

Awareness of Infectious Waste Management among Staff Nurses of Mayo Hospital Lahore

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Abstract: The healthcare service area while providing services, curative, primitive or preventive inevitably create waste which itself may be harmful to health. It carries a higher latent for infection and injury than any other type of waste. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health penalties and a significant impact on the environment (Suwarna Madhukumar April 2012)... Insufficient and inappropriate knowledge of waste and handling of waste may have serious health complications. To determine awareness of infectious waste management among staff nurses and describes their level of knowledge, attitude and practice towards infectious waste management. A cross-sectional analytical study design was used to observe the knowledge, attitude and practice of staff nurses. A cross-sectional is that study that collects information from a population at specific time of period (Lisa B 2014). Data was collected from 50 nursing staff through convenient sampling techniques. Those who meet the inclusion criteria will be included in the study and those who don't meet the criteria were not being the part of the study. Data was analyzed through SPSS version 16. Results suggests that there was unsatisfactory knowledge among nursing staff of mayo hospital Lahore. 50% of the study participants had knowledge about infectious waste management, other 50% had poor knowledge regarding waste management techniques and procedures. Red container is used for cytotoxic items. Out of 50, only twenty six (52%) study subjects answered full destruction of all cytotoxic substances require incineration at high temp up to 1200 degree centigrade. 30% subjects did not comment. Participants had poor practice related to sharp items wasted only 19% participants knows yellow puncture proof container is used for sharp items. Forty two (84%) Nurses were aware about containers should be filled three quarters full and then disposed. Only 8% nurses knows Hepatitis B is greatest risk from infectious hazard. 54% nurses assume that Hepatitis C is greatest risk. The attitude of the study subjects toward awareness of waste management, separation of infectious and noninfectious waste, proper disposal and implementation of rules was positive. According to my results nursing staff had poor knowledge so that their practice was also poor and unsatisfactory. they all need regular training and monitoring.

Keywords: Waste management, Knowledge, attitude, Practices.

INTRODUCTION

The healthcare services while providing services, curative, primitive or preventive inevitably create waste which it may be hazardous to health. It 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 [1]. In the persuasion of the aim of reducing health problems, eliminating potential risks, and treating sick people, healthcare services inevitably create waste which itself is hazardous to health. It is estimated that annually about 0.33million tons of waste is generated and, the waste generation rate ranges from 0.56 to 0.67kg per bed per day [2]. About

75-90% of waste produced in healthcare establishments is general waste. This includes papers, packaging materials, dust and the like. The remaining 10-25% of waste is hazardous and could be composed of sharps (needles, lancets etc.), syringes, blood or body fluid, contaminated surgical instruments, delivery bowls, used gauzes and gloves, plasters, etc.; it may also contain expired drugs, laboratory reagents and other chemicals [3, 4]. In hospitals, different kinds of therapeutic procedures (i.e. chemotherapy, dialysis, surgery, delivery, autopsy, biopsy, etc.) are carried out and result in the production of infectious wastes, sharp objects, radioactive wastes and chemical materials [5]. Medical waste contains highly toxic metals, toxic chemicals, pathogenic viruses and bacteria [6, 7], which can lead to

pathological dysfunction of the human body [8, 9]. Medical waste presents a high risk to doctors, nurses, technicians, sweepers, hospital visitors and patients due to arbitrary management [10]. It is a common observation in Pakistan, that poor scavengers, women and children collect some of the medical wastes (e.g. syringe-needles, saline bags, blood bags etc.) for reselling despite the deadly health risks. It has long been known that the re-use of syringes can cause the spread of infections such as AIDS and hepatitis [11]. Due to increase in infection spread by hospital waste, there is increase in number of human death by waste related disease which is calculated as 5.2 million from which 4 million are children died. A good waste management can be planned by any hospital under the supervision of good administration, effectual organization and with the full interest by trained staff of hospital [12]. Many researches have conducted on medical waste in developed and developing countries such Pakistan. Hospital waste management is an ever growing risk for health in developing countries like Pakistan. Its poor management has been associated with increased risk of spread of deadly infections like HCV, HBV and HIV1 [13]. In this article the results of awareness of infectious waste among nurses are presented of generated amount hospital wastes, the condition of segregation, the type of storage containers, the temporary storage area, collection procedures, on-site transport and treatment of wastes, off-site transport and disposal of hospital wastes were studied and finally the type of training provided to hospital personnel, and the type of sewerage system used at hospitals were assessed, and nurses knowledge assessed. At the end, measures for improvement of present conditions and solving the identified problems were suggested.

AIMS OF THE STUDY

This study may help in the formulation of Appropriate strategies and policies for operating successful Management of waste at mayo hospital Lahore It could also be useful to researchers, students and persons interested in this sector. Through caring out this research researcher will be able to give many recommendations for nursing staff training and monitoring. The finding of the study will be useful to know about importance and also to understand the preventives measure of infection control. After completion of the study findings will be provided to the organization or hospital to arrange the workshops on importance of infectious waste management for the purpose to enhance the knowledge and attitude.

METHODS

Setting

This Study was carried out at Mayo Hospital, Lahore.

Research design

A descriptive cross sectional survey design was used. A cross-sectional analytical study design was used to examine the knowledge, attitude and practice of staff nursing regarding infectious waste management. A cross-sectional is that study that collects information from a population at specific time of period [14].

Population

Specific population for this study was the Nursing staff of Mayo Hospital, Lahore

Sampling

Data was collected from 50 nursing staff through convenient sampling techniques. Those who meet the inclusion criteria will be included in the study and those who don't meet the criteria were not being the part of the study.

Research instrument

A well-constructed close ended questionnaire was distributed among nursing staff of Mayo hospital, Lahore. In this project tool was questionnaire for collecting information. Questionnaire was made by me under supervision of my supervisors.

Data gathering procedure

Data will be collected from the nursing staff of Mayo hospital, Lahore. The data will be collected with the help of other colleagues within a specified timeframe. Data collection will be done via an adopted comprehensive, self-structured questionnaire which sought such information as age, marital status, educational status, occupation.

Methods used to analyze data

Statistical analysis was carried out using SPSS for Windows version 16. The data was summarized by descriptive statistics using the frequency, percentage and tables for categorical variables. The relationship between variables scores and socio-demographic variables was tested by using linear regression. The significance level for all statistical analysis was set at 0.05.

Study timeline

The data was collected from DEC, 2018 to MAY, 2018.

Ethical consideration

Ethical principle was performed during research study Permission was taken from the Ethical committee. I was take permission from the stockholder of the hospital. Give complete information to the participant related to research. It makes sure that no harm was given to the participant. Study was beneficial. All participants were having open opportunity to participate in research. No one will be forced to

participate in research. Informed consent was signed from the participants. Before signing consent participants was informed about purpose, methodology, risk and benefits of investigation.

Enough information of research was provided to participants with the help of full consent form and this will be achieved via a letter attach to the

questionnaire. Confidentiality was considered by informing participants.

RESULTS

Background information

Only female nurses were selected for the study. Sample participants were fifty (50). The normally distribution of the data was checked through histogram, skewness kurtoses. The data was normally distributed. Mentioned in following table according to age groups.

Table-1: Age of the respondents

Age	Mean	Minimum value	Maximum value	Standard deviation
20-25	1.64	1	4	.776
26-30				
31-35				
36-45				

Table-2:

Marital status	Education level	Working shifts
Single 38%	Diploma holder 42%	Morning 40%
Married 24%		Evening 42%
		Night 18%
	Post BSN 7%	

42% Nurses were diploma holder in General nursing, 7% were post graduated. (90%) Forty-five Nurses had excellent knowledge that waste generated

within all healthcare facilities, research centers, and laboratories related to medical procedures.

Table-3:

Categories		N	%
	2	9	18.0
	3	27	54.0
	4	14	28.0
	Total	50	100.0

Only nine (18%) study subjects knew about categories of clinical waste.

Only twenty four (48%) reported that pathological waste is waste of human tissues organs and fluids. Thirty eight (76%) Nurses have awareness regarding Nonhazardous waste according to WHO that

has not been in contact with infectious agents, hazardous chemicals, or radioactive substances.

A cross sectional analytical study performs in mayo hospital nursing students for the purpose of to assess

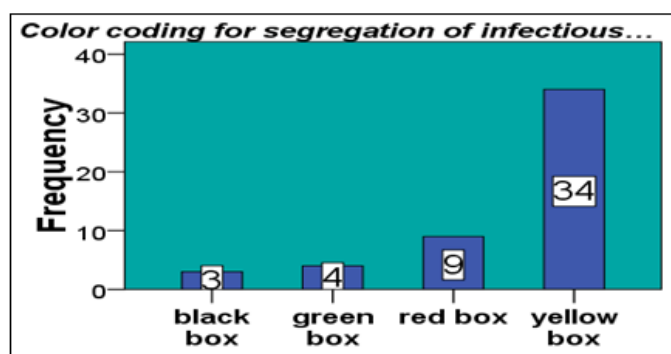


Fig-1:

Color coding for segregation of infectious waste is black box but only 3% Nurses had idea about color coding rest of all were unaware regarding it.

Twenty six (52%) Nurses have practice related to cytotoxic substances dispose in which container.

Table-4:

Cytotoxic container	N	%
yellow container	16	32.0
red container	26	52.0
green container	4	8.0
white container	4	8.0
Total	50	100.0

Red container is used for cytotoxic items. Out of 50 only twenty six (52%) study subjects answered full destruction of all cytotoxic substances require incineration at high temp up to 1200 degree centigrade. 30% subjects did not comment. Participants had poor practice related to sharp items wasted. Only 19% participants knows yellow puncture proof container is used for sharp items. Forty two (84%) Nurses were aware about containers should be filled three quarters full and then disposed. Only twenty three (46%) Nurses in study responded waste containers and bags sealed after recommended filling should be labeled

the date type of waste and point of generation. Twenty eight (56%) subjects had knowledge about sharp items should be wasted in red puncture proof container.

(92%) Nurses had better knowledge regarding hazardous and nonhazardous waste should be transported separately label as hazard and nonhazardous waste. Forty two (84%) Nurses were aware regarding Bulky and heavy waste should be transported by using wheeled trolleys and carts that are not used for any other purpose.

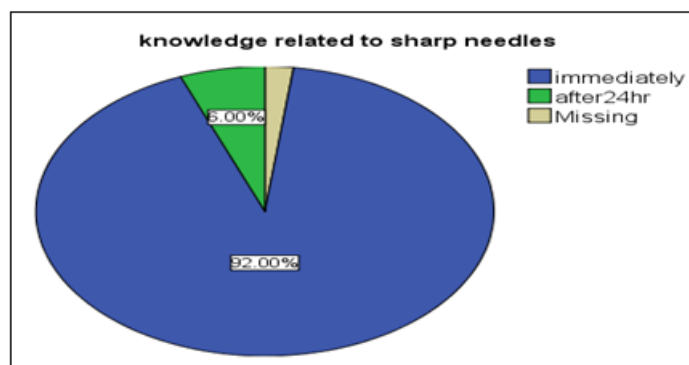


Fig-2:

92% nurses were known that sharp needles should discard after use immediately. 42% nurses told about storage time for infectious waste in storage area

should not exceed the 24 hours in summer and 12 hours in winter at temperature climate.

Table-5:

Waste collection		N	%
	daily for most wastes	48	96.0
	Weekly	1	2.0
	after two days	1	2.0
	Total	50	100.0

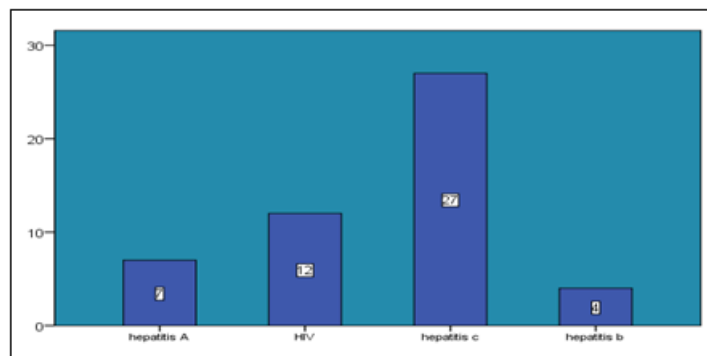


Fig-3:

Only 8% nurses know Hepatitis B is the greatest risk from infectious hazard. 54% of nurses assume that Hepatitis C is the greatest risk.

Greatest Risk of infection

The attitude of the study subjects toward awareness of waste management, separation of infectious and noninfectious waste, proper disposal and implementation of rules was positive. Majority were known Medical waste generation in Pakistan per day is 250,000.

DISCUSSION

The success of a study based on a self-administered questionnaire essentially depends on the manner in which the questions are formatted, their content, the analysis and the response rate. In order to avoid any recall bias, most of the questions were of closed-end. Such questions are easy to analyse and may achieve a quicker response from participants. A further advantage for this study was that all the participants were based at the same workplace, so all were following similar guidelines from a waste management protocol. The present study was conducted in Mayo Hospital Lahore Pakistan. It showed that there was a poor level of knowledge and awareness about BM waste generation hazards. Health care waste management requires universal efforts; it requires participation of all. There is much to be done where the waste is generated. The activities include reduction of waste generated, segregation, decontamination of infected waste, proper containment of waste; secure transportation of the waste, occupational health and safety measures and by creating awareness. Knowledge about biomedical waste management rules among the technically qualified personnel like the doctors, nurses, and laboratory staff was satisfactory. This was similar to the findings from other studies. Knowledge about color coding of containers, and waste segregation which is most important essential point and vital for further waste management, was also found to be better among the doctors and nurses as compared to that of the other staff. In the present study they were not very clear as to what should go in each color bin. In the present study

nursing staff were included in the survey. It was surprising that knowledge, attitude and practices were not satisfactory. Low level of knowledge is mainly attributed to poor training facilities and also to relatively low educational level of the staff. Training of both the technical staff and the nontechnical staff is important for the proper and appropriate management of biomedical waste. Similar findings were found in other studies too. It was also found that in the present study the nurses had required training for better results. The findings of the study have inferences for nursing education, service, administration and research. It prepares health care providers with essential knowledge, skill and attitude for the protection of self from the infectious or noninfectious waste while working in the health centers. It also helps the health care providers to protect the community from hazardous waste. Nurses play a vital role in protection, prevention, promotion and treatment. Nurse administrator can encourage nursing personnel to make active contribution towards the proper bio-medical waste management. Nurse administrator can help prepare skilled nurses, health workers in handling and disposing of the biomedical waste products from the health centers which can effectively minimize the risk of spread of hazardous diseases. Various research activities have to be undertaken to know the hazards of improper bio-medical waste management and its prevention among health care providers. The researcher provides information, which helps to focus on health hazards and lays foundation upon new knowledge which is based on the nursing research. Though there were many studies done on bio-medical waste management.

RECOMMENDATIONS

Following recommendations are proposed: (i) strict implementation of biomedical waste management rules (ii) it should be made compulsory for healthcare facilities to get their healthcare personnel trained from qualified training centers. These training sessions should not become merely a one-time. Nurse administrator can embolden nursing personnel to make active contribution towards the proper bio-medical

waste management. Nurse administrator can help prepare skilled nurse's, health workers and housekeeping employees in handling and disposing of the biomedical waste products from the health centers which can effectively minimize the risk of spread of hazardous diseases.

LIMITATIONS

Limitations of the study were following

- Lees sample size 150 due to which we cannot generalize this study on whole population.
- One of limitations of is study was lack of time
- Convenient sampling technique was used which often suffer from biasness

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