

Biomedical Waste Management: Existing Knowledge,
Attitude and Practices Regarding Biomedical Waste
Management Among Healthcare Personnel in Jai Prakash
District Hospital, Bhopal (M.P.)

By

Soumya Shrivastava

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2017-2019



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TO WHOMSOEVER MAY CONCERN

This is to certify that Soumya Shrivastava, student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at Jai Prakash District Hospital, Bhopal, Madhya Pradesh from 4th February 2019 to 6th May 2019.

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

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.



(Col) Dr. Ashok Kaushik

Dean, Academics and Student Affairs

The IIHMR University, Jaipur

17 May 2019.



Dr. Sameer Phadnis

Associate Professor

The IIHMR University, Jaipur

कार्यालय सिविल सर्जन सह सुम्य अस्पताल अधीक्षक
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**JAI PRAKASH DISTRICT HOSPITAL, 1250 TULSI NAGAR
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The certificate is awarded to

Soumya Shrivastava

In recognition of having successfully completed her
Internship in the department of

J.P. HOSPITAL, 1250 BHOPAL (M.P.)

And has successfully completed her Project on

**“BIOMEDICAL WASTE MANAGEMENT: KNOWLEDGE, ATTITUDE AND
PRACTICES REGARDING BIOMEDICAL WASTE MANAGEMENT AMONG
HEALTHCARE PERSONNEL IN JAI PRAKASH DISTRICT HOSPITAL, BHOPAL
(M.P)**

4th feb 2019- 6th may 2019

She comes across as a committed, sincere & diligent person who has a strong
drive and zeal for learning

We wish her all the best for future endeavors


Steeward,
J.P. Hospital Development
Training & Development


Zonal Head-Human Resources
Dr. I.R. CHUGH
M.S.
Civil Surgeon Cum Superintendent
Distt. Hospital (J.P. Hospital) Bhopal M.P.
Reg. No.-2250

CERTIFICATE BY SCHOLAR

This is to certify that all ethical issues have been considered while collecting data for my dissertation titled **Study on bio medical waste management: existing knowledge, attitude and practices regarding biomedical waste management among healthcare personnel in jai prakash district hospital, Bhopal (M.P)** and submitted by **Ms Soumya Shrivastava Enrolment No 0680** under the supervision of **Dr Sameer Phadnis** for award of MBA in Hospital and Health of the University carried out during the period from 04/02/2019 to 08/05/2019 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 of student

**BIOMEDICAL WASTE MANAGEMENT: EXISTING KNOWLEDGE,
ATTITUDE AND PRACTICES REGARDING BIOMEDICAL WASTE
MANAGEMENT AMONG HEALTHCARE PERSONNEL IN JAI
PRAKASH DISTRICT HOSPITAL, BHOPAL (M.P)**

By

Soumya Shrivastava

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At this juncture of the completion of my dissertation, first I would like to thank the almighty for showering his blessings on me. I would like to sincerely thank The IIHMR University for giving me this platform of learning and making me a part of this memorable journey.

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Thankyou

ABSTRACT

BACKGROUND:

- Biomedical waste has become a worldwide problem and In India also; it has started to gain attention as the waste not only affects the people working in Healthcare facilities but also the Environment and the people surrounded by the facilities. Despite the laws, provisions and rules, people are not aware about the consequences of unsafe disposal of biomedical waste. Less importance has been given to biomedical waste earlier, which now has started to increase due to the Infections and Pollution to the Environment. Injuries can occur from the sharps disposal if not properly handled; then again, patients with poor immunity systems can become infected with the hospital wastes if disposal is not properly implemented. Risk of infection is greatest amongst waste handlers and the general public who live in the vicinity of such landfill areas where such wastes are disposed. Hence, separate handling of the different category of wastes is important with color codes and proper training of hospital staff to ensure proper disposal and treatment of hospital wastes.

OBJECTIVES:

- 1) To determine knowledge and practices among healthcare workers regarding Biomedical Waste Management
- 2) To assess attitude among healthcare workers regarding Biomedical waste Management

MATERIAL AND METHODS:

Study design: cross-sectional,

Study area: District Hospital, Bhopal

Duration of study: 3 months (4th February 2019 to 6th May 2019)

Type of Data Collection: primary data was collected through structure questionnaire/ checklist from 200 mothers having child of age 6-59 Months.

Target Population: Health Care Personnel of J.P Hospital (Doctor, Nurses, Lab Technician and Class-4)

- **Data collection method:** face to face interviews and observation of practices

- **Data collection tool:** Structured questionnaire and observations based on checklist
- **Data analysis:** MS Excel and SPSS 22 were used. Descriptive statistics were used for the analysis including frequencies and percentages. All the questions in knowledge and practice part were taken in consideration and percentages and frequencies were calculated. Likert scale was used to analyze the attitude among the personnel

Data analysis plan: After the collection of data, it was compiled in Microsoft excel and SPSS. Most of the data analysis was done in Microsoft excel by using frequency table, cross tabulation, and figures.

RESULTS:

Among doctors, maximum of them responded correct towards Practices (91.02%) and 80% responded correctly in the knowledge section.

Among staff nurses 92.3% of them are following correct practices towards Biomedical Waste Management but if we look at the knowledge, 68% of the total staff nurses have responded correctly to all the questions in knowledge section

Among Lab technicians, 78.73 % correctly followed Practices and 65.15% of them correctly answered the knowledge section.

Among class IV employees, 82 % of them correctly follow the practices and 65% of them do know about the Biomedical waste management and related factors.

Maximum of them have a positive attitude towards importance of training regarding Biomedical waste management practices , vaccination against tetanus and Hepatitis B, waste management is a team work and significance of PPE

CONCLUSION:

The status of knowledge and practices among the respondents in some aspects was found to be good in most of the parameters .Practices including use of PPE kit need to be monitored properly. All the respondents have positive attitude towards vaccination and also maximum of them think that waste management is a team work.

- *(Keywords: Biomedical waste management, Knowledge, attitude, practices ,healthcare personnel)*

INTRODUCTION:

According to Biomedical waste management amendment rules 1998, biomedical waste is defined as any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities or in the production of testing or biological or health camps. Healthcare facilities are responsible for any waste which is generated within the facility and also include the activities undertaken by them in the community and Environment. Health care facilities are responsible for segregation, collection, in house transportation, pre-treatment of the waste and storage, before such waste is collected by common bio medical waste treatment facility operator (CBMWTF) . Biomedical waste is defined as any waste generated within the healthcare premises that have adverse effects on human beings and environment, if not disposed properly. According to 2016 rules, 15% of the healthcare waste is biomedical waste and 85% is general waste. Thus all such waste which can affect the human beings and environment need to be managed safely under 2016 Biomedical Waste Management rules. This waste include patient's secretions, laboratory materials, plastic, medicines, blood, infected body parts, sharp metallic etc. Total waste generated from over 6329 healthcare facilities in Madhya Pradesh is 14,804 kg/day according to annual report 2017 and India is estimated to produce 550.4 tonnes of healthcare waste daily. Recently, according to economic times, India will generate 775.7 tonnes of medical waste daily. Thus it is the responsibility of a healthcare facility to generate less amount of waste as possible and to also find ways of proper disposal of the generated waste, so that there would be minimal effects on environment and health of human beings and animals. The present situation of biomedical waste management in India is gloomy, therefore after 1998 amendment rules; Government of India made it a mandate for all the healthcare facilities to abide by the rules and guidelines for safe and sustainable Biomedical Waste Management. It is not only the duty of the people working in the hospitals, pharmacies or clinics but it is the duty of each and every citizen of India to understand and be aware about safe disposal of biomedical waste. Government of India has recently reviewed the 2016 guidelines and made some new provisions in 2018 BMW Rules for sustainable and safe Management of Biomedical waste.

Biomedical waste has become a worldwide problem and In India also; it has started to gain attention as the waste not only affects the people working in Healthcare facilities but also the Environment and the people surrounded by the facilities. Despite the laws, provisions and rules, people are not aware about the consequences of unsafe disposal of biomedical waste. Less importance has been given to biomedical waste earlier, which now has started to increase due to the Infections and Pollution to the Environment.

A hospital is an establishment that provides medical care facilities. Since the majority of the persons receiving treatment in the hospital are suffering with infectious diseases therefore, the waste generated in hospital has potential to transmit infections and other hazards to hospital staff and nearby community, if not managed adequately. Adequate awareness in the hospital staff and practices regarding the biomedical waste management is crucial to prevent these hazards

LITERATURE REVIEW:

The study carried out in Gwalior to find the level of awareness and practices related to biomedical waste management in both urban and rural health facilities in district Gwalior during the period of Jan –Jun 2008. The study was a cross sectional study in nature which aims to find out the awareness among paramedical, non medical staff and medical staff in the hospitals having indoor care speciality. Results indicated that awareness was highest among the doctors followed by paramedical and then non-medical staff and practices were not good especially in rural areas. (January 2011, Research Gate).

According to biomedical waste management rules 2016, every hospital and healthcare facility has to set up a treatment plan for degradation of biomedical waste because the untreated waste cannot be stored for more than 48 hours. In this paper, they tried to explain the consequences of improper handling of the waste and also provided a glimpse of disposal and treatment methods in Ujjain and also explained the process flow of Biomedical Waste Management System.

A KAP study was conducted in Trauma centre in 250 bedded Lucknow Medical Institute to assess Knowledge, attitude and practice among doctors, nurses, and paramedical staff from patient care centers with the help of structured questionnaire. Despite all the efforts in the field of proper waste management, still many Indian Hospitals have not achieved the desired outcomes. Observations showed that there is a gap in Knowledge, attitude and practices among healthcare personnel regarding biomedical waste disposal. Medical professionals have a narrow vision towards biomedical waste management which resulted in rigid attitude of not paying attention. Thus this paper suggested that proper orientation programmes is mandate and also motivation and change of mindset is required in doctors for successful implementation of practices. This study has its own limitations a sample size is small to generalize the findings and there is a limited literature available for the same type of study on doctors and nurses in Developing Countries.

In one of the studies conducted among dental workforce in Jaipur, conducted in 2013, it was found that awareness was poor regarding legislation, segregation and generation of biomedical waste among the dental personnel there .Proper training programmes and orientation is necessary for the staff there.

Assessment of existing knowledge, attitude and practices regarding Biomedical Waste Management among the healthcare workers in a Tertiary Care Rural Hospital was done. Basically it was a cross sectional study with the help of structured questionnaire distributed among 144 respondents.

Results were as follows - the knowledge regarding BMW Management including the policies was better in doctors but practical aspects regarding BMW segregation, color coding of BMW, disposal of sharps was way better in nurses and the lab technicians. The practice of recapping the used needles was found to be 66.88% and 87% of non reporting injuries was present in all the four categories. There was ignorance in some parameters like safe disposal of BMW, unfavorable attitude and risky practices among the sanitary staff. It was clearly clear from the results that awareness is required among the staff. A walk through survey was conducted which revealed casual attitude of the doctors in handling sharps and inability to

color code the BMW as compared to the nurses and lab technicians. The present study thus outlines significant gap in awareness and practices in proper implementation of biomedical waste management rules by the health care workers. Thus, Healthcare waste management should be supported through appropriate education and training and with the help of commitment of the healthcare staff, management and healthcare managers.

A Cross sectional study was conducted among 207 respondents from 2015-2016 in Al-Buraimi hospital, Oman. Respondents were determined with the help of stratified random sampling comprised of four categories .i.e.100 nurses, 65 doctors, 22 housekeeping staff and 20 laboratory technicians. Analysis of the data was done using SPSS and Chi square tests were performed for statistical analysis. Ethical approval was taken and informed consent was taken from the participants.

The “satisfactory” scores of knowledge, attitude and practice were found to be higher among nurses compared to other participants, which may be due to intensive patient care and more involvement in biomedical waste management as well as greater responsibility allocated by hospital administration.

METHODOLOGY:

Study Area: Jai Prakash District Hospital in Bhopal Madhya Pradesh Jai Prakash Government Hospital located in Bhopal (Madhya Pradesh , india), was started in January 1962 as a 75 bedded hospital and today it is one of the largest district hospitals in M.P .as 550 bedded hospital spread over in 25 acres of land it receives cases from all the neighboring districts and also has high number of facilities and specialists which results in high number of cases. In a year, Hospital provides services to 7 lacs patient in OPD, 27000 cases in IPD , 50000 in Emergency and about 4000 major and 6000 minor operations takes place annually.

Study Period: 4 February 2019 to 6th May 2019

Study Design: Cross sectional study

STUDY POPULATION: Healthcare Personnel working at J.P Hospital (Doctors,nurses,Lab technicians, Class IV)

Inclusion criteria: Healthcare workers who have experience of 1 year in J.P.Hospital and who has given the written informed consent

Exclusion Criteria: Healthcare workers who have less than one year of experience in J.P. Hospital and who has not given written informed consent.

Sampling: Purposive sampling (based on the availability)

Data collection method: face to face interviews and observation of practices

Data collection tool: Structured questionnaire and observations based on checklist

Likert scale was used to analyse the attitude among the personnel. A cross sectional study was conducted with the help of structured questionnaire with 39 closed ended questions. and is explained in both Hindi and English languages. Responses taken from the respondents were observed personally and each respondent took 15 mins to complete the Questionnaire. Class IV employees could not understand the questions therefore the responses were taken personally from the respondents. Information collected through questionnaire included information on 1) General information .i. e Name, age, sex, designation, and department and years of experience 2) Knowledge regarding Biomedical Waste management 3) Attitude regarding Biomedical Waste management 4) Practices regarding Biomedical Waste management.

Questionnaire was pre tested before the actual study by taking responses from 5 respondents including doctor, nurse, technician, sanitary staff and ward boy.

Apart from the questionnaire, to understand the process and current practices related to biomedical waste management in the hospital, observations were made throughout all the wards with the help of checklist based on 2016 Guidelines on Biomedical waste management issued by Ministry of Environment and Forest

Checklist for the observations of Biomedical waste management practices is attached on annexure no.1

All the wards were assessed on a daily basis. The whole process of biomedical waste management was observed in detail and also discussions were held with senior officials, doctors, nurses and Class 4 employees which helped to understand the process. Discussions also helped in understanding the attitude of the workers to some extent.

For the analysis, MS Excel and SPSS 22 were used. Descriptive statistics were used for the analysis including frequencies and percentages. All the questions in knowledge and practice part were taken in consideration and percentages and frequencies were calculated overall as well as per category.. In the Attitude section, 7 questions were taken for the analysis part as these were important from the point of view of safe management efforts of biomedical waste management. Cross tabs analysis was used for the attitude section.

Analysis for Knowledge and practice section was based on self scoring system and for attitude

Section	Total no. of questions	Scoring
Knowledge	13	Correct response= 1, incorrect response=0
Practice	13	Correct response= 1, incorrect response=0,

Attitude	13	Strongly agree=4, agree=3, disagree=2, strongly disagree=1 and nocomment=0
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part; we have followed the likert scale. The scoring table is mentioned below:

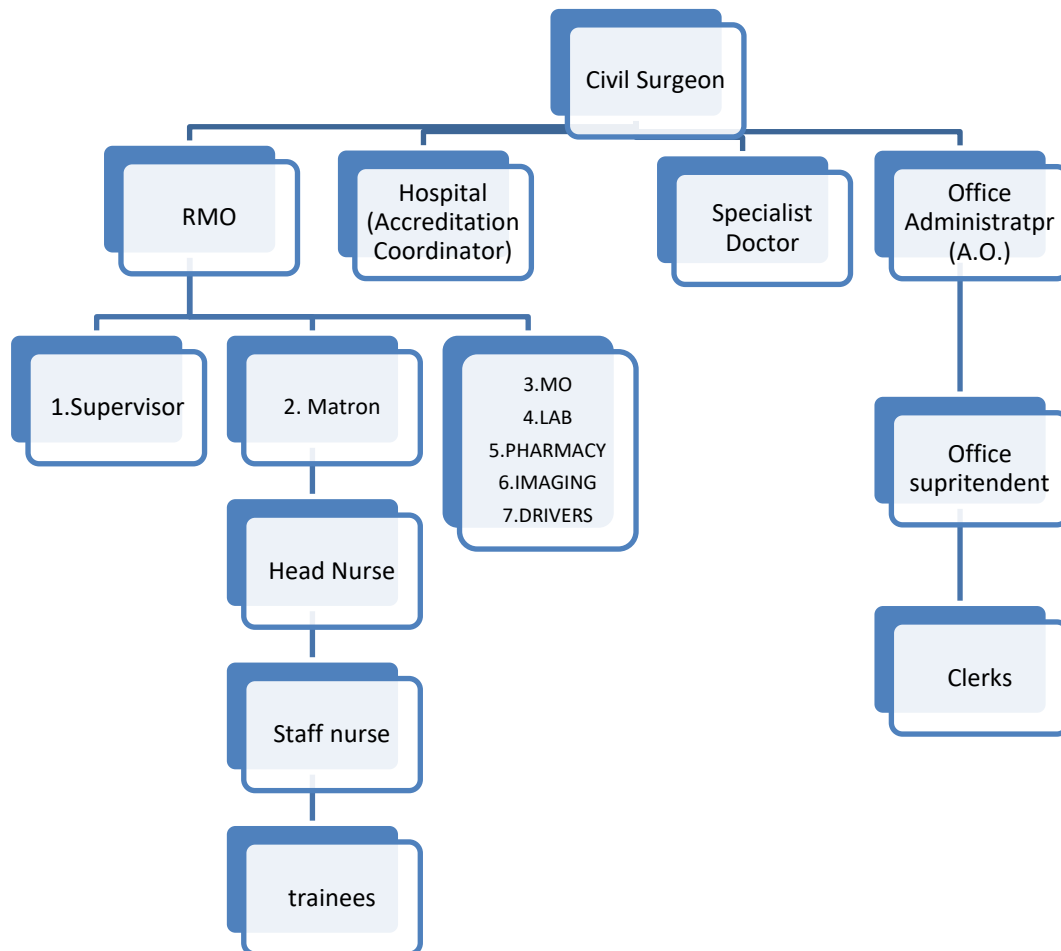
RESEARCH QUESTION

What are the existing knowledge, attitude and practices regarding Biomedical Waste Management among healthcare personnel in J.P. Hospital Bhopal?

RESEARCH OBJECTIVES:

- 1) To determine knowledge and practices among healthcare workers regarding Biomedical Waste Management
- 2) To assess attitude among healthcare workers regarding Biomedical waste Management

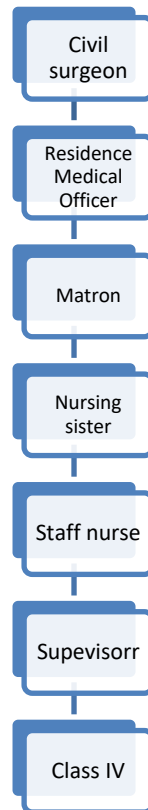
ORGANIZATION STRUCTURE IN HOSPITAL



RESULTS AND OBSERVATIONS:

Personal observation was made throughout all the departments in the hospital on the basis of Checklist. Checklist was made with the help of discussion with Biomedical waste Department In charge and Guidelines 2016

ORGANIZATIONAL STRUCTURE FOR BIOMEDICAL WASTE MANAGEMENT



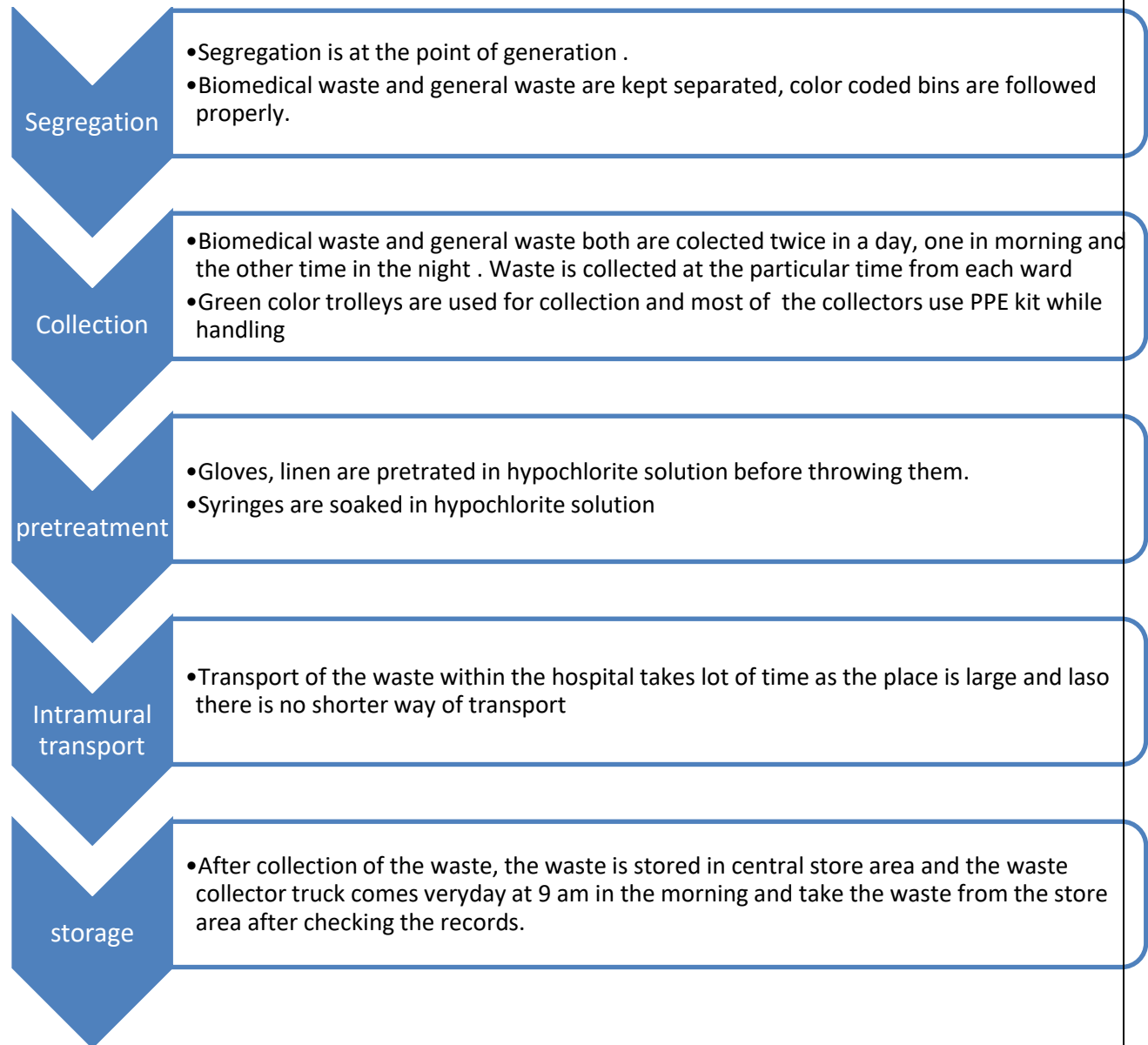
When talking about the practices related to Biomedical Waste Management in the Hospital, all the health workers seem to practice pretty good in this area.

Needle cutter	BMW Collection
Hypochlorite solution	PPE kit usage
BMW Segregation	Records
General waste segregation	Color coded trolleys
Symbol on bags	Labelling
Mercury spill management	Time
Details on bag	Bar coding

- Needle cutter was present in each and every ward and cleanliness was maintained.
- Biomedical waste and General waste were separately segregated at the point of generation
- In few wards and at the time of waste collection, workers don't use PPE kit while dealing with Biomedical Waste
- Healthcare workers actually report to their senior about the problems they deal with handling of the waste.

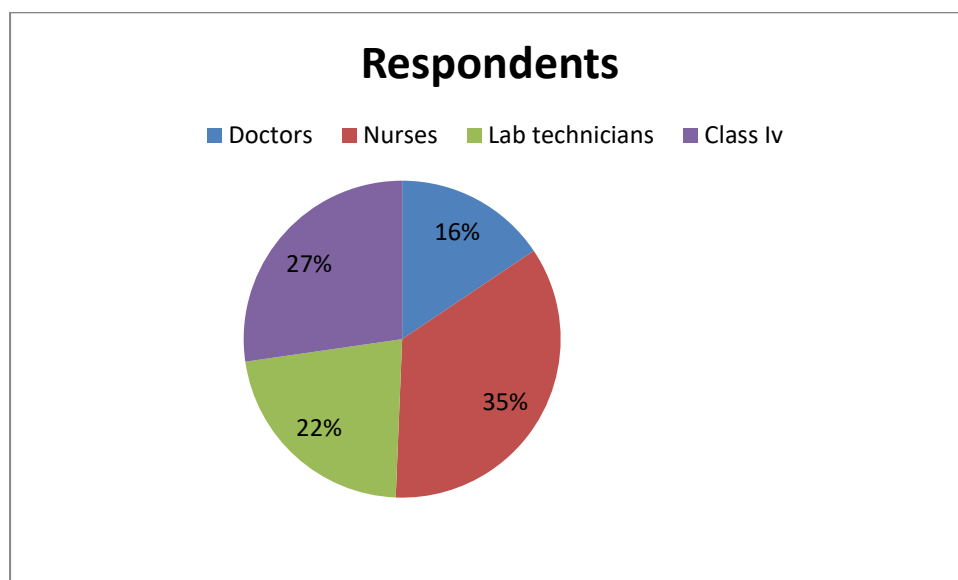
- Trainings are done on frequently basis regarding practices of biomedical waste management.
- Hypochlorite solution was made every day in the wards, actually all the staff was confused regarding the use of white puncture proof for needles
- There were hoardings for biomedical waste, mercury spill management, needle stick injury and cleaning process in all the wards.
- Cleanliness was observed in all the wards , daily mopping and grooming were done
- Bar-coding of the waste bags will be available from the next month
- They maintain records of biomedical waste frequently.
- Special attention is given for dealing with the waste in Labor room, O.T, Trauma and blood bank.
- Color coded trolleys were not used for collection of waste.
- At times, waste was not collected from the wards on daily basis.
- Non chlorinated plastic bags were unavailable for few days due to stock issues.
- The waste was collected on a particular time from each ward
- Biohazard symbol was present in all the containers
- There is no weighing machine in the hospital to weigh the weight of the waste

PROCESS OF BIOMEDICAL WASTE MANAGEMENT IN HOSPITAL



Distribution of Participants with respect to their designation is described in the table no. 1

Category	Respondents	% Distribution
Doctors	12	15.6
Nurses	27	35.1
Lab technicians	17	22.1
Class Iv	21	27.3
Total	77	100.0



Correct responses for questions on knowledge regarding Biomedical waste Management

Objective of questions	Doctors (n=12)	percentage	Nurses (27)	percentage	Lab Technicians (17)	percentage	Class IV (21)	percentage	Total (77)	percentage
Knowledge about	8	66.67	12	44.44	11	64.70	4	19.04	35	45.45

Biomedical Legislation										
Awareness about importance of BMW legislation, segregation and generation	12	100	26	96.29	17	100	16	76.19	71	92.20
Knowledge about infectious waste generation	7	58.33	5	18.51	7	41.11	1	0.04	20	25.97
Knowledge about color coded bags	12	100	26	96.29	14	82.35	15	71.42	67	87.01
Maximum storage time limit for untreated waste	9	75	13	48.14	4	23.52	8	38.09	34	44.15
Knowledge about color coded bags(red)	10	83.33	20	74.07	10	58.82	9	42.85	49	63.63
Importance of Hypochlorite solution	12	100	24	88.8	15	88.23	16	76.1	67	87.01
Recognition of biohazard symbol	9	75	26	96.29	12	70.58	20	95.23	67	87.01
Importance of records handling	12	100	26	96.29	16	59.25	6	35.29	60	77.92
Knowledge about color coded bags(white)	8	66.67	22	81.48	14	82.35	12	57.14	56	72.72
Awareness about treatment of Liquid water waste	7	58.33	15	55.55	7	41.17	8	38.09	37	48.05
Awareness about Incinerator facility	7	58.33	4	14.81	1	5.88	4	19.04	16	20.77
Knowledge	12	100	23	85.1	16	94.17	11	52.3	62	80.51

about biomedical team				8				8		
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In Knowledge section, 92.20% of the respondents are aware about the importance of Biomedical Waste Segregation, generation and Legislation; in all the four categories more than 75% of the respondents are aware about the importance. On the other side 87.01 respondents know about the color coded bins segregation, Biohazard symbol and they know the importance of Hypochlorite solution. While shockingly only 20.77 % of respondents were aware that there is no incinerator facility in the hospital facility and also 25.97 % of them really know about total amount of infectious waste generated from the hospital. Only 48% actually know about the liquid waste water treatment solution in their hospital. 80.51% knew about the Biomedical waste management team which is a good indication regarding the awareness.

Correct responses for questions on Practices regarding Biomedical waste management

Objective of questions	Doctors	%	Nurses	%	Lab Technicians	%	Class IV	%	Total	%
Color coding segregation is important at point of generation	12	100	27	100	11	64.70	12	57.14	62	80.51
Importance of reporting related to injuries in BMW	12	100	25	92.59	14	82.35	16	59.25	67	87.01
Importance of Training programmes	12	100	21	77.78	14	82.35	11	64.70	58	75.32
Importance of training programmes	10	83.33	14	51.85	6	35.29	12	57.14	42	54.54
Practice of following color coding bins	12	100	23	85.18	16	94.11	21	100	72	93.50
Immediately discarding the used sharp needles, syringes and slides	12	100	27	100	7	41.17	17	80.95	63	81.18
Preparation of Hypochlorite solution	7	58.33	27	100	17	100	15	71.42	66	85.71
Importance of records	7	58.33	27	100	14	82.35	5	23.80	53	68.83
Importance of PPE	12	100	27	100	13	76.47	21	100	73	94.80
Informing the BMW Committee about untreated waste	12	100	27	100	17	100	16	76.19	72	93.50

awareness of Hepatitis B vaccination	12	100	27	100	15	88.23	10	47.61	64	83.11
Awareness of Tetanus Vaccination	12	100	27	100	17	100	15	71.42	71	92.20
Amount of waste to be filled in waste bag	10	83.33	25	92.59	13	76.47	15	71.42	63	81.18

In the Practice section, 94.80 % of the respondents that is the highest among all the practices responded that they use PPE kit while handling Biomedical waste , 93.50% of the respondents do inform the committee about the untreated waste which is stored for more than 48 hours and also they follow the practice of putting waste in specific color coded bins. Approximately 92.20 % of the total respondents got tetanus vaccination and 83.11 % were vaccinated from Hepatitis B. 75.32% want to attend the training programmes but only 54.54% attended the training programme for Biomedical Waste Management in past year. 68.83% of the total respondents maintain records related to biomedical waste management in their respective wards and 81.18% immediately discard used needle, syringes and slides.

Among doctors, maximum of them responded correct towards Practices (91.02%) and 80% responded correctly in the knowledge section.

Among staff nurses 92.3% of them are following correct practices towards Biomedical Waste Management but if we look at the knowledge, 68% of the total staff nurses have responded correctly to all the questions in knowledge section

Among Lab technicians, 78.73 % correctly followed Practices and 65.15% of them correctly answered the knowledge section.

Among class IV employees, 82 % of them correctly follow the practices and 65% of them do know about the Biomedical waste management and related factors.

Table no.7

S.No	Attitude questions
1	. Safe Management of Biomedical Waste is not an issue at all:
2	Waste Management is a team work
3	Safe Management efforts of Biomedical Waste increase the financial burden on management
4	Importance of training of Healthcare Personnel regarding BWM practices
5	Vaccination against Hepatitis B , Tetanus are important
6	Significance of putting the waste in assigned containers
7.	Significance of PPE in Handling of Biomedical waste:

When we talk about attitude, in our research we took 7 questions for the analysis part. I think these questions are important from the point of view of Successful Implementation of biomedical rules. All the questions are listed on table no. 7 and all the frequencies and percentage distribution is shown with the help of tables and bargraphs.

. Safe Management of Biomedical Waste is not an issue at all:

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 4	7	9.1	9.1	9.1
3	7	9.1	9.1	18.2
2	35	45.5	45.5	63.6
1	24	31.2	31.2	94.8
0	4	5.2	5.2	100.0
Total	77	100.0	100.0	

This question was asked to know the importance of safe biomedical waste management among the healthcare personnel. Maximum respondents disagree with the statement that this

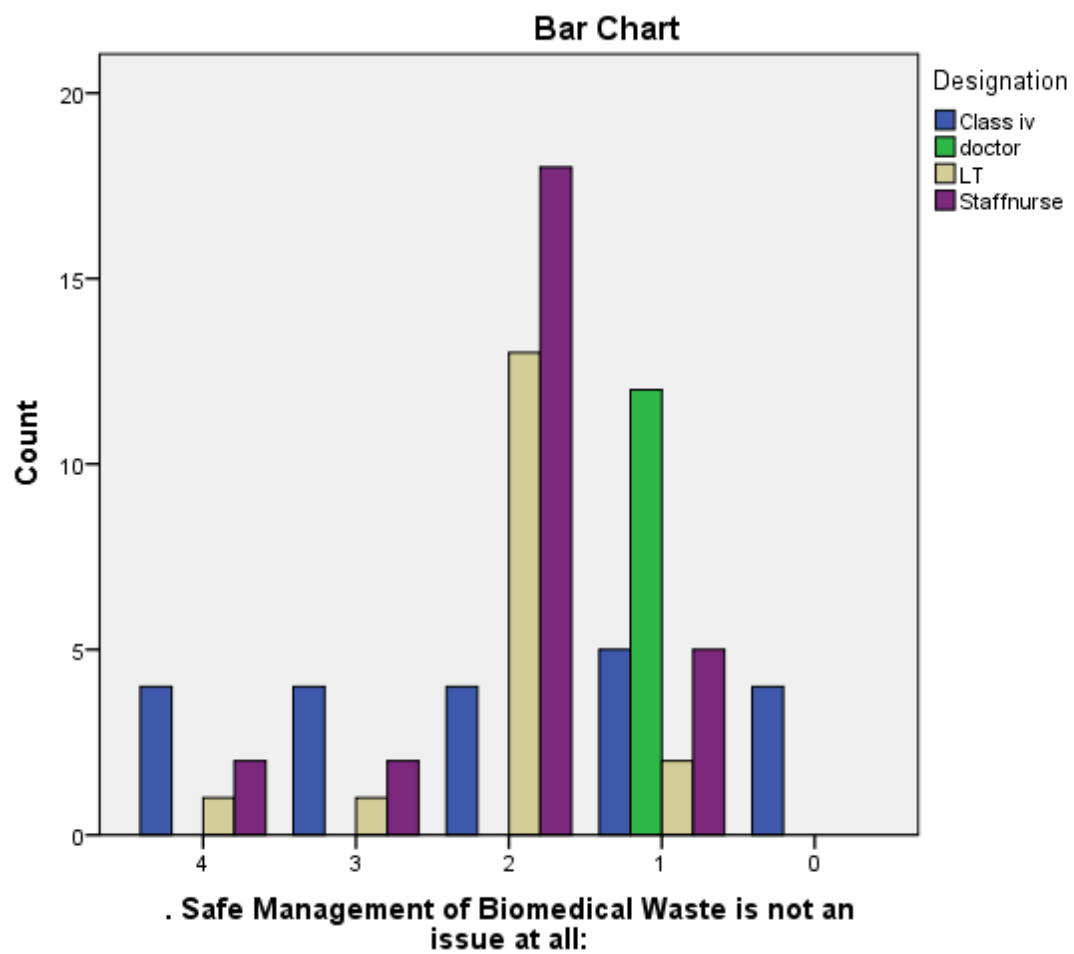
is not an issue at all contributing to 45.5% of 77 respondents , 35.5% strongly disagree with the statement and 5.2% of them have no idea about the statement as their answer was neutral on this. All the doctors strongly disagree with the statement followed by Class Iv and Staff nurses and finally lab technicians being the lowest. Out of 7.1 % of people who strongly agree with the fact, majority belong to Class IV employees in the facility.

The distribution of responses according to the designation is being explained in the Bar Graph below.

Safe management of Biomedical waste is not an issue at all:

Distribution of responses from the item Safe management of Biomedical waste from the likert scale

	Designation				Total
	Class iv	doctor	LT	Staffnurse	
4	4	0	1	2	7
3	4	0	1	2	7
2	4	0	13	18	35
1	5	12	2	5	24
0	4	0	0	0	4
Total	21	12	17	27	77



Waste Management is a team work

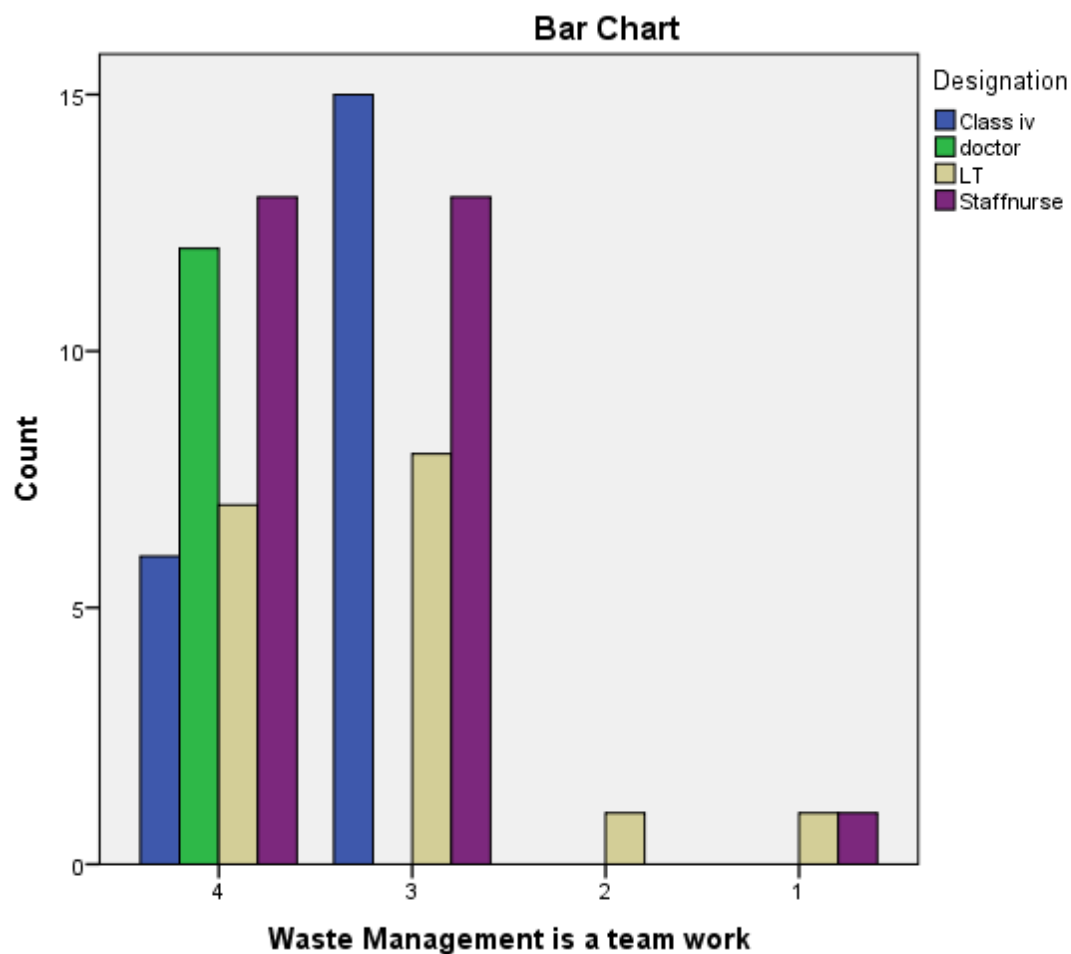
	Frequency	Percent	Valid Percent	Cumulative Percent
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Valid	4	38	49.4	49.4	49.4
	3	36	46.8	46.8	96.1
	2	1	1.3	1.3	97.4
	1	2	2.6	2.6	100.0
Total		77	100.0	100.0	

Count

Count		Designation				Total
		Class iv	doctor	LT	Staffnurse	
Waste Management is a team work	4	6	12	7	13	38
	3	15	0	8	13	36
	2	0	0	1	0	1
	1	0	0	1	1	2
Total		21	12	17	27	77

The question's objective is to test the people attitude towards working together as a team to practice biomedical waste management. Basically 49.4% of the 77 people strongly agree with the statement followed by 46.8 % who agrees with the statement. Important thing is only less than 3% don't think that waste management is a team work which shows positive attitude of maximum people. Every doctor strongly agrees with the statement and class IV employees also responded positively.



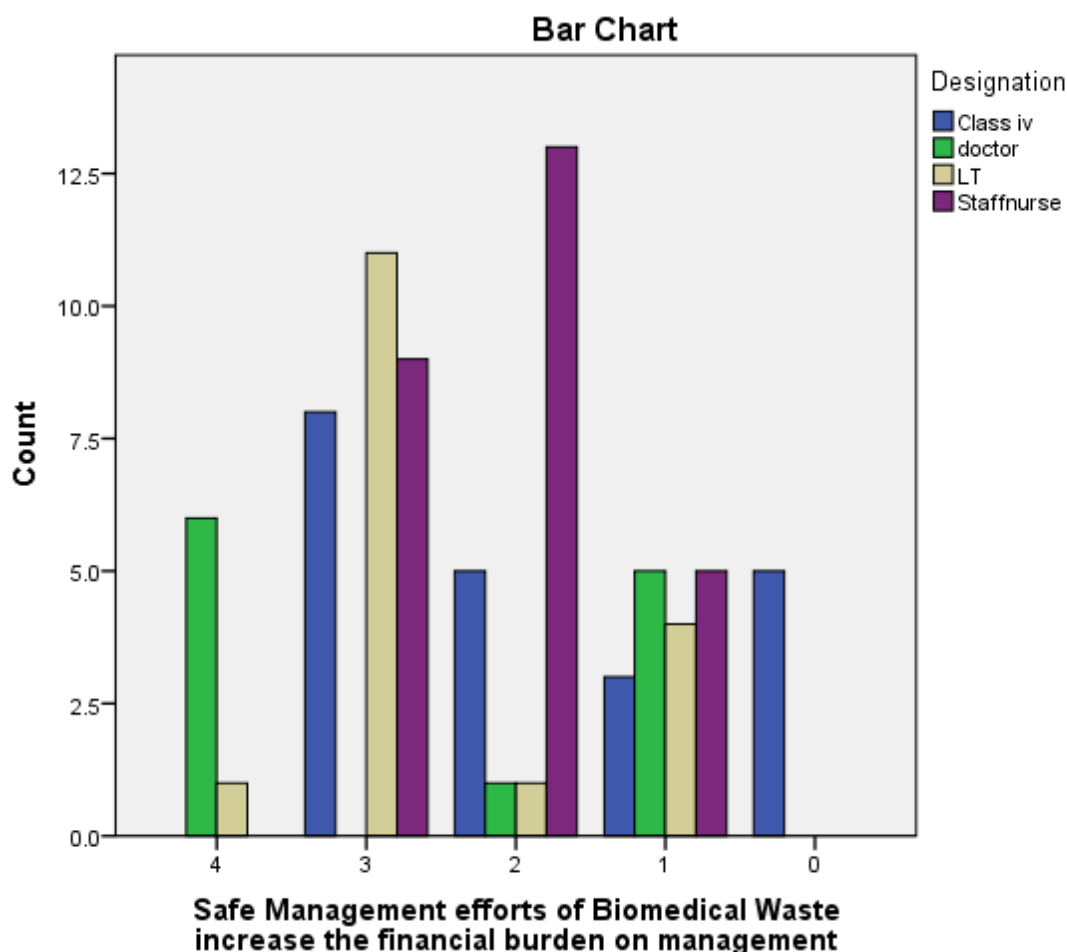
Safe Management efforts of Biomedical Waste increase the financial burden on management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	7	9.1	9.1	9.1
	3	28	36.4	36.4	45.5
	2	20	26.0	26.0	71.4
	1	17	22.1	22.1	93.5
	0	5	6.5	6.5	100.0
Total		77	100.0	100.0	

Crosstab

Count	Designation				Total
	Class iv	doctor	LT	Staffnurse	
Safe Management efforts of 4	0	6	1	0	7
Biomedical Waste increase 3	8	0	11	9	28

the financial burden on	2	5	1	1	13	20
management	1	3	5	4	5	17
	0	5	0	0	0	5
Total		21	12	17	27	77



According to my opinion if we follow safe and sustainable practices of waste management then I have to disagree with the statement-Safe management efforts of Biomedical Waste Management increase the financial burden on hospital management. As we preach on producing less waste and we somehow managed to recycle some stuff, then it does not increase the financial burden instead the management will need less resources to manage the waste produced.

22.1% of the total strongly disagree with the statement and the maximum people i.e. 36 % do agree with the statement and nearly 6 % have no comment on this.

If we look at this category wise, then shockingly more than 50% of doctors strongly agree with the statement and Staff nurses have responded strongly disagree in majority, almost 13 of them out of 27 says this response. When we talk about those 6% who have no comment on this question, all belong to class IV category.

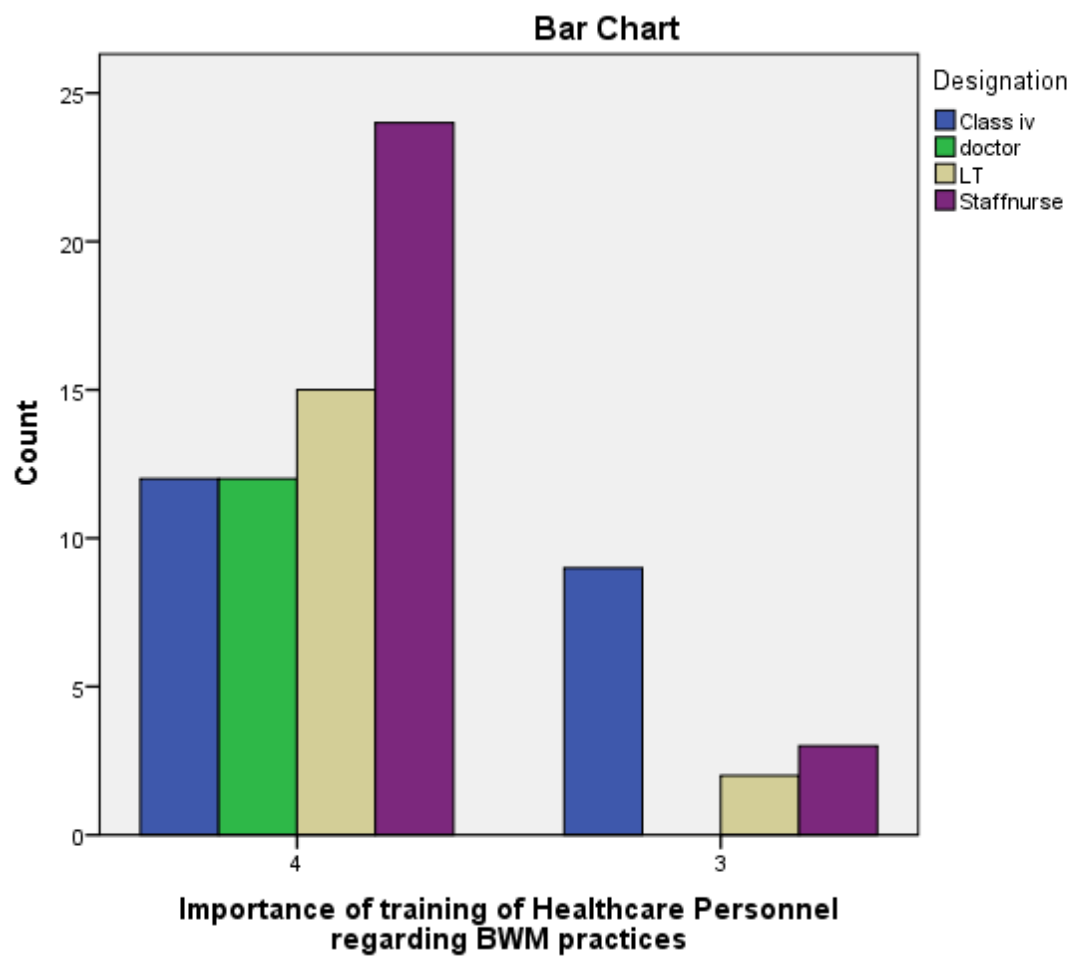
Importance of training of Healthcare Personnel regarding BWM practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	63	81.8	81.8	81.8
	3	14	18.2	18.2	100.0
Total		77	100.0	100.0	

Count

	Designation				Total
	Class iv	doctor	LT	Staffnurse	
Importance of training of 4	12	12	15	24	63
Healthcare Personnel 3	9	0	2	3	14
regarding BWM practices					
Total	21	12	17	27	77

Importance of training is important in any organization for development in the staff. When we asked them about the importance of training regarding BMW practices, 81.8 % of the total strongly agree with the statement and rest of them answered in an agreed manner. If we look at this category wise, 100 % of the doctors, 88.88% of the staff nurses, 88.3% of Lab technicians and 44.44% among class IV workers strongly agree with the statement.



Vaccination against Hepatitis B , Tetanus are important

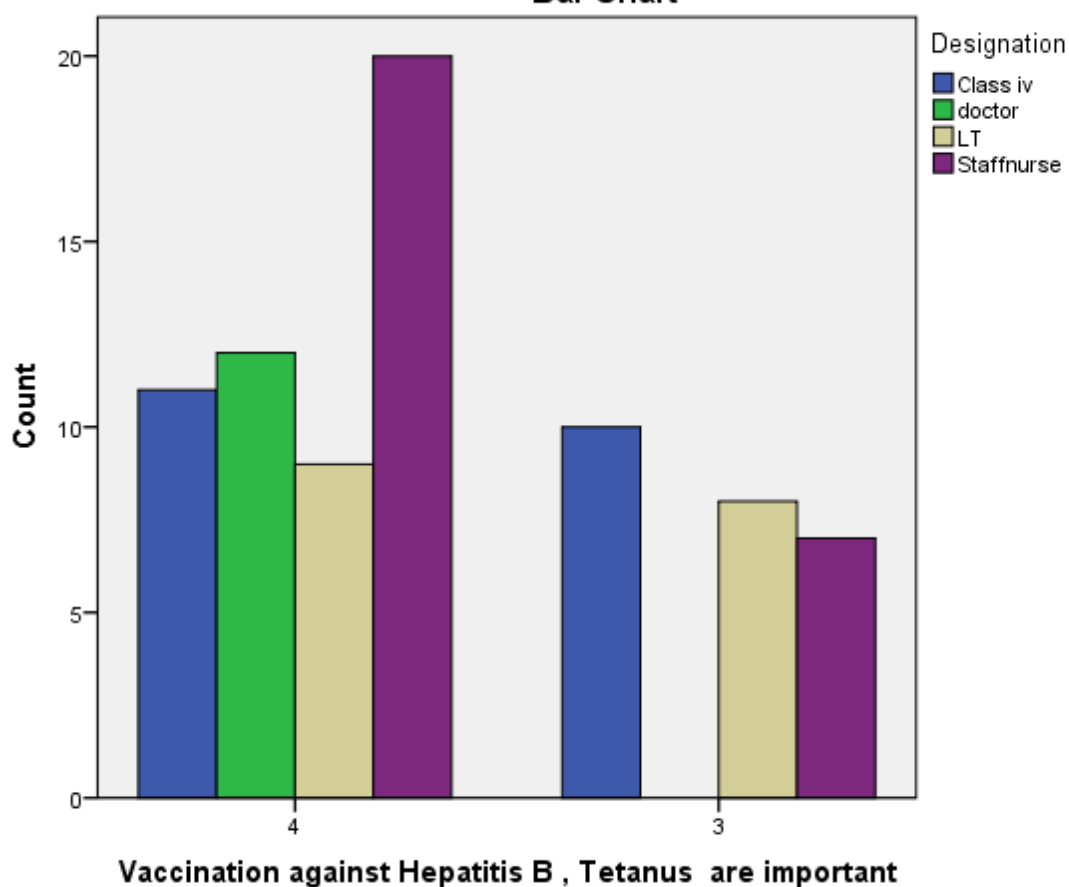
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	52	67.5	67.5	67.5
	3	25	32.5	32.5	100.0
	Total	77	100.0	100.0	

Vaccination against tetanus, hepatitis B is important here in Biomedical Waste Management looking at the cases of needle stick injuries. 67.5% strongly agree with the statement and 32.5% agree with the statement. No one even disagree with the statement. Category wise, 100 % of doctors, 74.07% of the staff nurses, 52.9% of lab technicians and 52.3% of class IV workers strongly agree with the vaccination against hepatitis B and tetanus is important and rest among all the categories agree with the statement.

Count

	Designation				Total
	Class iv	doctor	LT	Staffnurse	
Vaccination against 4	11	12	9	20	52
Hepatitis B , Tetanus are 3	10	0	8	7	25
important					
Total	21	12	17	27	77

Bar Chart



Significance of putting the waste in assigned containers

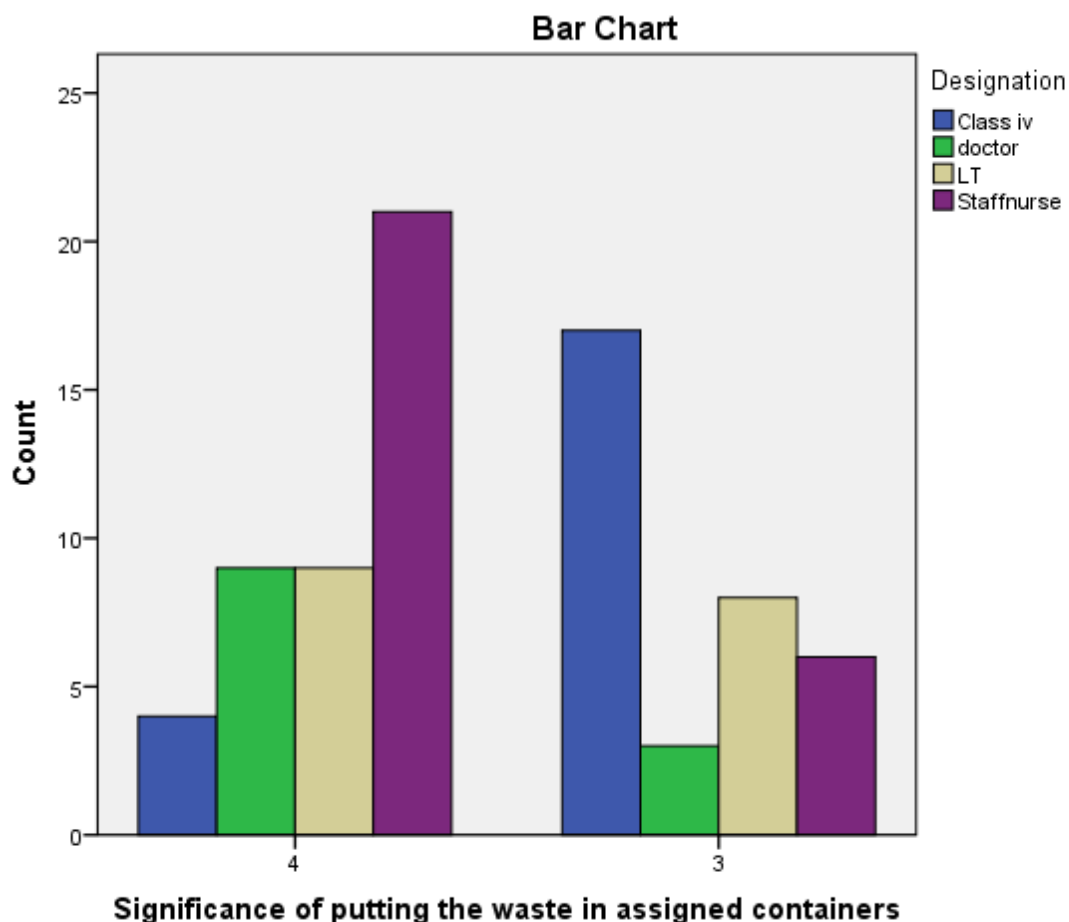
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	43	55.8	55.8	55.8
	3	34	44.2	44.2	100.0
	Total	77	100.0	100.0	

55.8 % among the 77 respondents strongly agree with the significance of putting the waste in assigned containers and rest nearly 45% agrees with the statement. There is a good number of people in almost all the categories who strongly agrees with the significance of labeling.

Crosstab

Count

	Designation				Total
	Class iv	doctor	LT	Staffnurse	
Significance of putting the 4	4	9	9	21	43
waste in assigned 3	17	3	8	6	34
containers					
Total	21	12	17	27	77



Significance of PPE in Handling of Biomedical waste:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	51	66.2	66.2	66.2
	3	26	33.8	33.8	100.0
Total		77	100.0	100.0	

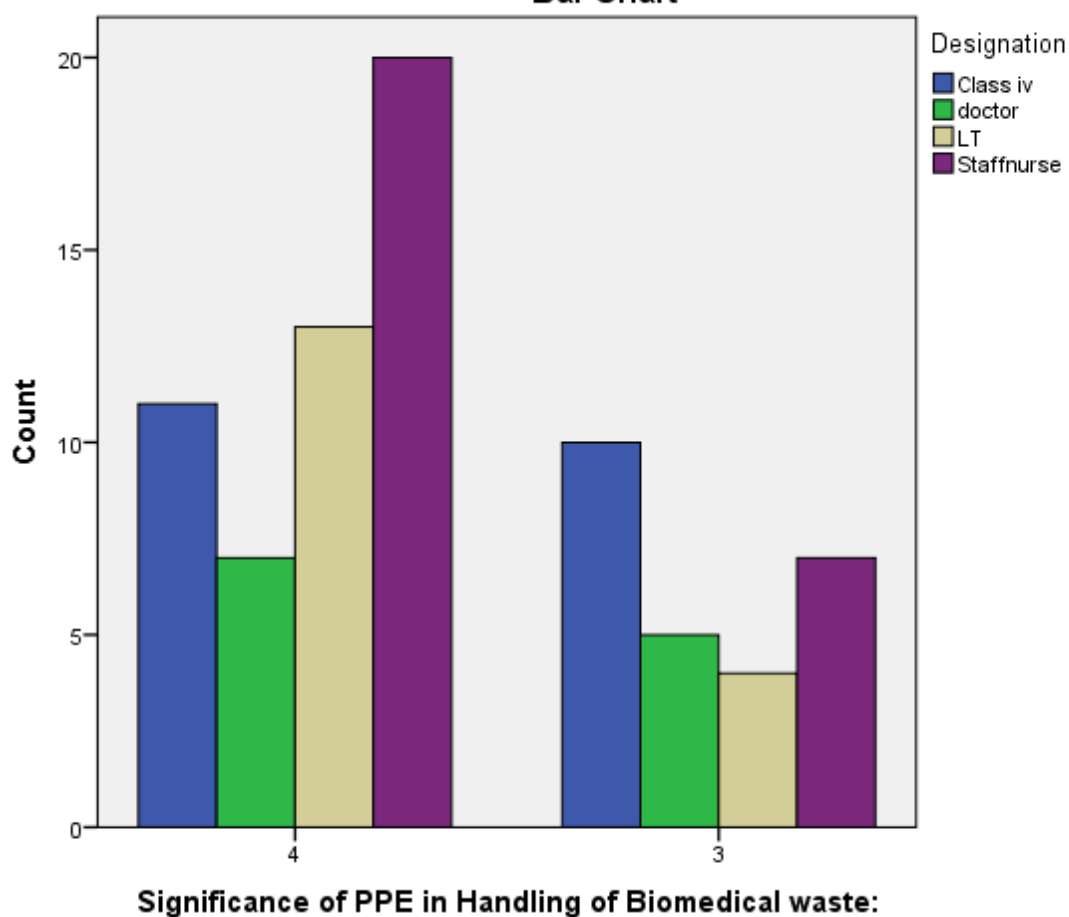
Personal protective equipment is utmost important while dealing with any kind of waste in the Hospital or any healthcare facility. This question was framed to look what the personnel think about the significance of PPE in Biomedical Waste Management. 66.2% among the total strongly agrees with the significance and rest agree with that.

Crosstab

Count

	Designation				Total
	Class iv	doctor	LT	Staffnurse	
Significance of PPE in 4	11	7	13	20	51
Handling of Biomedical 3	10	5	4	7	26
waste:					
Total	21	12	17	27	77

Bar Chart



CONCLUSION AND RECOMMENDATIONS:

The status of knowledge among the respondents in some aspects was found to be as follows: Majority of the respondents aware about the legislation, segregation and generation of biomedical waste and regarding knowledge about color coded bags .Maximum of them could recognize the Biohazard symbol and also knew the importance of Hypochlorite solution. While nearly 1/4th of them knew about infectious waste generation in the hospital and less than 1/4th were aware about the incinerator facility in the hospital. Less than half of the respondents were aware about the treatment of liquid waste water treatment and also they did not know about maximum time limit for untreated waste.

The status of practice among the respondents in some aspects was found to be as follows: Maximum of them correctly followed the practice of color coded bins, attended training programmes, use PPE kit while handling waste and also they inform the committee regarding injuries and untreated waste. Less number of respondents attended training programmes in past one year and also few respondents maintain the records of biomedical waste management.

Process of biomedical waste management lacks monitoring as the transport of waste does not function properly and waste collection also has to be monitored as only green colored trolleys are used. With the help of personal observations, it was found that the most of the wards, they do not maintain the records properly .Those who collect waste, don't use PPE most of the time. Only green colored trolleys are used for collection of waste. During the personal observations, it was found that they have a lenient attitude towards biomedical waste management as most of the staff does think that there is more important work in the administration other than Biomedical Waste Management. There are practices which are yet to be followed by the hospital staff and management according to 2016 guidelines.

Attitude was assessed looking over some parameters as follows:

Maximum respondents disagree with the statement that safe management efforts of Biomedical waste management is not an issue at all and few of them have no idea about the statement as their answer was neutral on this

Thus there is a need to improve their attitude towards importance of safe management efforts of Biomedical waste Management. Nearly half of them also think that safe management efforts of biomedical waste management increase the financial burden on management . This helps us to find out that they don't know the relation between economy and safe practices. Maximum of them have a positive attitude towards importance of training regarding Biomedical waste management practices , vaccination against tetanus and Hepatitis B, waste management is a team work and significance of PPE

RECOMMENDATIONS: Monthly training programs and workshops is must to increase their knowledge and improve their attitude towards some biomedical waste management practices.

Use of PPE Kit must be emphasized in training programmes and workshops.

Monitoring and supervision should be strengthened regarding the use of PPE is required.

.Monthly audits and meetings should be done

I would suggest starting the liquid treatment plant in the hospital premises for the treatment .Not only the staff but also the patients must understand the need of safe management of biomedical waste, which could effectively improve the attitude positively towards this issue. We should start raising this issue publicly with the help of radio, newspaper articles, blogs and IEC material. I think we need to make people aware about the importance of Biomedical Waste similar to other social issues because ultimately this can impact the health status of the society.

Hospital should start with the small awareness campaigns in the premises and should start with the radio stations in the hospital for daily news and events.

•

There should be days where all the staff can communicate together, so hospital administration can do small functions. These functions can build the communication gap among the staff and also these can act as a platform for raising awareness and improving attitude towards safe biomedical waste management.

Overall we can conclude that out of total 77 respondents, 82.54% correctly followed Biomedical waste Management Practices , 65.45% responded correctly regarding Knowledge of Biomedical waste management Legislation, segregation, practices , generation and other knowledge related variables. All the workers correctly followed the most of the practices but they need to enhance their knowledge in the management of biomedical waste in terms of legislation, segregation and generation of waste. We need to pay attention towards attitude among staff related to healthcare practices as some of the important questions have maximum negative responses. During the personal observations and discussions, it was found that they have a lenient attitude towards biomedical waste management as most of the staff does think that there is more important work in the administration other than Biomedical Waste Management.

When we talk about the practices and process of Biomedical waste Management, they were being practiced good by the healthcare personnel overall and also the process of biomedical waste management is per the 2016 rules and guidelines. PPE should be made compulsory anyhow, because most of the time waste collectors don't follow this practice. Maintenance of records is not done properly in all the wards, dew wards maintain and handle the records very well. The only process which needs to be overlooked is the process of Intramural Transport

of waste because the route of transport should be small in this hospital due to large infrastructure; the shortest route is not feasible.

. Knowledge is also not so good here but it can be improved.

Thus, Training programs and workshops on Monthly basis are must here for all the staff for increasing the knowledge and improving attitude of the staff. Staff nurses are actively involved in the practices so they should be made as a role play model for improving the attitude of all the staff as they directly monitors class Iv and Lab technicians and also they help the doctors. Biomedical team is not fully formed here; basically one sister in charge monitors the entire hospital, so there should be more active members in here. I think monitoring and supervision is must in the huge hospital like J.P. Hospital. They can conduct monthly audits and meetings related to this issue.

Attitude plays a key role in one's day to day life practices. Attitude takes time to change and it does not happen overnight, therefore we should bring out some activities in the hospital itself to motivate the staff for their duty. There should be days where all the staff can communicate together, so hospital administration can do small functions. These functions can build the communication gap among the staff and also these can act as a platform for raising awareness and improving attitude towards safe biomedical waste management. Not only the staff but also the patients must understand the need of safe management of biomedical waste, which could effectively improve the attitude positively towards this issue. We should start raising this issue publicly with the help of radio, newspaper articles, blogs and IEC material. I think we need to make people aware about the importance of Biomedical Waste similar to other social issues because ultimately this can impact the health status of the society.

Hospital should start with the small awareness campaigns in the premises and should start with the radio stations in the hospital for daily news and events. Also, I would suggest starting the liquid treatment plant in the hospital premises for the treatment and involvement with Glass dealers for recycling purposes.

REFERENCES:

- 1.Sharma A K. Biomedical Waste (Management and Handling) Rules. First edition. Bhopal. Suvidha Law House. 12
2. Ministry of Environment and forest notification on the Bio-Medical Waste (Management and Handling) Rules, 1998.
3. Plianbangchang PH. "A Report on Alternative Treatment and Non-Burn Disposal Practices"; Safe Management of Bio-medical Sharps Waste in India. W.H.O. Publication.
4. Pandit NB, Mehta HK, Kartha GP, Choudhary SK. Management of bio-medical waste: Awareness and practices in a district of Gujarat. Indian J Public Health 2005;49:245
- 5.Das SK, Biswas R. Awareness and practice of biomedicalwaste management among healthcare providers in a TertiaryCare Hospital of West Bengal, India. Int J Med PublicHealth2016;6:19-25.
- 6.. Soyam GC, Hiwarkar PA, Kawalkar UG, Soyam VC, GuptaVK. KAP study of bio-medical waste management amonghealth care workers in Delhi. Int J Community Med PublicHealth 2017;4:3332-7

ANNEXURE:

CHECKLIST	CHECKLIST
Needle cutter	BMW Collection
Hypochlorite solution	PPE kit usage
BMW Segregation	Records
General waste segregation	Color coded trolleys
Symbol on bags	Labelling
Mercury spill management	Time
Details on bag	

KNOWLEDGE, ATTITUDE AND PRACTICE STUDY ON BIOMEDICAL WASTE MANAGEMENT IN A DISTRICT HOSPITAL, BHOPAL (M.P.)

My name is Soumya Shrivastava and I am a student of IIHMR University, Jaipur. I am asking you to take part in this research study to assess Knowledge, Attitude and Practices among Healthcare workers regarding Biomedical Waste Management.

I want to be sure that you understand the purpose and your responsibilities in the research before you decide if you want to be in it. Please ask me to explain any words or information that you may not understand. A quantitative assessment will be conducted with the help of self-administered questionnaire to gather information on KAP regarding BWM. This is a research study and not a healthcare provision. If you agree to participate, this is a self-administered questionnaire where there are questions which will assess your knowledge, attitude and practice. The process will take 30 mins .Your response will be recorded on paper. I will destroy the paper when this research will be completed.

This study is being conducted to identify the gaps if any in Biomedical waste management in the hospital so that better implementation of BMW rules can be carried out. You can refuse to answer any of the questions. I will make every effort to protect your privacy while you are in these activities.

You may choose not to take part at any time. If you choose to participate , this will not be told to anyone.

I will protect information about you and your participation in this program to best of our ability. I will not use your name in my report.

You will not receive any compensation for participation in this study. You will not receive any incentive or benefits.

This research has been received and approved by institutional review board of IIHMR in Jaipur. If you have any questions about how you are treated during the study and your right as participants you may contact on this number 7506596126.

Statement to be made by respondent

I have read this consent form completely this consent have been read me out loudly. All my doubts have been cleared. I can withdraw my participation anytime if choose to I have understood this. I have received and understood the information about my doubts. Content of this consent form has been explained to me .

Signature

NAME

DESIGNATION

AGE

DEPARTMENT

SEX

YEARS OF EXPERIENCE

Please tick on the correct option out of the given responses:

KNOWLEDGE

1.) Biomedical waste (Management and Handling) rules were first proposed in

बायोमेडीकल waste (मैनेजमेंट और हैंडलिंग) नियमों का प्रस्ताव पहली बार कब रखा गया था?

a.) 1997 b.) 1998 c.) 1999 d.) 2000

2.) Do you think it is important to know about BM waste Generation, segregation and legislation?

क्या आपको लगता है कि बायोमेडिकल कचरे का उत्पादन, अलगाव और विधान के बारे में जानना जरूरी है?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

3.) The approximate infectious waste generated among total waste generated from a healthcare facility

किसी भी अस्पताल अथवा स्वास्थ्य सुविधा केंद्र में संक्रामक कचरा लगभग कितना उत्पन्न होता है?

a.) 10-20% b.) 30-40% c.) 50-60% d.) 80-90%

4.) Knowledge about Color coding segregation of Biomedical Waste

क्या आपको रंग के अनुसार बायोमेडिकल कचरे को अलग करने का ज्ञान है?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I cant Say नहीं
बता सकता/सकती

5.) Maximum storage time limit for untreated waste?

अनुपचारित कचरे को कितने समय तक किसी भी केंद्र में रख सकते हैं?

- a.) 24 hours b.) 48 hours c.) 64hours d.) 72hours

6.) Which of the following does not go in Red bag?

इनमें से कौनसा लाल कचरे के थैले में नहीं जाएगा?

- a.) Gloves(दस्ताने) b.) Bottles(बोतल) c.) Intravenous tubes(नसों में जानेवाला tube) d.) Laboratory (प्रयोगशाला वस्तुओं)cultures

7.) Do you know the use of Hypochlorite solution in waste management?

क्या आपको हाइपोक्लोराइट solution के उपयोग के बारे में पता है?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I cant Say नहीं
बता सकता/सकती

8.) Can you recognize the biohazard label? क्या आप बायोहैजर्ड लेबल को पहचान सकते हैं?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I cant Say नहीं
बता सकता/सकती

9.) Is it important to retain the records of handling BMW by Healthcare Facilities? बायो मेडिकल कचरे का सही मैनेजमेंट के लिए क्या रिकार्ड्स बनाये रखना जरूरी है?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I cant Say नहीं
बता सकता/सकती

10.) Waste sharps including metals comes under ----- Category waste नुकीले कचरे समेत धातु किस वर्ग के कचरे में आते हैं?

- a.) Yellow b.) Red c.) White d.) Blue

11.) Reasons for putting the waste in wrong bin

गलत कचरे को गलत डब्बे में डालने का क्या कारण हो सकता है?

- a.) Lack of knowledge b.) Waste being full c.) In-appropriate location d.) Lack of description or symbol

12.) Treatment of Liquid waste in your Facility? आपके अस्पताल में गीले कचरे के इलाज का प्रबंधन है?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं बता सकता/सकती

13.) Availability of Incinerator facility in the hospital? क्या आपके अस्पताल में क्रीमेटोरियम है?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं बता सकता/सकती

ATTITUDE

1. Safe Management of Biomedical Waste is not an issue at all: बायोमेडिकल कचरे का सुरक्षित प्रबंधन एहम मुद्दा बिल्कुल भी नहीं है? (आपकी सहमति बताएं)

- a.) Strongly agree दृढ़तापूर्वक सहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वक असहमत e.) no comment

2. Waste Management is a team work कचरे का प्रबंधन टीम में रहकर करने वाला काम है?

- a.) Strongly agree दृढ़तापूर्वक सहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वक असहमत e.) no comment

3. Safe Management efforts of Biomedical Waste increase the financial burden on management. बायोमेडिकल कचरे का सुरक्षित प्रावधान क्या अस्पताल पर फाइनेंसियल भोज बन सकता है?

- a.) Strongly agree दृढ़तापूर्वक सहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly disagree दृढ़तापूर्वक असहमत e.) no comment

4.) Significance of labeling the containers कचरे के डिब्बों को लेबल करने का महत्व है?

- a.) Very Significant बहुतमहत्वपूर्ण b.) Significant महत्वपूर्ण c.) Slightly significant थोड़ा महत्वपूर्ण
d.) Not significant महत्वपूर्ण नहीं है e.) no comment

5.) Importance of training of Healthcare Personnel regarding BWM practices बायोमेडिकल waste प्रबंधन के अभ्यास में स्वास्थ्य कर्मियों के प्रशिक्षण का कितना महत्व है?

- a.) Very Important बहुतजरूरी b.) Important जरूरी c.) Somewhat Important कुछ हद तक जरूरी
d.) Not Important जरूरी नहीं है e.) no comment

6. Vaccination against Hepatitis B , Tetanus are important hepatitis B, tetanus के विरुद्ध टीकाकरण करवाना जरूरी है?

- a.) Strongly agree दृढ़तापूर्वकसहमत b.) Agree सहमत c.) Disagree असहमत
d.) Strongly Disagree दृढ़तापूर्वकअसहमत e.) no comment

7. Informing the waste collection team after putting wastes in wrong bins is necessary कचरे को गलत डिब्बे में डालने के बारे में आप क्या टीम को बताना आवश्यक समझते हैं?

- a.) Strongly agree दृढ़तापूर्वकसहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वकअसहमत
e.) no comment

8. Significance of putting the particular waste in assigned containers with labelsविशेष कचरे को विशेष रंग के labelled डिब्बे में डालना है, इस बात का महत्व कितना है?

- a.) Very Significant बहुतमहत्वपूर्ण b.) Significant महत्वपूर्ण c.) Slightly significant थोड़ा महत्वपूर्ण
d.) Not significant महत्वपूर्ण नहीं है e.) no comment

9. Informing the BMW Committee about the incidents related to mishandling of Biomedical Waste is necessary बायोमेडिकल कचरे को अच्छे से ना संभालने के कारण होने वाली घटनाओं के बारे में, BMW समिति को सूचित करना आवश्यक है?

- a.) Strongly agree दृढ़तापूर्वकसहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वकअसहमत
e.) no comment

10. Informing the BWM Committee about the untreated waste which is stored for more than 48 hours is necessary: 48 घंटे से ज्यादा रखे हुए अनुपचारित कचरे के बारे में BWM समिति को सूचित करना आवश्यक है?

a.) Strongly agree दृढ़तापूर्वकसहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वकअसहमत e.) no comment

11. Do you feel that colour coding of bins should be strictly implemented for successful BMW management? बायो मेडिकल कचरे के सफलतापूर्वक प्रबंधन के लिए डिब्बों का रंग के हिसाब से कोडिंग करना सख्तपूर्णलागू होना चाहिए?

a.) Strongly agree दृढ़तापूर्वकसहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वकअसहमत e.) no comment

12. Do you feel that you should know about preparing Hypochlorite Solution? हाइपोक्लोराइट solution को बनाना आपको आना चाहिए?

a.) Strongly agree दृढ़तापूर्वकसहमत b.) Agree सहमत c.) Disagree असहमत d.) Strongly Disagree दृढ़तापूर्वकअसहमत e.) no comment

13. Significance of PPE in Handling of Biomedical waste: बायोमेडिकल waste का सही प्रबंधन में PPE का महत्व है?

a.) Very Significant बहुतमहत्वपूर्ण b.) Significant महत्वपूर्ण c.) Slightly significant थोड़ा महत्वपूर्ण d.) Not significant महत्वपूर्णनहीं है e.) no comment

PRACTICE:

1. Color Coding segregation/separation of Biomedical Waste is at the point of generation: जब कचरा उत्पन्न होता है तब कचरे को कलर कोडिंग के हिसाब से अलग करते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can'tSay नहीं बता सकता/सकती

2. Reporting any incident related to biomedical hazard or injury: बायोमेडिकल waste से सम्बंधित कोई भी घटना को आप सूचित करते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can'tSay नहीं बता सकता/सकती

3. Do you attend the Training programs conducted for Biomedical waste Management? बायोमेडिकल waste के सही प्रबंधन के लिए होने वाली प्रशिक्षण कार्यक्रम में आप हिस्सा लेते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

4. Attended the training program in past one year पिछले साल हुए प्रशिक्षण कार्यक्रम में भाग लिया है?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

5. Putting wastes in wrong bins क्या आप किसी भी कचरे को विशेष डब्बे से हटकर गलत डब्बे में डालते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

6. Immediately discarding the used sharp needles, syringes and slides उपयोग में लाये जाने वाले सिरिंज, नीडल और स्लाइड्स को आप तुरंत फेंक देते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

7. Do you know to prepare hypochlorite solution? क्या आपको हाइपोक्लोराइट solution बनाना आता है?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

8. Do you maintain records for proper Biomedical Waste Management? बायोमेडिकल waste के सही प्रबंधन के लिए आप रिकार्ड्स रखते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

9. Do you use PPE kit for handling BMW ? PPE kit का उपयोग करते हैं?

a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I cant Say
नहीं बता सकता/सकती e.) Not Applicable लागू नहीं

10. Informing the BWM Committee about the untreated waste which is stored for more than 48 hours

48 घंटे से ज्यादा रखे हुए अनुपचारित कचरे के बारे में BWM समिति को सूचित करते हैं?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

11. Have you been vaccinated against Hepatitis B? Hepatitis बी का टीका लगा है आपको?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

12. Have you been vaccinated against Tetanus? Tetanus का टीका लगा है आपको?

- a.) Yes हाँ b.) No नहीं c.) Don't Know पता नहीं d.) I can't Say नहीं
बता सकता/सकती

13. Amount of waste to be filled in waste bag? कितना कचरा भरा होना चाहिए एक कचरे के थैले में?

- a.) Half b.) One fourth c.) full d.) three fourth