



Awareness of Biomedical Medical Waste management policies and practices in peripheral centres of a tertiary care hospital.

Dr. Nikhil Dhande	Assistant professor, Department of community medicine, Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha
Dr. Ashwini Bolane	Masters in Public Health, Department of community medicine, Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha
Dr. Abhay Mudey	Dean, Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha

ABSTRACT **Introduction:** Biomedical waste (BMW) is a global issue today. All hospital personnel are at a risk from many potentially fatal infections like HIV, HBV and HCV. To avoid these hazards, a rigorous waste management system should be implemented in hospital infrastructure.

Objectives: To assess the awareness of Biomedical Medical Waste management policies and practices among the employees working in peripheral health centres.

Methodology: hospital based cross sectional study with predesigned questionnaire was used

Conclusion: lack of training and monitoring about BMW management can leads to hazardous effects on the person in contact and surrounding environment

KEYWORDS : Biomedical waste management, policies, practices.

Introduction:

Hundreds of millions of patients are affected by health care-associated infections worldwide each year, leading to significant mortality and financial losses for health systems. Biomedical waste (BMW) is a global issue today.¹ All hospital personnel are at a risk from many potentially fatal infections such as human immunodeficiency virus (HIV) and hepatitis B (HBV) and C (HCV). To avoid these hazards, a rigorous waste management system should be implemented in hospital infrastructure.² So to address these requirements adequate training and awareness programmes for medical and paramedical personnel are necessary³. In India, the Bio-medical Waste (Management and Handling) Rules, 1998 and further amendments were passed for the regulation of bio-medical waste management. On 28th Mar 2016 Biomedical Waste Management Rules 2016 were also notified by Central Govt. Each state's Pollution Control Board or Pollution control Committee is responsible for implementing the new legislation.⁴ Many studies took place in Gujarat, India regarding the knowledge of workers in facilities such as hospitals, nursing homes, or home health. It was found that 26% of doctors and 43% of paramedical staff were unaware of the risks related to biomedical wastes. After extensively looking at the different facilities, many were undeveloped in the area regarding biomedical waste. The rules and regulations in India work with the Bio-medical Waste (Management and Handling) Rules from 1998, yet a large number of health care facilities were found to be sorting the waste incorrectly. Nearly 40 years ago, it was suggested that in developed countries approximately 1-5 kg of waste were generated per bed per day, whereas in developing countries the figure was 1-2 kg/bed/day⁵. Furthermore, the peripheral health centres are situated in so much remote and tribal areas, that it may not possible every time to monitor all the rules and regulations strictly, as they are in tertiary care hospitals. Thus a study is conducted to assess the awareness of biomedical waste management policies and practices among the staff at peripheral Health centres of a tertiary care hospital.

Methodology:

- **Study Participants:** Doctors, Nurses and Attendants working in the peripheral health centres
- **Duration of study:** 6 months
- **Study design:** A hospital based cross-sectional study.
- **Study tools:** It consists of a predesigned questionnaire.
- **Sample size:** Universal Sampling i.e. complete enumeration method was used for the study.

Inclusion Criteria:

1. All the Doctors include Postgraduate students, Medical officers and specialist doctors posted at peripheral health centres.
2. All the Nurses includes all the nursing staff completed the education of ANM, GNM and above at peripheral health centres.

Exclusion Criteria:

- 1. Those who are not willing to give consent.

Institutional Ethics Committee Clearance:

Ethical approval was obtained from Institutional ethics committee of Datta Meghe Institute of Medical Sciences (Deemed University).

Observation and Results:-

This hospital Based cross-Sectional study was conducted in peripheral health centres attached to the tertiary care hospital named as Acharya Vinoba Bhawe Rural Hospital, Sawangi (Meghe) of Wardha district of Maharashtra. Total 75 participants were included in the study who had given consent and ready to participate in the study. Out of which 40 were males and 35 were females.

Table consists of awareness of participants regarding biomedical waste management.

Subpart A consists of awareness regarding Biomedical Waste Management policies. Almost all participants were aware that there are some guidelines laid down by government of India for Biomedical waste management while 17% Doctors, 6% Nurses and 7% Attendants don't know about such guidelines. Approximately 79% Doctors, 92 % Nurses and 87% Attendants knows that there is biomedical waste disposal policy in their hospital but the remaining were either not aware or they don't know about such policies. Safe biomedical waste management can be get by team work according majority of participants while some said it is the responsibility of government.

Subpart B consists of awareness of participants regarding biomedical waste management practices. Majority of Doctors given right answer for the questions regarding different colour bags, disposal of sharps and needles and disposal of extracted human tissue. While more than half of the Nurses given right answer to for the questions regarding different colour bags, disposal of plastic items and disposal of plasters. Similarly the majority Attendants correctly replied for different colour bags use, disposal of soiled dressings and disposal of sharps and needles.

Subpart C consists of awareness of participants regarding their education about biomedical waste management. All the participants strongly said that improper waste management can cause various health hazards and all were aware that their hospital generates biomedical waste. Also majority of them agreed that maintaining the biomedical waste management records is mandatory in the particular hospital while very few had denied this. Almost all replied that there should be a regular educational programme on biomedical waste management.

Table: Awareness of Biomedical Waste Management (BMW) among participants

A. BMW management policies					
	Question	Response	Doctors (n=24)	Nurses (n=36)	Attendants (n=15)
1.	Are there any guidelines laid down by Government of India for BMW management?	a. yes	20(83.3)	34(94.4)	14(93.3)
		b. no	0(0)	0(0)	0(0)
		c. Don't know	4(16.7)	2(5.6)	1(6.7)
2.	Is there any biomedical waste disposal policy in your hospital/clinic?	a. yes	19(79.2)	33(91.7)	13(86.7)
		b. no	5(20.8)	3(8.3)	0(0)
		c. Don't know	0(0)	0(0)	2(13.3)
3.	Safe management of biomedical waste is the:	a. Responsibility of only government	4(16.7)	2(5.6)	1(6.7)
		b. Team work	19(79.2)	30(83.3)	13(86.7)
		c. Don't know	1(4.2)	4(11.1)	1(6.7)
B. BMW management practices					
1.	Are different coloured bags used to dispose different types of waste?	a. yes	23(95.8)	34(94.4)	14(93.3)
		b. no	1(4.2)	1(2.8)	0(0)
		c. Don't know	0(0)	1(2.8)	1(6.7)
2.	Used disposable plastic items (e.g., catheter) are disposed of in:	a. Right	9(37.5)	21(58.3)	1(6.7)
	a. Yellow bags b. Red bags c. Black bags d. Don't know	b.wrong	15(62.5)	15(41.7)	14(93.3)
3.	Soiled dressing materials are disposed of in:	a. Right	11(45.8)	13(36.1)	12(80)
	a. Blue/ white bags b. Red bags c. Black bags d. Don't know	b.wrong	13(54.2)	23(63.9)	2(20)
4.	Used sharps and needles are disposed of in:	a. Right	17(70.8)	17(47.2)	12(80)
	a. Yellow bags b. Rigid/puncture-proof container c. Black bags d. Don't know	b.wrong	7(28.3)	19(52.8)	2(20)
5.	Extracted human tissue are disposed of in:	a. Right	15(62.5)	14(38.9)	8(53.3)
	a. Yellow bags b. Red bags c. Black bags d. Don't know	b.wrong	9(37.5)	25(61.1)	7(46.7)
6.	Plaster of Paris is disposed of in:	a. Right	7(29.2)	22(61.1)	7(46.7)
	a. Yellow bags b. Red bags c. Black bags d. Don't know	b.wrong	17(70.8)	14(38.9)	8(53.3)
C. Employee education/awareness					
	Question	Response	Doctors (n=24)	Nurses (n=24)	Attendants (n=24)
1.	Can improper waste management cause various health hazards?	a. yes	24(100)	36(100)	15(100)
		b. no	0(0)	0(0)	0(0)
		c. Don't know	0(0)	0(0)	0(0)
2.	Is maintaining BMW records mandatory in your hospital/clinic?	a. yes	22(91.7)	34(94.4)	14(93.3)
		b. no	0(0)	1(2.8)	1(6.7)
		c. Don't know	2(8.3)	1(2.8)	0(0)
3.	Does your hospital/clinic generate biomedical waste?	a. yes	24(100)	36(100)	15(100)
		b. no	0(0)	0(0)	0(0)
		c. Don't know	0(0)	0(0)	0(0)
4.	Should there be regular educational programmes on biomedical waste management?	a. yes	24(100)	35(97.2)	15(100)
		b. no	0(0)	0(0)	0(0)
		c. Don't know	0(0)	1(2.8)	0(0)

#Figures in bracket represents percentage

Conclusion and recommendations:

Many of the study participants knows about existence of biomedical waste and its policies but a poor or wrong knowledge about BMW management and lack of training and monitoring can leads to hazardous effects on the person in contact and surrounding environment, as safe and effective management of waste is not only a legal necessity but also a social responsibility. Various laws regarding Occupational safety in workplace and BMW management should be strictly implemented and regularly monitored in a systematic and simplistic manner by various authorities. An effective occupational health and safety program should be established that includes immunization, health insurance and post-exposure prophylaxis.

References:

1. Acharya DB, Singh M. The Book of Hospital Waste Management. 1st ed. New Delhi:

- Minerva Press; 2000.
2. Saraf Y, Shinde M, Tiwari SC. Study of awareness status about hospital waste management among personnel and quantification. Indian Journal of Community Medicine. 2006; 31: 111.
3. Oweis R, Al-Widyan M, Al-Limoon O. Medical waste management in Jordan: A study at the king Hussein Medical Center. Waste Management. 2005; 25(6): 622-627.
4. "Disposal of Medical Waste". Press Information Bureau. 25 July 2014. Retrieved 25 July 2014.
5. De Roos RL. Environmental concerns in hospital waste disposal. Hospital. 1974; 48: 120-122