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Awareness of Biomedical Waste Management among Health Care Personnel in District Hospital Udhampur, Jammu and Kashmir

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Abstract:- Biomedical waste is a serious health hazards for health care providers, patients and public. Careless disposal of these waste can lead to environmental pollution and spread of serious disease, among health care providers, patients and general people. This paper presents an overview of the current awareness level of biomedical waste management among health care personnel in govt. District Hospital Udhampur, J&K. Data were collected via survey, interviews and on – site observations. The study showed that the hospital have a policy and plan in place for managing medical waste. Doctors were more aware about the hazards and legislation than the IV class employees and Nurses. But doctors were less aware about the waste management practices. Thus proper training should be provided to the doctors about the waste management practices, Nurses and IV class employees should also be awared about the Biomedical waste generation and legislation.

Key words:- Biomedical waste, Doctors, Nurses, IV class employees, hospital, awareness, management.

Introduction:- Waste is any substance which is discarded after primary use, or it is worthless, defective and of no use, these wastes are unwanted or unusable materials. There are many waste types such as:

- Municipal waste includes household waste, commercial waste, and demolition waste.
- Hazardous waste includes industrial waste.
- Biomedical waste includes clinical waste.
- Special hazardous waste includes radioactive waste, explosive waste, and electronic waste.

Hospital acquired infectious waste have been estimated at 10% of all fatal/life threatening diseases in the South-East Asia region and have been identified as one of the indicator for the management of waste (Sharma et al 2013). According to Biomedical waste (Management and Handling) Rules, 1998 of India “Any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in the research activities pertaining to or in the production or testing of biological and includes categories mentioned in schedule I”.

The awareness of laws among the public as well as development of policies are essential. Improper waste management and lack of awareness among health hazards from biomedical waste and poor control of waste disposal are the most critical problems connected with health care waste. Correct Knowledge and practice regarding bio-medical waste management is essential to reduce the risk of transmission of disease and exposure to pathogens (Paria and Das 2017). Biomedical waste is distinct from the normal trash or general waste and differ from other types of hazardous waste such as chemicals, radioactive, universal or industrial waste. Biomedical waste is generated from either biological and medical sources and their various activities such as diagnosis, prevention or treatment of disease.

Biomedical waste is a serious health hazard for health care providers, patients and even to general public. Careless and lack of awareness leads to environmental pollution and various

serious diseases among health care providers, patients and the local public. Bio-medical wastes are of great importance due to its potential environmental hazards and health problems. The waste produced in the course of health care activities carries a higher potential for infection and injury than any other type of waste. It is estimated that annually 0.33 million tons of hospital waste is generated in India. (Pullishery et al 2016). Biomedical waste management recently came into focus in India , particularly with the notification of biomedical waste rules, 1986 which was brought out by union Ministry of environment and Forests under the provision of Environment protection act , 1986. Therefore, the present study have been conducted to assess the awareness of Biomedical waste Management among Health care personnel in a government District hospital ,Udhampur , J&K.

Materials and Methods:- A thorough survey of the hospital have been done to assess the awareness of biomedical waste management among health care personnel using questionnaire with close – ended questions which have been distributed to 40 staff members including 10 Doctors, 10 Nurses, 10 Laboratory technicians and 10 IV class employees who voluntarily agreed. This questionnaire consisted of 20 questions which have been designed to obtain information about knowledge of Biomedical Waste generation and waste management practices. The questions were grouped under two headings:

1. Knowledge of biomedical waste generation, hazards and legislation.
2. Level of awareness on biomedical waste management practice.

This Hospital renders varied services to the patients given in table 1

Table 1. showing facilites available in district hospital Udhampur

s.no	Wards
1.	Patient services
2.	Medical
3.	Operating theatre
4.	ICU
5.	Emergency
6.	Radiology
7.	Laboratories
8.	Biochemistry
9.	Pathology
10.	Blood Bank
11.	Pharmacy
12.	Laundary
13.	Kitchen
14.	Administration
15.	Public areas
16.	Surgical

Results and Discussions:- Out of 40 respondents i.e. 10 nurses, 10 doctors ,10 Lab technicians and 10 IV class employees only 40% doctors and 40% lab technicians have excellent knowledge about biomedical waste generation and legislation while 10% of Nurses have excellent knowledge about this whereas Class IV employees failed to response , none of the IV class employees have excellent knowledge about biomedical waste generation and legislation. In this table , 60% doctors, 50% Nurses, 50% Lab technicians and only 20% IV class employees have good to average knowledge . None of the doctors falls in poor scoring criteria. 40% Nurses, 10% Lab technicians and 80% Iv class employees have very poor level of knowledge of Biomedical waste generation , hazards, and legislation .The poor knowledge of biomedical waste generation, hazards and legislation in IV class employees is because of their less frequent training .(Table. 2, Fig. 1)

Table 2. Knowledge of Biomedical(BM) Waste generation, hazards and legislation.

Health care personnel	Scoring Criteria		
	Excellent	Good to average	Poor
Doctors	40%	60%	0
Nurses	10%	50%	40%
Lab technicians	40%	50%	10%
Iv employees	0	20%	80%

Excellent: 8 correct answers out of 10

Good to average: 4-7 correct answers out of 10

Poor: <4 correct answers out of 10

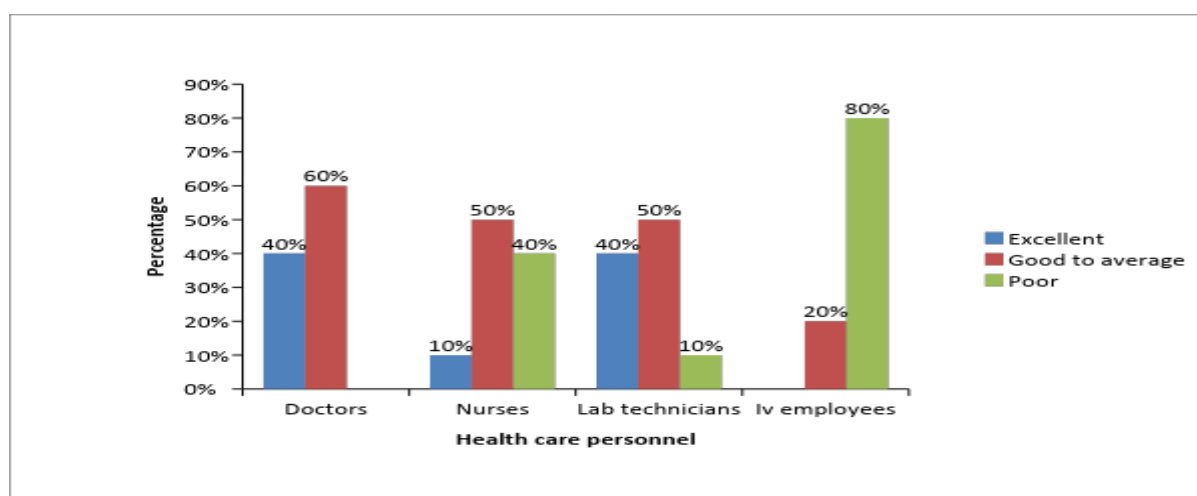


Fig 1. Representing level of Knowledge of biomedical waste generation, hazards and legislation among health care personnel.

Out of 40 respondents i.e. 10 nurses, 10 doctors, 10 Lab technicians and 10 IV class employees only 30% doctors have excellent awareness on biomedical waste management practice whereas 10% Nurses, 20% Lab technicians and 20% IV class employees have excellent awareness on biomedical waste management practice. In this table, 70% doctors, 50% Nurses, 70% Lab technicians and 70% IV class employees fall under good to average scoring criteria. 40% Nurses, 10% lab technicians, 10% IV class employees have very poor level of awareness on biomedical waste management practices. Only 30% doctors fall in excellent criteria due to the reason that they are not directly linked with the waste disposal practices. (Table 3, Fig.2)

Table 3. Levels of awareness on biomedical waste management practice.

Health care personnel	Scoring Criteria		
	Excellent	Good to average	Poor
Doctors	30%	70%	0
Nurses	10%	50%	40%
Lab technicians	20%	70%	10%
Iv employees	20%	70%	10%

Excellent : 8 correct answers out of 10

Good to average : 4-7 correct answers out of 10

Poor: <4 correct answers out of 10

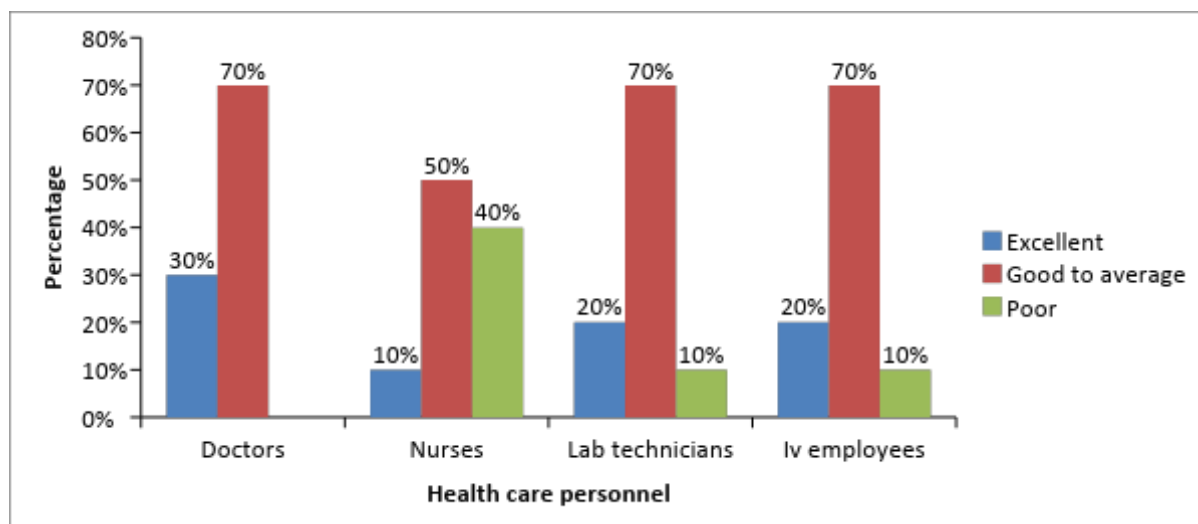


Fig. 2 Representing the level of awareness of biomedical waste practices

Conclusion:- The present study aims to provide information about the awareness about the biomedical waste management among Health care personnel in Government District Hospital Udhampur, J&K. The advantage for this study was all participants were based at the same workplace, so all were following similar guidelines from a waste management protocol. This study revealed that there was an average level of knowledge and awareness about Biomedical Waste generation, hazards, legislation and management among Doctors, Nurses, Laboratory technicians and Class Iv employees. Class Iv employees are fully aware about the color coding and waste management practices. Hospital waste management team were very much conscious about the health workers. The health workers are provided with gloves, masks, aprons, disinfectants. From the result it shows that Government District Hospital Udhampur have well managed i.e 100% hospital waste management plan. The hospital provide proper training and awareness to the staff as well as the workers. The awareness of laws among the public as well as development of policies are essential. Improper waste management and lack of awareness among health hazards from biomedical waste and poor control of waste disposal are the most critical problems connected with health care waste. Correct Knowledge and practice regarding bio-medical waste management is essential to reduce the risk of transmission of disease and exposure to pathogens. Segregation is the most important step in the entire process of biomedical waste management. Most of the hospitals using two or three color coded bags to segregate the waste and the practices of waste segregating were not adequate and mixing of waste was found. But District Hospital Udhampur using all color coded bags such as Red bags, Yellow bags, Black bags, Green bags, cardboard box for proper disposal of both infectious and non-infectious waste. In this hospital, doctors are more aware about the biomedical waste generation, hazards and legislation than the Nurses, Lab technicians and the IV class employees. Level of awareness about waste management practices are good in Iv class employees because of proper training given Iv class employees. Doctors have less knowledge about the waste management practices because they are not directly linked with the disposal practices.

The following suggestions have been recommended :-

- Massive drive should be launched by the Government to generate awareness regarding serious environmental and health hazards of bio-medical waste.
- All measures should be adopted to inform the public about legislation regarding bio-medical waste management.
- Workshops, seminars, exhibition etc. must be organized from time to time with representatives from various units related to bio-medical waste management.

- Information about the risks linked to health care waste can be displayed by poster exhibitions in hospitals, at strategic points such as waste bin locations, giving instructions on waste segregation.
- Collected information on various methods of disposal and updated technology should be made available to all categories of health care personnel.
- Bio-medical waste management programme cannot successfully be implemented without the willingness, devotion, self-motivation, cooperation and participation of all sections of employee of any health care establishment.
- If we want to protect our environment and health of community, we must sense ourselves to this important issue not only in the interest of health managers but also in the interest of community.

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