A STUDY OF BIO-MEDICAL WASTE MANGEMENT IN GOVERNMENT DISTRICT HOSPITAL PATHANKOT

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INTRODUCTION

- The waste produced in the course of healthcare activities carriers 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.
- However, lack of awareness has led to the hospitals becoming a hub of spreading disease rather than working toward eradicating them.
- It is estimated that annually about 0.33 million tones of hospital waste is generated in India and, the waste generation rate ranges from 0.5 to 2.0 kg per bed per day
- Only a small percentage i.e. 15% to 20% of the hospital waste is contagious and require special disposal techniques but if this 10% mixes with rest of the waste, then 100% waste becomes contagious
- Among all health problems, there is a particular concern with HIV/AIDS, Hepatitis B and C, for which there is a strong evidence of transmission through healthcare waste

- Effective management of biomedical waste is not only a legal necessity but also a social responsibility.
- There is a need for resource material to help administrators, doctors, nurses and paramedical staffs. The purpose of BMW management are mainly 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 employees working in the system. For this, a conscious, coordinated and cooperative efforts has to be made from physicians to sweepers.
- It becomes quite evident from the above discussed facts that the effective management of biomedical waste is necessary step in order to prevent disease occurrence .
- Compliance to current biomedical waste management rule is also required to prevent legal action against the heath providers and authorized institutions and also to streamline the waste management process with respect to current scenario.

- According to Biomedical Waste ManagementRules,2016
- Biomedical waste means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological or in health camps, including categories mentioned in Schedule I appended to these rules.
- The Govt. of India from time to time revise the Bio-Medical waste management and handling rule to streamline the bio-medical waste management activities and to provide legal action against health care workers and hospital administration who shows non- compliance to the currentRule,2016.

AIM OF THE STUDY

The study aims to check current status of biomedical waste management process in Government District Hospital pathankot and its compliance with latest biomedical waste management rules 2016.

Further recommendations can be given based on my study analysis to enhance the bio-medical waste management process in a government hospital

By conducting this study the level of awareness and attitude among health care staff working in Government Hospital regarding latest biomedical waste management rules 2016 can be evaluated.

OBJECTIVE OF THE STUDY

- To assess the existing process of biomedical waste management in government hospital and also to assess its compliance in light of current BMW Rule 2016.
- To determine the awareness of healthcare staff along with their attitude and practices regarding Bio-medical waste management policy and procedures.
- To identify the gaps if any and give suggestions based on analysis of study for further improvement in bio-medical waste management and handling.

METHODOLOGY

- **STUDY LOCATION**: This study was conducted in a government district civil hospital Pathankot, Punjab. It is a 150 bedded Hospital with all the basic facilities.
- **STUDY DESIGN:** Descriptive Cross sectional study.
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- **DURATION OF STUDY:** 3 months from 1st Feb to 30th April 2018
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- **SAMPLE SIZE:** Doctors- 15
- Nurses -15
- Paramedical staff other than nurses-15
- Sanitation staff (Sweepers) -15
- Total sample-60

- **SAMPLING TECHNIQUE:** Purposive sampling
- **SAMPLE SELECTION:**
- Inclusion criteria: Health care personnel directly involved in generating and handling bio-medical waste are taken for study. HCP who have consented for participation
- Exclusion criteria: Patients and Attendants are excluded. Those who were not available at the time of study and all those who have not given consent for participation.
- **STUDY TOOLS:** A checklist was prepared to collect data from the different bio-medical waste generating centers of the hospital. The checklist has all the essential steps concerning Bio-Medical waste management process. A structured questionnaire is used for assessing the awareness and knowledge of the heath care personnel.

DATA ANALYSIS

The data is entered and tabulated in Microsoft Office Excel. The Statistical method used for the data analysis was estimation of simple percentage. The results are analyzed by using tables and graphs.

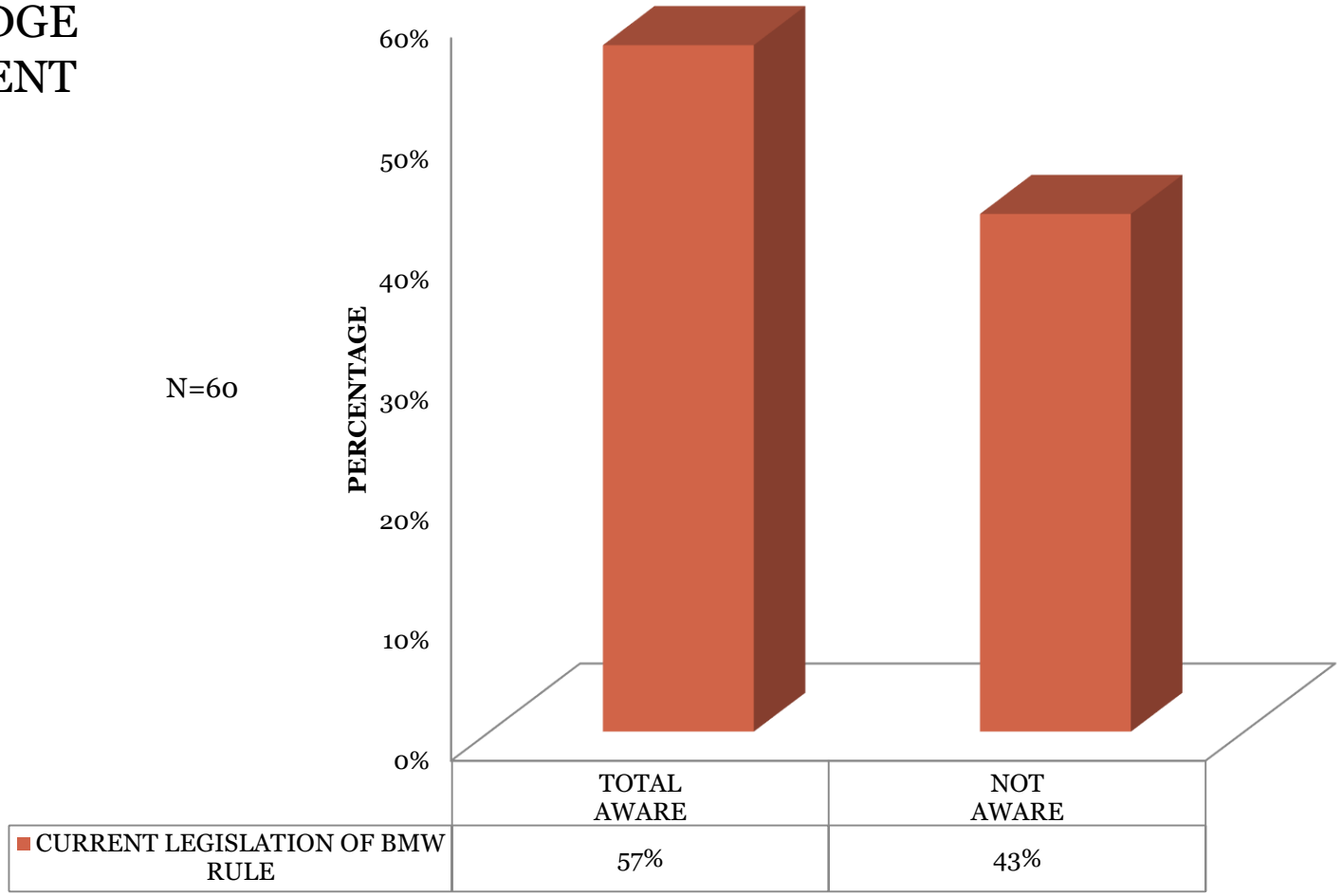
ETHICAL CONSIDERATIONS

The permission for conducting the study was taken from senior medical officer in charge of the hospital. The respondents were explained the purpose of the study and verbal consent is obtained from them prior the interview. All the respondents were assured that their confidentiality will be maintained.

DATA ANALYSIS

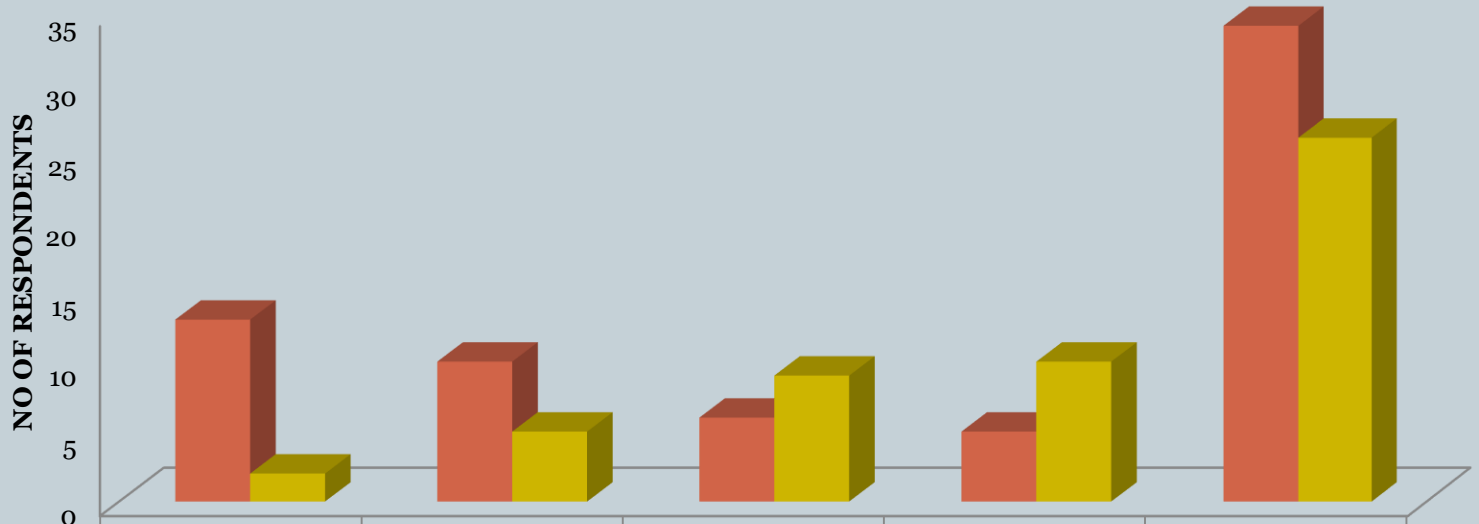
A)AWARENESS AND KNOWLEDGE ASSESSMENT

GRAPH NO 1 AWARENESS REGARDING CURRENT LEGISLATION APPLICABLE TO BMW RULE



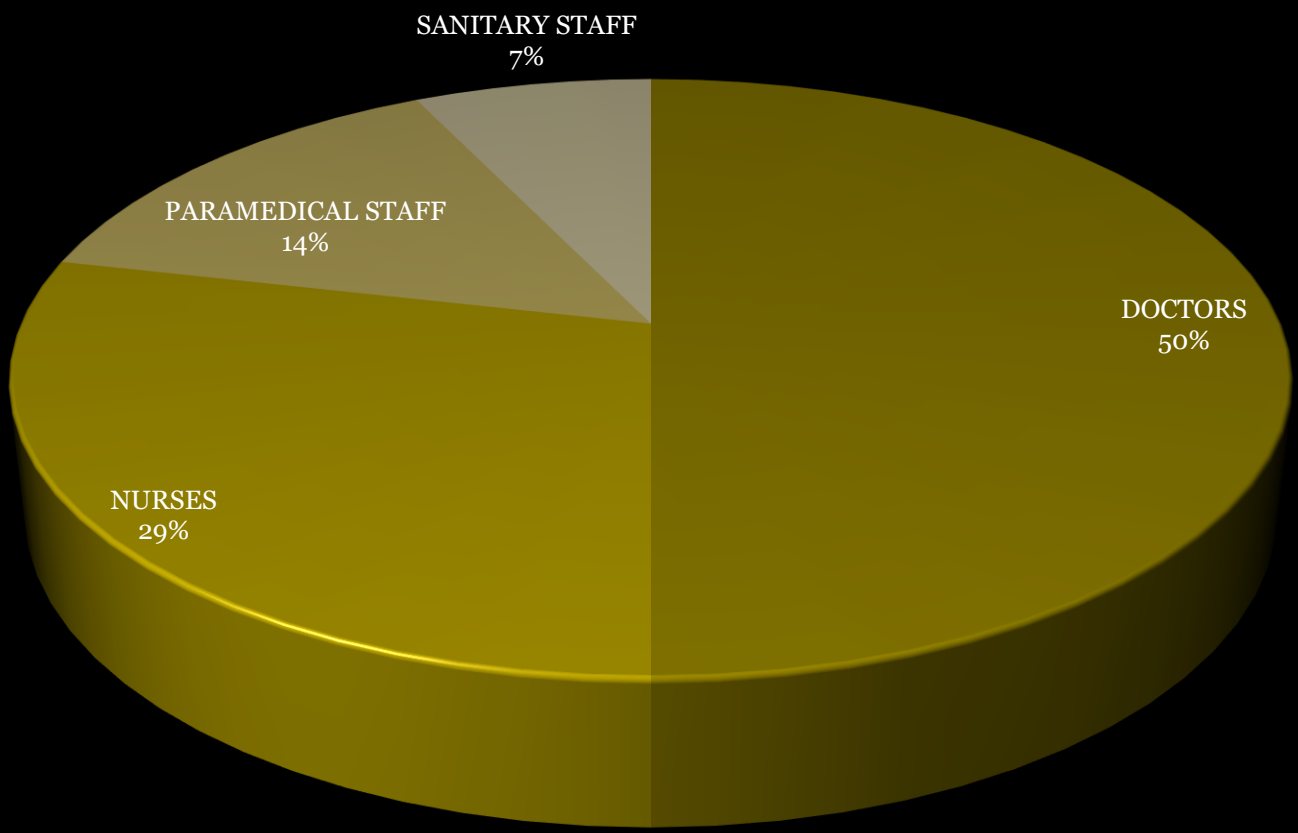
DATA ANALYSIS

Graph no 2 represents the level of awareness of respondents regarding any law governing BMW management& handling.

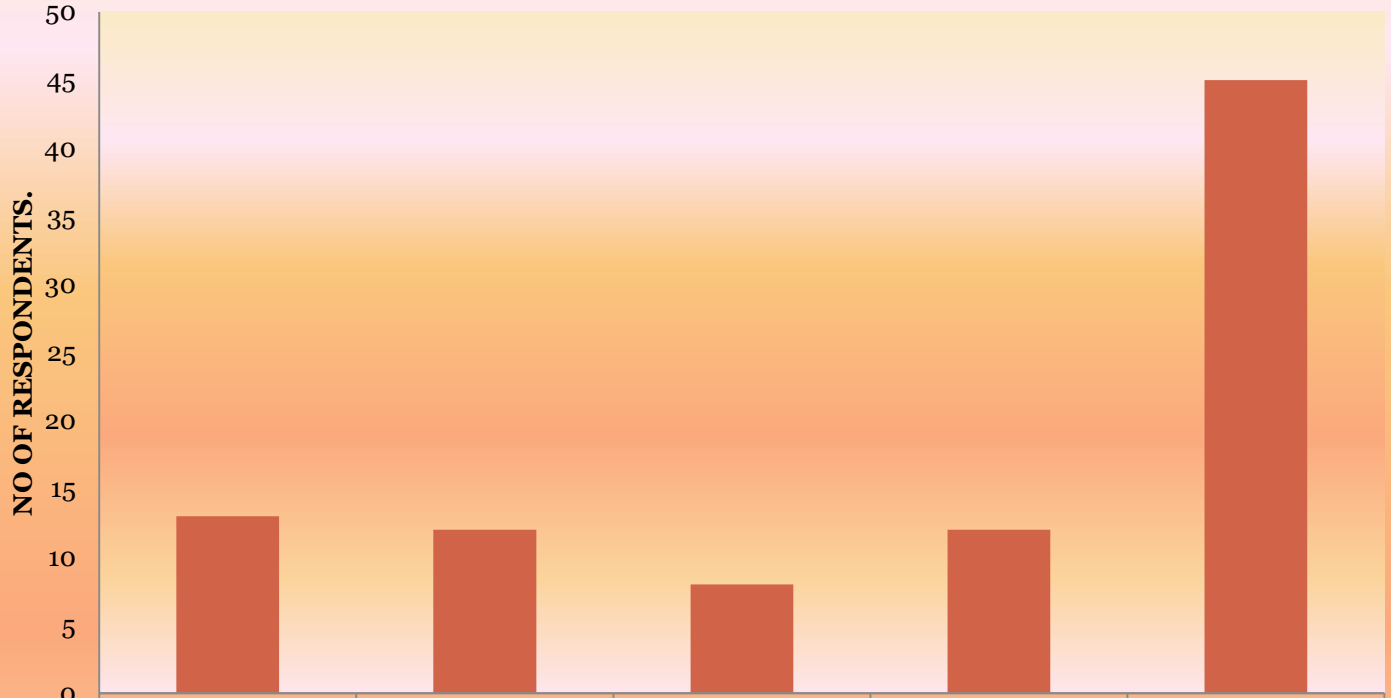


	DOCTORS	NURSES	PARAMEDICAL STAFF	SANITARY STAFF	TOTAL NO OF RESPONDENTS
AWARE	13	10	6	5	34
NOT AWARE	2	5	9	10	26

GRAPH NO3:PERCENTAGE STUDY SUBJECTS AWARE OF CURRENT LEGISLATION NAME



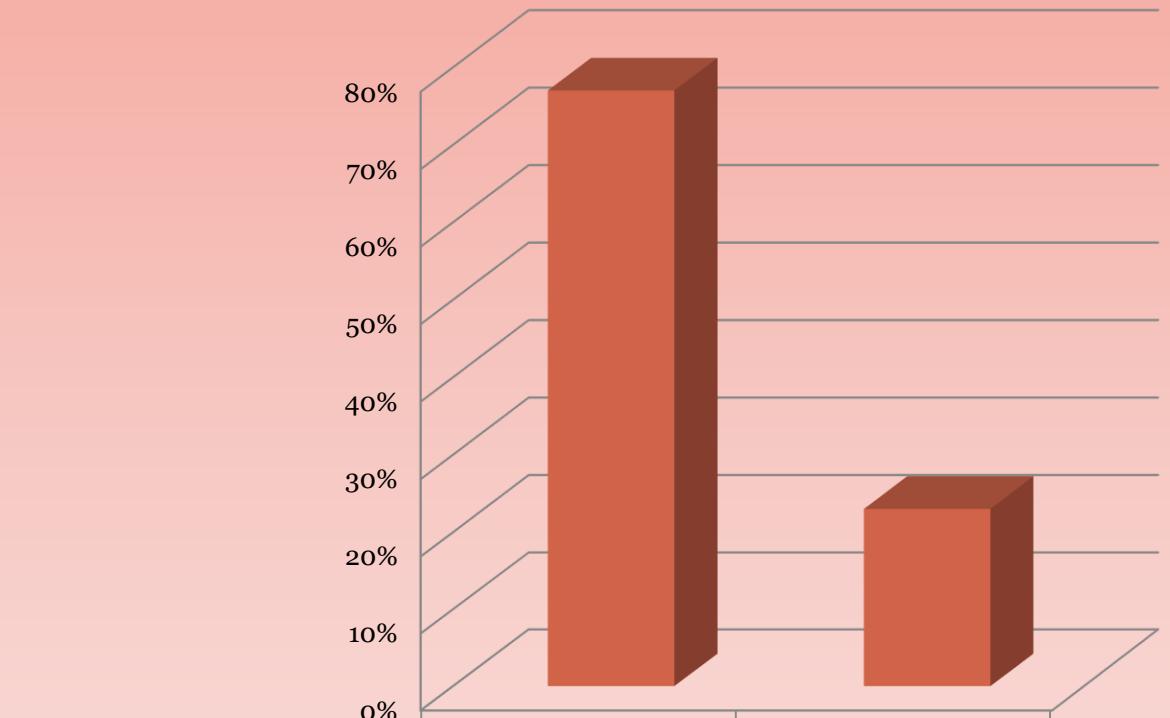
GRAPH 4: KNOWLEDGE ABOUT THE CORRECT COLOUR CODING OF BINS



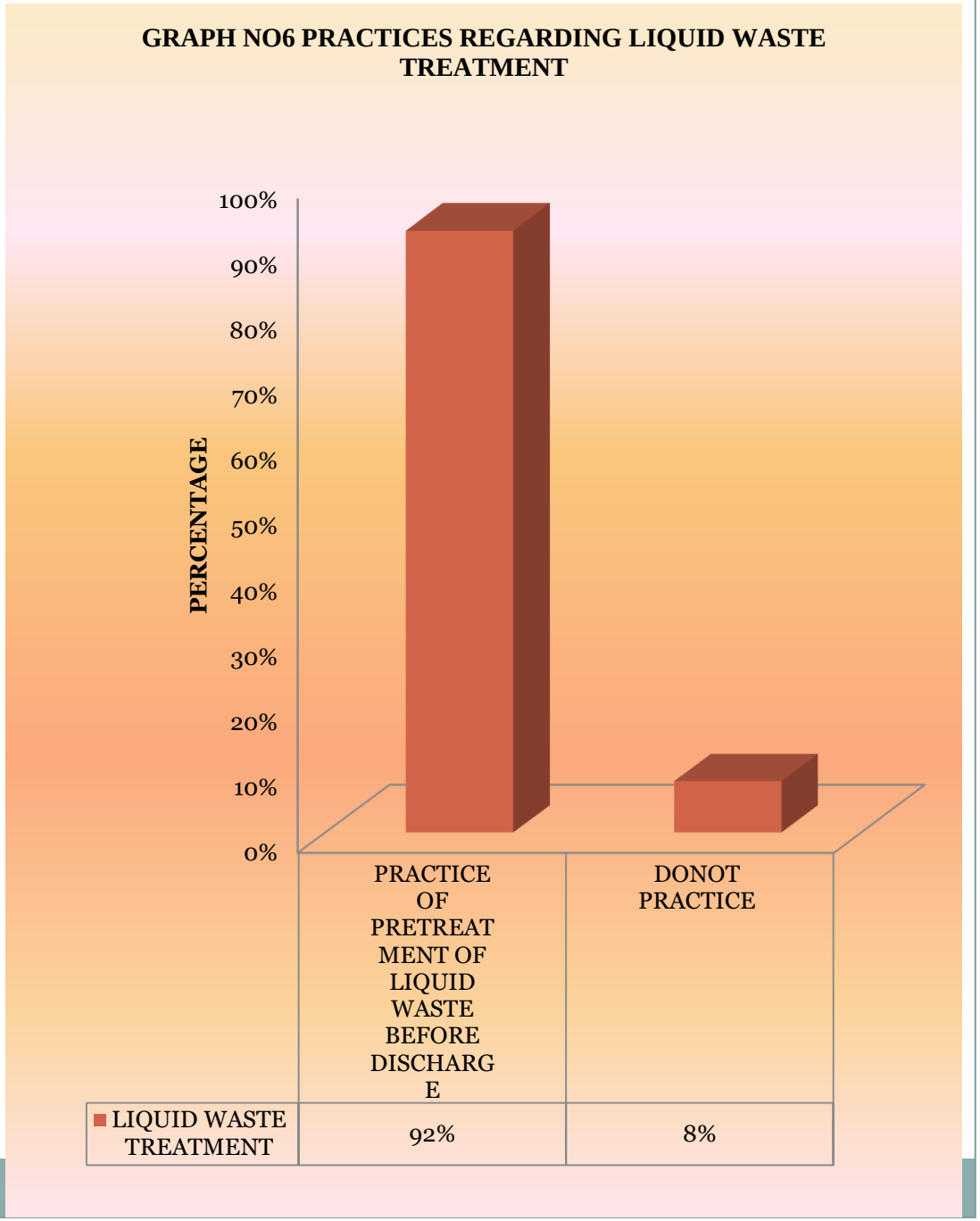
	DOCTOR	NURSING STAFF	PARAMEDICAL STAFF	SANITATION STAFF	TOTAL
AWARE SUBJECTS	13	12	8	12	45

Out of 60 respondents who participated in study only 77% were aware of the hospital waste management plan.

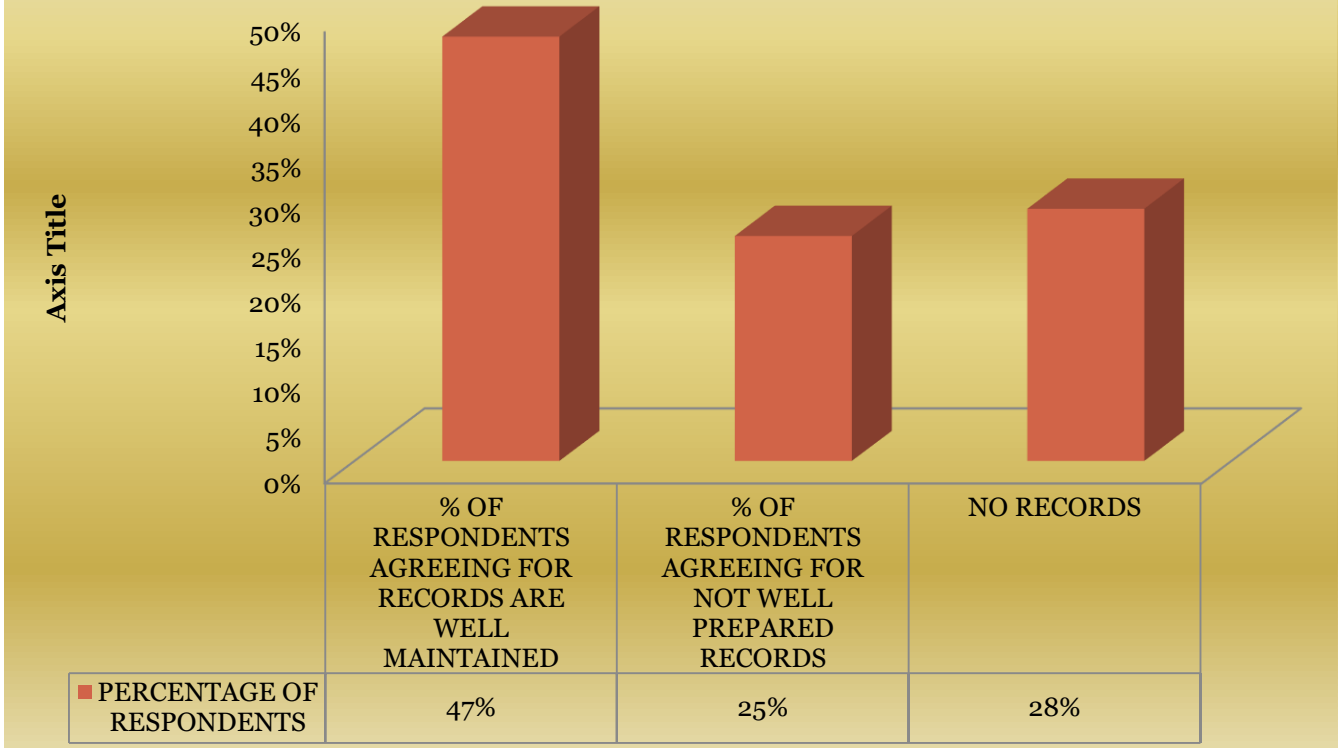
GRAPH NO5 AWARENESS ASSESSMENT REGARDING HOSPITAL WASTE MANAGEMENT PLAN



92% of the health care staff in the hospital followed the practices of pretreatment of liquid waste before discharging it into the sewage. While 8% admitted that they do not follow this practice.



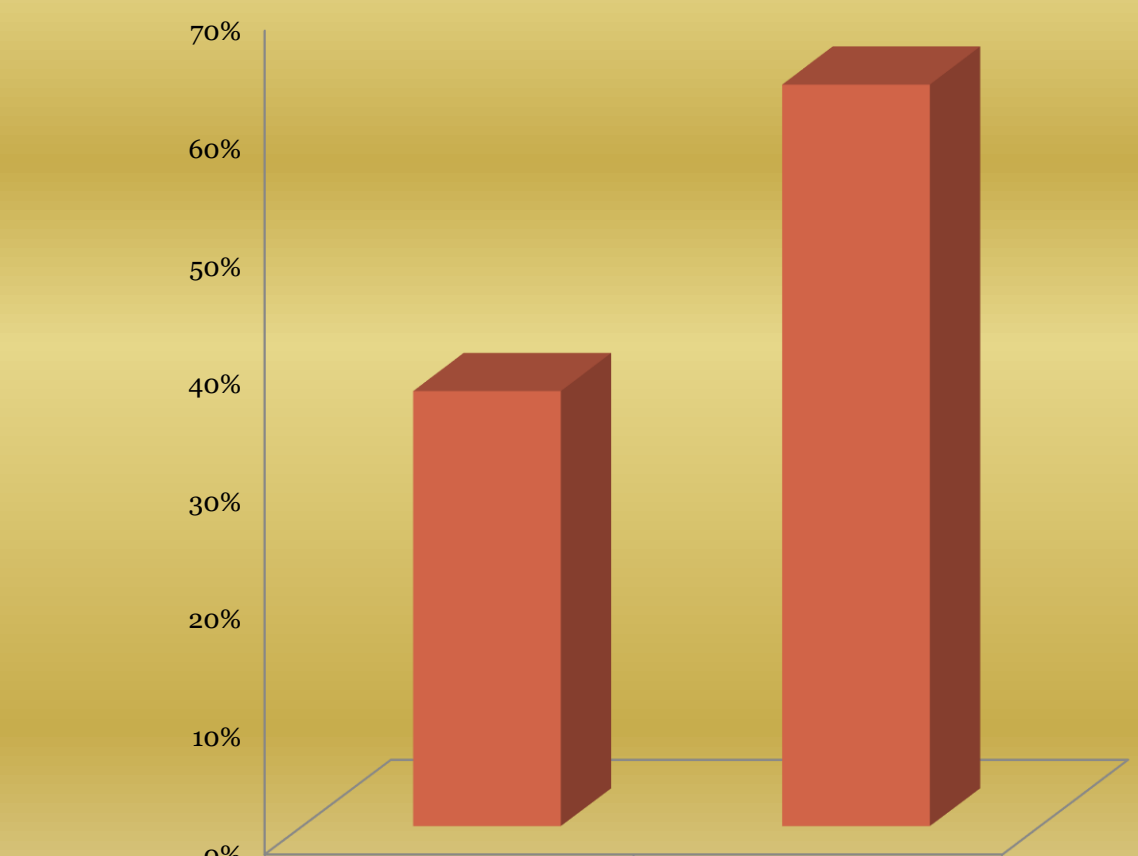
GRAPH7 PRACTICE OF MAINTAINING RECORDS



ASSESSMENT OF THEIR PRACTICES OF MAINTAING RECORDS REGARDING BMW MANAGEMENT

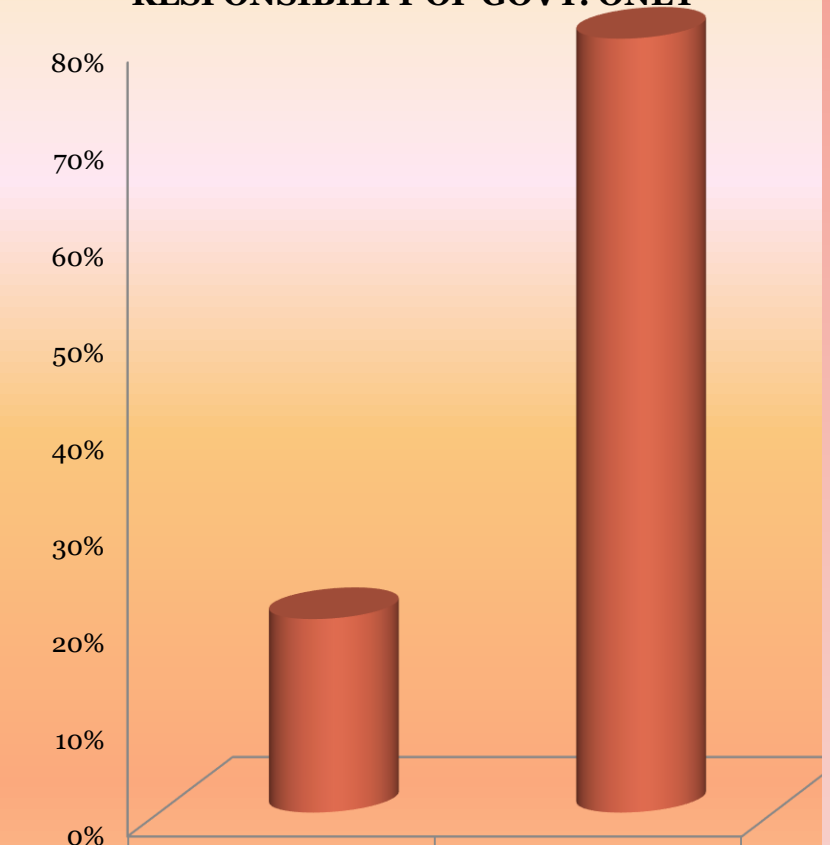
28% of the HCWs don't practice the maintenance of BMW records and even were not aware of the fact that there hospital has the provision for records maintenance regarding injury reporting and other BMW records. While 47 % of the HCPs follow the practice of proper maintenance of records and were well aware of their hospital records maintenance process regarding BMW management

GRAPH 8: SAFE MANAGEMENT OF BMW INCREASES FINANCIAL BURDEN ON HOSPITAL



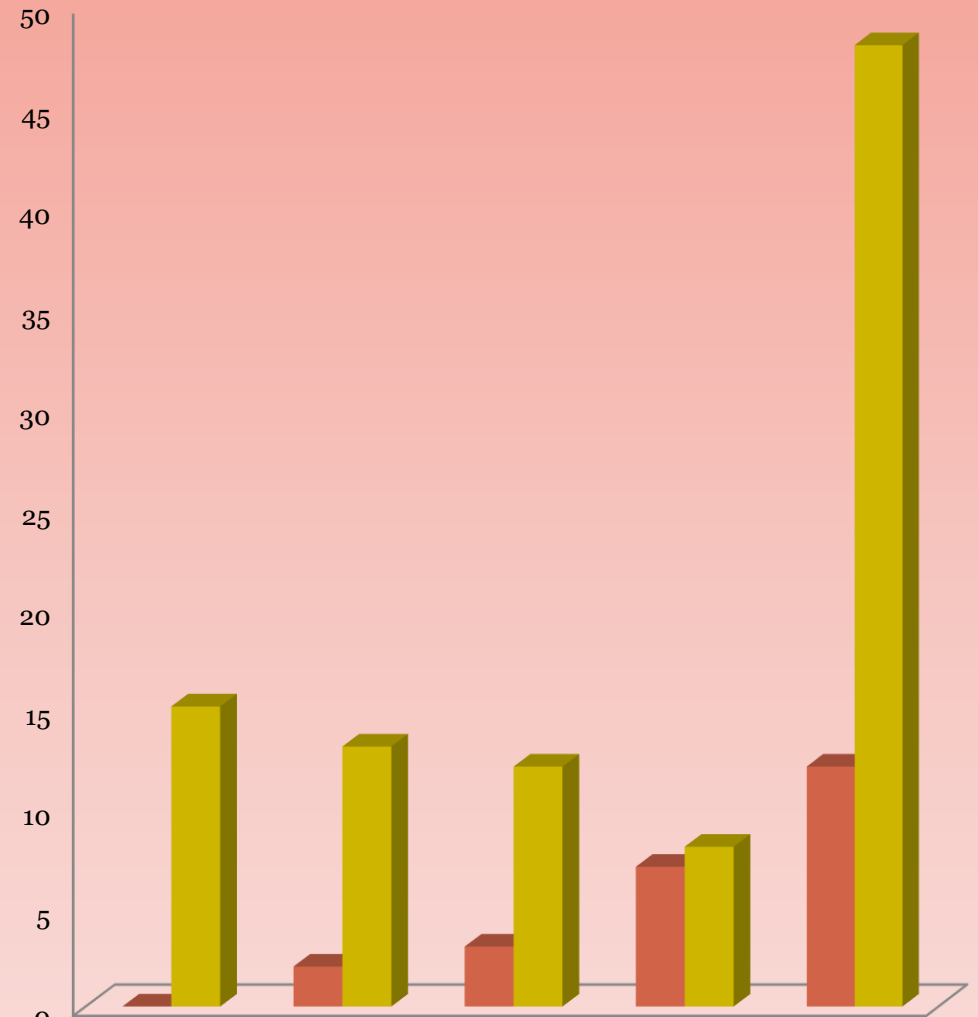
B)ATTITUDE AND PERCEPTION OF HCPs

GRAPH 9:SAFE MANAGEMENT OF BMW RESPONSIBILTY OF GOVT. ONLY



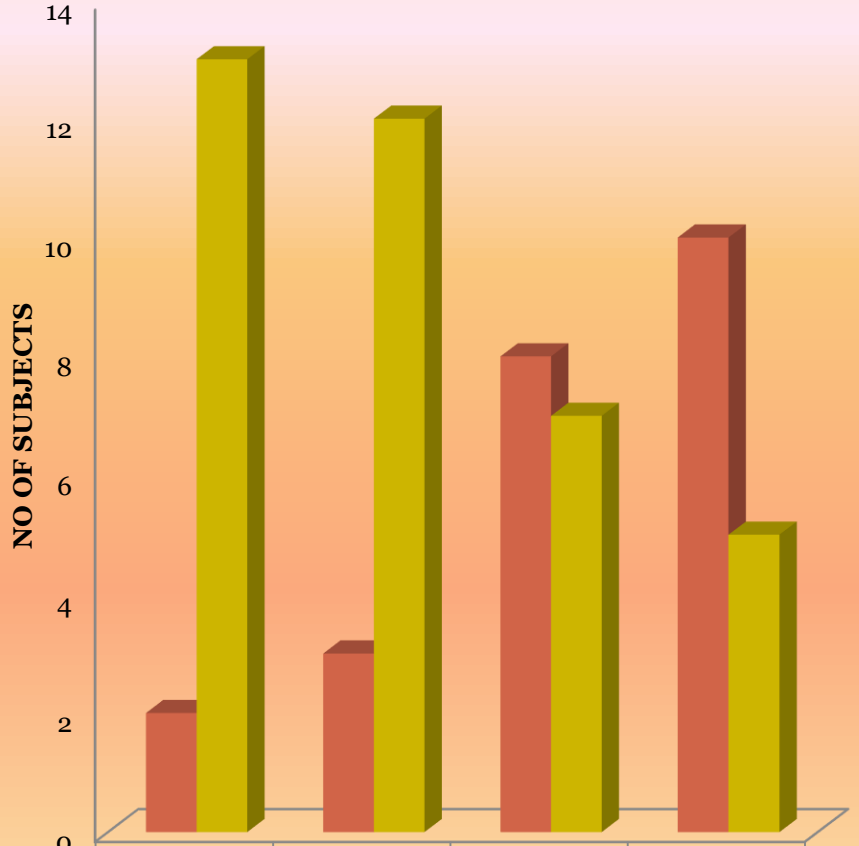
	PERCENTAGE OF RESPONDENTS WHO AGREED	PERCENTAGE OF RESPONDENTS WHO DON'T AGREE THAT IT IS ONLY GOVT. RESPONSIBILITY
Series1	20%	80%

GRAPH 10:BMW MANAGEMENT RESPONSIBILTY OF GOVERNMENT ONLY



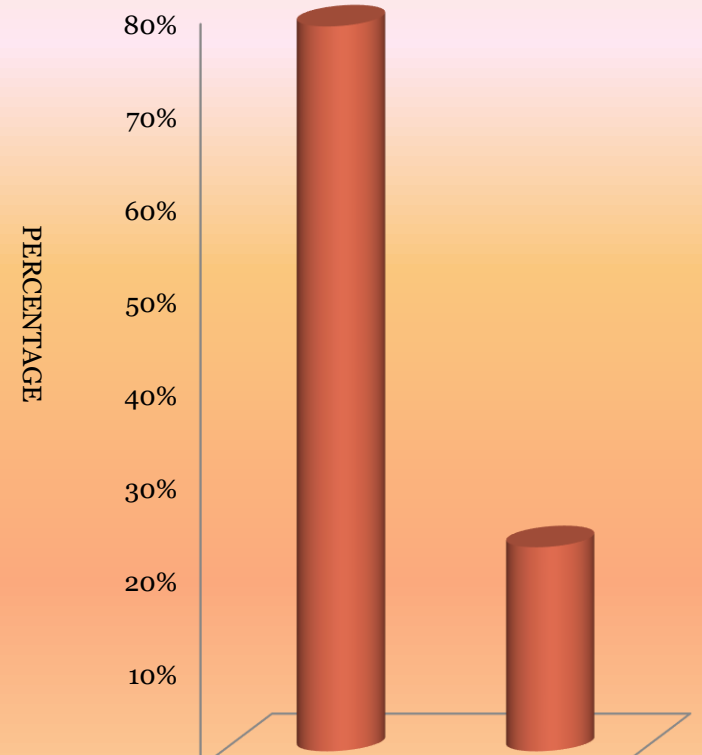
	DOCTORS	NURSES	PARAMEDICAL STAFF	SANITARY STAFF	TOTAL NO.OF RESPONDENTS
YES	0	2	3	7	12
NO	15	13	12	8	48

GRAPH 11:SAFE MANAGEMENT OF HEALTHCARE WASTE EXTRA BURDEN ON WORK

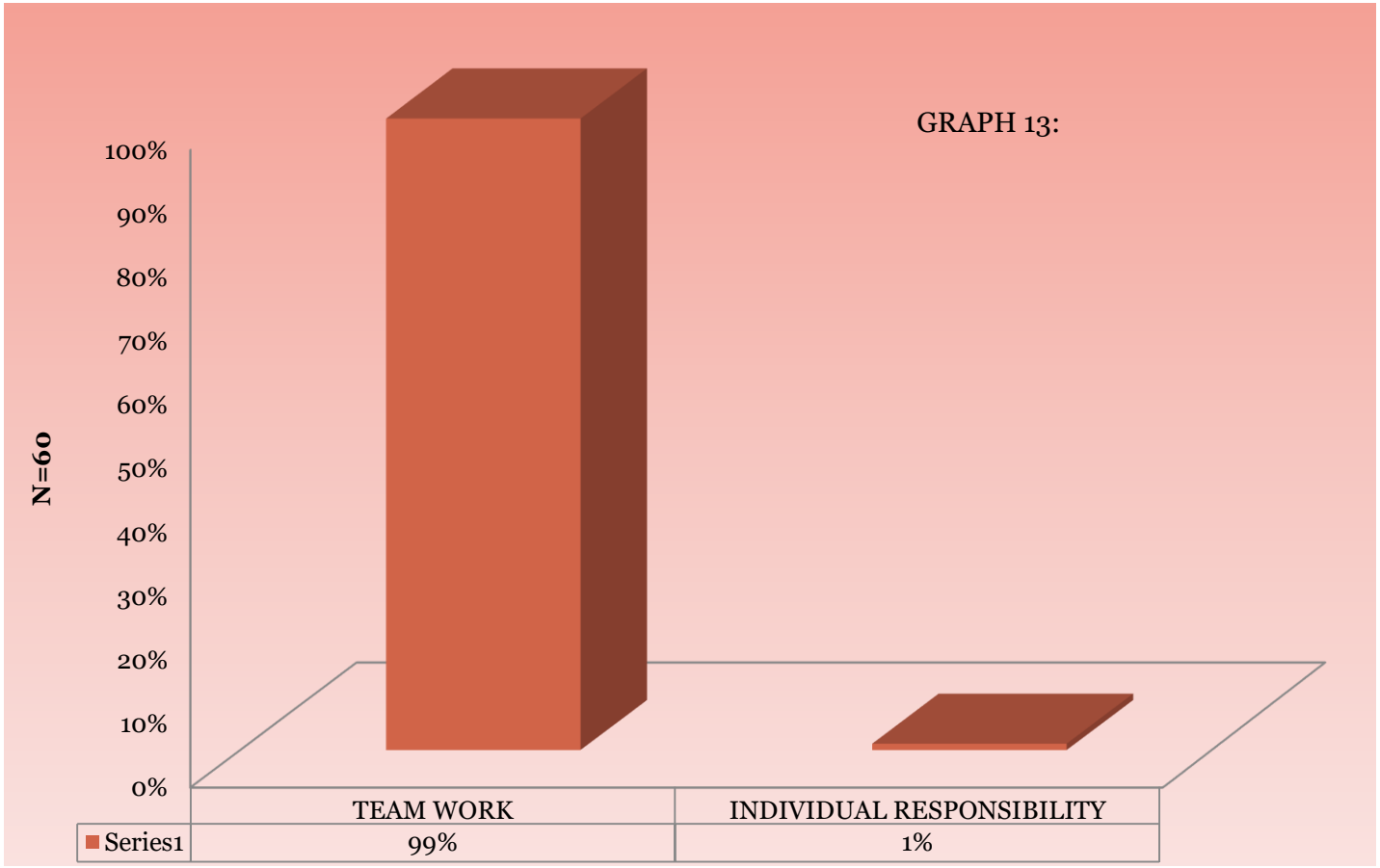


	DOCTORS	NURSING STAFF	PARAMEDICAL STAFF	SANITATION STAFF
YES	2	3	8	10
NO	13	12	7	5

GRAPH 12: SAFE MANAGEMENT OF BMW IS AN ISSUE



	YES A SENSITIVE ISSUE	NOT AN ISSUE
SAFE MANAGEMENT OF HEALTH CARE WASTE IS AN ISSUE	78%	22%



The above graph represents the attitude of the HCPs regarding BMW Management process. About 99% of the respondents felt that its management is a team work while only 1% believed that it is an individual responsibility

RESULTS OF STUDY

The process of waste management in civil hospital Pathankot follows current rules of BMW rule but after observing data collected through this study various gaps were noticed

The usage of personal protective equipments by the waste handlers were rudimentary

The security personnel were not playing their role in monitoring the activities of visitors and forbidding them to put waste wrongly.

The instructions for segregating the waste above the bins were missing and in case if present were in English creating a kind of language barrier to the sanitary staff for reading it, so they were not able to follow that practice of proper segregation.

- The study had also thrown light on the fact that there is no separate and well defined route for waste collection from different departments by the waste handler and its transport to the storage center in the hospital. The BMW handler used to collect the waste only once a day with no separate route which can lead to risk of nosocomial infection if there is spillage due to overloading of bins in the wheel barrow trolley .
- Knowledge regarding the legislation governing BMW, Segregation of bins was found to be higher among doctors followed by nurses whereas paramedical staff other than nurses and sanitary staff were not even aware of the basic facts regarding BMW Management.
- Daily records of quantum of waste generated in different bins were not recorded properly by the staff. Training sessions were provided twice a year but the performance and monitoring of activities concerning BMW by the authorities were not done. No evaluation of practices of BMW management followed by the HCWs was done by the hospital administration.

CURRENT PROCESS OF BMW MANAGEMENT IN GOVERNMENT CIVIL HOSPITAL PATHANKOT

Process of waste management in civil hospital Pathankot is evaluated by the help of checklists and directly observing the practices followed by the Workforce. Moreover interaction with staff and higher authorities and data collected from interviews was used to understand the process.

BMW is generated in different departments of the hospital by the HCPs during delivering of health services.

BMW is segregated at the point of generation at source in separate colour coded bins containing non chlorinated plastic bags containing bar codes in compliance with most of the rules of 2016

The authority segregates the liquid chemical waste at the point of source and pre- treat it with sodium hypochlorite before mixing it with other effluents generated from health care facilities.

Waste is then transported by the waste handler person in closed wheel barrow trolley to the collection center in the hospital located away from the wards and patient traffic but there is no separate route for waste transportation.

Collection room has well ventilation and also provided with lock for security for preventing pilferage of recyclables .

TRANSPORTATION FROM STORAGE CENTRE IN HOSPITAL TO OUTSOURCED AGENCY M/S bio-medical waste treatment plant private limited(herein after called as service provider)

Hospital does not itself disposes of bio-medical waste it is outsourced with proper agreement with common bio-medical treatment facility(CBWTF) named as M/S bio-medical waste treatment plant private limited(herein after called as service provider)

FIG 1 GENERAL WASTE IS MIXED WITH INFECTIOUS WASTE

SPILLAFE OF WASTE DUE TO OVERLOADING

USE OF PERSONNEL PROTECTIVE EQUIPMENTS BY THE STAFF IS UNSATISFACTORY

LIMITATIONS OF STUDY

- The study was limited to the process of generation, segregation, collection and transport to the storage center in the hospital premises only. The waste disposal process was not taken into consideration as it was outsourced to an enterprise located far away from the hospital premises which was not feasible to capture due to time constraints.

CONCLUSION

- The process of BMW management in Govt. civil hospital Pathankot follows majority of rules as per new amended rules of BMW Management rule 2016. Proper segregation practices are done in colour coded bins containing non chlorinated bags with bar codes on it.
- With regards to knowledge about segregation, legislation, storage of waste and overall basic rules of BMW 2016, it was found that doctors and nurses had the good knowledge and awareness as compared to other paramedical staff and sanitary staff. Doctors and nurses shared a positive attitude regarding their role and responsibilities in waste management and their perception for future training sessions was also positive. Besides they had good understanding regarding the criticality of Issue of BMW management.

- In order to improve the efficiency of BMW management process strict implementation of rules should be required. Periodic monitoring and evaluation of BMW management practices followed by workforce in department need to be checked by the hospital administration for ensuring safe hospital environment. There is need that each and every person involved with generating and managing BMW should be accountable for any violation done and zero tolerance policy should be followed against any found guilty.

- Hence thorough knowledge among the health providers and Biomedical waste handlers is required for the effective management of biomedical waste especially in light of current legislation governing it. Along with it proper waste management practices should be followed and positive attitude is also required to inculcate biomedical waste management practices as a part of daily routine without considering it as a extra burden on work.

SUGGESTIONS

- Proper maintenance of records by all the departments should be done
- It must involve team work not only individual responsibility
- Training sessions need to be conducted at monthly interval in local language with provision for compulsory attendance by the staff . It should be made compulsory to get all HCPs trained from accredited training centers which should be a continuous process.
- Behavioral modification programmes should be started in hospital in order to build positive attitude towards BMW management among the HCPs.
- Roles and responsibilities of the staff should be clearly defined without any ambiguity.
- Separate route for collecting and transportation of waste should be made.
- Bins should be emptied daily when it is 3/4th fill in order to prevent spillage of waste.
- Surprise rounds by the hospital administration of all departments for checking the practices followed by the staff should be followed.
- Sensitization of waste generators and health care providers should be done more frequently, and separate sensitization programs should be organized for sweepers and fourth class health care workers in local language emphasizing the importance of using personal protective measures and immunization for Hepatitis B.

Some more suggestions

- The hospital authorities should identify the good performing staff and shall give them awards for their contribution in management of waste, it will also serve as role model for others so that they will also be participating in future.
- All sorts of communication barrier should be removed between the hospital authorities and sanitary staff for improving performance of sanitary staff and avoid confusion.

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THANK YOU