

## STUDY OF KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING MANAGEMENT OF BIOMEDICAL WASTE AMONG HEALTH CARE PROFESSIONALS AND SANITARY STAFF IN SRINAGAR CITY, INDIA

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### ABSTRACT

The waste produced in the course of healthcare activities carries a higher potential for the spreading of infection and injury, unawareness and inadequate knowledge of handling of health care waste can cause serious health consequences and a significant impact on the environment as well. The purpose of study was to assess the knowledge, attitude and practices of doctors, nurses and sanitary staff regarding biomedical waste management in the health care establishments. The study was conducted among hospitals of Srinagar city. Medical personnel included were doctors, nurses and sanitary staff. Doctors and nurses have better knowledge than sanitary staff regarding biomedical waste management.knowledge regarding the color coding and waste segregation at source was found very poor among sanitary staffs who were deeply involved in the process of collection and segregation of biomedical waste .The importance of training regarding biomedical waste management needs emphasis.

**KEYWORDS:-**Biomedical waste, knowledge, Attitude, Practice

## **INTRODUCTION**

All activities of living organisms on the earth produce waste in some form or other. Normally aerobic and anaerobic process in the environment degrades such products. These wastes, both biodegradable and non-degradable hardly had any impact on the environment until the invention of plastics by the modern man. The process of natural degradation could not keep pace with the increases in waste generated by the over increasing population of mankind and its necessities. The air, the water and the land are today becoming disposal sinks for waste.

The last decade witnessed a significant increase of public concern regarding medical waste disposal. This was fueled by reports of beach washing of medical waste on the coasts of Florida and gulf and the recycling of disposable articles in developing countries. The reports and figures available from developed countries indicate that approximately 1-5 kg of waste generated per bed per day, with substantial inter country and inter specialty differences.

The data available from developing countries also indicate that the rate is similar but the figures are on a lower side with 1-2 kg per day per bed. In India, it is estimated to be 2.0 kg/bed/day. The concern regarding the medical waste mainly due the presence of pathogenic organisms and organic substances in hospital solid waste in significantly high concentrations.

The substantial number of organisms of human origin in solid waste suggests the presence of virulent strains of viruses and pathogenic bacteria in undetected number therefore improper handling of solid waste in hospitals may increase the airborne pathogenic bacteria which could adversely effect the hospital environment and community at large. 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 diseases transmission. The hazardous and toxic parts of waste from health care establishments comprising infectious, biomedical and radio-active material as well as sharps (hypodermic needles, knives, scalpels etc.) Constitute a grave risk, if these are not properly treated/ disposed or allowed to get mixed with other municipal waste. Its propensity to encourage growth of various pathogens and vectors and its ability to contaminate other non-hazardous/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 material 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. 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.

## METHODS

The tool used for collection of data was questionnaire which has semi-structured format with a set of 12 items concerning the knowledge, understanding and their behavior on the subject. This was further categorized in three sets with one question each on Knowledge, attitude and practice. The questionnaire was given to the 3 categories of staff only in selected high risk areas. The staff includes doctors, Nurses and Sanitary Staff. The answers were analyzed as positive and negative answers and then percentage per group were calculated and percentage was used to draw statistical status of the groups.

## RESULTS

In SKIMS 50 questionnaires were distributed and only 35(70%) were received back from the hospital out of which 47.7% were from doctors, 27.6% from nurses and 24.7% from sanitary staff.

In the SHMS 50 questionnaires were given to 3catagory staff out of which 25(50%) were received back out of which 34% were received from doctors,35% from Nurses and 31% from sanitary staff.

In LalDed 43 questionnaires were distributed and only 23(53.5%) were received back from the hospital out of which 45% were from doctors, 29.8% from nurses and 25.1% from sanitary staff.

In GB Panth hospital 40 questionnaires were distributed and only 20(50%) were received back from the hospital out of which 26% were from doctors, 42.8% from nurses and 31.3% from sanitary staff.

In Private Nursing Homes 70 questionnaires were distributed and only 24(40%) were received back from the hospital out of which 47.7% were from doctors, 27.6% from nurses and 24.7% from sanitary staff.

**Table: 1. Positive answers of questionnaire by staff of different Groups at SKIMS**

Group	(Doctors)		(Nurses)		(Sanitary Staff)	
	I		II		III	
	(n=16)		(n=10)		(n=9)	
	NO.	%	NO.	%	NO.	%
Knowledge	15	93.7	07	70	04	44.4
Attitude	13	81.2	08	80	07	77.7
Practice	12	75	09	90	06	66.6

**Table: 2. Positive answers of questionnaire by staff of different Groups at SHMS**

Group	Doctors		Nurses		Sanitary Staff	
	(n=10)		(n=7)		(n=6)	
	NO.	%	NO.	%	NO.	%
Knowledge	09	90	04	57.1	02	33.3
Attitude	08	80	05	71.4	03	50
Practice	07	70	06	85.7	04	66.6

**Table: 3. Positive answers of questionnaire by staff of different Groups at LalDed**

Group	Doctors		Nurses		Sanitary staff	
	(n=8)		(n=9)		(n=8)	
	NO.	%	NO	%	NO.	%
Knowledge	06	75	06	66.6	02	25
Attitude	07	87.5	07	77.7	04	50
practice	07	87.5	08	88.8	05	65.5

**Table: 4. Positive answers of questionnaire by staff of different groups at GB panth**

Group	Doctors		Nurses		Sanitary staff	
	(n=8)		(n=7)		(n=5)	
	NO.	%	NO.	%	NO.	%
Knowledge	07	87.5	03	42.8	02	40
Attitude	06	75	05	71.4	03	60
Practice	05	62.5	05	71.4	03	60

**Table.5. Positive answers of questionnaire by staff of different groups at pvt. Nursing homes**

Group	Doctors		Nurses		Sanitary staff	
	(n=9)		(n=8)		(n=7)	
	NO.	%	NO.	%	NO.	%
Knowledge	08	88.8	05	62.5	3	42.8
Attitude	07	77.7	06	75	4	57.1
Practice	06	66.6	06	75	4	57.1

**Table: 6. Positive answers of questionnaire by staff of different HCU's (Average)**

GROUP	DOCTORS		NURSES		Sanitary staff	
	(n=51)		(n=41)		(n=35)	
Knowledge	45	88.2	25	60.9	13	37.1
Attitude	41	80.3	31	75.6	21	60
Practice	37	72.5	34	82.9	22	62.8

## DISCUSSIONS

The present study reveals that the knowledge of health care workers on BMW and constituents of medical waste. Although majority of the workers seems to be clear on the constituents, there was some confusion on certain constituents as medical waste. Chemicals, unused medicines and coloured containers are the constituents which made most of the confusions among the workers. The sanitary workers are not aware about the colour coding of containers. The doctors and nurses were found clearer to some extent about the knowledge and constituents of biomedical waste. The age group/gender doesn't have any connection with the knowledge of constituents of medical waste.

The study has also shown that more the qualified staff the more is the understanding/awareness or knowledge in the subject of waste management. The average of all the surveyed HCU's in Srinagar, Doctors rated 88.2% and nurses rated 60.9% with regard to knowledge. Sanitary staff exhibited poor knowledge rated 37.1% about BMW and rules. This was indicative of the fact that the sanitary staff was never given even a capsule training with regard to biomedical waste management practices. Training programmes were therefore required to be organized for sanitary staff, highlighting the importance of proper management of infectious and hazardous waste.

In the regard to attitude towards scientific process doctors had scored an average of 80.3% in all the HCU's in Srinagar city and nurses scored 75.6% whereas sanitary staff have 60 % attitude towards the scientific process. The attitude of employees towards medical waste management and scientific process for different groups. It can be noted that the percentage of people who are highly concerned with the waste management are with high education groups.

In the parameter of practice doctors were practicing to BMW rules in the tune of 72.5%. In regard to the nurses it is 82.9% and 39.5 to the sanitary staff.

## **CONCLUSION**

The practice towards biomedical waste management in Srinagar city health care establishments were found noncompliance with standard procedure subsequent literature review suggests that this is a common problem in medical centers of underdeveloped country like bagladesh.littrature review also suggest that lack of knowledge and training facility lead this problem. The regular monitoring g and training require to manage the biomedical waste in proper way.

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