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EVALUATION OF BIOMEDICAL WASTE MANAGEMENT AT GOVERNMENT PSYCHIATRIC DISEASE HOSPITAL, SRINAGAR: A CROSSECTIONAL STUDY.

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ABSTRACT The present study was carried out with the objective of Evaluation Of Biomedical Waste Management at Government Psychiatric Disease Hospital, Srinagar.It was a Crossectional Study. Study material consisted of WHO health care waste management rapid assessment tool and pre designed semi- srtuctured combination of open and close ended questionnaire. Data was collected through primary and secondary sources by interviewing administrator, health care workers, observation and record review. The questionnaire comprised of subheadings like BMW segregation and handling, BMW collection, BMW storage and on –site transport, BMW off site transport,final disposal site, BMW rules and regulations , Policy and budgeting, reporting, monitoring, vaccination status of workers, financial resources and overall implementation as per 2016 guidelines. The present study revealed lack of basic awareness among health care workers. None of the health care workers receive training regarding waste management**.** Furthermore, there was no provision of Personal protective clothing and vaccination to the staff handling the waste.The quantum of infectious waste generation was found to be less.There was no constitution of waste management committee and team.Lack of monitoring, reporting and documents related to waste management were the other findings in our study.There is need for strict compliance to the existing guidelines. Each and every shortcomings should be dealt seriously.

KEYWORDS : Waste, Management, Evaluation, Guidelines.

Introduction:

By definition, Biomedical waste is waste generated during diagnosis, treatment or immunization of human beings or animals or research pertaining thereto, or in the production of testing and biological and is contaminated with body fluids.[1] WHO stated that 85% of hospital wastes are actually non-hazardous, around 10% are infectious and around 5% are non-infectious and categorised as hazardous wastes.[2]

Poor waste management practices pose a huge risk to the health of the public, patients, professionals and threat to the environment. If both these types are mixed together then the whole waste becomes harmful. Therefore, segregation, collection, treatment and disposal of BMW in an appropriate manner has become a matter of concern. All Bio-medical waste generated in the hospital should be disposed off strictly in accordance with Bio-medical waste management & handling rule 1998.[1]

Keeping in view the importance of the biomedical waste management, the present study was conducted to evaluate Biomedical Waste management at Government Psychiatric hospital, Srinagar.

Objective:

1) To assess the existence of Biomedical waste management policy.
2) Evaluate the awareness in hospital personnel regarding bio-medical waste management.
3) Assessment of health and safety practices for the health care personnel involved in Bio-Medical Waste handling .
4) To assess the quantum of waste generated on daily basis.

Material and Method:

It was a crossectional study. Prior permission was obtained from Principal government medical college, Srinagar. Study material consisted of WHO health care waste management rapid assessment tool and pre designed semi- srtuctured open and close ended questionnaire. Government psychiatric disease hospital was chosen for the study purposively as it is the only hospital in Kashmir division that is meant for all the patients suffering from mental ailments. It is 100 bedded hospital with Bed occupancy rate (BOR) of 75% and average OPD strength of approx 150 patients.

A team of postgraduate, senior resident and faculty member visited the health facility on 23/01/2018 with the objective of evaluating overall waste management and compliance to Biomedical waste management guidelines 2016.

Data was collected through primary and secondary sources by interviewing administrator, health care workers, by observation and through record review.

Primary data was collected through interview and observation of Biomedical waste management practices in every section of the hospital, starting from source of generation of waste, handling, transportation ,storage, treatment of liquid waste and spills and final disposal, availability of logistics,display of IEC material and usage of personal protective clothing by waste handlers. Awareness and practices of health care workers regarding biomedical waste hazards, the colour coding for segregation, and quantum of waste generated per day (approximately), waste segregation, collection and financial resources was also assessed through interview.

Secondary data was obtained through record review for existence of waste management plan and policies, constitution of biomedical waste management committee and team.Authorization from concerned authority and outsourcing for final disposal and treatment.

Study respondents included Medical Superintendent, Resident Medical Officer (RMO), Sanitary Inspector and randomly selected interview of healthcare personnel which included doctors, nurses, and housekeeping staffs.

Results:

Different subheadings for data collection include BMW segregation and handling, BMW storage, BMW collection and on –site transport, BMW off site transport, Final disposal site, BMW rules and regulations, Policy and budgeting.

BMW segregation and handling: Small colour coded bins was available and segregation is not practised as per the guidelines .Only needle and hub cutter was used for segregation and 10% sodium hypochlorite was used for disinfection purpose.There was no labelling of biohazard symbol and IEC material in any section of the hospital. In all the wards, only black coloured dustbin was available. Only gloves was used by class IV workers and no other protective clothing like mask, apron and gum boots were provided to them.

BMW Storage: There is no designated area for storage of biomedical waste.

BMW: collection and on- site transport: No trolley was available for transportation. Class IV workers use to pick up the waste manually on

daily basis. No puncture proof container was provided for collection and transportation of sharps.

Final Disposal: Sharp pit was available at the facility itself. Rest all other waste generated was picked up by CBMWTF.

BMW Off -site transport : The hospital had tie up with Common Biomedical waste treatment facility (CBMWTF) with M/S Kashmir Health Care Services Pvt ltd. It is located at Lassipora in district Pulwama, Kashmir. They use to pick up waste on daily basis.

BMW Rules and regulations: As per the record review and observation. There was neither any manual nor any written instructions or IEC material displayed for waste management.Staff were not aware about rules and regulation pertaining to waste management.

Policy and Budgeting: There was no constitution of biomedical waste management team or committee. Furthermore, logistics and budgeting for maintenance of waste was inadequate.

Records Review: Only documents available was contract papers for outsourcing and records of waste collection.

Table 1: Quantity of waste generated per day

Types of waste	Quantum (per day)
Non hazardous waste	40 kgs
Sharps	500 gms
Infectious waste(non sharp)	2 kgs
Anatomical waste	Not Applicable
Pharmaceutical waste	500 gms
Chemicals	Data not available
Radioactive waste	Not applicable
Municipal solid waste	Data not available

Table 1 depicts the amount of waste generated per at the facility. As the patient load is less, the quantity of waste generation on daily basis was less.

Table 2: Awareness of health care workers regarding waste management

Particulars	Doctors n= 4	Nurses n=3	Paramedics n=4	Class IV (n=3)
Existence of BMW management & handling rule 1998(Biomedical waste concept)	1	1	2	0
Waste segregation in colour coded containers.	1	1	1	1
Types of waste.	1	0	1	0
Maximum storage time of waste.	0	1	2	0
Diseases spread by improper hospital waste management.	4	2	2	1
Correct method of treatment & disposal.	2	1	2	1
Disposal of sharps and needles.	4	3	3	3
Management of spillage of blood and body fluids.	1	1	0	0
Management of mercury spill.	1	0	0	0

Awareness among all the staff was found to be very low expect for the disease spread by biomedical waste about which all the doctors were aware of.

Table 3: Training of waste handlers and risk involved in waste handling.

Training and other particulars	Yes/ No
Received special training in bio-medical waste handling	No
Injury/puncture/infection in the past 6 months	Yes
Accident reported to higher authority	No
Provision for vaccination against Tetanus and Hepatitis for health care workers	No

None of the staff got training regarding waste management. Some of staff had Injury from sharps in the last 6 months. But there is no system of reporting and post exposure vaccination.

Discussion:

The present study revealed lack of basic awareness among health care workers. This can be attributed to lack of training among health care workers. Similarly, Vishal Bathma et al [3] in their study found that knowledge about disease spread by improper waste management was more in doctors (92.1%) as compared to nurses (84%) and Lab technicians (52.3%). The findings contradict the findings by Verma Ramesh et al [4] where majority of the paramedical workers were quite aware about transmission of disease and predominant source of infection.

None of the health care workers receive training regarding waste management in our study**.** The findings more or less simulate results by Selvaraj Kokila [5] wherein about 70 percent practitioners have not undergone any type of training location with respect to biomedical waste management.

No Personal protective equipment except gloves was used by staff handling waste in the present study. Our findings are consistent with the results of Shalini Srivastav et al [6] where the safety measures adopted by the waste handlers was very poor, with only 30% using gloves and 11% masks while handling the Biomedical waste. Eye shields, aprons and long boots were worn by none. In contradiction,the staff employed for handling waste in the hospital use almost complete personal protective equipment, including overall gown and protective boots and gloves in a study by S Patan et al.[7]

The quantum of infectious waste generation was found to be 2kg /day in our study which is less in comparison to the findings by Pandit NA etal at Sher-i-kashmir Institute of medical sciences,srinagar where solid waste generated was found to be 2.02 kgs/ bed/ day.[8]

Recommendations: Based on our study findings,the recommendations are:

1) Streamlining waste management by Constitution of waste management committee and team.
2) Strict compliance to the latest waste management guidelines (2016).
3) Strict Monitoring for implementation of waste management rules.
4) Provision of logistics, personal protective clothing and vaccination to all the staff involved in waste handling.
5) Sensitization of all the staff by imparting training .
6) Recording and reporting on prescribed format about accidental injury and vaccination of health care workers should be emphasized.
7) Inter sectoral coordination between health and other sector for proper management.
8) Availability of manual and logistics.
9) Record keeping and creation of website about waste management as per guidelines.

Conflicts of interest: None

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Authors Contribution: Dr SM Salim Khan conceived the idea,study design and prepared the questionnaire. Dr Ambrine helped in Data collection and compilation. Myself drafted the manuscript, data collection and analyses.

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