



Knowledge & Awareness Of Bio Medical Waste Management Among Health Personal Of Small, Medium And Large Hospitals In Rohilkhand Region

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ABSTRACT

Introduction

Health care is emerging at a rapid rate leading to increase in quantity of Biomedical Waste. Proper disposal of this waste is the biggest challenge for today's era as the nonsegregated or untreated waste cause infectious diseases as well as environmental degradation.

Aim & objective

The objective of the study is to analyze KNOWLEDGE & AWARENESS OF BIO MEDICAL WASTE MANAGEMENT AMONG HEALTH PERSONAL OF SMALL, MEDIUM AND LARGE HOSPITALS in Rohilkhand region as very few studies are being conducted in the region

Material and methods

This study is conducted in selected small, medium, and large category of hospitals. Health personals willing to participate were included in the study. A total of 800 health personals including doctor, nurse, paramedical and housekeeping staff were randomly selected through random number table, and a self-administered questionnaire was given to the respondents. The questionnaire consisted of 10 structured questions to assess the awareness and 13 structured question for knowledge assessment regarding BMW management. Results were computed using SPSS version 23

Results

The level of awareness among these health personals was high which means all health personals in the region are at least aware about bio medical waste should be segregated, collected and transported in a defined manner but the knowledge score was not as high as the awareness which clearly signify that mere awareness of bio medical waste doesn't hold much importance until we had knowledge for the same.

Conclusion

The results indicate health personals of Rohilkhand region are aware about BMW management. Although awareness is the basic step it is only having knowledge of BMW management which is more important therefore the hospitals should focus on knowledge enhancement of health personals which requires training regularly
Keywords: Biomedical waste management, BMW, Knowledge, Awareness, Training

INTRODUCTION

Bio-medical waste means “any solid and/or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Biomedical Waste management (BMW) is generated from any health care institution or camps It can be highly infectious and toxic in nature. This waste if remain unsegregated or mixed up with general waste at any stage from handling to disposal can infect the 85% of general waste which is being produced in healthcare facility.

Bio medical waste handling rules have been into existence since 1998 and has been amended as well as modified time to time. Despite of serious punishment and strict compliance due to its severity as it causes health hazard, toxicity and environmental degradation segregation and disposal still remains the biggest gap which needs to be catered.

In order to close this gap Awareness, knowledge and correct implementation practice are the most important aspect in proper management of bio medical waste

Due to rapid advancement in medical field the rate and amount of generation of bio medical waste has been rapidly increased which is a major concern due to association of number of infectious diseases and toxicity. In all the health care settings health personals should have good knowledge and awareness and all the facilities generating bio medical waste should have good practice and proper implementation in management of bio medical waste.

All the waste is not segregated properly at all facilities specially in developing countries. It get mix together within the premises which poses serious health hazard to both staff and patient. This increases incidences of hospital-acquired infections through injuries and infection to the people who handle these waste materials, and furthermore, there is a serious risk to health arising from the transport of infectious and hazards waste. Reusing of these waste can leads to various diseases. It has been revealed by WHO that more than 50,000 deaths occur every day from infectious diseases.

Various types of bio medical waste are further assigned to each one of the categories, as detailed below:

1. Yellow Category
2. Red Category
3. White Category
4. Blue Category

These categories are further divided as per the type of waste under each category

Yellow category – This includes **Contaminated Waste (Non-recyclable)**

like cotton, bandages, cast, clinical lab waste, soiled waste, anatomical waste, discarded or expired medicines, body fluids, blood bags etc. Waste of lab as well as blood bags should be stored in autoclavable yellow plastic bags rest to be stored in non - chlorinated yellow bags.

Red category – This includes **Contaminated Waste (Recyclable)** from disposable items like tubing, gloves, bottles, intravenous tubes, catheters, urine bags, syringes and vacuolators with their needles cut.

White category – This includes waste **Sharps including Metals** Like Needles, scalpels, blades, or any other contaminated sharp object which may cause puncture or cuts. This includes both discarded and contaminated metal sharps.

Blue category – This includes waste **Glassware** Discarded and contaminated glass, broken glass including medicine vials and ampoules leaving those contaminated with cytotoxic wastes:

The various steps involved in the process of management of bio medical waste.

- A. Generation
- B. Segregation
- C. Separating, packaging, labeling
- D. Storage
- E. Transportation
- F. Treatment

All the process is the responsibility of the generator except external transportation, treatment and disposal which is prime responsibility of CBWTF operator.

Proper Awareness and knowledge among health personal is very important in following correct practice and implementation Training if imparted from the very beginning of imparting medical education can add wonders in understanding the importance of bio medical waste management, increasing of awareness level as well knowledge and practice standards during later years of life.

MATERIAL AND METHODS

This study is conducted in selected small, medium, and large category of hospitals of Rohilkhand region. Health personals willing to participate were included in the study. A total of 800 health personals including doctor nurse, paramedical and housekeeping staff were randomly selected through random number table, and a self-administered questionnaire was given to the respondents. The questionnaire consisted of 10 structured questions to assess the awareness and 13 structured question for knowledge assessment regarding BMW management. Results were computed using SPSS version 23

Questionnaire

Awareness regarding Biomedical waste management among the healthcare personnel's
1. Do you know that BMW needs to be segregated?
2. Do you know that BMW needs to be put in different bags?
3. Do you know about colour coding of BMW?
4. Do you know BMW needs to be stored separately?
5. Do you know that BMW needs to be transport separately?
6. Do you know separate route for BMW transport is required?
7. Do you know BMW is responsibility of every health care worker?
8. Do you know about universal precaution?
9. Do you know about bar coding?
10. Do you know about uploading BMW related data on specific website?

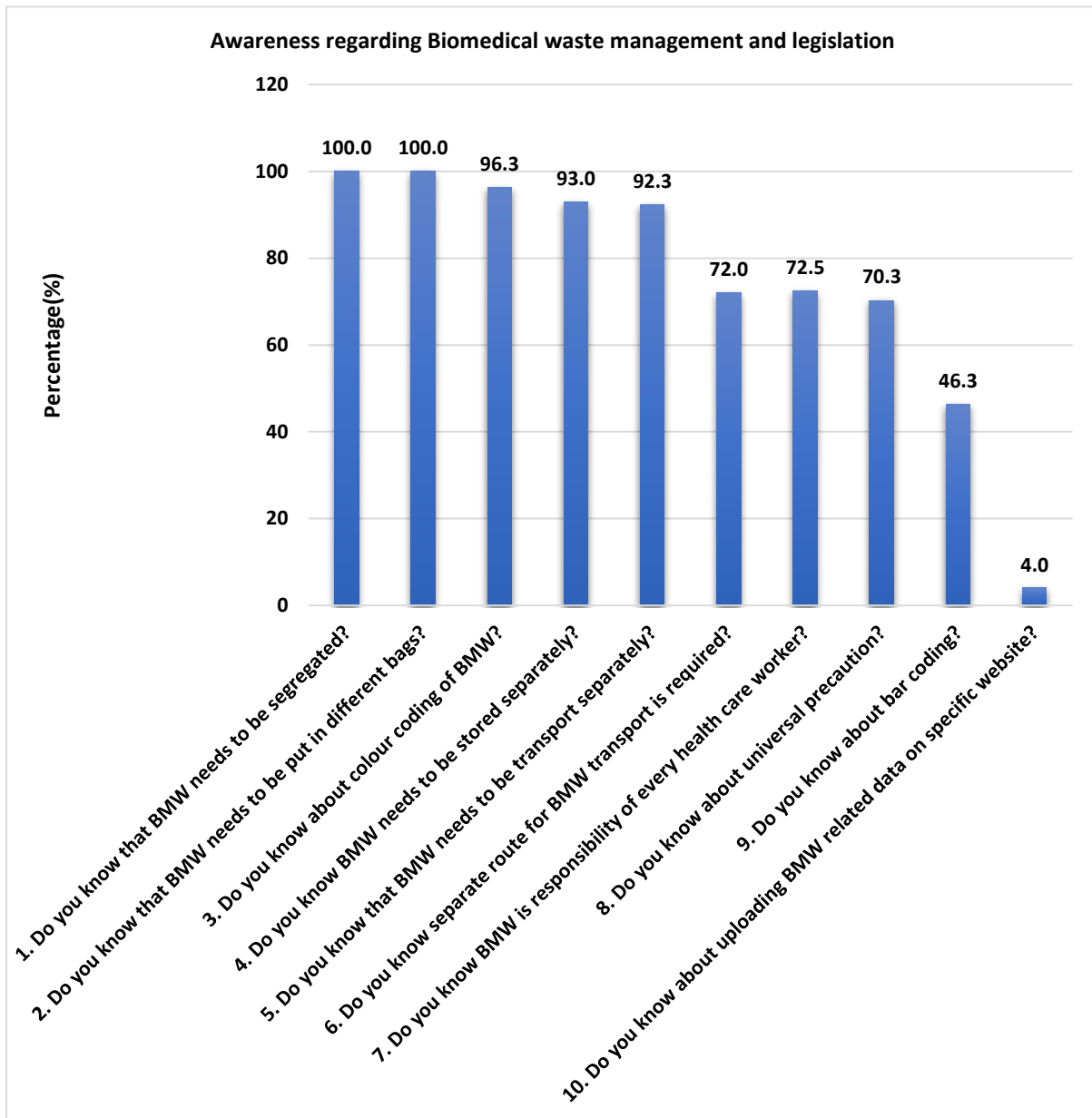
Knowledge on Biomedical waste management among the healthcare personals
1. Biomedical waste (management and handling) Rules were first proposed in:?
2. Recent amendments to the biomedical waste (management and handling) rules were made in ?:
3. Which body regulates the safe transport of medical waste?
4. Who is responsible for segregation of biomedical waste?
5. The approximate proportion of hazardous waste among total waste generated from a health care facility is :?
6. The colour code for disposal of normal waste from the health care facility is :?
7. As per BMW Rule 2016, Ampules and Glass waste are collected in which colour bin?
8. As per BMW Rule 2016, Sharps are collected in which colour bin?
9. As per BMW Rule 2016, General waste is collected in which colour bin?
10. As per BMW Rule 2016, Body parts are collected in which colour bin?
11. As per BMW Rule 2016, cotton swabs contaminated with fluids are collected in which colour bin?
12. As per BMW Rule 2016, Plastic waste is collected in which colour bin?
13. As per Rule 2016, Blood bags (Used or empty) are collected in which colour bin?

DISCUSSION AND RESULTS

TABLE-1: Awareness on Biomedical waste management and legislation among the healthcare personnel's (n=800)

Awareness regarding Biomedical waste management and legislation	Number	(%)
1. Do you know that BMW needs to be segregated?	800	100.0
2. Do you know that BMW needs to be put in different bags?	800	100.0
3. Do you know about colour coding of BMW?	770	96.3
4. Do you know BMW needs to be stored separately?	744	93.0
5. Do you know that BMW needs to be transport separately?	738	92.3
6. Do you know separate route for BMW transport is required?	576	72.0
7. Do you know BMW is responsibility of every health care worker?	580	72.5
8. Do you know about universal precaution?	562	70.3
9. Do you know about bar coding?	370	46.3
10. Do you know about uploading BMW related data on specific website?	32	4.0

Table above, and Graph 1 below shows the awareness of biomedical waste management and legislation among the healthcare personals. Among the total 800 participants, 100% of them were aware about BMW needs to be segregated & to be put in different bags. 96.3% of know about color coding of BMW but 93.0% of them were having awareness that BMW needs to be stored separately. Although 92.3% know that BMW needs to be transport separately but only 72.0% were aware that separate route for BMW transport is required. 72.5% accepts that BMW is responsibility of every health care worker. Only 46.3% know about bar coding & 4.0% of them know about uploading BMW related data on specific website.



GRAPH 1

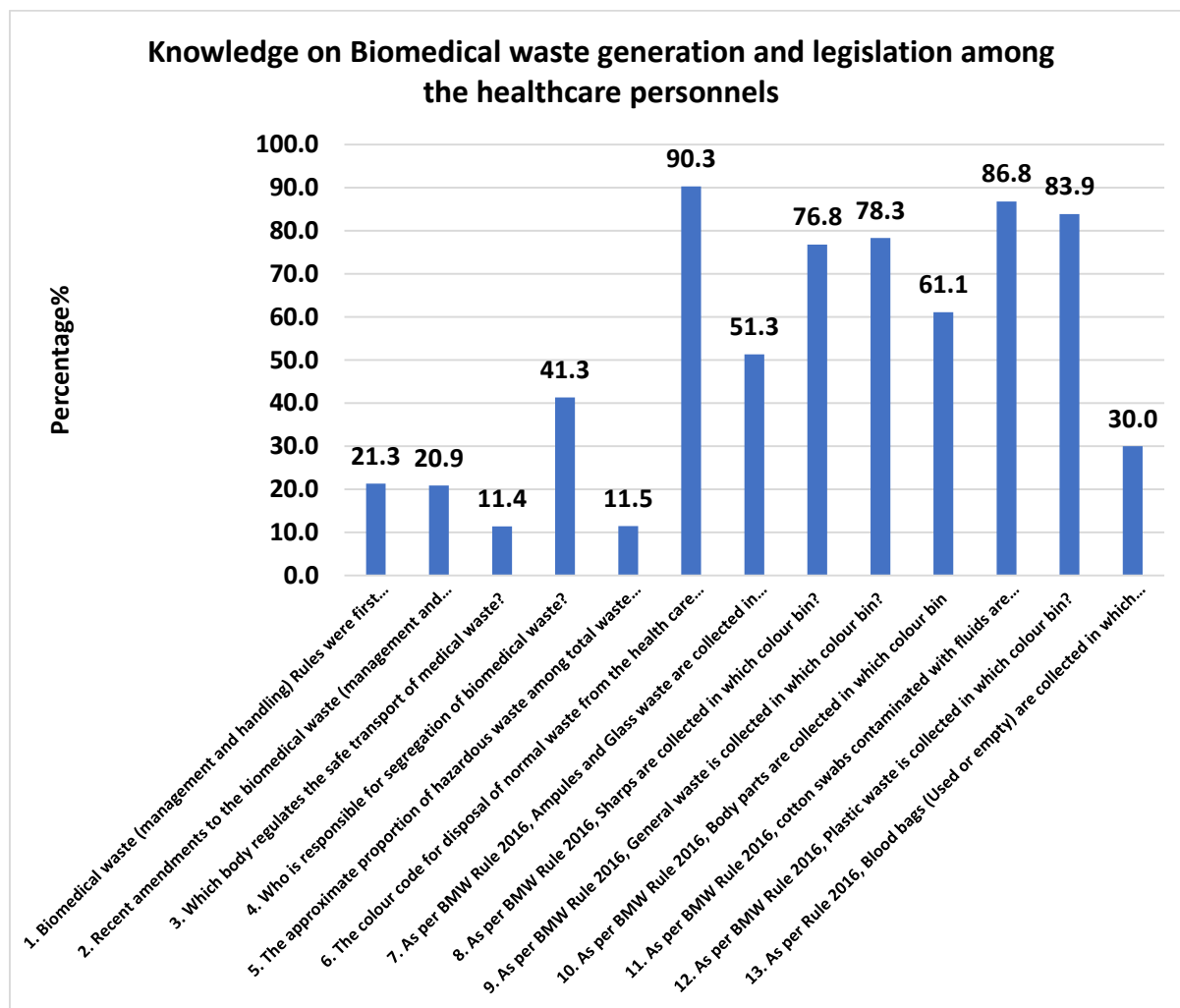
TABLE-2

Knowledge on Biomedical waste management and legislation among the healthcare personals (n=800)

	NUMBER	%
1. Biomedical waste (management and handling) Rules were first proposed in :	170	21.3
2. Recent amendments to the biomedical waste (management and handling) rules were made in :	167	20.9
3. Which body regulates the safe transport of medical waste?	91	11.4
4. Who is responsible for segregation of biomedical waste?	330	41.3
5. The approximate proportion of hazardous waste among total waste generated from a health care facility is :	92	11.5
6. The colour code for disposal of normal waste from the health care facility is :	722	90.3
7. As per BMW Rule 2016, Ampules and Glass waste are collected in which colour bin?	410	51.3
8. As per BMW Rule 2016, Sharps are collected in which colour bin?	614	76.8
9. As per BMW Rule 2016, General waste is collected in which colour bin?	626	78.3
10. As per BMW Rule 2016, Body parts are collected in which colour bin	489	61.1
11. As per BMW Rule 2016, cotton swabs contaminated with fluids are collected in which colour bin?	694	86.8
12. As per BMW Rule 2016, Plastic waste is collected in which colour bin?	671	83.9
13. As per Rule 2016, Blood bags (Used or empty) are collected in which colour bin?	240	30.0

Table 2 above and Graph:2 below Knowledge on Biomedical waste management and legislation among the healthcare personals.

Knowledge on Biomedical waste (management and handling) Rules were first proposed in was known to 21.3% of participant. Recent amendments knowledge for biomedical waste (management and handling) rules was only 20.9%. Knowledge on regulation of safe transport of medical waste 11.4%. Segregation responsibility about biomedical waste was 41.3%. Approximate proportion of hazardous waste among total waste generated from a health care facility was known to 11.5%. Color code for disposal of normal waste was known to 90.3%. For Ampules and Glass waste was 51.3%. Knowledge about collection of Sharps in white bin were found to be 76.8% & color bin for General waste was known to 78.3%. Knowledge on color bin for Body parts collection were 61.1% & 86.8% for cotton swabs contaminated with fluids. 83.9%. know color bin for plastic waste but poor knowledge for blood bag disposal color code was only 30.0%



Graph 2

CONCLUSION

In the above study Biomedical waste management requires attention and care in Rohilkhand region from every health care facilities, government regulatory agencies and healthcare personnel, starting from doctors and nurses who handles the patients, use the equipment and supplies that generates waste, sanitary staffs who carry away waste to central waste collection area, along with the CBWTF technology operator responsible for ensuring that bio medical waste is disposed of as per rules and regulations. The phrases like sub changa ci, all is well, partial compliance cannot be tolerated in this sensitive aspect where both human lives as well environment is involved. Awareness level in all category regarding biomedical waste segregation need to be put in different colors is 100%. According to health personal they are well aware about segregation color coding storage transportation but not aware about bar coding, data updating on website Still Knowledge is a key factor for all steps managing bio medical waste. Being aware forms the base but having adequate knowledge forms the key factor in managing bio medical waste. Segregation of waste forms the brain and heart of Biomedical waste Management. Segregation knowledge should be there in all health personnel.

Recommendations

It is important to train staff regularly regarding bio medical waste management

Awareness level is good but knowledge level should also be increased

Regulatory bodies should be more strict and vigilant in terms of setting up liability of health care unit regarding improper management of bio medical waste

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