

**TO ASSESS THE AWARENESS
LEVEL AMONGST THE HOSPITAL
STAFF REGARDING BIO-
MEDICAL WASTE MANAGEMENT
IN THE DISTRICT HOSPITAL
MANSA PUNJAB**

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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 & Equipments) etc.

DISTRICT HOSPITAL MANSA



DISTRICT HOSPITAL MANSA



DISTRICT HOSPITAL, MANSA

District Hospital mansa caters to the people living in urban area.

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 WORKING HOURS

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

KEY LEARNING

Functioning of Government Hospital and management issues related to it.

Checking of day to day work of Hospital

Conducting various committee meetings

Supervising various departments like Medical Record, Housekeeping, Nursing etc.

Managing the work assigned with available resources



AIM OF THE STUDY

To Assess the Awareness Level amongst the hospital staff regarding bio medical waste management in the District hospital Mansa



INTRODUCTION ENVIRONMENTAL LEGISLATION

The Environment (Protection) Act, 1986

**The Biomedical Waste (Management & Handling) Rules,
1998**

**The Municipal Solid Waste (Management & Handling)
Rules, 2000**

**The Hazardous Waste (Management & Handling) Rules,
1989**

The National Environmental Tribunal Act, 1995

The Air (Prevention and Control of Pollution) Act, 1981



BIOMEDICAL WASTE (MANAGEMENT & HANDLING) RULES 1998 AMENDED 2000

Rules for Segregation & Packing of BMW

- ✓ Bio-medical waste shall not be mixed with other wastes.
- ✓ Bio-medical waste shall be segregated into containers/bags at the point of generation in accordance with Schedule II (next slide) prior to its storage, transportation, treatment and disposal. The containers shall be labeled according to Schedule III .



SCHEDULE-I

Option	Waste Category	Treatment & Disposal
Category No. 1	Human Anatomical Waste (human tissues, organs, body parts)	incineration @/deep burial*
Category No. 2	Animal Waste (animal tissues, organs, body parts carcasses, bleeding parts, fluid, blood and experimental animals used in research, waste generated by veterinary hospitals, colleges, discharge from hospitals, animal houses)	incineration@/deep burial*
Category No. 3	Microbiology & Biotechnology Waste (Wastes from laboratory cultures, stocks or micro-organisms live or vaccines, human and animal cell culture used in research and infectious agents from research and industrial laboratories, wastes from production of biologicals, toxins, dishes and devices used for transfer of cultures)	local autoclaving/micro-waving/incineration@
Category No. 4	Waste Sharps (needles, syringes, scalpels, blade, glass, etc. that may cause puncture and cuts. This includes both used and unused sharps)	disinfection (chemical treatment @@@/auto claving/microwaving and mutilation/shredding##
Category No. 5	Discarded Medicines and Cytotoxic drugs (Waste comprising of outdated, contaminated and discarded medicines)	incineration@/destruction and drugs disposal in secured landfills

SCHEDULE-I

CATEGORIES OF BIO-MEDICAL WASTE

(CONTINUE)

Category No. 6	Soiled Waste (items contaminated with blood, and body fluids including cotton, dressings, soiled plaster casts, lines, bedding, other material contaminated with blood)	incineration@autoclaving/micro waving
Category No. 7	Solid Waste (Waste generated from disposal items other than the sharps such a tubings, catheters, intravenous sets etc.)	disinfection by chemical treatment@@ autoclaving/microwaving and mutilation/shredding##
Category No. 8	Liquid Waste (Waste generated from laboratory and washing, cleaning, housekeeping and disinfecting activities)	disinfection by chemical treatment@@ and discharge into drains
Category No. 9	Incineration Ash Ash from incineration of any bio-medical waste)	disposal in municipal landfill
Category No. 10	Chemical Waste (Chemicals used in production of biologicals, chemicals used in production of biologicals, chemicals used in disinfection, as insecticides, etc.)	chemical treatment@@ and discharge into drains for liquids and secured landfill for solids

SCHEDULE-I

CATEGORIES OF BIO-MEDICAL WASTE (CONTINUE)

Note :

@	There will be no chemical pretreatment before incineration. Chlorinated plastics shall not be incinerated.
*	Deep burial shall be an option available only in towns with population less than five lakhs and in rural areas.
@@	Chemicals treatment using at least 1% hypochlorite solution or any other equivalent chemical reagent. It must be ensured that chemical treatment ensures disinfection.
##	Multilation/shredding must be such so as to prevent unauthorised reuse.

SCHEDULE-II

COLOUR CODING AND THE TYPE OF CONTAINER FOR DISPOSAL OF BIO MEDICAL WASTES

Colour Coding	Type of Container	Waste Category	Treatment options
Yellow	Plastic Bag	Categories 1, 2, 3 & 6.	Incineration/ deep burial
Red	Disinfected container/Plastic bag	Categories 3, 6, 7	Autoclaving/Micro-waving/Chemical Treatment
Blue/White Translucent	Plastic Bag /punctproof containers	Cat. 4, Cat. 7	Autoclaving/Micro-waving/ Chemical Treatment & Destruction / shredding
Black	Plastic Bag	Categories 5, 9, 10	Disposal in secured landfill.

Notes:

1. Colour coding of waste categories with multiple treatment options as defined in schedule 1, shall be selected depending on treatment option chosen, which shall be as specified in Schedule I.
2. Waste collection bags for waste types needing incineration shall not be made of chlorinated plastics.
3. Categories 8 and 10 (liquid) do not require containers/bags.
4. Category 3, if disinfected locally need not be put in containers/bags.

SCHEDULE-III

LABEL FOR BIO-MEDICAL WASTE

CONTAINERS/BAGS

BIOHAZARD SYMBOL



BIOHAZARD

CYTOTOXIC HAZARD SYMBOL



CYTOTOXIC

HANDLE WITH CARE

Note : Label shall be non-washable and prominently visible.

RULES FOR TRANSPORTATION & STORAGE OF BMW

If a container is transported from the premises where bio-medical waste is generated to any waste treatment facility outside the premises, the container shall, apart from the label prescribed in Schedule III, also carry information prescribed in Schedule IV.

Notwithstanding anything contained in the Motor Vehicle Act, 1988, or rules there under, untreated biomedical waste shall be transported only in such vehicles as may be authorized for the purpose by the competent authority as specified by the government.

No untreated bio-medical waste shall be kept/stored beyond a period of 48 hours.

Provided that if for any reason it becomes necessary to store the waste beyond such period, the authorized person must take permission of the prescribed authority and take measures to ensure that the waste does not adversely affect human health and the environment.

OBJECTIVE OF STUDY

- To determine the awareness level on bio medical waste management rules & practices in the hospital among the staff.
 - To quantify average number of correctly segregated dustbins in different departments of the hospital based on the observations.
 - To identify the loopholes in BMW practices and suggest corrective measures accordingly
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REVIEW OF LITERATURE

Management of biomedical waste: awareness and practices in a district of Gujarat (2001). 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 management. 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.



REVIEW OF LITERATURE

Another A Cross- sectional Study with objectives of assessing knowledge, attitude and practices of doctors , nurses , laboratory technicians regarding biomedical waste management was conducted among hospitals (bed capacity >100) of Allahabad city including doctors(75), nurses (60), laboratory technicians (78).



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



REVIEW OF LITERATURE

A survey was undertaken during 2005-2006 by CEE, New Delhi. on current biomedical waste management practices in smaller nursing home and hospitals in Delhi.

The survey results show that there is a marked improvement in the segregation practices of biomedical waste in small private hospitals and nursing homes.



METHODOLOGY

Study Area: District Hospital mansa

Study Design: Cross sectional & Descriptive study

Data Collection technique: Interview & Observation.

Data collection Tools: Structured Questionnaire & Checklist department wise

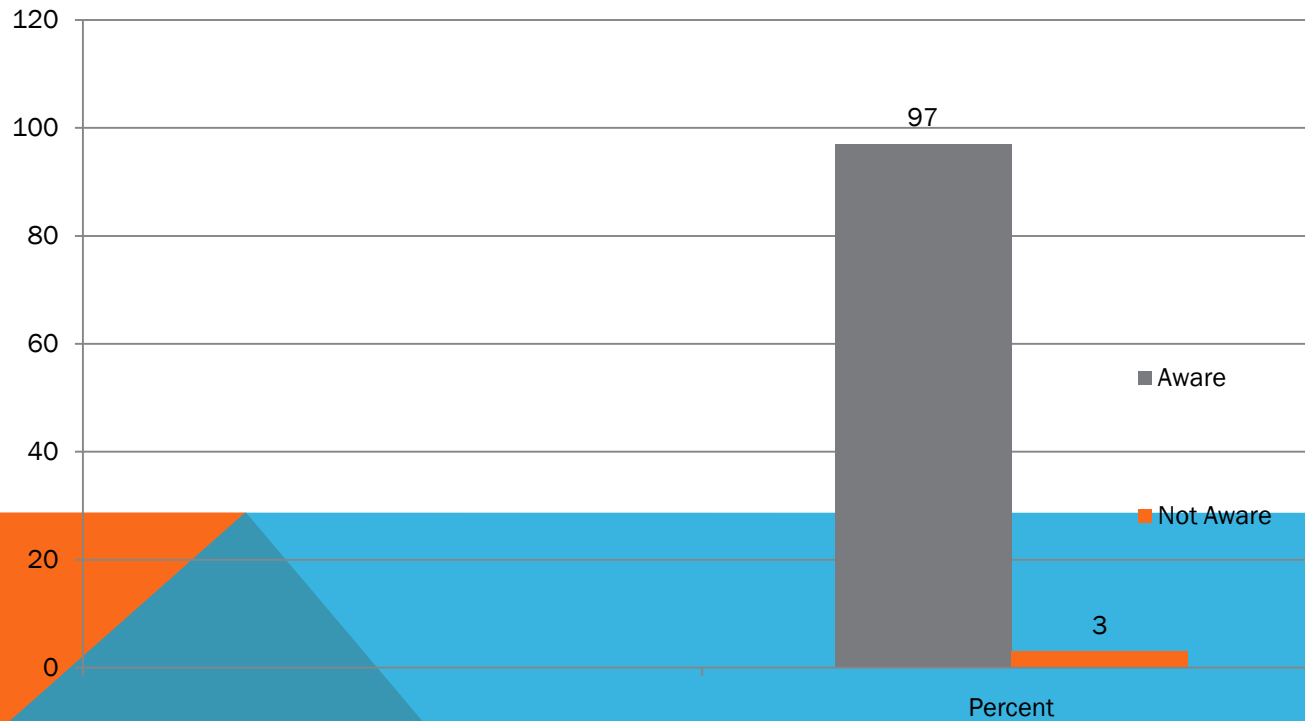
Type of Data: Primary

Method: Convenience sampling

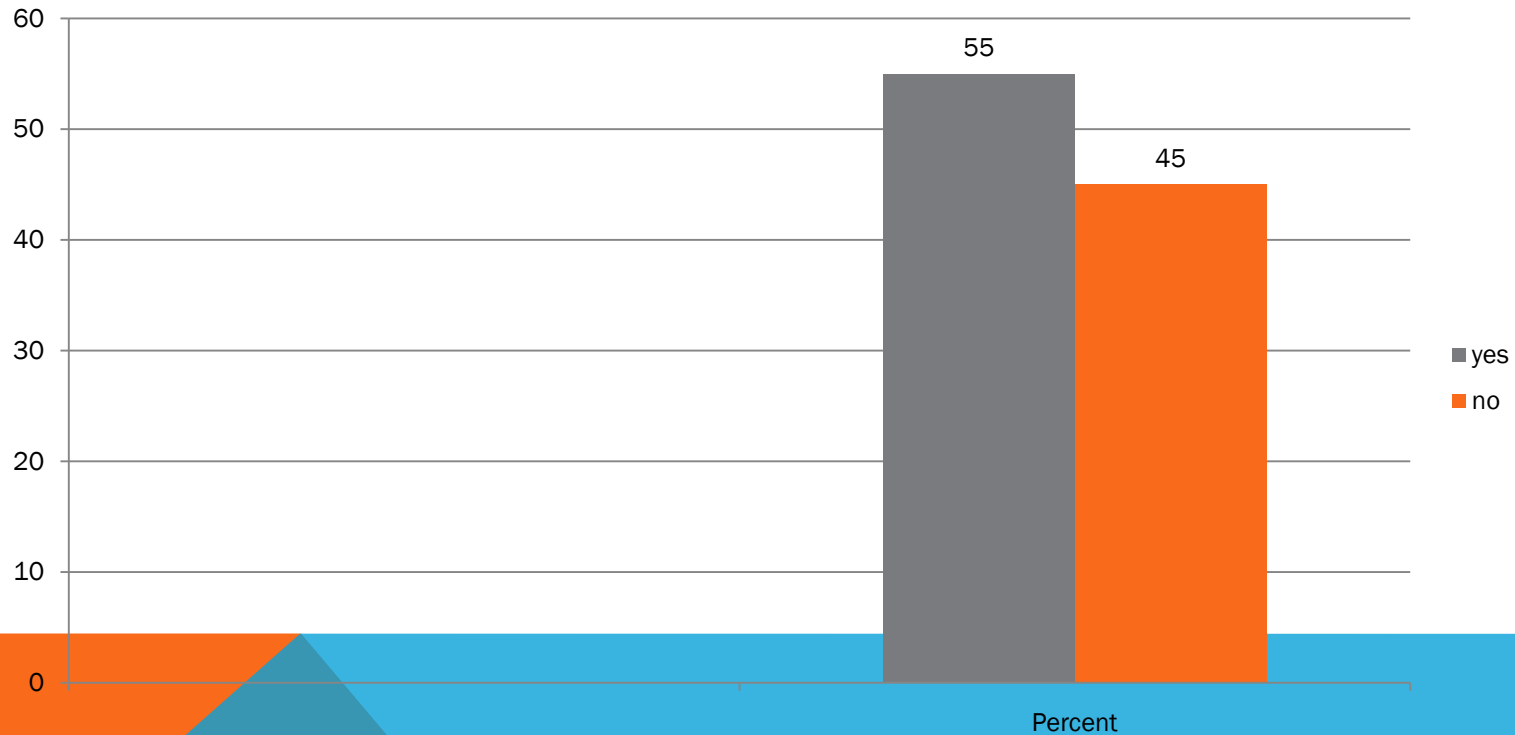


KEY FINDINGS & DISCUSSION

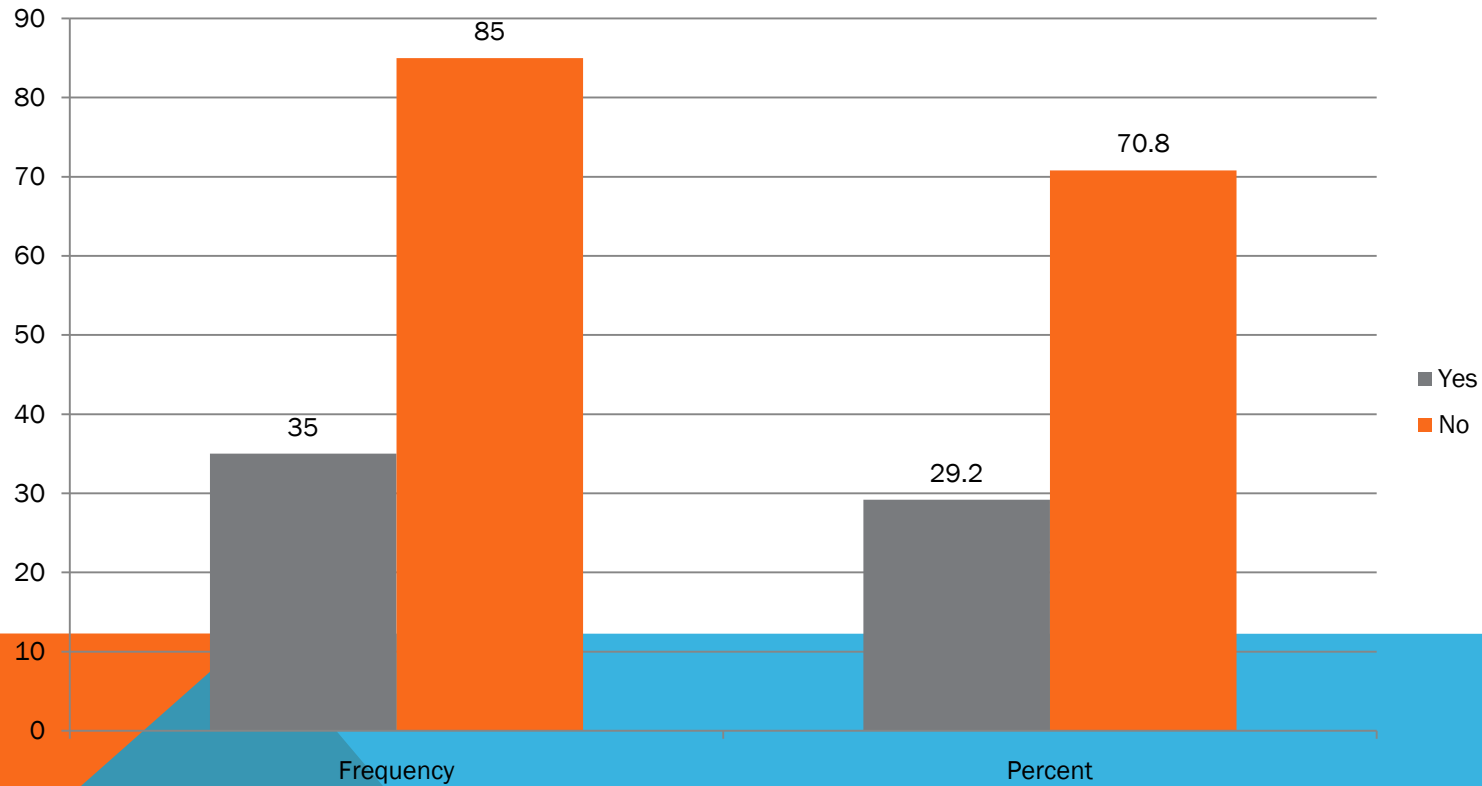
Awareness about the definition of BMW (Overall Staff)



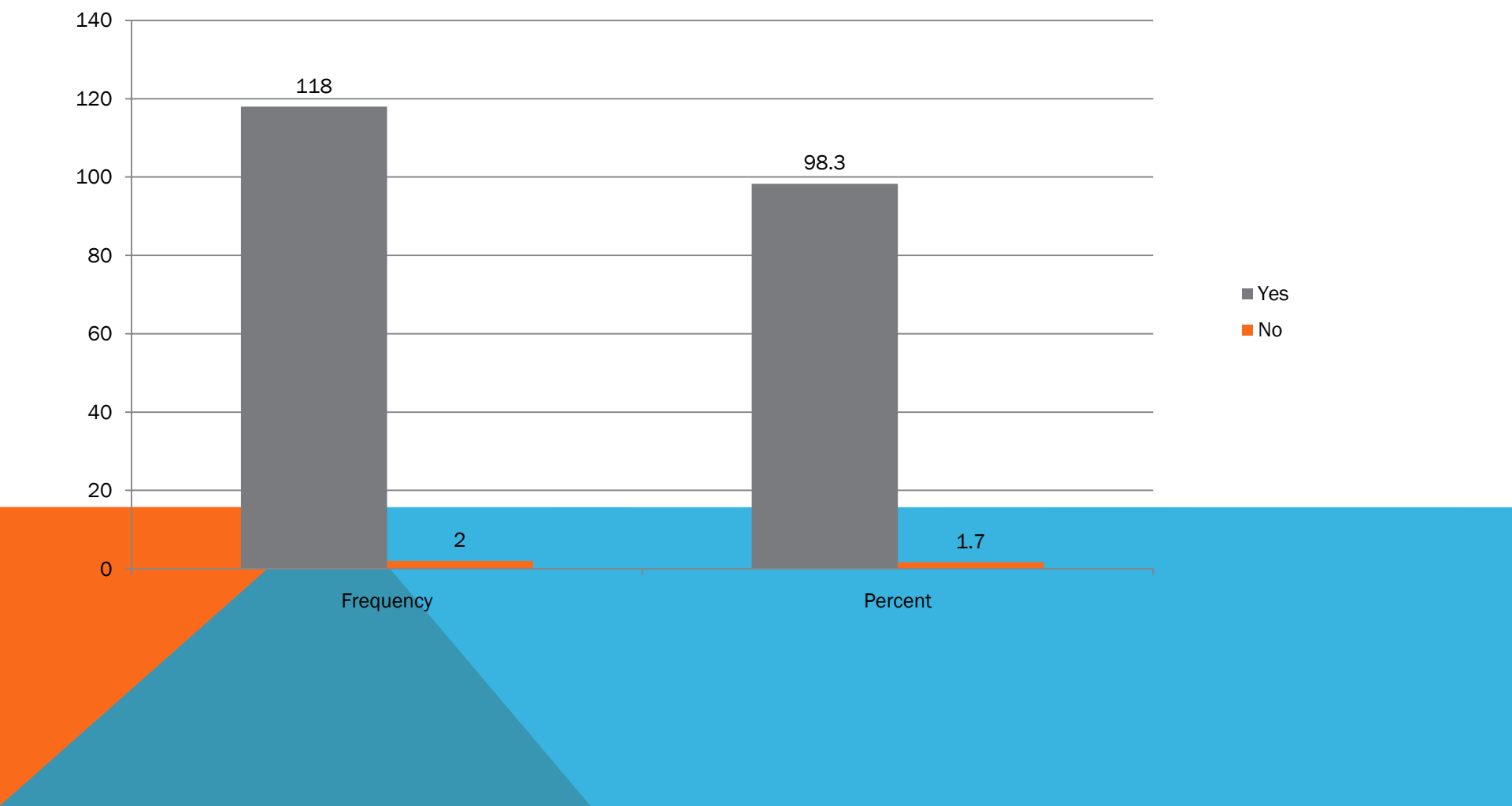
AWARENESS ABOUT THE CATEGORIES OF BMW WASTE (OVERALL STAFF)



AWARENESS ABOUT THE CATEGORY 4 TYPE BIOMEDICAL WASTE (OVERALL STAFF)

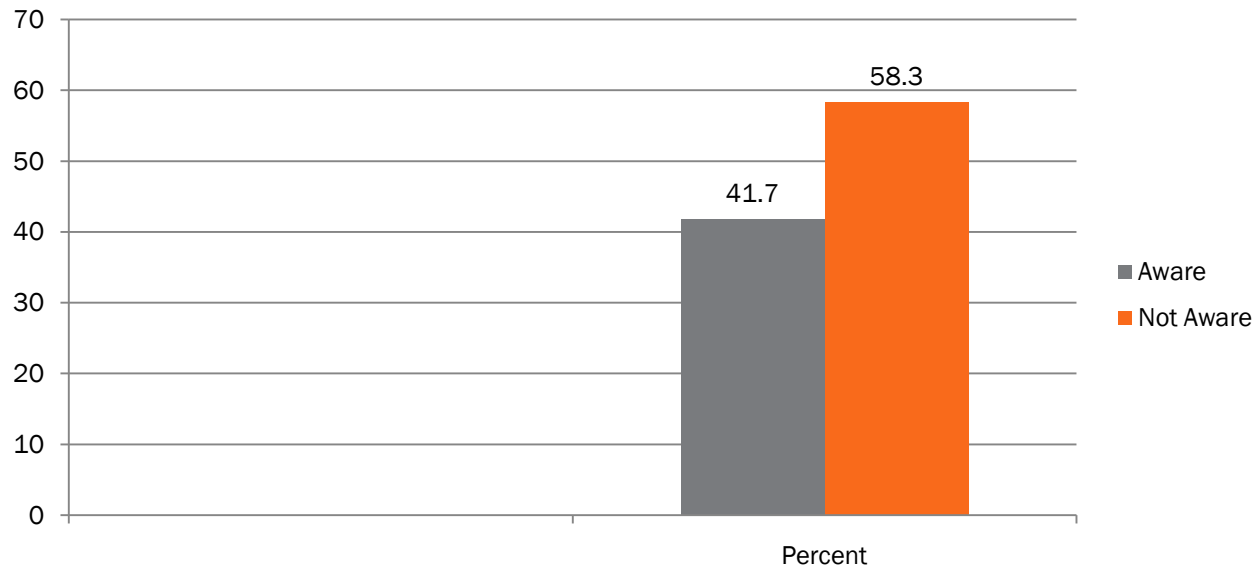


AWARENESS ABOUT THE HEALTH RISKS DUE TO IMPROPER BMW MANAGEMENT (OVERALL STAFF)

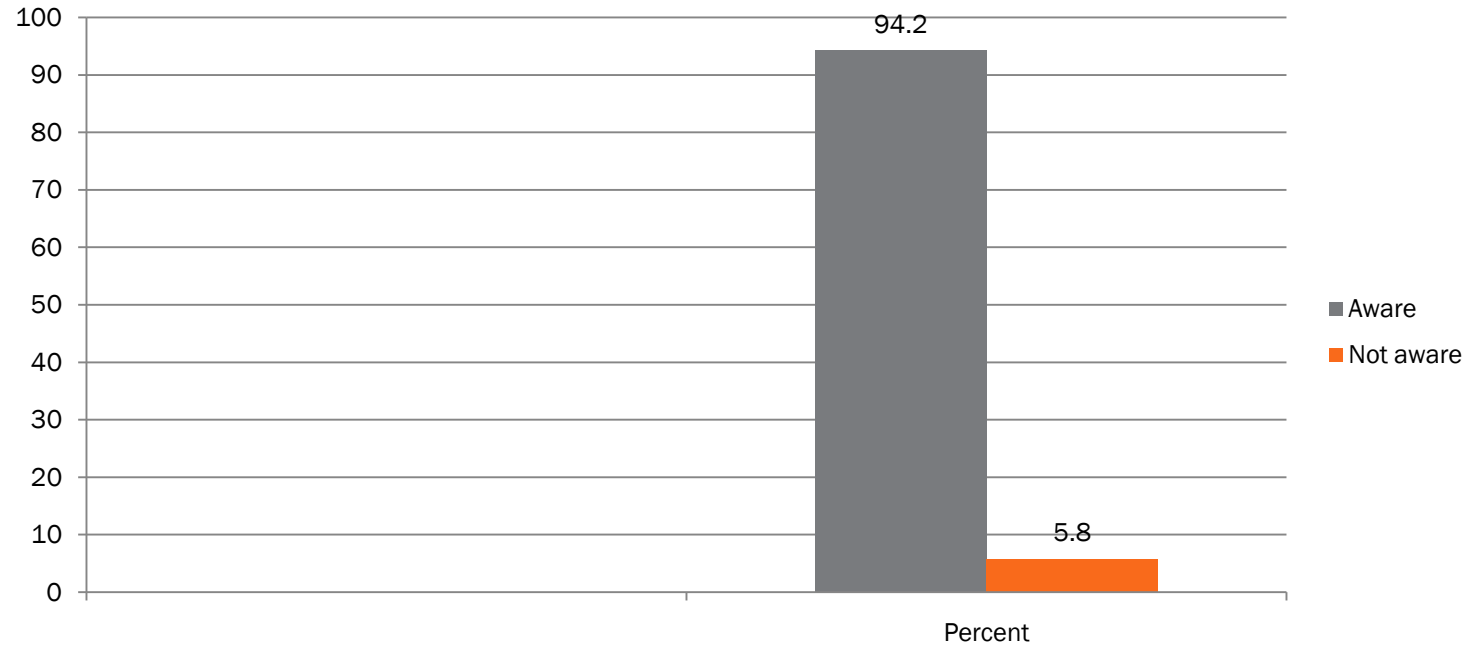


AWARENESS OF STAFF ABOUT CATEGORY 10

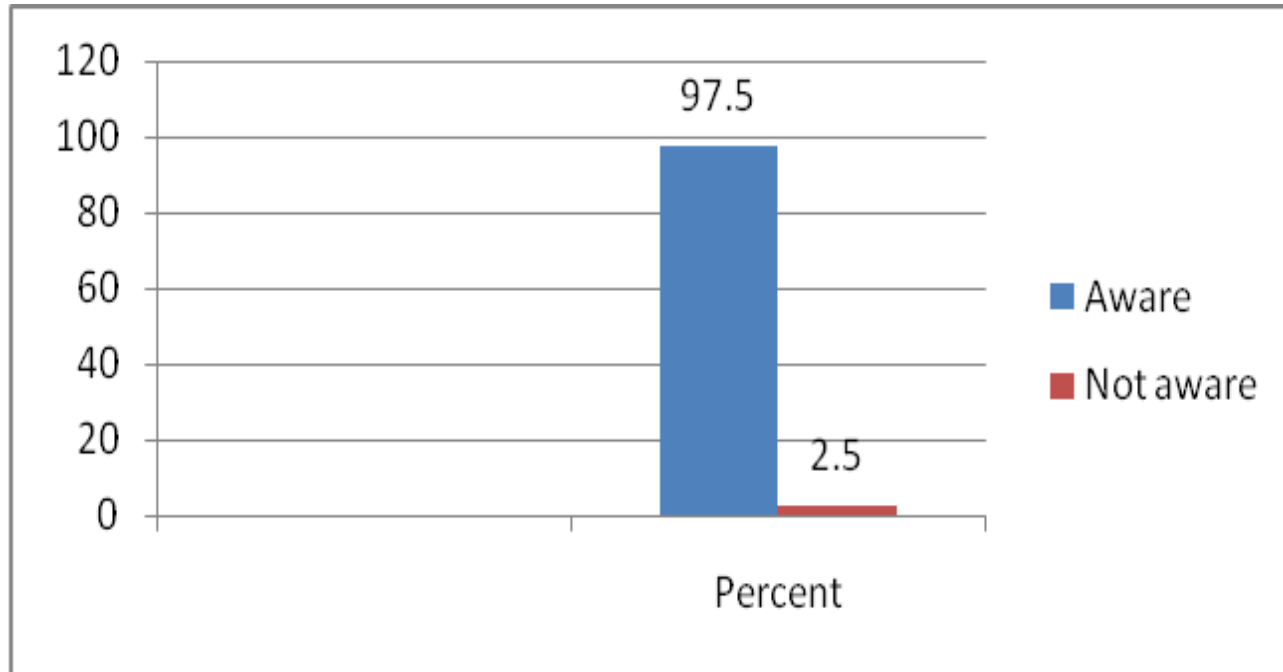
TYPE BIO MEDICAL WASTE



AWARENESS ABOUT THE TREATMENT OF BMW



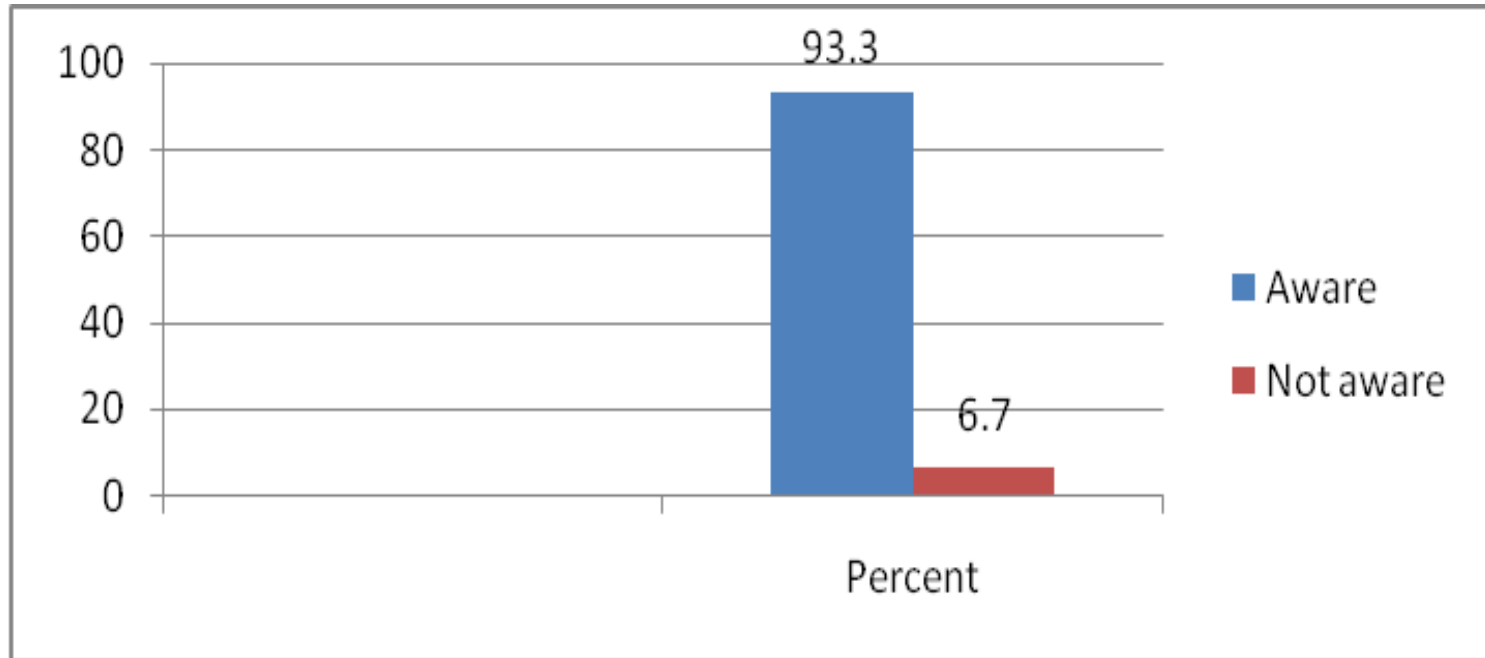
AWARENESS ABOUT THE COLOR CODING FOR GENERAL WASTE/ NON INFECTIONS WASTE



Segregation of bins

Types of Bins	Total number of bins in the different departments of Hospital	Segregated according to color coding BMW rules
Blue	25	21
Yellow	25	18
Green	40	40
PPC	22	22
Total	112	101

AWARENESS ABOUT THE LABELING OF INFECTION WASTE WITH BIO HAZARD SYMBOL



OBSERVATIONS

The hospital had the various resources like Waste collection bins of all the colors, waste collection bags of all the colors, needle cutters, White bin for disinfection with disinfectant(Sodium hypochlorite solution), trolleys and wheel barrows, protective gears like boot, apron, glove, cap, mask.

- 1) Although these were present in the store but it was seen that the staff only sometimes wore gloves while handling the Biomedical Waste
 - 2) It was also observed that the waste collection bags were not changed when 3/4th filled.
 - 3) In few wards, the waste collection bins were not always covered and thus led to breeding of mosquitoes and flies
 - 4) The needle cutters were used in all the wards and the hypochlorite solution was also used but many times the process was not properly followed
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5)IEC material was not available in the stores, which includes flexi sheets of various color coding and general information.

6)Storage room was not cleaned properly and was stinking.

I found employees are not serious about the proper handling manner, though have theoretical knowledge about the subject. Waste segregation is not done properly. Compliance to the guidelines and protocols is not up to the mark.

8)Needle stick injury was not properly reported



RECOMMENDATIONS

- a) There is general awareness in the staff so they should be encouraged to put into practice their knowledge about BMWM. There should be regular inspections of the ward and the ward in-charge should be given the responsibility to report his observation to the Head of the Institute.
- b) The waste collection should be obtained from the suppliers that meet the requirements if the hospital. The waste collection bags should have in-built strings that can be used to tie the waste bags. This would prevent waste from lying around in open
- c) There should be a strict rule to use the protective gears whenever the staff handles the Bio- Medical Waste. It should be mandatory for the staff to wear the protective gears like the masks, gloves, boots, and apron while handling the bio-medical waste.
- d) The storage rooms should be kept clean and the waste should be kept only in the store room and not outside the wards.

- e) The trolleys used for transportation should be properly labeled with the biomedical waste label.
- f) More trolleys with required specifications should be brought from the suppliers.
- g) Manpower should be recruited on contractual basis so that there is adequate staff available for the proper waste management in the hospital.

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CONCLUSION

The Bio-medical waste Management in the hospital is proper and only requires a few improvements as per the Bio-medical waste Management Rules, 1998.

The process of segregation is not proper only at few places in the hospital and it can be overcome by regular checks and encouragement of the staff.

Also it is required to be mandatory for the staff to use the protective gears while handling the waste.

The general waste generated is taken by the local municipality for disposal and the bio-medical waste is sent to the Common Treatment Facility for its disposal.

The hospital had no other major bottleneck and follows the guidelines of the BMWM, 1998.



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THANK YOU

