

### AWARENESS REGARDING BIOMEDICAL WASTE MANAGEMENT AMONG INTERNS IN A TERTIARY HEALTH CARE HOSPITAL, KHAMMAM

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**ABSTRACT:** Biomedical wastes (BMW) segregation or disposal is fraught with danger. Being health care professionals one should be conscious about proper segregation and safe disposal BMW. Secondly the onus of responsibility of supervising health care team is vested with the doctor's. Hence an attempt is made to assess the knowledge of junior doctors regarding segregation and disposal BMW. **AIM & OBJECTIVE:** To assess the knowledge about various aspects of BMW management among junior doctors. **MATERIALS AND METHODS:** This was a cross-sectional study carried out among 115 junior doctors in a medical college hospital in Khammam, Andhra Pradesh from January 2013 to February 2013. **RESULTS:** Majority of the study population were in the age group of 22 to 24 years 53(46.1%). Majority of the study population were males 60(52.17 %).

Only 65.21% **CONCLUSION:** The importance of training regarding BMW management needs emphasis; lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

**KEYWORDS:** Biomedical waste, junior doctors, segregation had correct knowledge regarding segregation of wastes in to appropriate color-coded bags. Only 26% had knowledge regarding final disposal of BMW.

**INTRODUCTION:** In the persuasion of the aim of reducing health problems and treating sick people, healthcare services inevitably create waste which itself may be hazardous to health. The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. It is estimated that annually about 0.33 million tons of hospital waste is generated in India and, the waste generation rate ranges from 0.5 to 2.0 kg per bed per day.(1) Wherever, generated, a safe and reliable method for handling of biomedical waste is essential. Effective management of biomedical waste is not only a legal necessity but also a social responsibility. Though legal provisions [Biomedical Waste (management and handling) Rules 1998] exist to mitigate the impact of hazardous and infectious hospital waste on the community; still these provisions are yet to be fully implemented. (2)The absence of proper waste management, lack of awareness about the health hazards from biomedical wastes, insufficient financial and human resources, and poor control of waste disposal are the most critical problems connected with healthcare waste. (3)The hazardous impact of medical waste on the public and environment is enhanced manifold if adequate and appropriate handling of these wastes is not adopted. The hospital waste management has diverse ramifications as it not only affects the health of patients but also of healthcare workers and general public. Although, there is an increased global awareness

among health professionals about the hazards and also appropriate management techniques but the level of awareness in India is found to be unsatisfactory. (4-6) Adequate knowledge about the health hazard of hospital waste, proper techniques and methods of handling the waste, and practice of safety measures can go a long way towards the safe disposal of hazardous hospital waste and protect the community from various adverse effects of the hazardous waste. Hence the safe handling and disposal of biomedical waste has gained attention of not only health care providers but also public health administrators in order to have healthier societies. With this background, this study was conducted with the main objective of assessing knowledge of junior doctors regarding biomedical waste management.

**MATERIALS AND METHODS:** This was a cross-sectional study carried out among 115 junior doctors in a medical college hospital in Khammam from January 2013 to February 2013. Study tool was a pre-designed pretested semi-structured, questionnaire. The participants were informed about the purpose of the study and their informed verbal consent was taken. They were assured about their confidentiality.

**RESULTS:** It was seen that majority of the study population were in the age group of 22 to 24 years 53(46.1%). Majority of the study population were males 60(52.17 %). Almost all 100(94.78%) heard about BMW. Majority of the study population 95(82.60%) knew about color coded bags for Segregation of BMW. (Figure: 1) Segregation at source—the golden rule of BMW—was known by more than half 75(65.21%) of the study population. (Figure; 2) Among the study population 100(86.9%) had knowledge regarding the potential of transmission of diseases because of improper disposal of BMW. (Figure; 3) Only 30(26%) of the study population had knowledge regarding final disposal of BMW. (Figure; 4)

**Table 1: Sociodemographic profile of the study population (N=115)**

Characteristics	NO (%)
<b>Age in yrs</b>	
20 - 22	53(46.1%)
22 - 24	27(23.5%)
>24 yrs	20(17.4%)
<b>Sex</b>	
Males	60(52.17%)
females	55(47.83%)
<b>Type of family</b>	
Nuclear	95(82.6%)
joint	20(17.4%)
<b>Place of residence</b>	
Hostelite	102(88.7%)
Day scholar	13(11.3%)
<b>Per capita monthly income(Rs)</b>	
< 5000	18(15.6%)
5000 – 20,000	83(72.2%)
>20,000	14(12.2%)

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**Table: 2 Analysis of Knowledge among interns regarding Bio-medical waste Management (N=115)**

KNOWLEDGE	YES	NO
Heard about bio-medical waste	109(94.78%)	6(5.22%)
Heard about BMW Rule	78(67.82%)	37(32.18%)
Know about bio- hazard symbol	75(65.2%)	40(34.8%)
Category of BMW	60(52.2%)	55(47.8%)
Color coding	95(82.6%)	20(17.4%)
Segregation at source	75(65.2%)	40(34.8%)
Various methods of disposal	30(26.1%)	85(73.9%)
Health problems due to BMW	100(86.9%)	15(13.1%)

**DISCUSSION:** In this study, the junior doctors were assessed about their knowledge regarding BMW management. Interestingly, the study revealed that they lack required knowledge about BMW management. Our study showed that 94.78% of the study population heard about BMW, where as it was 99.1% in a study conducted among interns by Mausami Basu et al in west Bengal .(7)

About 67.8% of our study population knew about BMW (Management and Handling) rule 1998 where as it was 94.4% which was quite more in a study conducted among interns by Mausami basu et al in west Bengal. These findings are in contrast to our study findings.

Despite being doctors, only 65.21% of the our study participants knew about the bio-hazard symbol as compared to 67.9% in a study conducted among interns by Mausami basu et al in west Bengal, which indicates need for sensitization program. Our study findings are similar with that of Mausami basu et al study.

only 52.17 % of our study population were aware of various categories of BMW as compared to 55.9% in a study conducted by Mausami basu et al in west Bengal. In another study conducted by Suwarna Madhukumar et al in Bangalore it was only 38.5 %. (8)

Knowledge regarding Segregation of BMW at source was known by 65.21% of our study population whereas it was 78.8% in a study conducted by Mausami basu et al in west Bengal where it was better.

Various methods of final disposal of BMW were known by only 26% in our study, whereas it was 29.5% in a study conducted by Mausami basu et al in west Bengal. Similarly only 30% of the doctors had proper knowledge regarding final disposal of BMW in a study conducted by Rekha Sachan et al in Lucknow.(9)These findings are in similar to the study conducted among residents in New Delhi by S. Saini et al. (10)

**CONCLUSION:** Lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

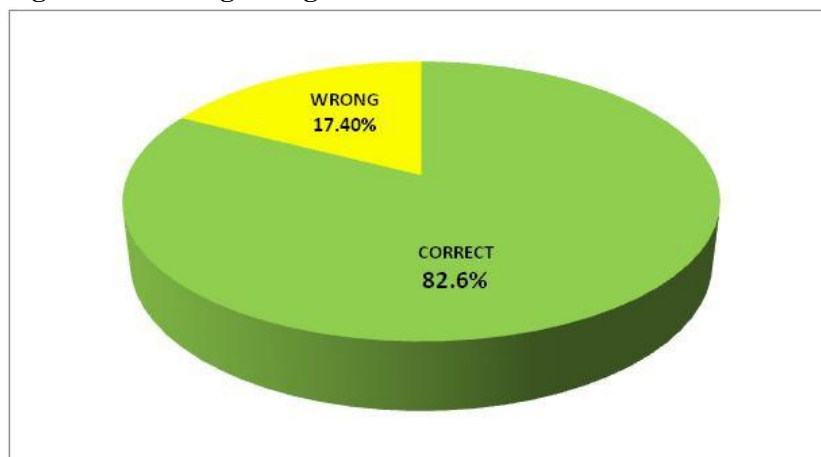
## RECOMMENDATIONS AND SUGGESTIONS:

1. Intensive training program at regular time interval for all staff with special emphasis on junior doctors is needed.
2. A system of monitoring of information, education and communication (IEC) and practice of BMW management should be evolved.
3. Information about the risks linked to BMW can be displayed by posters in hospitals giving instructions to segregation.
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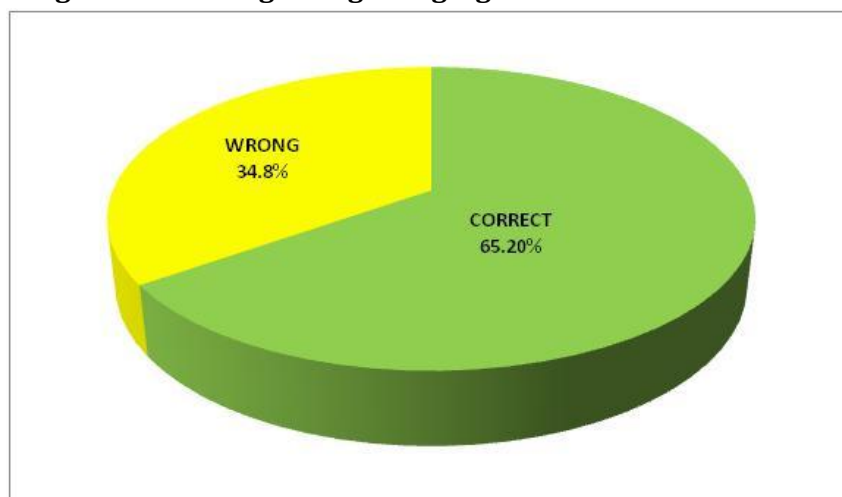
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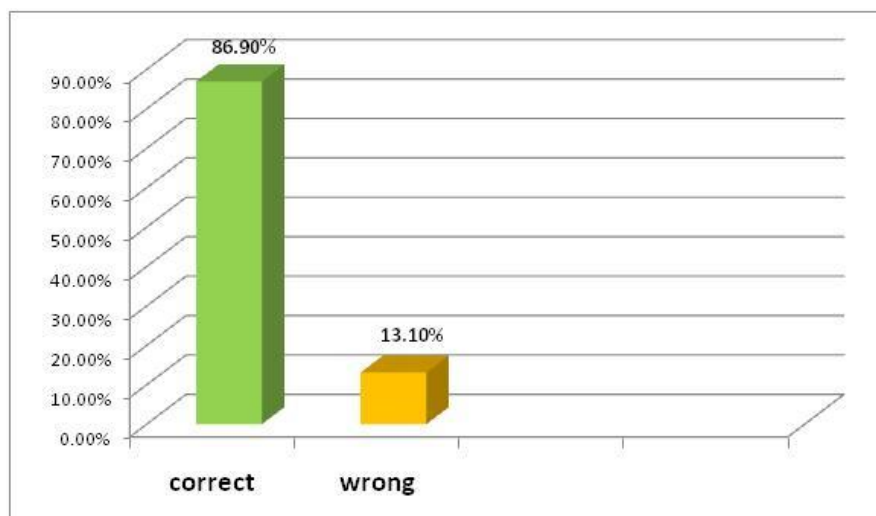
**Figure 1: Knowledge of interns regarding the color coded bins**



**Figure 2- Knowledge of interns regarding of segregation of Biomedical wastes at source**

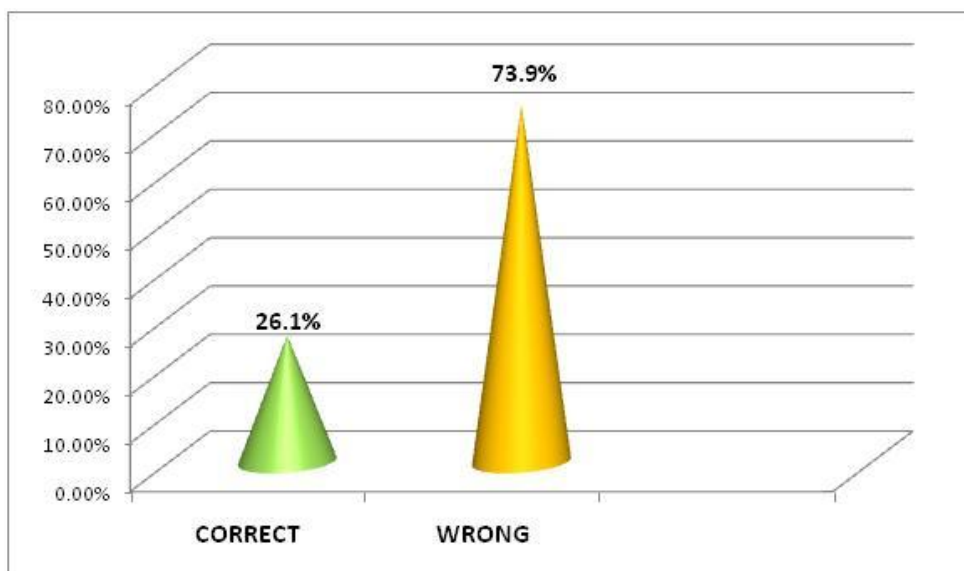


**Figure 3 Knowledge regarding the potential of transmission of diseases through biomedical wastes**



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**Figure 4: Knowledge of interns regarding final disposal of Biomedical wastes**



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