Original Research Paper

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Hospital Administration

A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING IMMUNIZATION, NEEDLE STICK INJURY AND USE OF PPE AMONG HEALTHCARE WORKERS INVOLVED IN DISPOSAL OF HOSPITAL WASTE IN A TERTIARY CARE HOSPITAL, HYDERABAD.

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KEYWORDS :

INTRODUCTION

Environmentally Sound Management of Medical Waste in India (ESMWI) has been approved by Global Environment Facility (GEF) where the Ministry of Environment, Forests and Climate Change, Government of India, is the national executing agency and the United Nations Industrial Development Organization (UNIDO) is the implementing agency. The project aims to assist the country in safe and sound management and disposal of 180,000 tons of health care wastes generated annually which is approximately 484 tons per day.

The total quantity of biomedical waste for Hyderabad is estimated as 6657 kg per day. The total waste generation for Nizam's Institute of Medical Sciences in Hyderabad with a capacity of 1404 beds is 493.2kg/day. The Ministry of Environment, Forest and Climate Change, Government of India, had formulated the Bio-medical Waste Management and handling Rules in 1998 which has been amended to Biomedical Waste Management Rules in 2016.

Knowledge on potential harm from biomedical waste is evident to governments of many countries, civil societies and medical practitioners. In the recent times it is perceived that improper and haphazard management of waste within the health care facilities is equivalent to poor standards of care and an avoidable source of infections and injuries. Hence, health care providers and allied health care professionals are expected to take responsibility for the waste generated by their activities of health care. Training healthcare personnel to adopt 'Good Work Practices' will go a long way in promoting the safe management of bio-medical waste so that the environment is protected.

Lack of awareness of rules about identification, segregation and disposal of hazardous biomedical waste which is capable of causing infections, the absence of common waste management facilities or non-use of these facilities, is a grave risk not only to patients, medical personnel of the waste generating healthcare institution/ facility, but also to the community if there is inadequate/ indifferent surveillance and compliance enforcement.

Periodic study should be carried out in order to identify the gaps with respect to knowledge, attitude and practices of healthcare workers in hospital. Recommendations from these studies will help the management/ administration to identify the training needs for healthcare workers and managerial actions/ strategy development that have to be taken in order to address issues related to practices of healthcare workers.

AIM

To study the knowledge, attitude and practice regarding immunization, needle stick injury and use of Personal Protective equipment among healthcare workers involved in disposal of hospital waste in a tertiary care hospital in Hyderabad with a view for improvement, if any.

OBJECTIVES

1. To assess knowledge on Biomedical waste management rules 2016 among the staff.
2. To assess the knowledge, attitude and practice regarding immunization, needle stick injury and use of Personal Protective equipment among healthcare workers involved in disposal of hospital waste in a tertiary care hospital in Hyderabad with a view for improvement, if any.
3. To suggest recommendations if any; to close the gaps.

METHODOLOGY

- **Study setting:** The study was undertaken in a tertiary care hospital in Hyderabad associated with NIMS.
- **Study design:** This is an observational study. It is a cross sectional descriptive study.
- **Study area:** The clinical area in the study is defined as wards / ICU, OT, causality, Dressing room / injection room, laboratory, dental clinic. These are the areas associated with direct patient care i.e., diagnostic and therapeutic services.

At first, the observation of the study participant / subject while providing health care services was taken without informing them by the primary investigator in order to avoid Hawthorne effect. This was then followed by distribution of questionnaire with written consent. Prior to attempting the questionnaire, the study subjects were explained the purpose of the study. Verbally consenting individuals were then administered with a written consent followed by answering the multiple-choice questionnaire. All the results were entered into MS office spread excel sheet and analyzed in statistical package by applying the formula for population proportional to each stratum and it came out to be 487 in total. The results are expressed in numbers, percentages, tables, charts etc. Descriptive statistics were calculated through cross tabulation.

The knowledge domain consisted of 18 multiple choice questions with 2 or 4 possible options. Questions were scored either "1" or "0" for the correct and incorrect response respectively. Overall knowledge score computed could range from 0 to 18.

The attitude domain comprised of 15 Likert items. A 3-point Likert scale of measurement of attitude was used to represent score, as "Agree", "Neutral" and "Disagree". For the correct attitude score of "1" was given, and the incorrect attitude a score of "0" was given. The composite score could range from 0 to 15.

The practice observation checklist consisted of 12 observation questions with options "Yes", "No" and "Not applicable" were used. Scores of 1 was given for correct practice and a score of 0 was given for incorrect practice.

OBSERVATION AND DISCUSSION

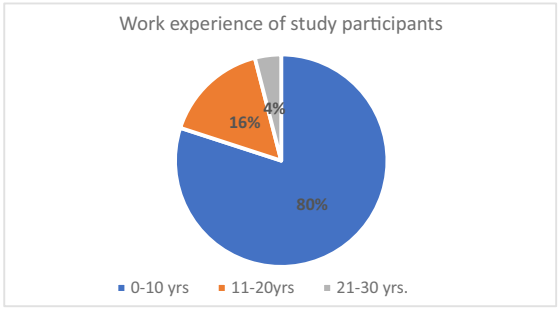
In the study a total of 487 participants were included, of these 117 were

academic residents, 147 were staff nurses, 38 were paramedical staffs and 185 were housekeeping staff.

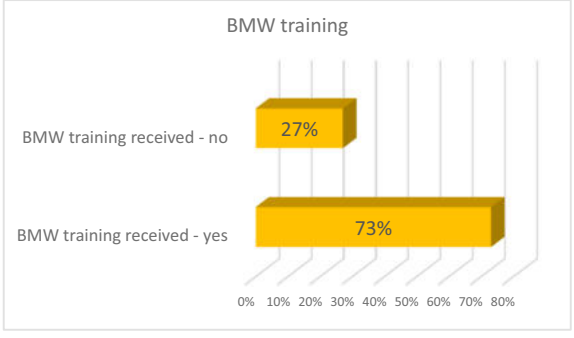
DETAILS OF STUDY PARTICIPANTS

Variable		Job category / cadre				
		Residents N1=117	Nurse N2= 147	Paramedical N3=38	Housekeeping N4=185	Total N= 487
Gender	Female	53 (45%)	108 (73%)	3 (8%)	71 (38%)	235 (48.2 %)
	Male	64 (55%)	39 (27%)	35 (92%)	114 (62%)	252 (51.8 %)

Work experience: 80% of study participants had a working experience of 0-10 yrs. 16% had experience of 11-20yrs. 4% for 21-30 yrs.

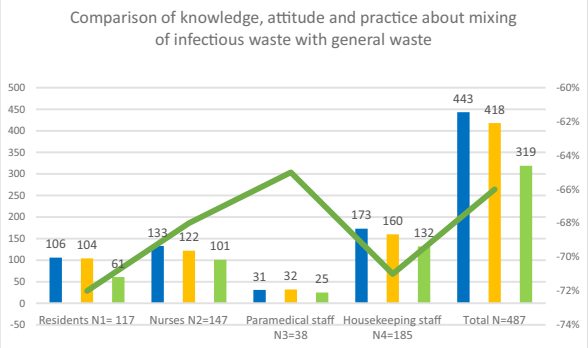


BMW training: 73% of study participants received training.



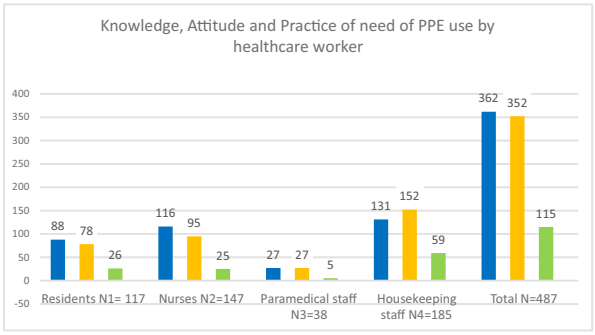
Comparison of knowledge, attitude and practice about mixing of infectious waste with general waste

Infectious waste is not to be mixed with general waste		Residents N1= 117	Nurses N2=147	Paramedical staff N3=38	House-keeping staff N4=185	Total N= 487
Knowledge	Never be mixed	106 (91%)	133 (90%)	31 (82%)	173 (94%)	443 (91 %)
Attitude	Positive attitude	104 (89%)	122 (83%)	32 (85%)	160 (87%)	418 (8 %)
Practice	Yes	61 (72%)	101 (68%)	25 (65%)	132 (71%)	319 (66 %)



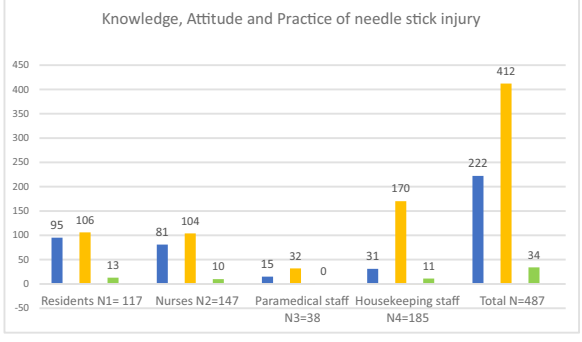
Knowledge, Attitude and Practice of need of PPE use by healthcare worker

Need of PPE by healthcare worker	Residents N1= 117	Nurses N2=147	Paramedical staff N3=38	Housekeeping staff N4=185	Total N=487
Knowledge	88 (76%)	116 (79%)	27 (72%)	131 (71%)	362 (74%)
Attitude	78 (67%)	95 (65%)	27 (72%)	152 (83%)	352 (72%)
Practice	26 (22%)	25 (17%)	5 (15%)	59 (32%)	115 (23%)



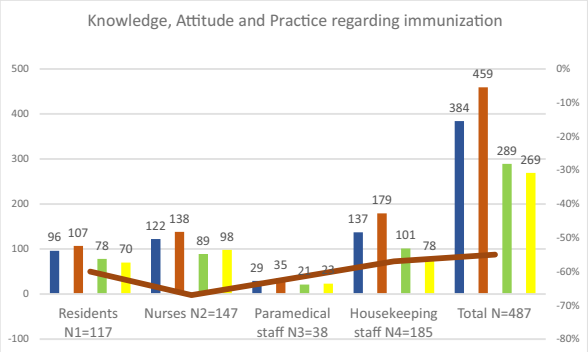
Knowledge, Attitude and Practice of needle stick injury

Need of reporting of needle stick injury cases		Residents N1= 117	Nurses N2= 147	Para-medical staff N3=38	House-keeping staff N4=185	Total N= 487
Knowledge	About needle stick injury	95 (81%)	81 (55%)	15 (41%)	31 (17%)	222 (45 %)
Attitude	Need to report NSI	106 (91%)	104 (71%)	32 (84%)	170 (92%)	412 (84 %)
Practice	Use of needle cutter immediately after use	13 (11%)	10 (7%)	0	11 (6%)	34 (7%)



Knowledge, Attitude and Practice regarding immunization

Immunization required for healthcare workers involved in handling biomedical waste		Residents N1=117	Nurses N2= 147	Paramedical staff N3=38	House-keeping staff N4=185	Total N= 487
Knowledge	Hepatitis B & tetanus	96 (82%)	122 (83%)	29 (76%)	137 (74%)	384 (78 %)
Attitude	Agree	107 (92%)	138 (94%)	35 (92%)	179 (97%)	459 (94 %)
Practice	HBV yes	78 (67%)	89 (61%)	21 (57%)	101 (54%)	289 (59 %)
	TT yes	70 (60%)	98 (67%)	23 (62%)	78 (57%)	269 (55 %)



CONCLUSION

The above studies clearly indicate that although all the workers had knowledge regarding the occupational hazards irrespective of the nature of the occupation they are engaged in, their attitudinal approach toward the betterment of the work environment is positive. But because of lack of provision in the worksite, they are unable to practice. Making workers aware of the occupational hazards and motivating them to use PPE while at work is the need of the hour. The following issues should be considered for improving the importance of using PPE at work: Public education is necessary to address the knowledge gap revealed in the study. Therefore, education programs should be organized for improving knowledge about increasing the awareness of the people on the importance of using PPE at work. The high knowledge of healthcare workers was associated with their positive attitude and good practice in respect of BWM and was consistent with their KAP rating scores categorized as high knowledge, positive attitude, and good practice. The duration of working experience of healthcare workers was the most significant factor influencing good practices related to BWM. A comprehensive approach is required to ensure safe and sustainable management and disposal. A national strategy and plan of action for HCWM should be developed, in which management of immunization waste is tied into the HCWM activities of other sources (curative activities). The level of risk depends on the number of patients with that infection in the health care facility and the precautions that the health care workers observe while dealing with these patients. Occupational health and safe medical practice are coming up as an issue in developing countries. Needle stick injury is one such issue that should be addressed to prevent blood borne diseases in healthcare workers working in surgical department due to their increased exposure to sharps while, operating or working in emergency room or out patient's department where, there is a huge rush of patients. The Centers for Disease Control and the Occupational Safety and Health Administration, introduced Universal Precaution Guidelines in 1985 to increase awareness amongst health care workers about dangers of sharp injuries and others types of diseases transmission. These guidelines have become worldwide standard in both hospital and community care settings and have been shown to be very effective.

RECOMMENDATIONS

27% of study participants did not receive any training about BMW. Periodic CME sessions in hospital would help reinforce and update knowledge on BMW management. Information, education and communication materials like charts, banners and celebration of various days like hand hygiene day. Training, workshop and emphasis on certain key points like safe injection practices, emptying of biomedical waste bin when filled 3/4 th of the bin, disposal of contaminated linen and expired medicines. To improve attitude aspect of staff members regular inspection by heads of the concerned departments and nodal officers, provision of certificate of appreciation to employees, positive reinforcement and performance feedback.

LIMITATIONS

The limitation of the study was that as far as the attitude part was concerned it was difficult to tell how honest the response was. The presence of principle investigator could affect the response to the questions related to attitude. The result of the study cannot be extrapolated to the healthcare workers of this country.

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