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Assess Knowledge, Practices and Reasons for Non-Compliance Regarding Biomedical Waste Management among Health Care Personnel in Selected Health Care Centers of North India

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Abstract

Background: Biomedical waste is waste which produce during diagnosis, treatment (medical, surgical), and immunization. All small and big health care centres are generators of Biomedical Waste Management. There are approximately 75-90% non-risky waste and 10-25% risky waste that cause various injuries and communicable disease. *Objectives:* To assess the knowledge, practices and reasons of non-compliance among Health care Personnel regarding Biomedical Waste Management; to find out the relationship between knowledge and practices of Health care Personnel regarding bio-medical waste management; to determine the association of Knowledge, Practices with selected variables. *Method:* Non-experimental descriptive Survey design was used in this study. 148 Health Care Personnel were selected by the total enumeration sampling technique. The tools for data collection were structure Knowledge Questionnaire to assess knowledge, Observation checklist to assess the Practices, Rating Scale to assess the Reasons of non-compliance Biomedical Waste management. *Result:* Showed that the doctors (32.1%) and nurses (63.6%) had very good level of knowledge and fourth class workers (87.5%) had poor level of knowledge regarding Biomedical Waste Management. doctors (90.9%) and nurses (76.4%) had poor level of Practice while fourth class workers (57.5%) had poor level of Practice.There is no co-reletion between Knowledge and practice of health care Personnel.The association between knowledge, practices of health care personnel and selected variables was found non- significant at 0.05 level of significance. *Conclusion:* Knowledge and practices of health care personnel is not adequate insufficient supply of resources, Lack of awareness inadequate man power were reasons of non-compliance regarding biomedical waste management.

Keywords: Attitude; Biomedical Waste; Biomedical Waste Disposal; Biomedical Waste Management; Knowledge; Practice; Questionnaire; Survey.

Introduction

According to Biomedical Waste (Management and Handling) rules, 1998 of India, "Biomedical Waste" means any waste, which is generated during the diagnosis, treatment or immunization. Common generators of biomedical waste are all small and big health care centres [1].

World Health Organization (WHO) stated

healthcare wastes are most hazardous and potentially dangerous to human health and pollute the environment. Though 75-90% of the waste is non–risky and remaining 10-25% waste generated by Health Care Centres is regarded as 'hazardous' and may create a variety of health risks [1].

Daily activities in health institutions generate a lot of waste which are potential sources of infection transmission, especially hepatitis B and C, HIV, and tetanus [2]. World Health Organization report revealed that globally Injections with contaminated syringes caused 21 million hepatitis B infections (32% of all new infections), 2 million hepatitis C infections (40% of all new infections) and 2,60,000 HIV infections (5% of all new infections). in India, 2 million, new Hepatitis B, 4,00,000 Hepatitis C and 30,000 HIV positive cases occur in a year due to needle prick injuries [3]. Average quantity of waste generation at the rate of 1 kg / per bed per day, it is estimated that about 0.33 million tons of hospital waste is being generated per year [4].

Nurses and housekeeping personnel are at risk of injuries; annual injury rates are 10- 20 per 1000 workers. Biomedical waste management has been not implemented properly in the health care setting, due to lack of motivation in workers, lack of commitment on the part of management, low level of education of sanitary workers, poor level of Knowledge, poor practices, apathy of other staff members and lack of organized training and the human factors [5].

Therefore present study has been conducted to assess the knowledge, Practices of the Health care personnel, assess the Reasons for non-compliance of biomedical waste management at Health Care Centres.

Method and Material

After taking ethical approval from university ethical committee and civil surgeon, Non-experimental descriptive Survey design was selected for study. In the present 148 (53 Doctors, 53 Nurses and 40 fourth class workers) health Care Personnel were selected by the total enumeration sampling technique. The study was conducted at three Community Health Centres and 14 Primary Health Centres of Ambala district, Haryana during December 2014 to January 2015. The tool for data collection were structured Knowledge Questionnaire to assess knowledge, Observation checklist to assess the Practices and Rating Scale to assess the Reasons of non-compliance among health care personnel regarding Biomedical Waste management.

For content validity, the tools were given to nine experts in the fields of Preventive Social Medicine, nursing and community health nursing to obtain their opinions and suggestions. Tryout was done on 10 Health Care Personnel working and reliability of observational checklist was calculated by kappa, Structure knowledge questionnaire was calculated by KR20 and rating scale was calculated by cronbach alpha which were found 0.72, 0.76 and 0.78 respectively. The pilot study was conducted in the month of September 2014, at Community Health Center, Barara, Ambala on 15 Health Care Personnel. On an average, data was collected from 5-6 Health Care Personnel each day. It was found that Health Care Personnel took 30-40 minute to fill Knowledge Questionnaire and 60-90 minutes to assess the Practices by Observational checklist. On an average it took 2 -2:30 hours to complete the data collection from sample. Descriptive and inferential statistics were done and using the statistical package for social sciences (SPSS, version 17.0 Inc., Chicago, IL) for windows 8 Pro editions.

Result

Out of total 148 Health Care Personnel 64(43.2%) were in the age group of 21-30 years, most of Health Care Personnel 106(71.6%) were females, Majority of Health Care Personnel 55(37.1%) had educated up to diploma. Most of Health Care Personnel 62(41.9%) had more than 5 years experience. Majority of the Health Care Personnel 119(62.8%) did not undergo any training related Biomedical Waste Management 93(62%) working in Primary Health Centres.

Doctors (32.1%) and nurses had very good level of knowledge with range of scores 23-30, and fourth class workers (87.5%) had poor level of knowledge with range of scores 0-15 regarding Biomedical Waste Management. doctors (90.9%) and nurses (76.4%) had poor level of Practice with range of scores 0-6, had poor level of Practice, while fourth class workers (57.5%) had poor level of Practice with range of scores 0-7 regarding Biomedical Waste Management. Reasons of non-compliance was found in the area of lack of awareness about biomedical waste management (48.6%) was ranked as 1st. Second reason was No strict action taken for those who found at fault (47.3%). Third reason was insufficient supply of resources (41.9%), Fourth reason was inadequate man power in working area (40.5%) Fifth reason was inadequate knowledge regarding biomedical waste management (39.9%. Coefficient of correlation

between Knowledge and Practices scores of doctors was -.18, nurses .14, fourth class workers .15 which was not significant at p<0.05 level of significance. There is no co-relation between Knowledge and practice of health care Personnel. Only the association between nurses practices with training related to biomedical waste management was found significant at p<0.05 level of significance There is no association of knowledge, practices of health care personnel and selected variables.

Discussion

In present study the majority of 52(35.1%) were having very good level of knowledge regarding Biomedical Waste Management. The finding were compared with the finding of the descriptive study conducted by Somwya. She conducted the study on the 78 Health Care Personnel and reported that 38(48.71%) had adequate knowledge. about biomedical waste management [5].

In the present study present there is no association between knowledge of Health Care Personnel and selected variables. The findings were inconsistent with the finding of the descriptive study conducted by Somwya. There is a significant association between knowledge levels and age, designation, years of experience in the present job and training attended by Health Care Personnel and there is no association between knowledge levels and sex [5].

Here, 90.9% doctors, 76.4% nurses and 57.5% fourth class workers had poor level of practices regarding biomedical waste management as compared to another study conducted by Mathur et al in which 65% nurses and 90% doctors had no good practices regarding biomedical waste management [6]. There no co-reletion between knowledge and practices of the Health Care Personnel, the study findings were inconsistent with an another study done by Nagaraju et al revealed that The correlation between knowledge and practices were analyzed by Spearman's Rank correlation method, and it was found that there was positive correlation between knowledge and practices (r=0.44) at *P*<0.012 [7]. Therefore structured teaching programme can be provided for the Health Care Personnel regarding biomedical waste management. There are insufficient supply of resources and Lack of awareness and knowledge about Biomedical Waste Management. Moreover, the Colour coded bins are quite confusing and difficult to understand. Inadequate man power in working area is reasons of non-compliance regarding biomedical waste management. Further, qualitative study should be conducted to assess the reasons for non-compliance and also to assess the events and reasons for non-compliance during malpractices.

Conclusion

The Knowledge of Health Care Personnel is inadequate and also practices of Health Care Personnel are not appropriate.

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