

# KNOWLEDGE, ATTITUDE AND PRACTICES OF HOSPITAL STAFF REGARDING THE SOLID WASTE MANAGEMENT IN HAYATABAD MEDICAL COMPLEX PESHAWAR

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## ABSTRACT

Health care waste management is a serious public health concern and poses a variety of health and safety hazards for patients and health care workers. This study was conducted to assess the knowledge, attitude and practices of hospital staff regarding the solid waste management in Hayatabad Medical Complex Peshawar.

**Material & Method** In this cross sectional study a total of 257 (n=257) hospital staff were interviewed based on knowledge, attitude and practices regarding hospital waste management through a questionnaire. Moreover, a simple random sampling technique was used for staff collection.

**Results:** Majority of the staff members (80.16%) were in age ranges 20-40 years with mean age of 35 years with SD  $\pm$  1.26; with male preponderance (54.86%). 29.18% staff members had good knowledge; 40.08% staff members had average knowledge, and 30.74% staff members had poor knowledge. Furthermore, 70.04% staff members had positive attitude and 61.8% staff members were practicing proper waste management.

### Conclusion:

The hospital staff reported a low level of knowledge about the hospital waste management, however, attitude and waste management practice of the concerned staff was up to the standards but needed further improvement. Thus frequent staff awareness campaigns and trainings may be conducted to improve the knowledge and to change the behavioral practices of the health staff regarding adequate management and disposal of bio medical waste.

**Key Words:** Solid Waste Management, Knowledge, Attitude, Practices, Hayatabad Medical Complex, Peshawar.

This article may be cited as: Ullah I. Shah FJ, Mustafa A, Ishtiaq M. Knowledge, attitude and practices of hospital staff regarding the solid waste management in hayatabad medical complex Peshawar. Adv Basic Med Sci. 2018;2 (2): 93-96.

## INTRODUCTION

Hospital waste materials pose a wide variety of health and safety hazards for patients and health care workers<sup>1</sup>. Health care waste management is a serious public health concern. In developing countries, compare to developed nations, the management of infectious waste has not received sufficient attention and most of the hospitals are practicing improper waste management techniques. Lack of awareness of the staff about waste management and ineffective waste management practices are the common issues encountered<sup>2</sup>. In 2002, the results of WHO assessment conducted in 22 developing countries showed that the improper waste disposals methods were due to lack of knowledge of hospital staff<sup>3</sup>. Another survey results

reported that the inadequacies in the current hospital waste management practices were mainly related to ineffective segregation at the source, inappropriate collection methods, unsafe storage of waste, insufficient financial and human resources for proper management, and poor control of waste disposal. Besides this, lack of appropriate protective equipment, lack of training and clear lines of responsibilities between the departments involved in hospital waste management were the main factors responsible for such malpractices<sup>4</sup>. Moreover, in a study conducted in 2009 in Iran, reported that majority of hospital staff had average level of knowledge regarding biomedical waste

management<sup>5</sup>. Segregation of various medical waste types in the hospitals without proper treatment is another problem<sup>6</sup>. On-site transportation in hospitals is done by using wheelbarrows, while covered bins with wheels are used to transport waste on-site<sup>7</sup>. Proper management and safe disposal of medical waste is vital for the control of waste borne infections and only 34% hospital staff had average knowledge of proper waste management practices<sup>8</sup>.

In many Southeast Asian countries, significant challenges persist with regard to the proper management and disposal of healthcare waste. The amount of healthcare waste in these countries is continuously increasing as a result of the expansion of healthcare systems and services<sup>9</sup>. Studies showed that concerned staff had positive attitude and poor waste management practices<sup>10</sup>.

Pakistan, being a developing and third world country is not an exception and majority of the hospitals has a poor waste management exposing patients and staff to serious health hazards. Therefore this cross-sectional study was organized and conducted in the tertiary teaching hospital, Hayatabad Medical Complex Peshawar; to assess the knowledge, attitude and behavioral practices of health care staff regarding hospital waste management; and to avoid the hazards associated with improper hospital solid waste management practices.

## METHODOLOGY

This cross-sectional hospital based study was conducted in tertiary care hospital of Hayatabad Medical Complex, Peshawar, Pakistan. The study population was n=257 hospital staff; which was interviewed based on knowledge, attitude and

practices regarding hospital waste management. The total duration of the study was six months. A simple random sampling technique was used for staff collection from the concerned hospital staff. The sample size was 257 based on knowledge of waste management= 40%, Margin of error = 6% and confidence interval of 95%.

The data was collected by means of structured questionnaire, and was filled by the health staff of the concerned hospital, as used in many international studies<sup>11,12,13</sup>. The study was conducted after approval from ethical board of Khyber Medical College Peshawar. Approval of conducting the survey was also obtained from Medical Superintendents of Hayatabad Medical Complex, Peshawar District. The purpose and benefits of the study was explained to concerned hospital staff, they were assured about the nature of inquiry for research purposes only. Data was analyzed using SPSS version 16.0. Mean + SD was calculated for numerical variables like age. Frequencies and percentages were calculated for categorical variables like knowledge (good, average, and bad), attitude (positive & negative attitude); and practice (in practice & not in practice). All results were presented in form of tables.

## RESULTS

The prevalence and percentage of age and gender distributions of all the study respondents (n=257) of Hayatabad Medical Complex Peshawar; are shown in Table No. 1. The frequency and percentage of knowledge, attitude and practice status of study respondents (n=257) regarding Hospital Waste Management, at Hayatabad Medical Complex Peshawar, are shown in Table No. 2.

**Table-1: Age and Gender Distribution of Hospital Staff (n=257) of Hayatabad Medical Complex Peshawar**

Age Categories of Staff	Frequency (n)	Percentage (n)
20-30 years	108	42.02
31-40 years	98	38.13
41-50 years	51	19.84
Gender Distribution of Staff	Frequency (n)	Percentage (n)
Male	141	54.86
Female	116	45.14

**Table-2: Knowledge, Attitude and Practice Status Regarding Hospital Waste Management of Staff (n=257) of Hayatabad Medical Complex Peshawar**

Knowledge		Frequency (n)	Percentage (n)
	Good	75	29.18
	Average	103	40.08
	Bad	79	30.74
Attitude		Frequency (n)	Percentage (n)
	Positive	180	70.04
	Negative	77	29.96
Practice		Frequency (n)	Percentage (n)
	In practice	159	61.87
	Not in practice	98	38.13

## DISCUSSION

Study published by Soyam; showed that approximately 85% and 81% of consultants and resident respondents respectively; had relevant knowledge of hospital waste management; and showed significant knowledge and attitude amongst the hospital staff<sup>14</sup>. In our study results, the requisite knowledge of staff regarding health care waste management was 69.26%, and was termed as low; in relation to the international standards<sup>15,16,17</sup>. It should be noted that the percentage of the staff with good knowledge of waste disposal was even for less comparing to the published international standards (29.18% vs. 81%)<sup>18</sup>. The findings are consistent aiming towards lower knowledge observed in our study comparing to work done in established centers<sup>19</sup>. Our study also points towards a huge gap in the knowledge of the respondents as 40.08% of the respondents had an average, and 30.74% had poor knowledge regarding hospital waste management. These findings are in line with the study done elsewhere<sup>14,20</sup>.

In our study, approximately 61.87% of respondents had satisfactory proper practicing methods; and thus our study confirmed and supported the findings of an international study which also showed the similar results<sup>24</sup>. It has been reported that despite the good knowledge of waste management, practicality is often not observed<sup>21</sup>. Moreover, in a study conducted by Saini, found<sup>22</sup>. Furthermore, in a study of conducted by Hesse, concluded that majority of the respondents had unsatisfactory knowledge, attitude and inadequate practices related to waste management<sup>23</sup>.

As per our study results, approximately 70.04% and 61.87% showed proper attitude and positive practice respectively regarding health care waste

management; and thus our findings were similar and consistent to a study conducted in 2005 by Pandit<sup>25</sup>. It has been shown that the respondents with higher qualifications and knowledge had better attitude towards the hospital waste management<sup>22</sup>. Educational levels of the respondents were however not considered in the study. Moreover, our results about attitude were less as compared to a study conducted in 2017 by Vallepalli; which revealed 90.3% positive practice<sup>18</sup>. This study points out towards the fact that majority of the staff members had a positive attitude and sense the issue of waste disposal as one of the important area for considerations. However, lacks the knowledge on the proper waste management and these gaps needs priority based training of the hospital staff regarding the proper waste disposal.

## DISCUSSION

The knowledge, attitude, and practice status among the health staff was satisfactory but was not in accordance to the international waste management protocols and needs further improvements. Therefore, health staff awareness and refresher trainings are needed to improve knowledge and change behavioral practices regarding adequate and proper bio-medical waste management; to avoid related and associated risks.

## REFERENCES

1. Madhi F, Arash M,, Mohammad MS,Sahand J. A case study on HWM in teaching hospitals Iran University of medical sciences. J Environ Manage. 2011 June-July;9(3):61-9.
2. Khattak FH. Hospital Waste Management in Pakistan. Pak J Med Res.2009; 48(1):19-23.

3. WHO Media center. 2011; Available from <http://www.who.int/mediacenter/factsheets/fs281/en/> (cited on 20 Sep 2013).
4. Abd El-Salam MM Hospital waste management in El-Beheira Governorate, Egypt. *J Environ Manage.* 2010 Jan-Feb; 91(3):618-29.
5. Farzadkia M, Moradi A, Mohammadi MS, Jorfi S. Hospital waste management status in Iran: a case study in the teaching hospitals of Iran University of medical sciences. *Waste Manag Res.* 2009 Jun; 27(4):384-9.
6. Abdulla F, Abu Qdais H, Rabi A. Site investigation on medical waste management practices in northern Jordan. *Waste Manag.* 2008;28(2):450-8.
7. Abor PA. Managing healthcare waste in Ghana: a comparative study of public and private hospitals. *Int J Health Care Qual Assur.* 2013;26(4):375-86.
8. Idowu I, Alo B, Atherton W, Al Khaddar R. Profile of medical waste management in two healthcare facilities in Lagos, Nigeria: a case study. *Waste Manag Res.* 2013 May;31(5):494-501.
9. Kühling JG, Pieper U. Management of healthcare waste: developments in Southeast Asia in the twenty-first century. *Waste Manag Res.* 2012 Sep;30:100-4.
10. Haylamicheal ID, Dalvie MA, Yirsaw BD, Zegeye HA. Assessing the management of healthcare waste in Hawassa city, Ethiopia. *Waste Manag Res.* 2011 Aug; 29(8):854-62.
11. Azage Muluken, Gebrehiwot Haimanot, Molla Mesafint. Healthcare waste management Practices among healthcare workers in healthcare facilities of Gonder town, Northwest Ethiopia. *Health Sci J.* 2013;7(3) 315.
12. Rudraswany S, Sampath N, Doggalli N. Staff's attitude regarding hospital waste management in the dental college hospitals of Bangalore city, India *Indian J Occup Environ Med.* 2012 May-Aug; 16(2): 75-8.
13. Basu M, Das P, Pal R. Assessment of future physicians on biomedical waste management in a tertiary care hospital of West Bengal. *J of Nat sci biol med.* Year: 2012 3(1):38-42.
14. Yadavannavar MC, Berad AS, Jagirdar PB. Biomedical waste management: A study of knowledge, attitude, and practices in a tertiary health care institution in Bijapur. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine.* 2010 Jan;35(1):170.
15. Soyam GC, Hiwarkar PA, Kawalkar UG, Soyam VC, Gupta VK. KAP study of bio-medical waste management among health care workers in Delhi. *International Journal Of Community Medicine And Public Health.* 2017 Aug 23;4(9):3332-7.
16. Deress T, Hassen F, Adane K, Tsegaye A. Assessment of Knowledge, Attitude, and Practice about Biomedical Waste Management and Associated Factors among the Healthcare Professionals at Debre Markos Town Healthcare Facilities, Northwest Ethiopia. *Journal of Environmental and Public Health.* 2018;2018.
17. Dudi M, Sharma R, Sharma S, Jain M. Assessment of the knowledge, attitude and practices regarding biomedical waste management amongst paramedical staff in a tertiary level health care facility. *International Journal of Medical Science and Public Health.* 2016 Apr 1;5(4):615-9.
18. Vallepalli C, Rao K, Reddy KT, Sekhar KC, Gogineni SS, Deotale PG. A Study on Knowledge and Practice of Hospital Waste Management among Nursing Staff of Tertiary Care Centre Hospital in Eluru, West Godavari District, AP, India. *Indian Journal of Public Health Research & Development.* 2017 Jul 1;8(3).
19. Radha R. Assessment of existing knowledge, attitude, and practices regarding biomedical waste management among the health care workers in a tertiary care rural hospital. *Int J Health Sci Res.* 2012;2(7):14-19.
20. Ehrampoush MH, Baghiani Moghadam MH. *Iranian Journal of Environmental Health Science Engineering* 2005; 2(2):26.
21. Hebel-Ulrich Maja. Danish Committee for Aid to Afghan Refugees (DACAAR) 2005; [cited 2013 July 23]. Available from [www.dacaar.org](http://www.dacaar.org).
22. Saini S, Nagarajan SS, Sarma RK. KAP of BMW Management amongst staff of a tertiary level hospital in India. *J Acad Hosp Admin.* 2005;17:1-12.
23. Hesse A, Adu-Aryee N, Entsua-Mensah K, Wu L. Knowledge, attitude and practice universal basic precautions by medical personnel in a teaching hospital. *Ghana Med J.* 2006 Jun;40(2):61-4.
24. Sachan R, Patel ML, Nischal A. Assessment of the knowledge, attitude and practices regarding biomedical waste management amongst the medical and paramedical staff in tertiary health care centre. *International Journal of Scientific and Research Publications.* 2012 Jul;2(7):1-6.
25. Pandit N.B, Mehta H.K, Kartha G.P, Choudhary S.k. Management of biomedical waste: Awareness and practices in a district of Gujarat. *Indian J Public Health.* 2005;49:245-7.
26. Rao D, Dhakshaini MR, Kurthukoti A, Doddawad VG. Biomedical Waste Management: A Study on Assessment of Knowledge, Attitude and Practices among Health Care Professionals in a Tertiary Care Teaching Hospital. *Biomedical and Pharmacology Journal.* 2018 Sep 21;11(3):1737-43.