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Biomedical Waste Management in Private Hospitals of Guwahati-A Review on System Development and Monitoring

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ABSTRACT:

The study is to highlight the process development for systematic design and monitoring of Biomedical Waste management in private hospitals of greater Guwahati. Pre implementation studies through a structured questionnaire were taken as personal interview of health workers and other related hospital staff from the random selection of hospitals. Assess the prevailing method (pre implementation) of disposal and to identify the point of intervention were the key investigations. The goal was to develop a system for Bio medical waste management and to implement uniformly throughout the hospitals. After conducting initial assessment through observation checklist, questionnaire, the following points have come into picture: Lack of knowledge in the staff who are involved in the process, Mixing of waste, collection & transportation of waste in an unscientific way, No use of Personal Protective Equipments, Unavailability of four colored Plastic bags to carry the biomedical waste. The studies recommended - Training on Biomedical Waste management, training of Trainer (TOT), Monitoring (supervisor training and follow up), Awareness inside the hospitals needs to be raised by distributing brochures in many places of the hospitals, Urgent need of Bio medical waste transport trolley in some of the hospitals, Infection control committee needs to be formed in some hospitals etc. A scientific novel approach has been strongly recommended for a hygienic Biomedical Waste Management.

KEY WORDS: Biomedical Waste, Hygienic, Hospitals.

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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 in research pertaining thereto or in the production or testing thereof.

Medical care is vital for our life, health and well-being. But the waste generated from medical activities can be hazardous, toxic and even lethal because of their high potential for disease transmission. The hazardous and toxic parts of waste from health care establishments comprising infectious, bio-medical and radio-active materials as well as sharps (hypodermic needles, knives, scalpels etc.) constitute a grave risk, if these are not properly treated/disposed or are allowed to get mixed with other municipal waste. Its propensity to encourage growth of various pathogens and vectors and its ability to contaminate other nonhazardous/ non-toxic municipal waste jeopardizes the efforts undertaken for overall municipal waste management. The rag pickers and waste workers are often worst affected, because unknowingly or unwittingly, they rummage through all kinds of poisonous materials while trying to salvage items which they can sell for reuse. At the same time, this kind of illegal and unethical reuse can be extremely dangerous and even fatal. It might be kept in mind that any individual can complain any suspected negligence in Management and Handling of BMW to the responsible authority[1]. Diseases like cholera, plague, tuberculosis, hepatitis (especially HBV), AIDS (HIV), diphtheria etc. in either epidemic or even endemic form, pose grave public health risks. Unfortunately, in the absence of reliable and extensive data, it is difficult to quantify the dimension of the problem or even the extent and variety of the risk involved.

MATERIALS AND METHODS:

The study was conducted over a period of three month. Study was conducted at five private hospitals of Guwahati, Assam.

A pre-defined questionnaire[2,3] was filled by the Doctors, Nurses and Housekeeping staff. The interviews were conducted at actual locations of the source of collection to the point of final disposal.

Total 100 doctors, 100 nursing staff and 100 housekeeping staff were taken during the study. On the day of study a meeting was called for doctors and the questionnaire was given to the doctors. They were explained about the importance of the study. The questionnaire contained 10 closed questions and was related to knowledge, attitude and practice. Information obtained through questionnaire were analyzed and given below.

OBSERVATION:

Table 1: Knowledge of Biomedical Waste Management

	Doctor (100)		Nurse(100)		Housekeeping staff(100)	
	Present /Yes	**Absent/ No**	**Present/ Yes**	**Absent/ No**	**Present/ Yes**	**Absent/ No**
Knowledge of BMW Rule	62(62%)	38(38%)	73(73%)	27(27%)	23(23%)	77(77%)
Learnt through theory	73(73%)	27(27%)	84(84%)	16(16%)	12(12%)	88(88%)
Attended training programme on BMW	17(17%)	83(83%)	72(72%)	28(28%)	38(38%)	62(62%)
Categorizing wastes necessary	87(87%)	13(13%)	78(78%)	22(22%)	58(58%)	42(42%)
Color coding disposal necessary	89(89%)	11(11%)	81(81%)	19(19%)	53(53%)	47(47%)
Labeling of BMW with biohazard symbol.	82(82%)	18(18%)	77(77%)	23(23%)	57(57%)	43(43%)

Practice of Biomedical Waste Management at the hospital was observed and found that 53% of the participants were aware of the hospital Biomedical Waste management rule. 56% of the participants said that they learnt through theory while 42% responded that they were trained to dispose waste carefully and properly. Their work related to segregation, decontamination, transport, and storage was monitored by medical professionals of concerned department and 74% participants agreed to it. About 74% also agreed that department heads were discussing biomedical waste management in their departmental meetings (Table-2).

Regular audit was carried out in the hospital to check the practice of biomedical waste management (75%). Some departments maintain registers for the biomedical waste disposal (30%) and 56% complied with the presence of a system for recording the weight of the wastes generated daily (Table-3).

The hospital wastes were segregated and disposed properly in an authorized hospital waste collection centre. Attitude of participants towards Biomedical Waste Management was good. About 71% participants consider that it was an issue to maintain proper waste management, 93.5% participants considered it as a team work, and 40% and 24.5% of participants agreed that it increased financial burden and work burden respectively (Table-4).

Government of India framed biomedical waste rules in 1998, and 1st amendments in March 2000 and amendment in 2018(BMW rule 2016-amendment in 2018). However, in this study 52.6% Doctors, 52.4% nurses, and 26.1% auxiliary staff expressed the knowledge of the law. The doctors have stated that they gained the knowledge of BMW through theory (59.8%) rather than CME (33.1%) and training (28.5%).

However, the nurses gained BMW knowledge through theory (18%), CME (17%), and training (17%) respectively. Nevertheless the knowledge among the auxiliary staff (Lab technicians, and housekeeping staff) was minimal (28.23%). These hospitals conducted training on BMW. But only 36.6% doctors, 24% nurses and 12% auxiliary staff have attended the training. The annual education programme on BMW has expected impact on nurses (69.1%) and auxiliary staff (67.1%) but not on doctors (43.7%). On categorizing BMW, all the categories of staff expressed the importance of proper categorizing the wastes (87%. 78%, and 58%). All the doctors (89%) accepted color coding is necessary and 81% of the nurses also gave importance for color coding bags for segregation at the disposal stage. At the same time the doctors (82%), nurses (77%) and auxiliary staff (57%) want to label the color coded bins with the biohazard symbol. (Table-1)

Initial assessment:

After conducting initial assessment through observation checklist, questionnaire, the following points have come into picture:

1. Lack of knowledge in the staff who are involved in the process.
2. Mixing of waste, collection & transportation of waste in an unscientific way.
3. No use of Personal Protective Equipment (PPE)
4. Unavailability of four colored Plastic bags to carry the biomedical waste

Implementation:

1. Identification of responsible person e.g. Infection control officer, infection control nurse.
2. Preparation of training material in local language.
3. Procure of article: Trolley, PPE, Collecting bins.
4. Segregation as per Biomedical Waste Management Rule,2016
5. Display of BMW rule near all collection bins.
6. Use of protective attire.
7. Development of waste collection site.

8. Use of hazardous symbol in all biomedical waste collection bins and plastic bags.
9. Formation of Infection control Committee.

Table 2: Practice of Biomedical Waste Management in an accredited hospital

Matter	Percentage of Respondents (%)
Segregation, decontamination, transports and storage was monitored.	74
Department heads were discussing biomedical waste management in their departmental meetings	74

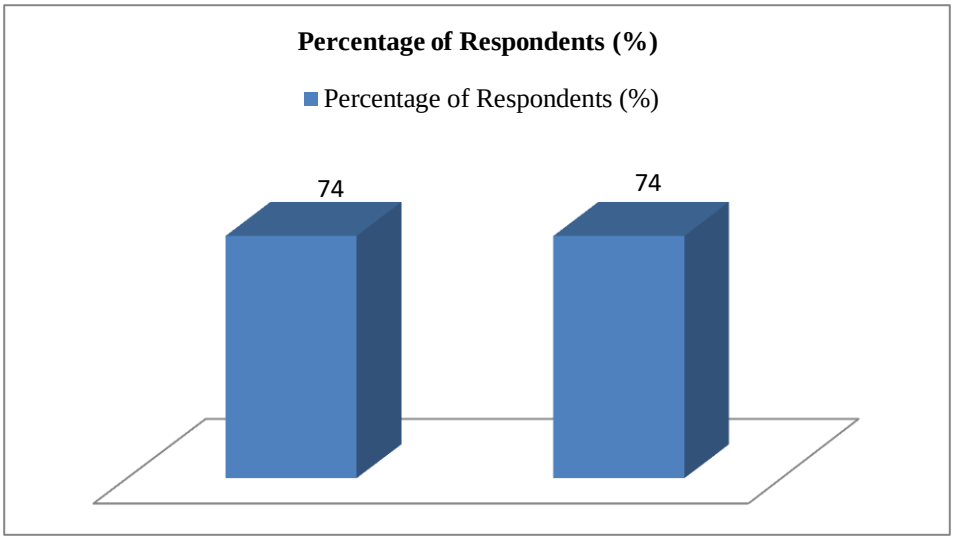

Figure 1: Practice of Biomedical Waste Management in an accredited hospital

Table 3: Auditing, Register maintenance and weighing of Biomedical Waste

Matter	Percentage of Respondents (%)
Regular audit on BMW management	75
Maintenance of Registers for BMW disposal	30
Weight of the wastes generated recorded	56

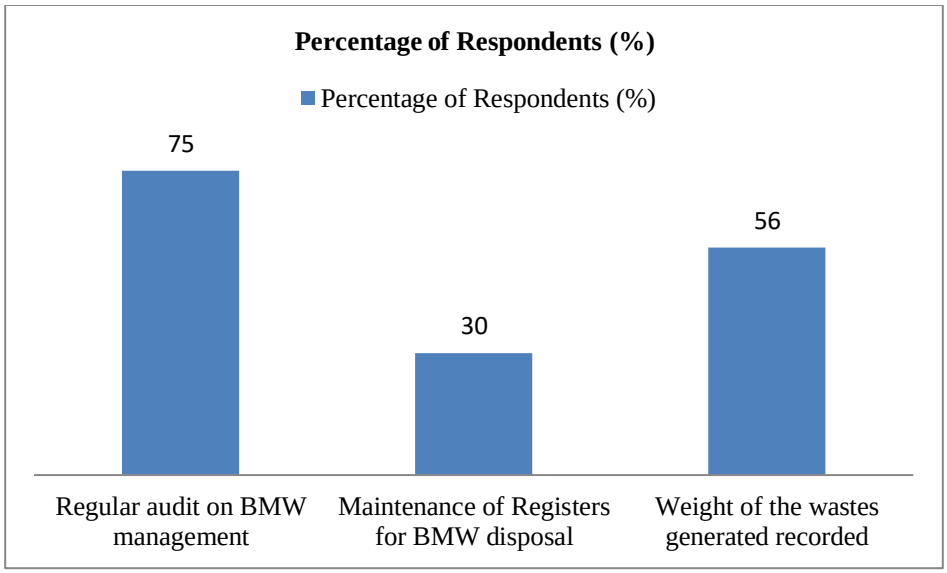

Figure 2: Auditing, Register maintenance and weighing of Biomedical Waste

Table 4: Attitude on Biomedical Waste Management

Matter	Percentage of Respondents (%)
Proper Waste Management is an issue	71
BMW is a team work	93.5
BMW is a financial burden	40
BMW is a work burden	24.5

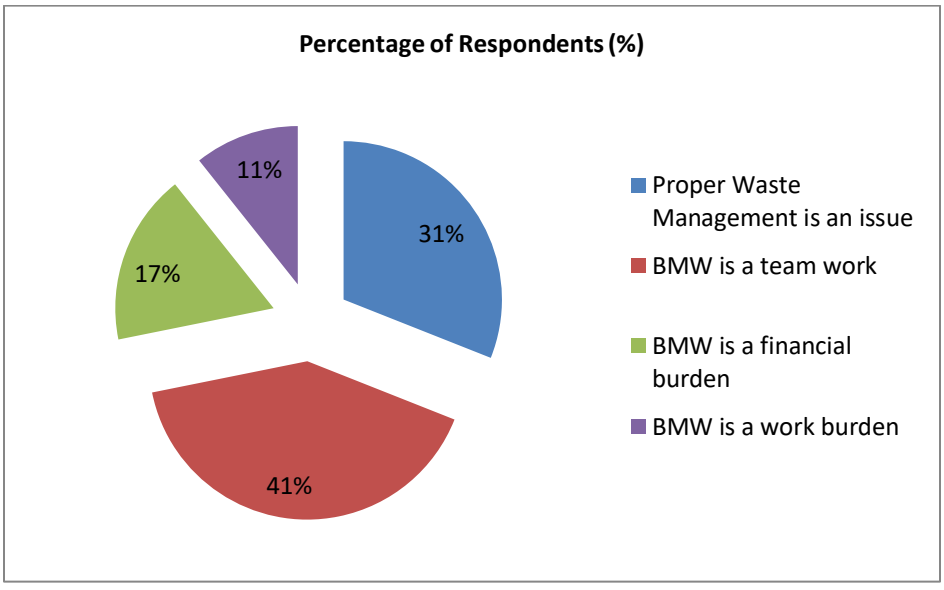

Figure 3: Attitude on Biomedical Waste Management

RECOMMENDATIONS:

1. Training on Biomedical Waste management needs to be conducted on a regular interval.
2. Training of Trainer (TOT)
3. Monitoring (supervisor training and follow up)
4. Awareness inside the hospitals needs to be raised by distributing brochures in many places of the hospitals.
5. Urgent need of Bio medical waste transport trolley in some of the hospitals.
6. Infection control committee needs to be formed in some hospitals.

REFERENCES:

1. AV Tiwari, PA Kadu. Biomedical waste management in India – A Review. Journal of Current Engineering and Technology 2013; 3(5):2030-33.
2. Nema A, Pathak A, Bajaj P, Singh H, Kumar S. A case study: biomedical waste management practices at city hospital in Himachal Pradesh. Waste Management Res 2011; 29:669-673.
3. Yadavannavar M, Berad AS, Jagirdar P. Biomedical waste management: a study of knowledge, attitude,and practices in a tertiary health care institution in Bijapur. Indian J Community Med 2010; 35:170–1.