational level of the sanitary staff. Training of both the technical staff and the nontechnical staff is critical for the proper and appropriate management of biomedical waste. (4,6)

It is the responsibility of the hospital administrators to initiate and lead the continuous training programmes keeping in mind the human and societal needs and opportunities. The acquisition of skills depends on the learning abilities of the trainees and the trainer. The training programmes have to define roles and to extend their expertise, influence, impact and value beyond the classroom and into the business. The waste management plan should include appropriate staff training programmes, operational plans and appropriate technologies. The pre and post analysis is the fundamental type of market research experiment to evaluate effectiveness, overall results, comparison and effects of the changes of a program. There is an urgent need to train and educate all staff to adopt an effective waste management practice. A The major limitations is that the study has not been designed to perform evaluation of the Level 3 and Level 4 aspects of the Kirkpatrick's Model. The study needs to be extended to assess whether what is learned is being applied and whether such application is achieving the desired results.

CONCLUSION

Our study emphasizes the importance of training to technical persons for proper and complete knowledge on biomedical waste disposal. The need for reinforcement on critical topics like generation, segregation is required so that their behavior practices will change for better self care as well as patient care and to prevent transmission of diseases. This will ensure patient safety and control health care associated infections. So, the importance of training regarding biomedical waste

management cannot be overemphasized lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

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