



EFFECTIVENESS OF SELF INSTRUCTIONAL MODULE ON KNOWLEDGE AND PRACTICE REGARDING BIOMEDICAL WASTE MANAGEMENT AMONG LAB TECHNICIANS OF SELECTED LABORATORIES IN CHENNAI CITY

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ABSTRACT

Introduction: Biomedical waste is any unwanted residual matter arising from the hospital and other health care settings. Biomedical waste management means a systematic way of disposing the health care waste. Lab Technicians involve in segregation, storage, transportation and disposal. Objective: To assess the knowledge and practice of biomedical waste management and to determine the effectiveness of self instructional module among lab technicians. Methods: Quasi experimental research design was obtained with 50 samples by lottery method from selected laboratories in Chennai. Pretest knowledge and practice was assessed by using structured questionnaire and checklist and self instructional module was administered. On 7th day post test was done by same structured questionnaire and checklist. Results: There was a significant increase in the knowledge and practice at the level of $P < 0.001$ Conclusion: The medical laboratory is equipped with the needle dispenser as well as lab technicians are following the color coded bags to dispose waste.

KEYWORDS: Biomedical waste management; Occupational Hazards; Waste Segregation; Self Instructional Module



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INTRODUCTION

Waste is defined as any solid and liquid matter discarded from the household activities and any other organization. Bio medical waste is the residual matter obtained from living (animals and human beings) and non living extravagance either from hospital and other health care related organizations. The hospital waste is segregated in to general waste, radioactive wastes, chemical wastes, infectious and potentially infectious wastes, sharps, pharmaceutical waste and pressurized containers. To protect the environment and community health, the Ministry of Environment and Forest has notified, Biomedical waste (Management and Handling) Rules 1998/2000. Under the Environment Protection Act, 1986 that compel all hospitals, clinics, nursing homes, slaughter houses and laboratories to ensure safe and environmentally sound management of waste produced by them. They should make all arrangements as specified in the rules for proper disposal of biomedical wastes. The head of the health care facility, for example Medical Superintendent of the hospital, Director, Owner of Nursing homes health care facility have to safeguard the health of workers involved in handling transportation and disposal of Biomedical waste besides ensuring safety to the community and environment. Any violation of the norms given in Rules by any person is punishable. Bio medical waste management refers to systematic and scientific way to of managing the healthcare waste through a step-by-step process such as segregation, storage, transportation and disposal. It was observed that health system of poor countries is dysfunctional and it is a sad truth. Nurses, laboratory technicians, phlebotomies who are exposed daily to hollow needle injections as well as staff who clean the used instruments, are at greater risk of occupational HIV infections than other health care workers. But safety precautions including the proper

disposal and incineration of needles and the decontamination of used instruments are not routinely taken to protect the vulnerable staff. It was reported that there were many blood borne diseases, known and unknown. So, safe working practices were necessary to take care at all times with all patients. In the past few years, public concern over the disposal of medical waste has markedly increased. The prevention of infection require proper equipment and also skilled personnel, adequate time, running water, adequate supplies and knowledge regarding proper bio medical waste management and above all honest conscience of the staff nurses, Commitment form senior nurses, hospital managers and health care workers would also help to plan for training and education for the implementation of biomedical waste. In India, the rate of generation of hospital waste is estimated to be 1.59 to 2.2kg/day/bed and out of which 10 -15% is found to be biomedical waste. Epidemiological studies indicate that a person who experiences one needle-stick injury from a needle used on an infected source patient has risks of 30%, 1.8% and 0.3% respectively to become infected with HBV, HCV and HIV. Hence, there is an urgent need to plan and implement updated procedures and practices at different levels of medical waste management plan, which is associated with environmental health. This is the time to pause and ponder over the matter because evidence is there for us to understand that hospital waste management is of great concern.

OBJECTIVES

- To assess the knowledge regarding biomedical waste management among lab technicians as measured by structured knowledge questionnaire

- To assess the practice regarding biomedical waste management among lab technicians as measured by structured practice checklist.
- To find out relationship between knowledge and practice of lab technicians regarding biomedical waste management.
- To evaluate the effectiveness of self instructional module on biomedical waste management among lab technicians
- To find the association between the pretest knowledge and practice score with selected demographic variables.

HYPOTHESES

H1: There is significant relationship between knowledge and practice regarding biomedical waste management among lab technicians

H2: There is a significant increasing in the posttest knowledge regarding biomedical waste management among lab technicians after receiving self instructional module.

MATERIALS AND METHODS

Research Design

Quantitative approach: Quasi experimental – One group pretest posttest design

Setting

The study conducted at a selected laboratories in Chennai City.

Population

The study population consists of all lab technicians

Sample size

The sample selected for the study was 50 lab technicians who met the inclusion criteria.

Sampling Technique

Simple random sampling technique by lottery method

Criteria for selection of sample

Inclusion Criteria

- Both male and female lab technicians
- Lab technicians who were present during the time of study
- Lab technicians who are willing to participate

Exclusion Criteria

- Lab technicians who have undergone training on biomedical waste management
- Lab technicians who are still under training

Description of the Tool

Part I: Demographic Variable

Part II: Structured multiple choice questionnaires to assess the knowledge of lab technicians regarding biomedical waste Management

Part III: Check list to assess the practice of lab technicians regarding biomedical waste Management

Data Collection Procedure

After obtained the formal letter samples were selected by lottery method. The participants were informed about the purpose of the study and their informed verbal consent was taken. The subject's knowledge and practice was assessed by using structured questionnaire and check list on the 1st day. Same day Self instructional module was administered. On the 7th day post test was done by using the same questionnaire.

Statistical Methods used

Descriptive Statistics

Mean and Standard Deviation.

Inferential Statistics

Paired t test to see the effectiveness of structured instructional Module Chi-Square test to associate the demographic variables with knowledge and practice on Biomedical waste management

RESULTS

Regarding the demographic variables 34% of respondents are in the group of 23-27 years. Majority (80%) of respondents are males, 68% of respondents belongs to the Hindu Religion, 72% respondents completed the DMLTC, 66% respondents were senior lab technicians. 42% respondents having the 1 to 5 years of experience, 60% respondents not attend any training programme. 64% of the lab technicians had average knowledge in pretest and 74% average at post test. 32% of the lab technician's highly adequate practice in pre test and 70% had highly adequate practice at post test.

Effectiveness of Self Instructional Module
Comparison of level of Knowledge before and after instructional Module

t- test	N	Mean	S.D	S.E	P –value
Pre test	50	15.9200	4.8354	0.6838	
Post test	50	21.5600	3.8181	0.5399	0.0001

The above table reveals that Mean post test score of Lab technicians is more than the mean pre test score which is highly significant as p-value =0.0001. So Self instructional module was effective in enhancing the knowledge of lab technicians

Comparison of practice before and after instructional Module

t- test	N	Mean	S.D	S.E	P –value
Pre test	50	13.20	4.0957	0.5792	0.0001
Post test	50	16.72	2.6422	0.3736	

Mean post test score of Lab technicians is more than the mean pre test score which is highly significant as p-value =0.0001

There were no associations between pre tests and post tests knowledge and practice scores with any of the selected demographic variables such as age, gender, religion, education status, total experience and type of program at 5% level of significance.

CONCLUSION

The findings of the study support the effectiveness of Self Instructional Module in increasing the knowledge and practice regarding biomedical waste management among lab technicians. The researcher was found that medical laboratory is equipped with the needle dispenser in the lab as well lab technicians are following the color coded bags to dispose waste.

CONFLICT OF INTEREST

Biomedical waste management is important component to dispose the medical waste. It is very important for lab technicians in day to day life practice and they were highly interested in participating the study. Hence there was no conflict of interest.

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