



# **Practices Towards Hospital Waste Management Among Health Personnel In Rivers West Senatorial District Of Rivers State**

<sup>1</sup>Onyiri, Chinenyenwa Jacqueline & <sup>2</sup>Dr. Samuel, G. K.

**Department Of Human Kinetics, Health and Safety Education  
Ignatius Ajuru University of Education, Rumuolumeni  
Port Harcourt, Nigeria  
EMAIL: [1chionyiri@gmail.com](mailto:1chionyiri@gmail.com); [gentle.samk@gmail.com](mailto:gentle.samk@gmail.com)**

## **ABSTRACT**

This study investigated socio-demographic correlates towards practices of hospital waste management among health personnel in Rivers West Senatorial District of Rivers State. 3 hypothesis tested at 0.5 level of significance guided the study. The study adopted the descriptive survey design. A sample of 400 respondents was selected using multistage sampling procedure. The questionnaire made of section A, which concentrated on socio-demographic characteristics of respondents and B, emphasized practices towards hospital waste management was validated by 3 experts in public health and statistics in Ignatius Ajuru University of Education. The reliability of the instrument was determined with the test-re-test and the Pearson product moment correlation coefficient of 0.76 was obtained. The results of the study were; 379(94.8%) had good practice of hospital waste management. Majority of the respondents always use gloves when handling medical waste and always separate medical waste from general waste. The result also showed a no significant difference between age ( $p > 0.05$ ), gender ( $p < 0.05$ ,  $df = 1$ ,  $X^2 = 48.197$ ), years in service ( $p < 0.05$ ,  $df = 4$ ,  $X^2 = 62.269$ ) and practice of hospital waste management. Based on the findings of the study some recommendations were made, which included; Environmental agencies should properly monitor waste management practices in the health facilities so that knowledge level will be sustained and improved upon which will foster good practices of waste management among health personnel in Rivers State Senatorial District.

**Key words:** Practices, Hospital waste, Health Personnel and Rivers State.

## **INTRODUCTION**

Waste generation at health facilities is a sure way of saving life, sustaining life and general maintenance of the populace health and wellbeing. Hospital Waste Management is a major problem that is faced by developing countries (Hossain, Santhanam, Norulaini & Omar, 2011). Hospital Waste includes health hazards, ecological risks and the lack of public awareness (Abdulla, Qdais & Rabi, 2008). It also contains a wide range of materials, such as blood, syringes, used needles, body parts, soiled dressings, pharmaceuticals, diagnostic samples chemicals, medical devices and radioactive materials (Komilis & Fouki 2012). Unfortunately, hospital waste has not been the priority in developing countries because health issues are forced to contend with other issues to share the limited resources. Moreover, the exclusive rules and regulations are employed for HCWM systems in these countries. Unsafe handling of hospital waste will pollute the surrounding environment and therefore easily risks health staff to several

diseases (Hossain, et al, 2011). Therefore, HCWM should be given a great attention to ensure a better hospital hygiene and safety of health care staff and communities (Jafri & Siddiqui, 2014).

Age is associated with the activity level of an individual. The age of an individual sometimes determine the knowledge of that person as he might acquire more knowledge on daily basis pertaining life and other activities. The age of health personnel could sometimes determine his practices towards hospital waste management, as he may have seen the effect of poor waste management over years of practice. According to Maina, Andrew and Ngugi (2016) age does not influence the knowledge of hospital waste management. Age does not even have a significant influence on the practices associated with hospital waste management. He further asserts that older health personnels practice better waste management compared to younger ones (Makhum, 2016).

According to Chima, Ezekwe and Odigha (2011), the number of years in service, gender and age does not even have a significant influence on knowledge and practice of hospital waste management, as some old staff feel tired all the time, while young ones are always in a haste to meeting up with appointments, whereas the males do not care much about waste because the female staff are always there to manage waste. Maina, Andrew and Ngugi (2016) has it that, socio-demographic variables does not have significant influence on the knowledge and practice of medical waste issues. But however avert that female are more conversant with waste management than their male counterparts, which was revealed in their study. This might be true because female do more of domestic work at homes than men, as a result may be similar in the hospital as well. The number of years in service may not even determine the practices towards hospital waste management as Ghareeb and Mohamed (2014) puts it, that younger health personnels are eager to keep their work therefore tend to abide by all the rules and regulations in the hospital including proper waste handling while older personnels do not pay much attention to waste management practices, but there was no significant difference in their practice to waste management based on years of experience. Therefore the age, gender and year of experience in service does not also determine their practice as regards hospital waste management. This implies that most health personnel's that have stayed in the system do not have good practice in handling waste in the hospital irrespective of age and gender. That is why in cases of hospital acquired infections both gender suffer it irrespective of age. Despite the magnitude of health hazards associated with poor hospital waste management, there is yet to be an implemented legal provision guiding the management of hospital waste in Nigeria (Adogu, Ubajak, & Nebuwa, 2014). The poor state of solid waste management in hospital setting could be due to poor implementation of polices and poor waste management practices among hospital workers. Thus this research is poised on investigating socio-demographic correlates towards practices of hospital waste management among Health Personnel in Rivers West Senatorial District of Rivers State.

### **Statement of the Problem**

Proper handling and disposal of hospital waste is very essential. Hospital waste is a repository to all manner of infections and injuries than any other type of waste. Virtually, all forms of disease ranging from HIV/AIDS, Hepatitis B, skin disease, urinary tract infections and any other could be transmitted via hospital waste. When hospital staff are infected, it reduce the efficiency of the health personnel, the health facility and result in poor attention to sick people, thus increase morbidity and mortality. Waste generated from the health facilities and other places where medically related waste are generated are supposed to be bagged according to the sources; blood related, urine and excretion, and tissue, consumable needles and syringe with each bearing a separate cover container will fitted waiting for disposal vans to collect them at designated time, in line with the WHO recommendation in (2011). When hospital waste is well managed, the society involved will be free, the health personnel will be safe and the work force would be better positioned. This present study is focused on ascertaining demographic correlates towards

practice of hospital waste management among health personnel in Rivers West senatorial district of Rivers State.

**Research Hypotheses**

The following null hypotheses were tested at 0.5 alpha level of significant to guide the study.

1. There is no significant difference between age of health personnel and practices towards hospital waste management in Rivers West Senatorial district.
2. There is no significant relationship between gender of health personnel and practice of hospital waste management in Rivers West district.
3. There is no significant relationship between years in service of health personnel and practices towards hospital waste management in Rivers West Senatorial district

**METHODOLOGY**

The study adopted a cross-sectional survey design. The potency of this design is that it yields data that can be useful for the study within the period of time. The population for this study was all health personnel in Rivers West senatorial district. The same size for the study consisted of 400 of health personnel in Rivers West senatorial district. Multistage sampling procedure was adopted in this study. The instrument for data collection was a self-structured questionnaire. The consistency of the instrument was obtained using Cronbach alpha. The coefficient value of 0.76 was obtained which shows that the instrument was reliable. Data analysis was done using ANOVA, chi square and binary logistic regression at 0.05 alpha level.

**RESULTS**

**HO<sub>1</sub>:** There is no significant difference between age of health personnels and practice of hospital waste management.

**Table 3: One-Way ANOVA results showing the significant difference between age of health personnels and practice of hospital waste management**

Source	SS	Df	MSS	F-cal	P-value	Decision
<b>Between groups</b>	44.645	2	22.322	3.039	0.016	Accepted
<b>Within groups</b>	1596.155	398	5.680			
<b>Total</b>	<b>1640.799</b>	<b>400</b>				

Table 3 shows One-Way ANOVA of the significant difference between age of health personnels and practice of hospital waste management. The finding of this study shows a non-significant difference between age of health personnels and practice of hospital waste management as  $p < 0.05$  alpha level,  $F(2,398) = 3.039$ ,  $p = 0.016$ . The null hypothesis which states that there is no significant difference between age of health personnel and practice of hospital waste management is accepted.

**HO<sub>2</sub>:** There is no significant relationship between gender of health personnels and practice of hospital waste management.

**Table 4: Chi-squared test showing the significant relationship between gender of health personnels and practice of hospital waste management**

Gender	Practice		Total	df	X <sup>2</sup> -value	P-values
	Good F(%)	Poor F(%)				
Male	274(68.5)	0(0.0)	274(68.5)			
Female	105(26.3)	21(5.2)	126(31.5)	1	48.197	0.000
<b>Total</b>	379(94.8)	21(5.2)	400(100)			

\*Not Significant.

The null hypothesis states that there is no significant relationship between gender of health personnels and practice of hospital waste management. The findings of the study revealed a non-significant relationship

between gender of health personnels and practice of hospital waste management ( $P < 0.05$ ,  $df = 1$ ,  $X^2 = 48.197$ ). The null hypothesis is therefore accepted.

**HO<sub>3</sub>:** There is no significant relationship between years in service of health personnels and practice of hospital waste management.

**Table 5: Binary Logistic Regression analysis showing the significant relationship between years in service of health personnels and practice of hospital waste management**

Years in service	Practice		Total	df	X <sup>2</sup>	P-values	Odds Ratio (OR)	95%CI
	Good F(%)	Poor F(%)						
1-5	22(5.5)	0(0.0)	22(5.5)	4	62.27	0.000	0.505 Ref	0.03-2.41
6-10	42(10.5)	0(0.0)	42(10.5)					
11-15	84(21.0)	21(5.2)	105(26.2)					
16-20	42(10.5)	0(0.0)	42(10.5)					
20 and above	189(47.3)	0(0.0)	189(47.3)					
<b>Total</b>	<b>379(94.8)</b>	<b>21(5.2)</b>	<b>400(100)</b>					

\*Not Significant.

On binary logistic analysis, the finding of the study shows a non-significant relationship between years in service of health personnels and knowledge of hospital waste management ( $P < 0.05$ ,  $df = 4$ ,  $X^2 = 62.269$ ). The result shows that respondents who had spent fewer years in service were 1.98 times less likely to have good knowledge of hospital waste management compared to those who had spent longer years in service (OR=0.505, 95%CI: 0.03-2.41). The findings of the study revealed a non-significant relationship between years in service of health personnels and practice of hospital waste management. The null hypothesis is therefore accepted.

## DISCUSSIONS

**HO<sub>1</sub>:** There is no significant difference between age of health personnels and practice of hospital waste management.

The findings of the study revealed a non-significant difference between age of health personnels and practice of hospital waste management ( $P < 0.05$ ,  $f(2, 398) = 3.039$ ,  $P = 0.016$ ). The findings of this study is in agreement with that of Adogu et al (2014), where the mean age of respondents was found to be 30-37 years yet the practice of hospital waste management was poor. Also, the study is in line with that of Shivalli and Sowmyashree (2015), where it was found that age is not significantly associated with the practice of hospital waste management among health personnels. The similarities between these studies might be due to inadequate knowledge on hospital waste management and or failure to translate knowledge into practice. However, the study of Kumar et al (2013), reported that age is statistically significant to the practice of hospital waste management. In the same vain Mahmoudi, Sepandi, Saffari, Jafari and Masounibeigi (2016), also reported a positive correlation between age and practices towards hospital waste management. This might be due to the fact that younger staffs have more energy to put work into practice.

**HO<sub>2</sub>:** There is no significant relationship between gender of health personnels and practice of hospital waste management.

The findings of the study revealed a non-significant relationship between gender of health personnels and practice of hospital waste management ( $P < 0.05$ ,  $df = 1$ ,  $X^2 = 48.197$ ). The findings of the study is in keeping with the study of Habeeb and Ahmad (2015), and that of Makhura et al (2015), where it found that there is no direct relationship between waste management practice and gender (0.0565,  $t = 1.3669$ ). The similarities in these studies might be due to the homogeneity of the population. However, the study

differs from that of Kumar et al (2013), where it found that gender influences practice of hospital waste management. Similarly Ghareeb and Mohamed (2014) also disclosed that unsatisfactory hospital waste management practice is associate with gender. This might be due to the fact that either of the sex may have more interest in waste management and the type of training they have received on hospital waste management.

**HO<sub>3</sub>:** There is no significant relationship between years in service of health personnels and practice of hospital waste management

The findings of the study revealed a non-significant relationship between years in service of health personnels and practice of hospital waste management ( $P < 0.05$ ,  $df = 4$ ,  $X^2 = 62.269$ ), and respondents who had spent fewer years in service were 1.98 times less likely to have good practice of hospital waste management compared to those who had spent longer years in service (OR = 0.505, 95% CI: 0.03 – 2.41). The findings of the study is in line with that Kumar et al (2013), where it found that years and duration of service is not statistically significant to the practice of waste management among health personnel but also similar in terms of non-significance relationship in practice of hospital waste management and longer duration in service is report of Mohammed et al (2017). Also in keeping with the findings of the study was Shivalli and Sowmyashree (2015) which reported a non significant influence of years of experience on hospital waste management practice. This might be due to the fact that longer duration of service exposes health personnel to experience and practice adequate hospital waste management. However, the findings of the Present study differs from that of Hakim et al (2014), which showed a significant relationship between years in service and practice of hospital waste management. The difference in the two studies might be due to geographical location and the type of retraining and knowledge of hospital waste management.

## RECOMMENDATIONS

In view of the findings of the study, the following recommendations were made:

1. Environmental agencies should properly monitor waste management practices in the health facilities so that knowledge level will be sustained and improved upon which will foster good practices of waste management among health personnel in Rivers State Senatorial District.
2. Environment health professionals should be employed and posted to health facilities to manage all forms of waste generated in the health facilities to ensure compliance to world standard of health and safety before waste products generated in health facilities are disposed.
3. Health and awareness campaign through fliers, bill boards, sharp flash posts and directions for waste collection should be made and kept or post/placed in strategic positions to guide against all forms of poor waste collections and indiscriminate disposal and handling of waste generated in medical facilities.

## REFERENCES

- Abdulla, F., Qdais, H.A. & Rabi A (2008) Site investigation on medical waste management practices in northern Jordan. *Waste Management* 28, 450–458.
- Adogu, P.O.A., Ubajak, C.F. & Nebuwa, J.E. (2014). Knowledge and practice of medical waste management among health-workers in a Nigerian general hospital. *Asian Journal of Science and Technology*. 5 (12), 833-838.
- Chima, G.N., Ezekwe, I.C. & Digha N.O. (2011). An assessment of medical waste management in health institutions in Yenagoa, South-South, Nigeria. *World Review of Science, Technology and Sustainable Development*. 8 (2/3/4): 224-233.
- Das, S. K. & Biswas, R. (2016) Awareness and practice of biomedical waste management among healthcare providers in a Tertiary Care Hospital of West Bengal, India. *International Journal of Medicine and Public Health* 6(1) 19-25.
- Elnour, A.M., Moussa, M.M.R., El-borgy, M.D., Fadeuella, N.E. & Mahmoud, A.F1. (2015). Impacts of health education on knowledge and practice of hospital staff with regard to health care waste

- management at white Nile state main hospital, Sudan, *International journal of health science* 9(3): 315-331.
- Ghareeb, N.S.E. & Mohamed, M.A.A. (2014). Assessment of medical waste generation rate at zoga zig university and awareness and practices of nurses regarding medical waste management. *International Journal of Environment*, 3(1): 63-72.
- Habeeb and Ahmad (2015). Handling health care waste management and gender differences in the Madinah primary healthcare centers of Saudi Arabia. *Malaysian Journal of Society and Space*, 11 (6): 47-55.
- Hakim, S.A., Mohsen, A. & Bakr, I. (2014). Knowledge, attitude and practices of health-care personnel towards waste disposal management at Am Shams University Hospital, Cairo. *Eastern journal Mediterranean health* 20(5 347-35-I.
- Hossain M, Santhanam A, Nik Norulaini N. & Omar A (2011) Clinical solid waste management practices and its impact on human health and environment-A review. *Waste Management* 4, 754-66.
- Jafri A, & Siddiqui M (2014) Current status of Bio-Medical Waste Management in hospitals of Luck Now City. *Asian Resonance* 3 (1), 221.
- Komilis D, & Fouki A. (2012) Hazardous medical waste generation rates of different categories of health-care facilities. *Waste Management* 32, 1434–1441.
- Kumar, R., Samrongthong, R. & Shaikh, B.T. (2013). Knowledge, attitude and practices of health staff regarding infectious waste handling of tertiary care health facilities at metropolitan city of Pakistan. *Pubmed* 25(1-2), 109-112.
- Mahmoudi. N. Sepandi, M., Saffari, M., Jafari, N. J. & Masoumbeigi, H. (2016). Knowledge and Practice of Nursing Staff about Sharp Waste Management in Selected 1-hospitals of Military (Tehran) and Non- Military (Qorn) in 2012. *Iranian Journal of Health, Safety & environment*. 4, (1), 689-694
- Maina, S.M.; Andrew, N.K. & Ngugi, C.W. (2016). Assessment of level of knowledge in medical waste management in selected hospital in Kenya. *Applied microbiology: open access* 2: 124. Doi: 10.4172/2471-9315.1000124.
- Makhum, A.H. (2016). Knowledge assessment of hospital staff regarding biomedical waste management in a tertiary care hospital. *National Journal of Community Medicine*, 3: 197-200.
- Makhura, R.R., Matlala, S.F. & Kekana, M.P. (2016). Medical Waste Disposal at a hospital in Mpumalanga Province, South Africa: implication for training of health care Professionals. *Samji: South African Medical Journal*. 106(11), 56-74.
- Mohammed, S.M., Othman, N., Hussan, A.H. & Rashid, K.J. (2017). Knowledge, attitude and practice of health care workers in Sulaimani Health facilities in relation to medical waste management. *Journal of applied research*. 2(2), 2411-77.
- Muluken, A., Haimanot, G. & Mesafint, M. (2013). Healthcare waste management practices among healthcare workers in healthcare facilities of Gondar town, North-east Ethiopia. *Health Science Journal*, 7 (3): 315-326.
- Nagaraju. B., Padmavathi, G.V., Parani, D.S., Shantharay, M.P. & Sampulatha. S.P. (2013). A study to assess the knowledge and practice on bio-medical waste management among the health care providers working in PHCs of Bagepalli with the view to prepare informational booklet. *International journal of medicine and biomedical research*. 2(1) 28-35.
- Shivalli, S. & Sowmyashree, H. (2015). Occupational Exposure to Infection : A study on healthcare waste handlers of a tertiary care hospital in South India. *Journal of the Association of Physician of Indian* 63(2015), 25-27.
- World Health Organization (2011). Health-care waste. Retrieved from [www.who.int/niecliaccntre.factsheets/f253/en/](http://www.who.int/niecliaccntre.factsheets/f253/en/).