Internship Training at District hospital, Rupnagar (Punjab)

By

Dr Swapnil Sagar

PGDHM

2012-2014

International Institute of Health Management Research

Annex C (Title Page)

Internship Training

At

District Hospital, Rupnagar (Punjab)

To Assess the Awareness Level About Bio-Medical Waste Management Amongst The Staff Of District Hospital, Rupnagar

By

Dr. Swapnil Sagar

Under the guidance of

Dr. Radhika Adholeya

Asst. Professor IIHMR, Delhi

Post Graduate Diploma in Hospital and Health Management

Year 2012-2014

IIHMR DELHI

PUNJAB HEALTH SYSTEMS CORPORATION

State Institute of Health and Family Welfare Complex
Phase-VI, Near Civil Hospital, Sahibzada Ajit Singh Nagar, Punjab.
Phone : 0172-2262938, 2263938, Tele-Fax : 0172 - 2266938
Visit us at : punjabhealth.co.in : E-mail: phschd@yahoo.com

No. PHSC/NABH/14/ 30 Dated 28.4.14

To whomsoever it may concern

Certificate of Dissertation Completion

This is to certify that Dr. Swapnil Sagar, student of Postgraduate Diploma in Hospital and Health Management of IIHMR Delhi, has successfully completed three months dissertation under Punjab Health Systems Corporation, Punjab, from 03.02.2014 to 30.04.2014

During the dissertation the student's performance was found to be satisfactory.

We wish him/her success in all his/her future endeavors.

Hussan Lal I.A.S.
Managing Director
Punjab Health Systems Corporation
-Cum-Secretary Health and Family Welfare, Pb.

FEEDBACK FORM

Name of the Student: DR SWAPNIL SAGAR

Dissertation Organisation: District hospital Rupnagar (Punjab State)

Area of Dissertation: Quality Assurance

Attendance: Regular

Objectives achieved: Project :- ① To Assess The Awareness Level About Bio Medical Waste Management Amongst The Staff of District Hospital, Rupnagar (Punjab)

Deliverables: Awareness raised in doctors nurses
Adherence to Biomedical waste in hospital

Strengths: Determined to improve quality in hospital Services, honest good Communicator

Suggestions for Improvement: - None -

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 28/4/14
Place: PHSC (Mohali)

TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Swapnil Sagar student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at District Hospital, Rupnagar (Punjab)

From 03/02/2014 to 30/04/2014

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements. I

Wish him all success in all his future endeavors.

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi

Dr. Radhika Adhikeya
Asst. Professor
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"To Assess The Awareness level About Bio-Medical Waste Management Amongst The Staff Of District Hospital, Rupnagar"** at **"District Hospital, Rupnagar (Punjab)"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management**for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr. PANKAJ GUPTA	
Dr. Anandh Ravadekar	
DR. ABHIJIT CHAKRABARTY	12/05/14

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Certificate from Dissertation Advisory Committee

This is to certify that Dr Swapnil Sagar, a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He is submitting this dissertation titled "To Assess the awareness level about Bio-Medical Waste Management amongst the staff of District Hospital, Rupnagar" at "YOUR ORGANIZATION" in partial fulfillment of the requirements for the award of the **Post-Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Institute Mentor Name,
Dr Radhika Adhoteya
Asst. Professor
IHMR, Delhi

Organization Mentor Name
Dr Parvinder Pal Kaur
Asst. Director
PHSC, Mohali

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled To Assess the Awareness Level about Bio-Medical Waste Management Amongst the Staff of District Hospital, Rupnagar and submitted by Dr. Swapnil Sagar, Enrollment No. PG/12/095 under the supervision of Dr. Radhika Adholeya, Asst. Professor, IIHMR, Delhi for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 03/02/2014 to30/04/2014 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

District Hospital, Rupnagar

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Abbreviations

BMW	BIO MEDICAL WASTE
WM	WASTE MANAGEMENT
OT	OPERATION THEATER
OPD	OUT PATIENT DEPARTMENT
DIAL	DIALYSIS
LDR	LABOR AND DELIVERY ROOM
HCW	HEALTH CARE WORKER

Acknowledgement

I would like to extend my heartfelt gratitude towards all the personnel at "District Hospital Rupnagar" who helped me get through this project.

This project would never have been possible without those who went out of their way to help me…

I started by expressing my sincere gratitude to Dr. Parvinder Pal Kaur (Addl. Director, PHSC) who gave me the opportunity to work in this organization.

I also extend my heartfelt gratitude to Dr. Rakesh Kumar Singla (SMO, Dist. Hospital, Rupnagar) who extended timely guidance and support at every crucial junction of this project and gave it the shape you see today.

Sincere thanks to all the staff at all levels, for helping me at each and every step of my work. Heartiest gratitude to them for making my stay and work at this place a memorable one.

In addition I would also like to thanks my mentor at IIHMR, Delhi respected Dr. Radhika Adholeya for her valuable efforts in shaping this study to a meaningful effort.

Dr Swapnil Sagar
PGDHHM
PG/12/095
IIHMR Delhi

Abstract

Aim: Aim of the study was to determine the awareness regarding biomedical waste management policy and practices among staff of District Hospital, Rupnagar.

Background: Management of biomedical waste is a crucial issue for maintaining human health and the environment in healthcare settings. The waste generated in the hospitals has the potential for spreading infections and causing diseases. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well.

Method: It was a cross sectional study conducted in District Hospital, Rupnagar with the objective of assessing the level of awareness amongst the hospital staff regarding waste management rules and ongoing policies and practices on biomedical waste management in the hospital. The study was conducted by using department wise observation checklist and a structured questionnaire. Hospital staff including doctors, nursing staff, technicians, housekeeping staff and others were the study population.

Findings:

Certain deficiencies in awareness about the definition of BMW of hospital employees were identified. 100% Doctors, 100 % Housekeeping staff, 100% Others, have better whereas 97% Nursing staff and 99% technicians were found to be aware about the same. The doctors and nursing staff were observed to be more aware in comparison to technicians, others and housekeeping in knowing that what is category 4 Bio medical waste 90% technicians and 78% of nursing staff do not know what is category 4 Bio medical waste.

Conclusion: The study includes an assortment of details about the identification of different types of waste generated, their handling, treatment and various management strategies adopted by the hospital to manage the Biomedical waste generated in hospital. The importance of training regarding biomedical waste management needs emphasis. Further it was found that lack of knowledge about biomedical waste management impact practices of appropriate waste disposal.

Chapter 1

Introduction

Medical care is vital for our life and health, but the waste generated form medical activities represent the real problem of living nature and human world. In proper management of waste generated in healthcare facilities causes a direct heath impact on the community, the healthcare workers, and on the environment.

Biomedical waste management has recently emerged as an issue of major concern not only to hospitals, nursing home authorities but also to the environment. The bio-medical wastes generated from health care units depend upon a number of factors such as waste management methods, type of health care units, occupancy of healthcare units, specialization of healthcare units, ratio of reusable items in use, availability of infrastructure and resources etc.1

The proper management of biomedical waste has become a worldwide humanitarian topic today. Although hazards of poor management of biomedical waste have aroused the concern world over, especially in the light of its far-reaching effects on human, health and the environment.2

Definition

According to Biomedical Waste (Management and Handling) Rules, 1998 of India "Any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining to or in the production or testing of biologicals. 3

The Government of India (notification, 1998) specifies that Hospital Waste Management is a part of hospital hygiene and maintenance activities. This involves management of range of activities, which are mainly engineering functions, such as collection, transportation, operation or treatment of processing systems, and disposal of wastes. 3

World Health Organization states that 85% of hospital wastes are actually non-hazardous, whereas 10% are infectious and 5% are noninfectious but they are included in hazardous wastes. About 15% to 35% of Hospital waste is regulated as infectious waste. This range is dependent on the total amount of waste generated (Glenn and Garwal, 1999).4

Problems relating to biomedical waste:

- A major issue related to current Bio- Medical waste management in many hospitals is that the implementation of Bio-Waste regulation is unsatisfactory.
- Lack of segregation practices, results in mixing of hospital wastes with general waste making the whole waste stream hazardous.
- Inadequate Bio-Medical waste management thus will cause environmental pollution, unpleasant smell, growth and multiplication of vectors like insects, rodents and worms and may lead to the transmission of diseases like typhoid, cholera.
- Various communicable diseases, which spread through water, sweat, blood, body fluids and contaminated organs, are important to be prevented.
- The recycling of disposable syringes, needles, IV sets and other article like glass bottles without proper sterilization are responsible for Hepatitis, HIV, and other viral diseases.

Need of Biomedical waste management in hospitals:

The reasons due to which there is great need of management of hospitals waste such as:

1. Injuries from sharps leading to infection to all categories of hospital personnel and waste handler.

2. Nosocomial infections in patients from poor infection control practices and poor waste management.

3. Risk of infection outside hospital for waste handlers and scavengers and at time general public living in the vicinity of hospitals.

4. Risk associated with hazardous chemicals, drugs to persons handling wastes at all levels.

5. "Disposable" being repacked and sold by unscrupulous elements without even being washed

6. Drugs which have been disposed of, being repacked and sold off to unsuspecting buyers.

7. Risk of air, water and soil pollution directly due to waste, or due to defective incineration emissions and ash3.

Approach for hospital waste management

Based on Biomedical Waste (Management & Handling) Rules 2011, notified under the Environment Protection Act by the Ministry of Environment and Forest (Government of India) .

1. Segregation of waste:-

Segregation is the essence of waste management and should be done at the source of generation of Bio medical e.g. all patient care activity areas, diagnostic services areas, operation theaters, labor rooms, treatment rooms etc. The responsibility of segregation should be with generator of biomedical waste i.e. doctors, nurses, technicians etc. (medical and paramedical personnel). The biomedical waste should be segregated as per categories mentioned in the rules. (Annexure 4)

2. Collection of bio medical waste

Collection of biomedical waste should be done as per Biomedical waste (Management and Handling) Rules. At ordinary room temperature the collected waste should not be stored for more than 24 hours.

3. Transportation

Within hospital, waste routes must be designated to avoid the passage of waste through patient care areas. Separate time should be earmarked for transportation of biomedical waste to reduce chances of its mixing with general waste. Desiccated wheeled containers, trolleys or carts should be used to transport the waste / plastic bags to the site of storage/ treatment.

4. Treatment of hospital waste

4.1 General waste

The 85% of the waste generated in the hospital belongs to this category. The safe disposal of this waste is the responsibility of the local authority.

4.2 Bio medical waste: 15% of hospital waste

- Deep burial
- Autoclave and microwave treatment (Annexure2)
- Shredding (Annexure 2)
- Secured landfill
- Incineration (Annexure 3)

5. Safety measures

5.1 All the generator of biomedical waste should adopt universal precautions and appropriate safety measures while doing therapeutic and diagnostic activities and also while handling the biomedical waste.

5.2 It should be ensured that:

- Drivers, collectors and other handlers are aware of the nature & risk of waste.
- Written instructions, provided regarding the procedure to be adopted in the event of spillage/ accidents.

- Protective gears provided & instructions regarding their use are given.
- Workers are protected by vaccination against tetanus & hepatitis B

6. Training

- Each & every hospital must have well planned awareness & training program me for all categories of personnel including administrators (medical, paramedical, & administrative).
- All the medical professionals must be made aware of Biomedical Waste (Management and Handling) Rules 1998.
- To institute awards for safe hospital waste management & universal precaution practices.
- Training should be conducted to all categories of staff in appropriate language/medium and in an acceptable manner.

7. Management and administration

Head of each hospital will have to take authorization for generation of waste from appropriate authorities as notified by the concerned State/ U.T. Government, well in time and to get it renewed as per time schedule laid down in the rules. Each hospital should constitute a hospital waste management committee, chaired by the head of the institute and having wide representation from all major departments. This committee should be responsible for making hospital specific action plan for hospital waste management and its supervision, monitoring and implementation. The annual reports, accidents reports, as required under BMW rules should be submitted to the concerned authorities as per BMW rules format.

8. Measures for waste minimization

As far as possible, purchase of reusable items made of glass and metal should be encouraged. Select non PVC plastic items. Adopt procedures and policies for proper management of waste generated, the mainstay of which is segregation to reduce the quantity of waste to be treated. Establish effective and sound recycling policy recycling and get in touch with authorized manufactures.

Biomedical Waste Management Rules: Safe disposal of biomedical waste is now a legal requirement in India. The Biomedical Waste Management & Handling) Rules, 1998 came into force on 1998. In accordance with these rules, it is the duty of every "occupier" i.e. a person who has the control over the institution or its premises, to take all steps to ensure that waste generated is handled without any adverse effect to human health and environment. It consists of six schedules.

Schedule I

Schedule II

Schedule III

Schedule IV

Schedule V

Schedule VI

Table 1

Schedule 1. Categories of Bio-Medical Waste

Waste Category	Type of Waste	Treatment & Disposal Option
Category Number 1	Human Anatomical Waste (Human tissues, organs, body parts)	Incineration/deep burial
Category number 2	Animal Waste (Animal tissues, organs, body part, carcasses, bleeding parts, fluid, blood & experimental animals used in research, waste generated by veterinary hospitals & colleges , discharge from hospitals, animal houses)	Incineration/ deep burial
Category Number 3	Microbiology & Biotechnology waste (Waste from laboratory cultures, stocks or specimen of live microorganisms or attenuated vaccines, human & animal cell cultures used in research & infectious agents from research & industrial laboratories, wastes from production of biological, toxins & devices used for transfer of cultures)	Local autoclaving/ microwaving/ Incineration

Category Number 4	Waste Sharps (Needles, syringes, scalpels, blades, glass,	Disinfecting (chemical treatment/ autoclaving/ microwaving & mutilation/ shredding
Category Number 5	Discarded Medicine & Cytotoxic drugs (Waste comprising of outdated, contaminated & discarded medicines)	Incineration/ destruction & drugs disposal in secured landfills
Category Number 6	Soiled Waste (Items contaminated with body fluids including cotton, dressing, soiled plaster casts, lines, bedding & other materials contaminated with blood.	Incineration/ autoclaving/ microwaving
Category Number 7	Solid Waste (Waste generated from disposable items other than the waste sharps such as tubing, catheters, Intravenous sets etc.)	Disinfecting by chemical treatment/ autoclaving/ microwaving & mutilation/ shredding
Category Number 8	Liquid Waste (Waste generated from the laboratory & washing, cleaning, housekeeping & disinfecting activities)	Disinfecting by chemical treatment & discharge into drains
Category Number 9	Incineration Ash (Ash from incineration of any biomedical waste)	Disposal in municipal landfill

Category Number 10	Chemical Waste (Chemical use in production of biological, chemicals used in disinfecting, as insecticides etc.	Chemical treatment & discharge into drains for liquids & secures landfill for solids

(Source- The Bio Medical Waste (Management and Handling) Rules, 1998)

Table 2

Schedule II: Color Coding and Type Of Container for Disposal of Bio-Medical Wastes

Color Coding	Type of Container	Waste Category	Treatment options (Schedule 1)
Yellow	Plastic bag	Cat.1,Cat.2, Cat3 & Cat.6	Incineration/ deep burial
Red	Disinfected container/ plastic bag	Cat.3, Cat.6 & Cat.7	Autoclaving/ Micro waving/ Chemical treatment
Blue/ White Translucent	Plastic bag/ puncture proof container	Cat.4 & Cat.7	Autoclaving/ Micro waving/ Chemical treatment & destruction/ shredding
Black	Plastic bag	Cat.5, Cat.9 & Cat.10 (solid)	Disposal in secured landfill

Schedule III: Label for Bio-Medical Waste Containers/Bags

Schedule IV

Label for Transport of Bio-Medical Waste Containers/Bags

Day …… Month …….....Year …….....

Date of generation …….....

Waste category No ……..

Waste class

Schedule-V

Standards for Treatment and Disposal of Bio-Medical Wastes Standards for Incinerators

Schegule-VI

Schedule for Waste Treatment Facilities like Incinerator/ Autoclave/ Microwave System.**10**

(Source- The Bio Medical Waste (Management and Handling) Rules, 1998).

Benefits of Biomedical Waste Management:

- Cleaner and healthier surroundings.
- Reduction in the incidence of hospital acquired and general infections.
- Reduction in the cost of infection control within the hospital.
- Reduction in the possibility of disease and death due to reuse and repackaging of infectious disposables.
- Low incidence of community and occupational health hazards.

- Reduction in the cost of waste management and generation of revenue through appropriate treatment and disposal of waste.
- Improved image of the healthcare establishment and increase the quality of life.

1.1: Organization profile

PUNJAB HEALTH SYSTEMS CORPORATION (PHSC)

- The Punjab Health Systems Corporation was incorporated by the State Govt. in the year 1996 through enactment of Legislative Act, "The Punjab Health Systems Corporation Act, 1996" (Punjab Act No.6 of 1996).
- Main objective is implementation of a World Bank assisted Health Systems Development Project for revamping of existing secondary level health care services.
- Corporation has taken over 166 Institutions which includes District Hospitals, Sub-Divisional Hospitals and Community Health Centres.
- Under this project modernization and updation of 157 hospitals has envisaged through systems supports such as Computerization, HMIS, Disease Surveillance, Training of Personnel, Quality Assurance, Bio-waste Management, Strengthening of Physical Infrastructure (Buildings & Equipment) etc.

DISTRICT HOSPITAL RUPNAGAR

- District Hospital Rupnagar caters to the people living in urban district.
- It is referral hospital for Primary Health Centre & Sub- centres.
- Catchment population 58363.
- The number of beds available in Hospital is 100.
- All departments required for District Hospital are available in this hospital.

Hospital hours of Operation

DEPARTMENT	OPERATION HOURS
Emergency Room	24 hours
Radiology	Monday- Saturday: 8am to 2pm (in summer) Monday- Saturday: 9am to 3pm (in winter)
OPD	Monday- Saturday: 8am to 2pm (in summer) Monday- Saturday: 9am to 3pm (in winter)
Laboratory	Monday- Saturday: 8am to 2pm (in summer) Monday- Saturday: 9am to 3pm (in winter)
Physiotherapy	Monday- Saturday: 8am to 2pm (in summer) Monday- Saturday: 9am to 3pm (in winter)
Nursing Ward	24 hours
Pharmacy	Monday- Saturday: 8am to 2pm (in summer) Monday- Saturday: 9am to 3pm (in winter)

1.2: Rationale of the study

Hospital waste management is a part off hospital hygiene and maintenance activities. In fact only 10%-15% of hospital waste i.e. “Biomedical waste” is hazardous. But when hazardous is not segregated at the sources of generation and mixed with non-hazardous waste, then 100% waste becomes hazardous. The question then arises that what is the need or rational for spending so many resources in terms of money, man power, material and machine for management of hospital waste? The reasons are:

1. Injuries from sharps leading to infection to all categories of hospital personnel and waste handler.
2. Nosocomial infection in patient from poor infection control practices and poor waste management.
3. Risk of infection outside hospital for waste handlers and scavengers and at time general public living in the vicinity of hospital.
4. Risk associated with hazardous chemical, drugs to persons handling wastes at all levels.
5. “Disposable” being repacked and sold by unscrupulous elements without even being washed.
6. Drugs which have been disposed of, being repacked and sold off to unsuspecting buyers.
7. Risk of air, water and soil pollution directly due to waste, or due to defective incineration emission and ash.

Chapter 2

Literature Review

A study conducted in a tertiary care hospital of West Bengal to assess the knowledge and awareness about various aspects of BM waste management among junior doctors (future physicians) showed that only 29.5% had knowledge of the various methods of final disposal of BM waste and only 76.4% knew about various types of color-coded bags for collection of BM waste. Thus the authors concluded that intensive training programmes and monitoring at regular time intervals are needed for all staff, with special emphasis on junior doctors (5).

A cross sectional study in 30 hospitals with more than 30 beds minimum were randomly selected from Sabarkantha district, Gujarat with the objective of assessing the level of awareness about the various aspects of biomedical waste and disposal practices by the medical practitioners. The doctors and auxiliary staff of those 30 hospitals were the study population. There was no effective waste segregation, collection, transportation and disposal system at any hospital in the district. Findings revealed that is an immediate and urgent need to train and educate all doctors and the staff to adopt an effective waste management practices.(6)

Another study with objectives of assessing knowledge, attitude and practices of doctors , nurses , laboratory technicians and sanitary staff regarding biomedical waste management was conducted among hospitals (bed capacity >100) of Allahabad city including doctors(75), nurses (60), laboratory technicians (78) and sanitary staff (78). Doctors, nurses and laboratory technicians have better Knowledge than sanitary staff regarding biomedical waste management. Knowledge regarding the color coding and waste segregation at source was found to be better among nursing and laboratory staff as compare to the doctors. The importance of training biomedical waste management needs emphasis.(7)

A study conducted in 2001by CEE, New Delhi, indicated an implementation deficit. To gauge the present situation, a survey was undertaken during 2005-2006. A systematic analysis of

current biomedical waste management practices in smaller nursing home and hospitals in Delhi was carried out. The survey results show that there is a marked improvement in the segregation practices of biomedical waste in small private hospitals and nursing homes. This paper discusses the relevant data indicative of current practices of healthcare waste management in the nursing homes and small healthcare facilities in Delhi. (8)

Chapter 3

OBJECTIVES

3.1 **Main Objectives:** - To assess the awareness level amongst the hospital staff regarding waste management policies and bio medical waste management practices in the hospital by administering the structured questionnaire.

3.2 **Specific Objectives:-**

- ✓ To determine the awareness level on bio medical waste management rules & practices in the hospital among the staff.
- ✓ To identify the different categories of waste generated in hospital as specified by the bio medical (Management & Handling) rules, 2011.
- ✓ To quantify average number of correctly segregated dustbins in different departments of the hospital based on the observations.
- ✓ To recommend possible remedial measures.

Chapter 4

Methodology

4.1 Study area: - District Hospital, Rupnagar

4.2 Study population: - Hospital Staff

4.3 Sample Size: - To check the awareness 82 healthcare personnel were interviewed & dustbins in different departments were observed.

4.4 Sampling methods: - Convenience sampling

4.5 Study design

Cross section & Descriptive study

4.6 Data collection technique:-

- ✓ Interview
- ✓ Observation

4.7 Data collection tool

- ✓ Check list- department wise
- ✓ Structured Questionnaire

4.8 Type of data: Primary data

4.9 Study period:-

03/02/2014 to 30/04/2014

4.10 Statistical software used for data analysis:-

MS excel 2007, MS word 2007.

Limitations:-

Despite the effort made to make the study as précises & objective as possible certain limitations were there:-

- ✓ Accuracy of the findings depends on the accuracy of the information.
- ✓ The study concentrated on issues related to BMW management only.
- ✓ The study could be further expanded by focusing on issues related to hygiene, environment.

Chapter 5

Data analysis and findings

Analysis and interpretation of the data collected to assess the awareness of employees about biomedical waste management. Analysis and interpretation of the data were based on the objective of the study which was

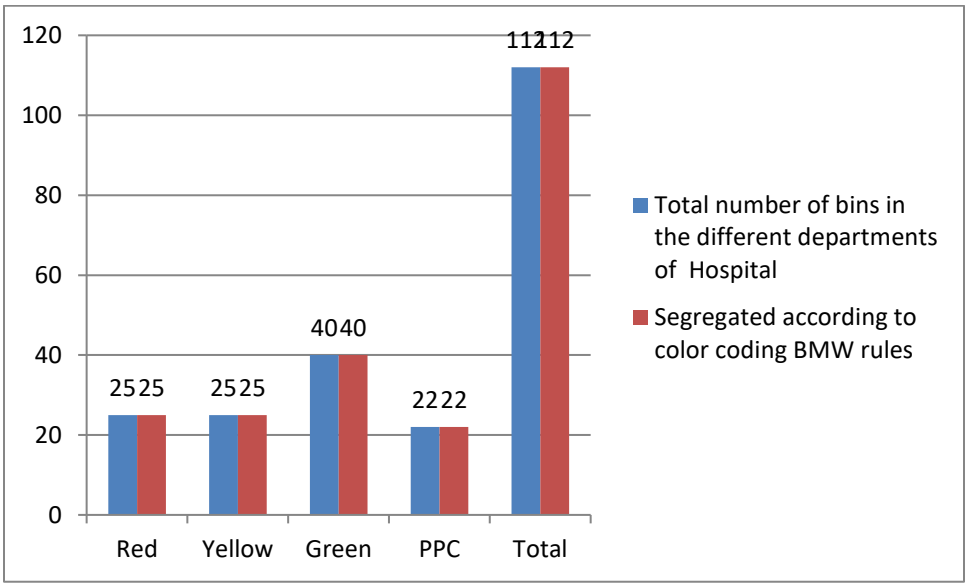
- To know the awareness level of hospital staff about biomedical waste management.

Segregation of bins

Table-3 Correctly Segregated Bins

Types of Bins	Total number of bins in the different departments of Hospital	Segregated according to color coding BMW rules
Red	25	25
Yellow	25	25
Green	40	40
PPC	22	22
Total	112	112

Figure 1: Number of correctly segregated bins



Interpretation:-

During the study it was observed that 100% bio medical waste was segregated in correct bins (according to the hospital policies on bio medical waste management).

Awareness about the definition of BMW

Figure 2: Awareness of Overall Staff

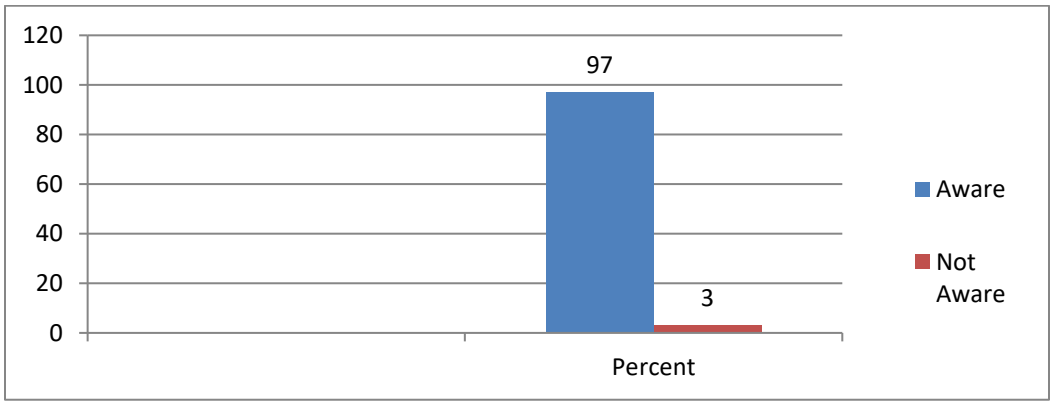


Fig. showing that 97% of overall staff is aware about the definition of BMW

Figure 3: Awareness of Staff after Categorization

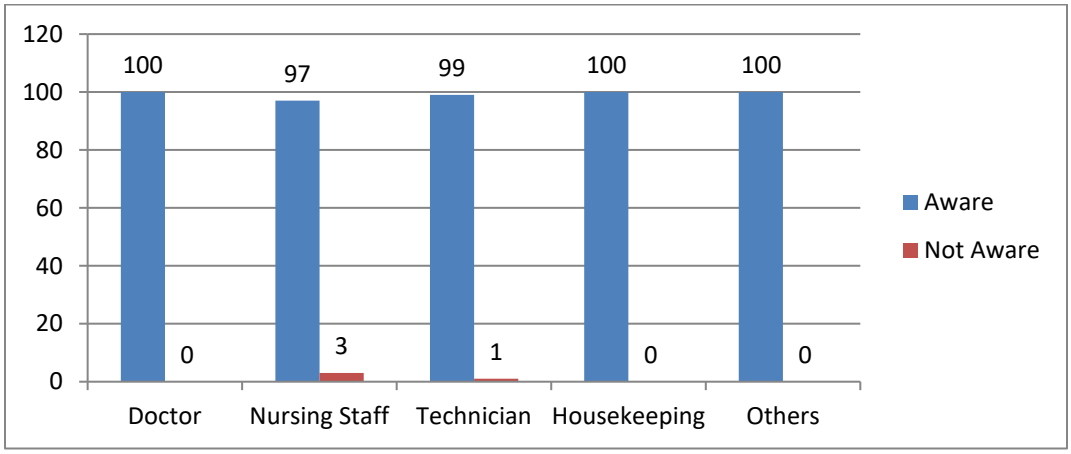


Fig. showing that awareness about the definition of BMW is maximum in doctors, Housekeeping, others and least in technician and nursing staff.

Interpretation:

The respondents were asked about the definition of BMW & findings revealed that 97% were completely aware about the definition of BMW. Further on categorization I found that doctor, housekeeping, other was excellent with 100% awareness, followed by the technician 99% and least in nursing staff with 97%.

Awareness about the generation of BMW in their respective department

Figure 4: Overall staff

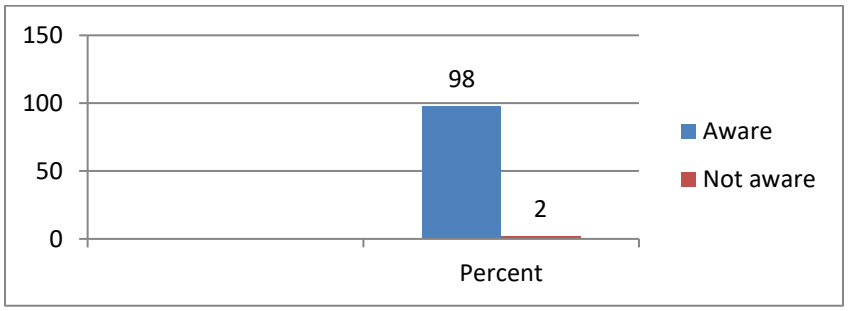


Fig. showing that 98% of overall staff (N=82) is aware about the generation of BMW in their respective department.

Figure 5: Awareness of staff after categorization

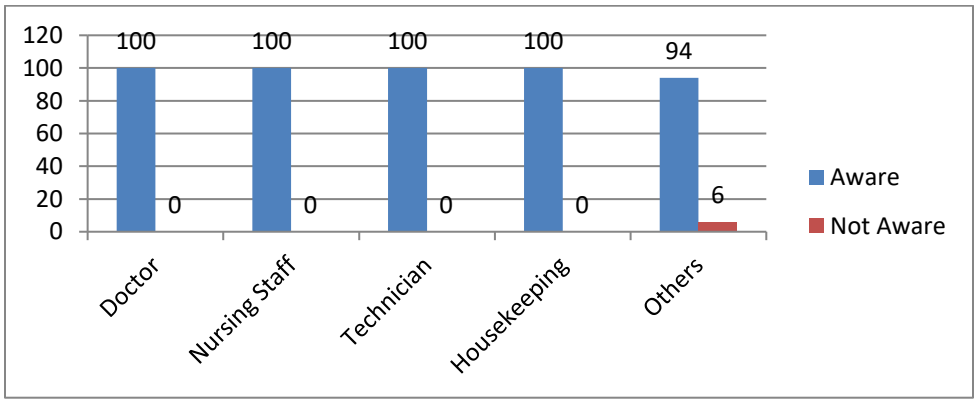


Fig. showing that awareness about the generation of BMW in their respective departments is highest in nursing staff, technician, housekeeping, others and least in doctors.

Interpretation

The respondents were asked about the generation of BMW in their respective departments & findings revealed that 98%were completely aware about the same. Further on categorization, I found that nursing staff, technicians, housekeeping, doctors were excellent with 100% awareness however others were least awareness about the BMW generation in their department with 94%.

Awareness about the Waste Management Plan of hospital

Figure 6: Overall staff

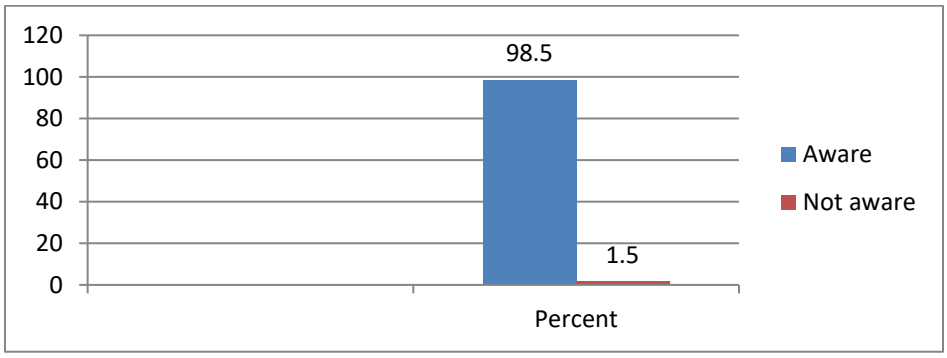


Fig. showing that 98.5% of overall staff is aware about the waste management plan of hospital

Figure 7: Awareness of staff after categorization

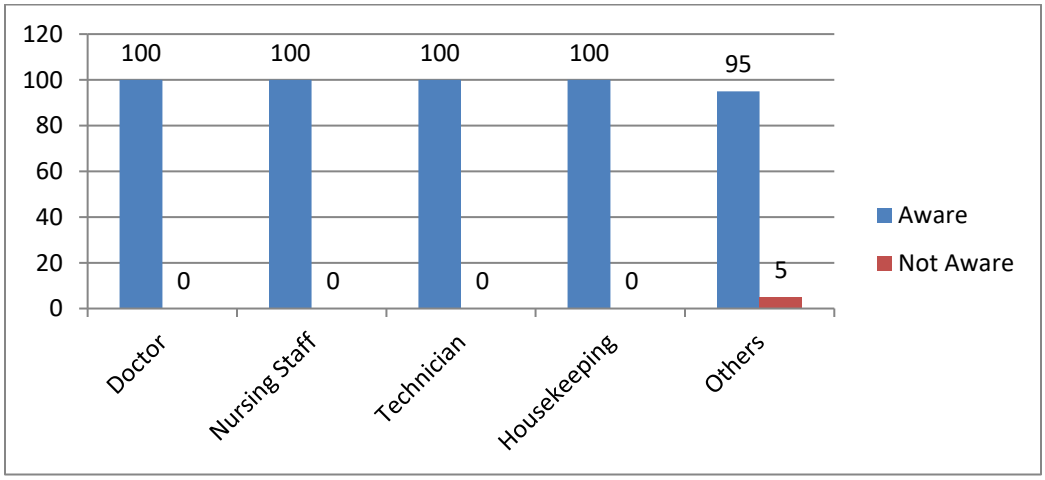


Fig. showing that awareness about the waste management plan of hospital is highest in doctors, nursing staff, housekeeping, technicians and least in others.

Interpretation

The respondents were asked about the waste management plan of hospital and finding revealed that 98.5% were completely aware in which I found that doctors, nursing staff, housekeeping, technicians were excellent with 100% awareness followed by others with 95% awareness respectively.

Awareness about the categories of BMW waste

Figure 8: Overall staff

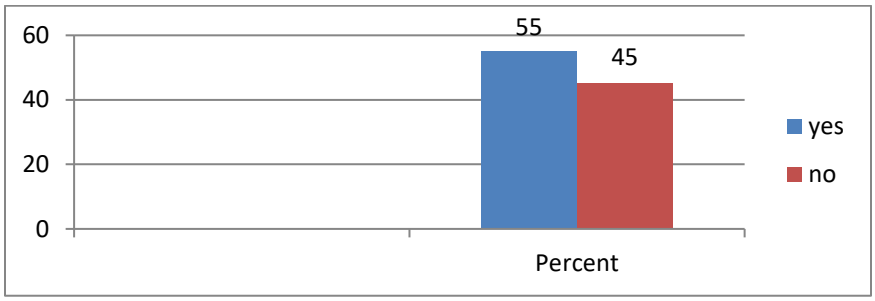


Fig. showing that 55% of overall staff (N=82) is aware that BMW waste should be segregated in different categories.

Figure 9: Awareness of staff after categorization

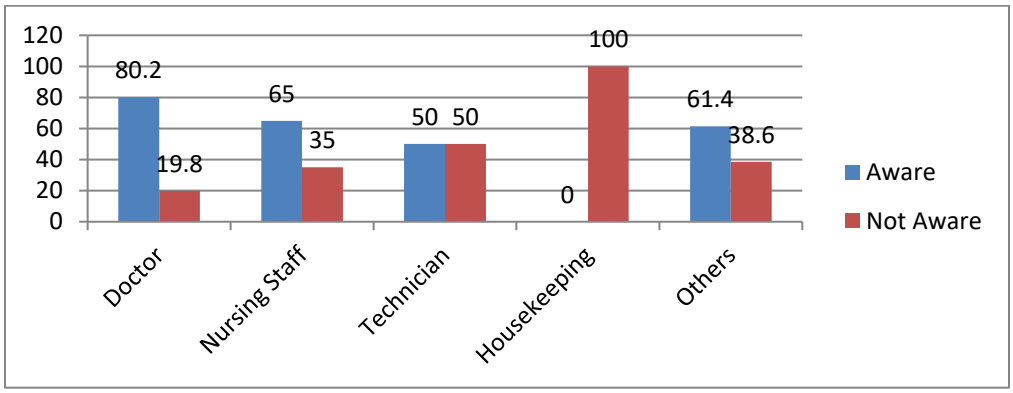


Fig. showing that awareness about the segregation of waste into different categories is highest in doctors, nursing staff, others followed by technicians however it is least in housekeeping.

Interpretation:

The respondents were asked about the segregation of waste into different categories and findings revealed that 55% (n=45) were completely aware about the same. Further on categorization I found that doctors are excellent with 82.2%, followed by the nursing staff with 65%, others with 61.4% and technicians with 50%. The response was least in housekeeping with 100% unawareness.

Awareness about the category 4 type biomedical waste

Figure 10: overall staff

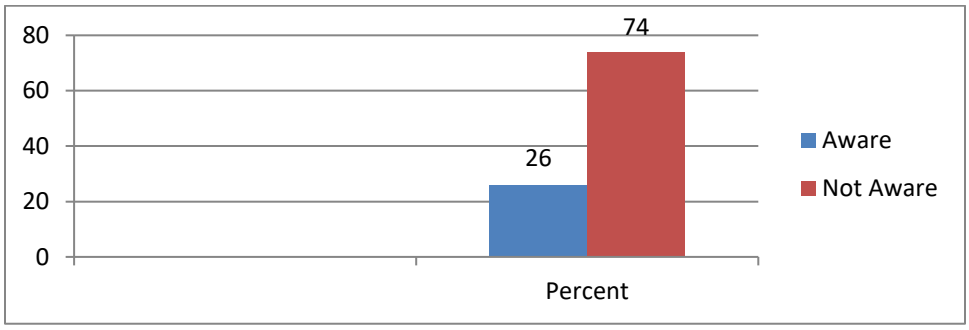


Fig. showing that 26% of overall staff (N=82) is aware about category 4 type bio medical waste.

Figure 11: Awareness of staff after categorization

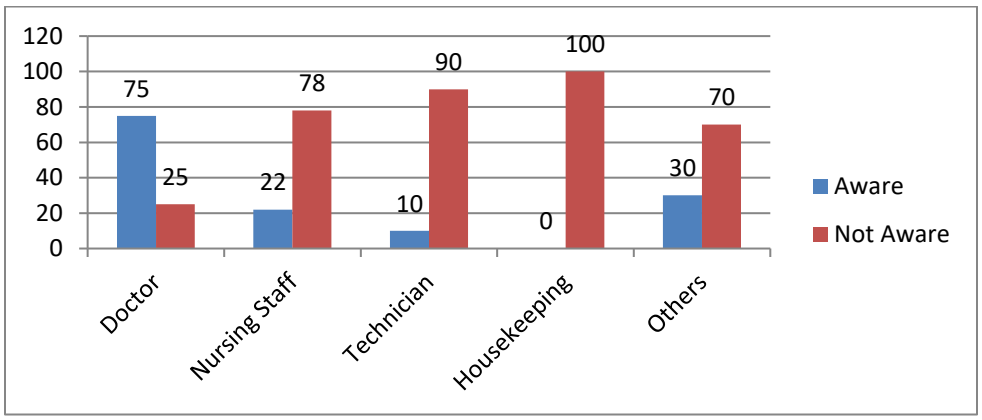


Fig. showing that awareness about the category 4 type bio medical waste is highest in doctors, others, nursing staff and followed by technician however it is least in housekeeping.

Interpretation:

The respondents were asked about the category 4 type biomedical waste and findings revealed that 26% were completely aware about the same. Further on categorization I found that doctors are excellent with 75% awareness, followed by the others with 30%, nursing staff with 22% and technicians with 10%. The response was least in housekeeping with 100% unawareness.

Awareness of staff about category 10 type Bio medical waste

Figure 12: overall staff

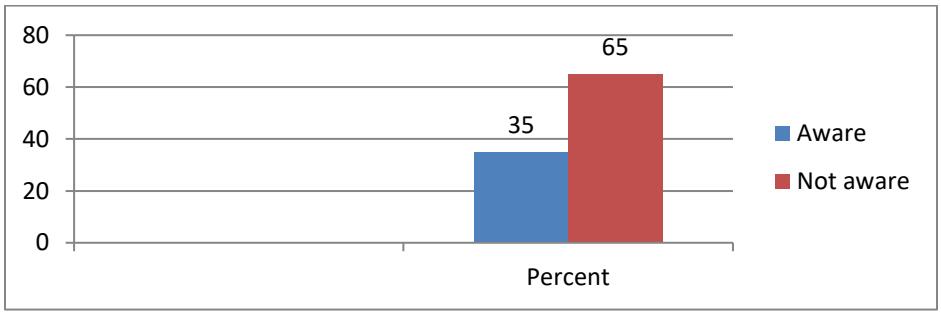


Fig. showing that 35% of overall staff is aware about category 10 type Bio medical waste.

Figure 13: Awareness of staff after categorization

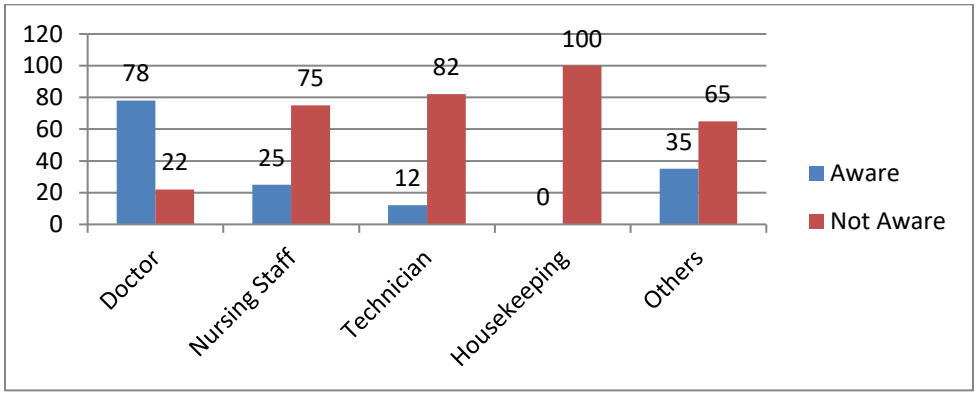


Fig. showing that awareness of staff about category 10 type Bio medical waste is highest in doctors followed by others, nursing staff, technicians and housekeeping are least in knowing about category 10 type Bio medical waste.

Interpretation:

The respondents were asked about category 10 type Bio medical waste and findings revealed that 35% were completely aware about the same. Further on categorization I found that doctors are excellent with 78%awareness, followed by the others with 35%, nursing staff with 25% and technicians with 12%. The response was least in housekeeping with 100% unawareness.

Awareness about the treatment of BMW

Figure 14: Overall staff

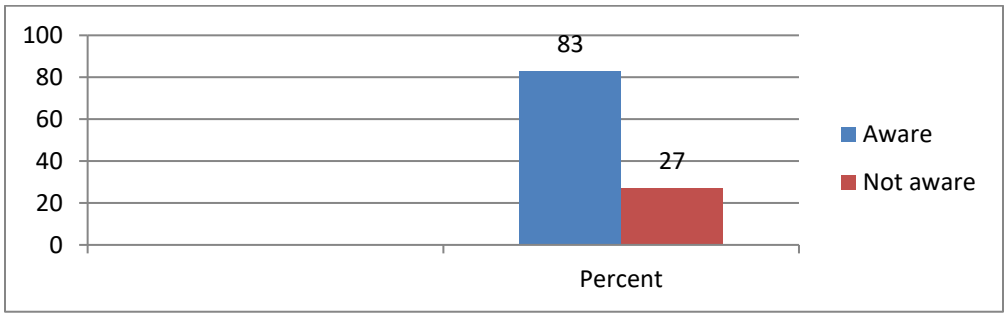


Fig. showing that 83% of overall staff is aware about the treatment of BMW

Figure 15:Awareness of staff after categorization

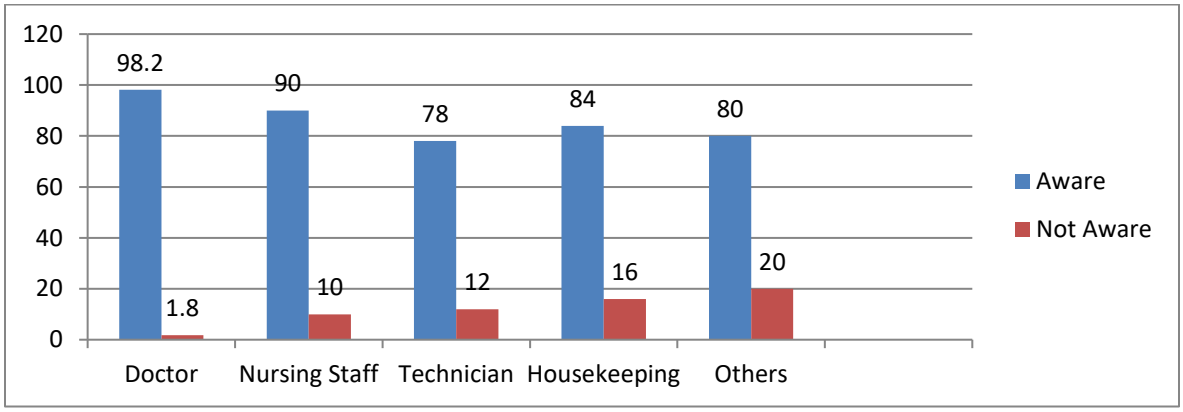


Fig. showing that awareness of staff about the treatment of BMW is highest in doctors and, nursing staff, housekeeping followed by others however technician are least in knowing the treatment of BMW.

Interpretation

The respondents were asked about their role in BMW segregation and findings revealed that 83% were completely aware about the same. Further on categorization I found that doctors are excellent with 98.2%, followed by the nursing staff with 90%, housekeeping with 84% and others with 80%. The response was least in technicians with 78% unawareness.

Awareness about the health risks due to improper BMW management

Figure 16: Overall staff

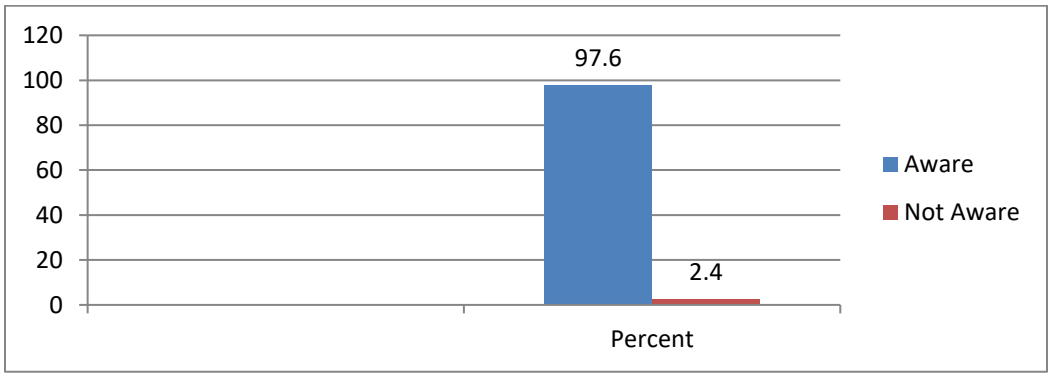


Fig. showing that 97.6% of overall staff (N=82) are aware about the health risks due to improper BMW management.

Figure 17: Awareness of staff after categorization

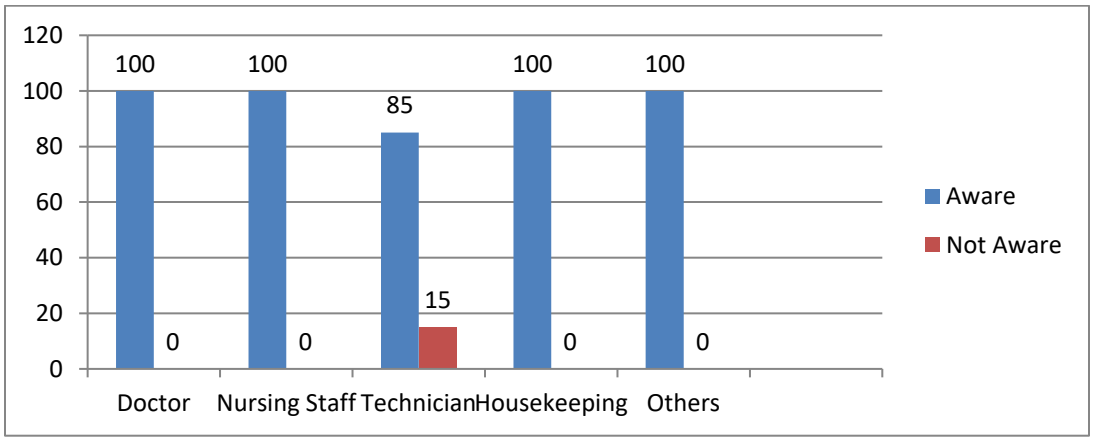


Fig. showing that awareness about the health risks due to improper BMW management is highest in doctors, nursing staff, others and housekeeping and least in technician.

Interpretations:

The respondents were asked about the health risks due to improper BMW management and findings revealed that 97.6% were completely aware about the same. Further on categorization I found that doctors, technicians, others and housekeeping are excellent with 100%. The response was least in nursing staff with 85% awareness.

Awareness about color coding for human anatomical waste.

Figure 19: Overall staff

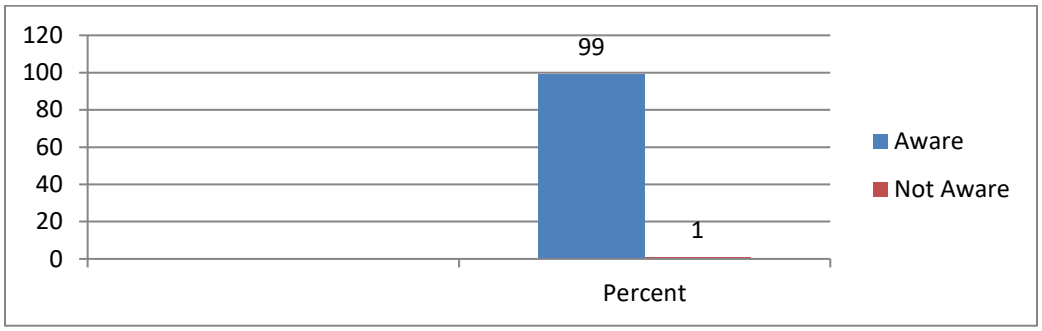


Fig. showing that 99% of overall staff (N=82) are aware about the color coding for human anatomical waste.

Figure 20: Awareness of staff after categorization

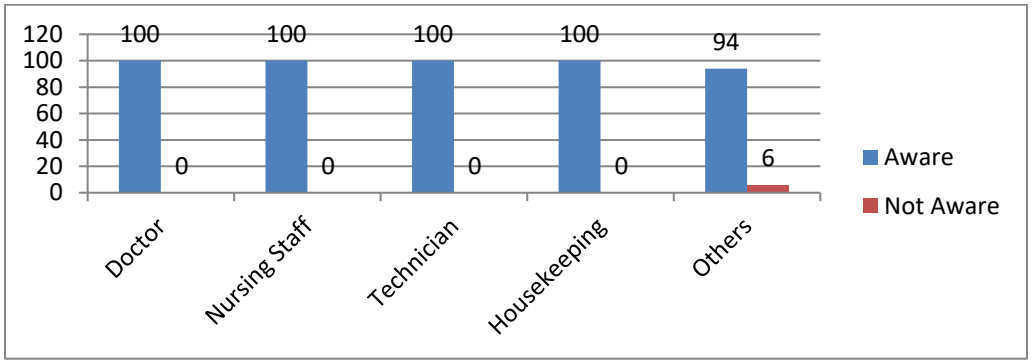


Fig. showing that awareness about the color coding for human anatomical waste is highest in doctors, nursing staff, technician and housekeeping and least in others.

Interpretations:

The respondents were asked about the color coding for human anatomical waste and findings revealed that 99% were completely aware about the same. Further on categorization I found that doctors, technicians, others and housekeeping are excellent with 100%. The response was least in others with 94% awareness.

Awareness about the color coding for general waste/ non infections waste

Figure 21: Overall staff

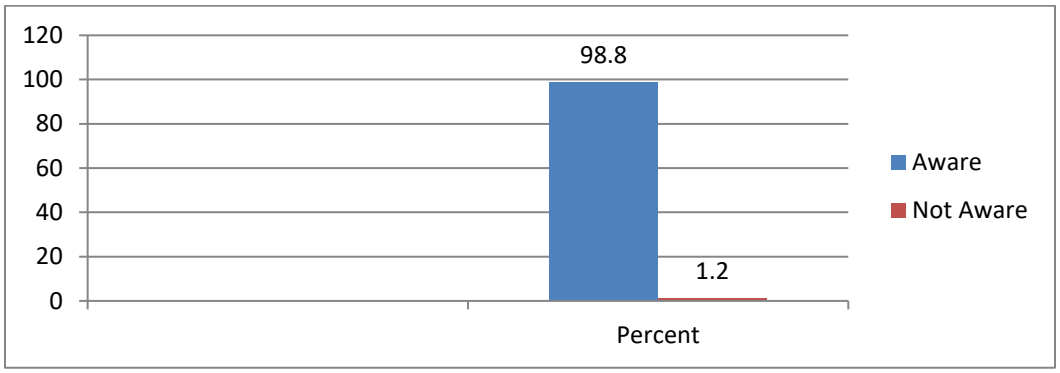


Fig. showing that 98.8% of overall staff (N=82) is aware about the color coding for general waste/ non infections.

Figure 22: Awareness of staff after categorization

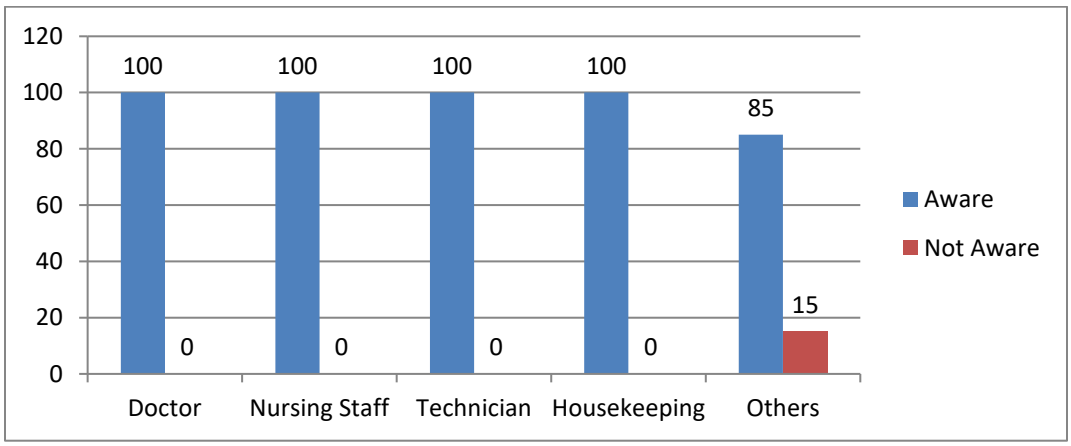


Fig. showing that awareness about the color coding for general/ non infections waste is highest in doctors, nursing staff, technician and housekeeping and least in others.

Interpretations:

The respondents were asked about the color coding for human anatomical waste and findings revealed that 98.8% were completely aware about the same. Further on categorization I found that doctors, nursing staff, technicians and housekeeping are excellent with 100%. The response was least in others with 85% awareness.

Awareness about the disposal of sharp wastes

Figure 23: Overall staff

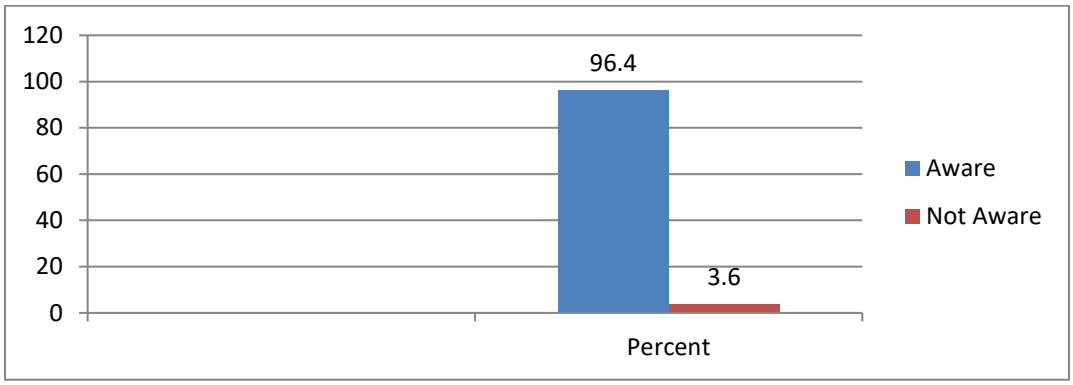


Fig. showing that 96.4% of overall staff (N=82) are aware about the disposal of sharp wastes

Figure 24: Awareness of staff after categorization

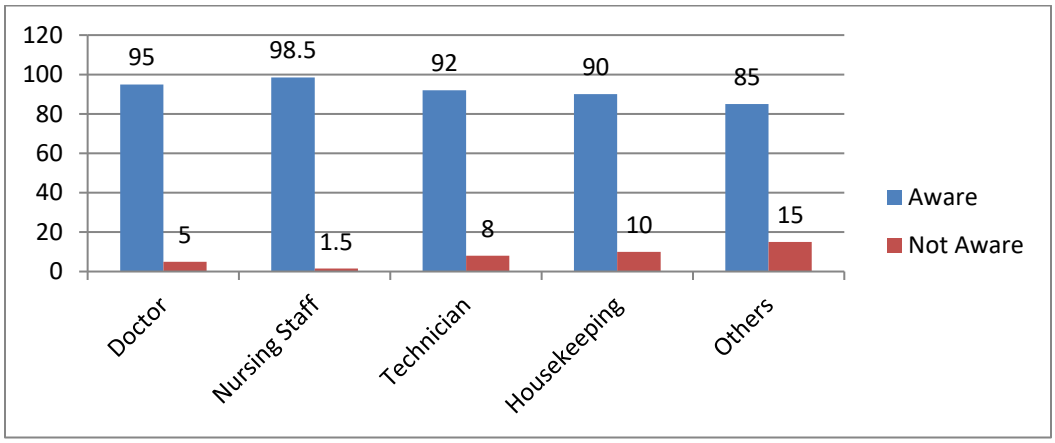


Fig. showing that awareness about the disposal of sharp waste is highest in technicians, nursing staff and doctors and minimum in others and housekeeping.

Interpretations:

The respondents were asked about the disposal of sharp wastes and findings revealed that 96.4% were completely aware. However on categorization, I found that nursing staff with 98.5%, doctors with 95%, and technicians with 92% have maximum awareness followed by housekeeping with 90% awareness whereas others were found lowest aware with 85%.

Awareness about disposal of Discarded medicines & Cytotoxic drugs

Figure 25: overall staff

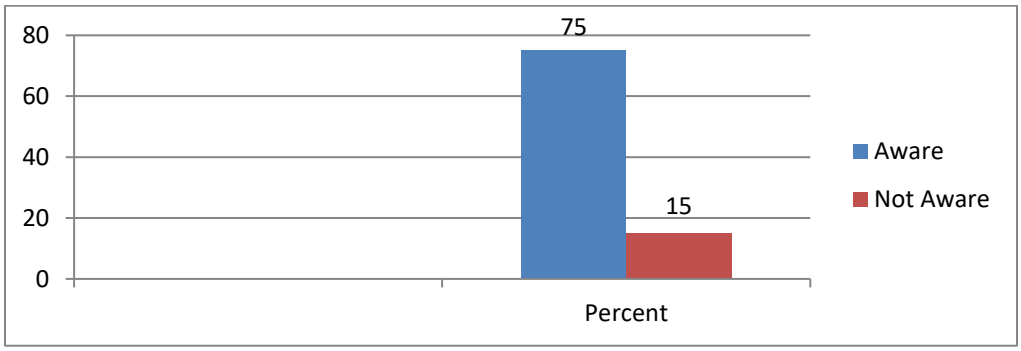


Fig. shows that 75% of overall staff (N=82) is aware about the disposal of Discarded medicines & Cytotoxic drugs.

Figure 26: Awareness of staff after categorization

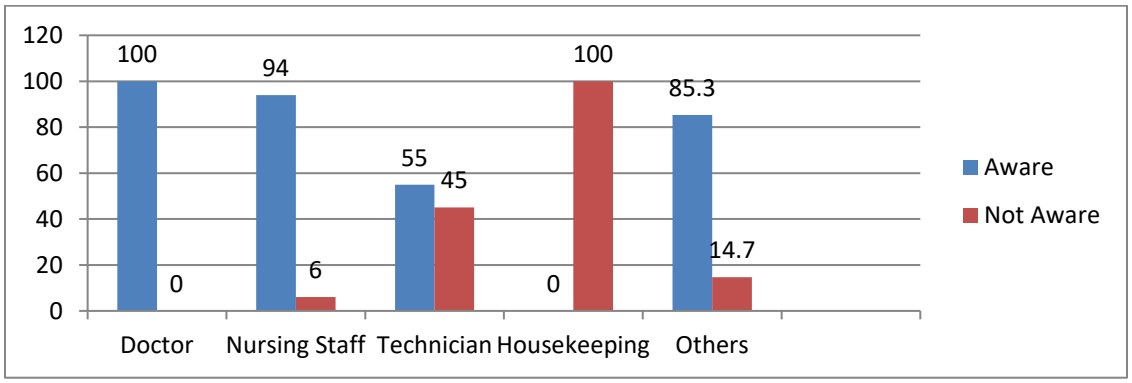


Fig. showing that awareness about the disposal of discarded medicines & cytotoxic drugs in the hospital is highest in doctors and minimum in housekeeping.

Interpretation:

The respondents were asked about the disposal of discarded medicines & cytotoxic drugs in the hospital and findings revealed that only 75% were completely aware. Awareness of staff after categorization I found that doctors have got excellent knowledge with 100% followed by the nursing staff with 94%, others with 85.3% and technician with 55%. Housekeeping was 100% unaware about disposal of discarded medicines & cytotoxic drugs.

Awareness about the labeling of infection waste with bio hazard symbol

Figure 27: Overall staff

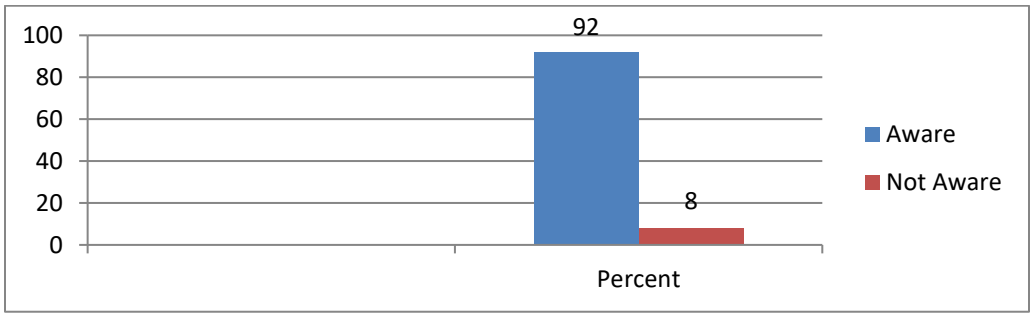


Fig. shows that only 92% of overall staff (N=82) is aware about the labeling of infection waste with bio hazard symbol

Figure 28: awareness of staff after categorization

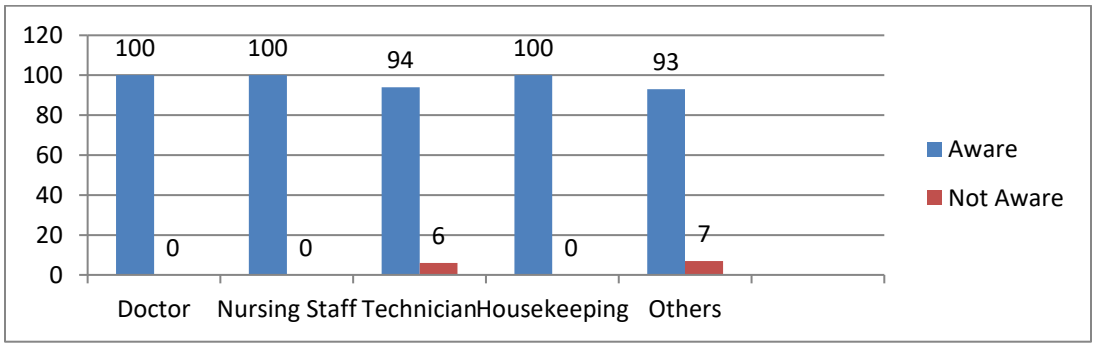


Fig. showing that awareness about the labeling of infection waste with bio hazard symbol is highest in doctors, nursing staff and housekeeping and minimum in others.

Interpretation:

The respondents were asked about the labeling of infection waste with bio hazard symbol and findings that revealed that 92% of hospital staff was completely aware about the labeling of infection waste with bio hazard symbol. Awareness of staff after categorization it was observed that doctors, nursing staff and housekeeping have got the maximum with 100% followed by the technician with 94% awareness whereas others were found to be lowest in awareness about the labeling of infection waste with bio hazard symbol with 93%.

Awareness about the training programme on hospital waste management in hospital

Figure 29: Overall staff

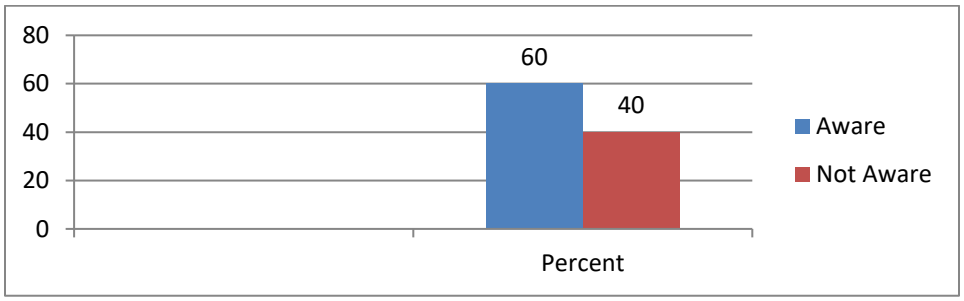


Fig. showing that 60% of overall staff (N=82) is aware about the training programme on hospital waste management in the hospital.

Figure 30: Awareness of staff after categorization

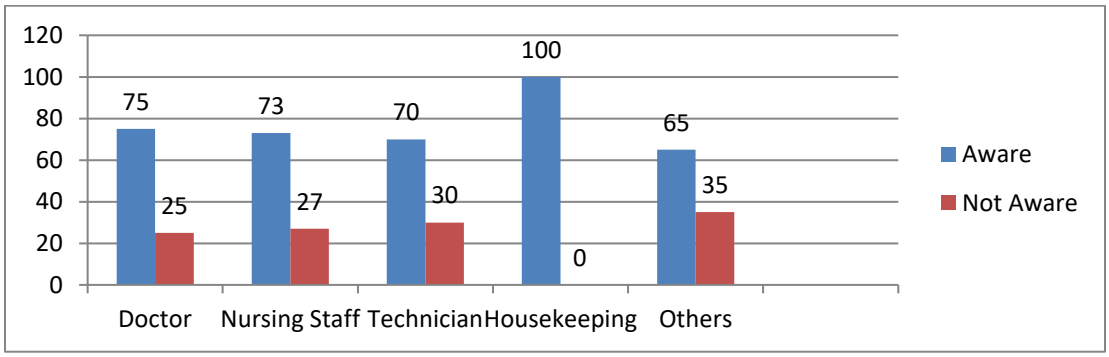


Fig. showing that awareness about the training programme on hospital waste management in hospital is maximum in housekeeping and doctors.

Interpretation:

The respondents were asked about the training programme on hospital waste management in hospital and findings revealed that 60% were aware. Further after categorization we found 100% of housekeeping and 75% doctors were aware about the same, 73% of nursing staff, 70% of technicians whereas only 65% of others were aware about the training programme on hospital waste management conducted in hospital.

Awareness about the symbol used to label the biomedical waste container

Figure 31: Overall staff

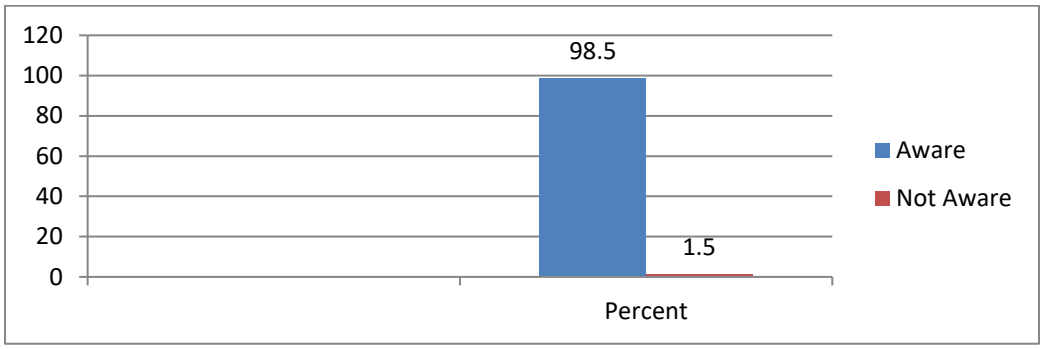


Fig. showing that 98.5% of overall staff is aware about the symbol used to label the biomedical waste container

Figure 32: awareness of staff after categorization

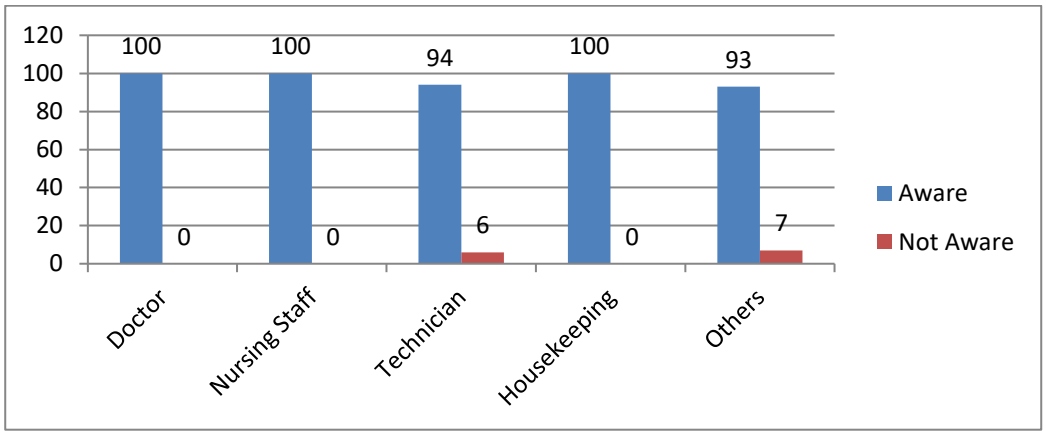


Fig. showing that awareness about the symbol used to label the biomedical waste container is maximum in doctors, nursing staff and housekeeping whereas minimum in technician and others

Interpretation

The respondents were asked about the symbol used to label the biomedical waste container and the findings revealed that 98.5% were completely aware. Awareness of staff after categorization it was found that doctors, nursing staff and housekeeping are excellent with 100% and 94% 0f technicians were aware about the same whereas only 93% of others were aware about the symbol used to label the biomedical waste container.

Discussion

This was a cross sectional hospital based study conducted in district hospital, Rupnagar. All the departments in the hospital including OPD, Medical ward, surgical ward, Emergency, Laboratory, Radiology, Pharmacy, OT, Bloor Bank, LDR etc. were visited. Information was obtained by both interview and observation methods. A total of 82 study subjects were selected conveniently, which includes doctors, nursing staff, technician, housekeeping and others then they were interviewed by administering a structured questionnaire attached in appendices and 112bins in all the departments for 30 days were also observed personally with infection control nursing staff to determine accuracy in segregation of BMW to check the awareness on BMW management in hospital staff.

Most of the doctors, nursing staff, technicians, housekeeping staff and other were aware about what is BMW, generation of BMW in their department, waste management plan of their hospital, improper BMW leads to health risks, labeling of infection waste with the bio hazard symbol, symbol used to label the biomedical waste container.

The study shows that 25% of overall staff (healthcare personnel) was not aware about the disposal of discarded medicine & cytotoxic drugs in the hospital. Doctors and nursing staff were more aware then housekeeping staff and others about the disposal of sharp waste in the hospital as around 10% technicians and 15% others were unaware. 100% doctors, nursing staff, technicians and housekeeping staff were aware about the color coding for human waste only 6% others were not aware about that. During study it was observed that 100% bins in the hospital were correctly segregated. 92% of overall staff (healthcare personnel) was aware that infection waste labeled with the bio hazard symbol.

Safe and effective management of waste is not only a legal necessity but also a social responsibility and every employee of hospital should understand this and should attend training programmes conducting by the hospital on hospital waste management. The study shows that 40% healthcare personnel did not attend any training programme on hospital waste management. 100% attendance of the hospital employees should be require during training programme to improve the waste management plan in hospital.

Chapter 6

Recommendations and Conclusion

Recommendations

- Awareness materials including hoardings, wall writing stickers etc. should be provided in the hospital.
- Proper and scheduled training has to be given for the all staffs.
- Special training has to be given for the personnel who are handling the waste directly on regular basis like nursing staffs and housekeeping staffs. These training sessions should not become merely a onetime activity but should be a continuous process.
- Monitoring closely of segregation and collection practices with in the hospital.

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   Waste management (New York, N.Y.) MEDLINE Abstracts – Dec 1, 2008
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APPENDICES 1

Questionnaire for interviewing Healthcare Personnel:-

Person Interview:-

(A) Doctor

(B) Nursing Staff

(C) Technician

(D) Housekeeping

(E) Others

Department:-

Education:-

(A) Post Graduate

(B) Graduate

(C) Higher Secondary (10+2)

(D) Secondary (10^{th})

(E) Not Educated

1. Any waste which is generated during the diagnosis, treatment or immunization of human beings or animal or in research activities is called biomedical waste:

   (A) Yes (B) No

2. Is there any biomedical waste generated in your department?

   (A) Yes (B) No

3. Does your hospital have a waste management plan?

   (A) Yes (B) No

4. Bio medical waste segregated into how many categories?

   (A) 5 (B)10 (C) 15 (D) 20

5. What is category 4 type bio medical waste?

   ---

6. What is category 10 type bio medical waste?

   ---

7. Biomedical waste should be treated within

   (A) 24hrs (B) 48hrs (C) 36 hrs (D) 72hrs

8. Improper biomedical waste management leads to the health of:-

   (a) Employee of the hospital (B) Patient receiving treatment (C) Visitors to the hospital

   (D) All of above (F) None of above

9. Human anatomical & soiled wastes should go into:-

(A) Yellow bag (B) Puncture proof container (C) Black Bag (D) Blue Bag

10. General waste/ Non infections waste has to be put into:-

(A) Black bag (B) Puncture proof container (C) Yellow bag (D) Blue Bag

11. Where sharp wastes are disposed off into?

(A) Black bag (B) Puncture proof container (C) Yellow bag (D) Blue Bag

12. Discarded medicines & cytotoxic drugs should be discarded into

(A) Black bag (B) Puncture proof container (C) Yellow bag (D) Blue Bag

13. Is the infection waste labeled with the bio hazard symbol?

(A) Yes (B) No

14. Have you undergo any training programme on hospital waste management in your hospital?

(A) Yes (B) No

15. Symbol used to label the biomedical waste container is:-

(A)  (B)  (C) 

APPENDICES 2

Checklist for BMW Segregation Bins

LOCATION	YELLOW	Blue	PPC	Green
Medical Ward				
Surgical ward				
Labor Room OT				
Main OT				
Dressing Room				
Dental OPD				
Surgical OPD				
Orthopedic OPD				
EYE OPD				
Dialysis				
IDSP Lab				
Laboratory				
Radiology				
Emergency				
Mini OT Emergency				
PP Unit				
Gynecology OPD				
Physiotherapy				