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Hazardous Waste Management Practices of Public and Private Clinics in Iba, Zambales

Rosa D. Devera Rn, Man[1], Anne Rose L. Calimlim, Rn, Man[2]

President Ramon Magsaysay State University

Abstract: ***Management of hazardous waste is a worldwide challenge (Fazzo et al., 2017). The main purpose of this study is to see if there is a difference in the practices of nurses in the public and private setting regarding the Handling and Storage, Collection and Transport, Treatment and Disposal of the clinical generated hazardous waste products. Following proper protocols and standard procedures of hazardous waste management is highly important (Chartier et al., 2014). The respondents are the clinical staff, which includes doctors, nurses, medical technologists and other health personnel. The study involves the insights of twenty-five (25) respondents from public clinics and thirteen (13) respondents from private clinics. The research study used the comparative method of research to compare the private clinics and public clinics for the clinical related factors to the hazardous waste management practices among identified clinics in Iba, Zambales during the fiscal year 2019. Results revealed that there is a significant difference on perception of the respondents on the clinical factors affecting waste management practices between private and public hospital/clinic in terms of policies and standard procedures and facilities and supplies. Furthermore, there is no significant difference on perception of the respondents on the clinical factors affecting waste management practices between private and public hospital/clinic in terms of roles and responsibilities.In the view of the findings and conclusion, the researchers offer the following recommendations that there should be an annual seminar or symposium for the waste handler about current trends in waste management practices in order to gain new updates.***

Keywords: hazardous waste management practices, hazardous waste, nurses, waste handlers, protocols and standard procedures

1. Introduction

Hazardous waste is non-biodegradable, and can be biologically amplified to become extremely radioactive, even at very low concentrations (DOH, 2011). Examples of hazardous waste generated in hospitals and other healthcare facilities such as clinics, dispensaries, and health centers include infectious waste, sharps, pathological and anatomical waste, pharmaceutical including genotoxic/ cytotoxic/antineoplastic waste, chemical waste and radioactive waste (DOH, 2011).

Many developed countries such as US imposed strict guidelines regarding the handling, storage, collection, segregation and transport of healthcare waste by-product (Shah et al, 2015). Hazardous waste is characterized by the United States Environmental Protection Agency as liquid, solid, contained gas, or sludge waste that contains properties that are unsafe or potentially harmful to human health or the environment. The EPA reports that 256 million tons of publicly labeled hazardous wastes are produced in the US per year, with American hospitals alone producing 6,600 tons of waste. The Medical Waste Tracking Act (MWTA) of 1988 specifically states that program regulations would be strictly enforced for medical waste, establishing a cradle-to-grave tracking system utilizing a generator-initiated tracking form. It required management standards for segregation, packaging, labeling and marking, and storage of medical waste. Furthermore, it established record keeping requirements and penalties that could be imposed for mismanagement (EPA, 2016).

In the Philippines, there are various laws and rules that govern how hazardous waste should be managed. Three laws have been introduced to address the issue of health care waste management. The first one is the Republic Act 6969 or the Toxic and Hazardous Substances and Nuclear Wastes Control Act of 1990, the second is the Republic Act 8749 or the Philippine Clean Air Act of 1999 and the third is the Republic Act 9003 or the Ecological Solid Waste Management Act of 2000. More specifically, hazardous waste from health care facilities are specifically subject to provisions of the Revised Health Care Waste Management Manual promulgated by the Department of Health in 2005 (Mina, 2015). Since Philippines is still a developing country, its' resources are constrained against effective healthcare waste management (Caniato et al., 2015). Hence, improper disposal of hazardous waste will eventually lead to environmental contamination and will amplify the spread of infectious diseases (Fatima, S. Z., &Asad, M., 2018).

2. Methodology

A The research study used the comparative method of research to compare the private clinics and public clinics for the clinical related factors to the hazardous waste management practices among identified clinics in Iba, Zambales during the fiscal year 2019. This study utilizes the descriptive method of research. According to Richardson, H. (2018), comparative analysis effectively contrasts two populations in way to garner a consensus between them. Researchers seek to classify and discuss correlations and variations between populations, and these experiments are often cross-national in nature, contrasting two distinct groups of individuals. Comparative studies should be used to build bridges between cultures and communities, laying the groundwork for consensus and cooperation.

The respondents are the clinical staff, which includes doctors, nurses, medical technologists and other health personnel. The study involves the insights of twenty-five (25) respondents from public clinics and thirteen (13) respondents from private clinics. They were interviewed and given a survey questionnaire in order to test their ability to

understand the veracity of the study towards the implementation of hazardous waste management.

In constructing the research instrument or the questionnaire, the researcher assured that the research questionnaire is based on the Health Care Waste Management Manual given by the Department of Health. The researcher underwent comprehensive reading in such materials like books, newspapers manuals, manuscript and other materials. The researcher looked at the previous questionnaire related to the research problem in order to compare to the present study.

The researchers used the questionnaire as the instrument in the study. According to Calderon and Gonzales(2007), a questionnaire is a prepared list of written questions relating to a given subject, with space given for indicating the answer to each question, intended for submission to a number of people for response, and is widely used in normative survey studies and opinion measurement. Observations are recorded during personal interviews with subjects. Similarly, all items in the checklists are based on the guidelines set on healthcare waste management by the DOH Manual.

The questionnaire was divided into three parts. The first part of the survey technique or questionnaire consists all about the clinical staffs' personal profile that includes the age, sex, civil status, educational attainment, and type of work, work status and lastly the length of service. The second part of the survey questionnaire tackled the different clinical related factors that include the policies and standard procedure, roles and responsibilities and facilities/supply.

3. Results and Discussion

Table 1: Frequency and Percentage Distribution of the Respondents Profile as to Age

Age	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
51 - 56	0	0.00	1	4.00
45 - 50	1	7.69	2	8.00
39 - 44	2	15.38	3	12.00
33 - 38	1	7.69	6	24.00
27 - 32	3	23.08	**13**	**52.00**
21 - 26	**6**	**46.15**	0	0.00
Total	**13**	**92.31**	**25**	**100.00**
Mean	**30.42 or 30 years old**		**34.78 or 35 years old**	

Table 1 shows that majority of the respondents from the private clinics belong to the age bracket of 21-26 (46.15%) while majority of the respondents from public clinics belong to the age bracket of 27-32 (52.00%). This means that the respondents both from the public and private clinics are at the right age to be a health care provider. Clinical staff at this age easily performs and are very knowledgeable about their roles and responsibilities in proper waste management. The mean age is 30.42 or 30 years old for private clinics and 34.78 or 35 years old for public clinics. This result signifies that the staff nurses are in their middle adulthood which according to Elkind (2003) extends from 30-65 years.

The result on the age profile variable of the nurse respondents is consistent with Kalisch, Lee &Rochman (2010). In their study, majority of the registered nurse respondents belong to the age bracket of 26 to 34 years old. Also, the respondents in Reddy's (2015) were less than 30 years old and Pietersen's (2005) were 30 years of old.

Table 2: Frequency and Percentage Distribution of the Respondents Profile as to Sex

Sex	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
Male	3	23.08	6	24.00
Female	10	76.92	19	76.00
Total	13	100.00	25	100.00

Table 2 presents that 10 clinical staff or 76.92% are female from the private clinics while 19 clinical staff or 76.00% percent are female from public clinics. It was revealed that that majority of the respondents are female. According to Meadus, RJ (2007), men still constitute a small minority of the nursing population and nursing educational programs are traditionally designed for women (Brady & Sherrod, 2003). This shows that females are dominant in the role of health care providers. It also shows that females are more sensitive and intuitive when it comes to performing the proper policies and standard procedures in hazardous waste management.

Table 3: Frequency and Percentage Distribution of the Respondents Profile as to Civil Status

Civil Status	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
Single	8	61.54	15	60.00
Separated	1	7.69	0	0.00
Married	4	30.77	10	40.00
Total	**13**	**100.00**	**25**	**100.00**

Table 3 reveals that out of 13 clinical staff, 8 respondents or 61.54% are single from private clinics while 15 respondents or 60% are also single, it indicates that most of the respondents are single. Most of the clinical staff doesn't have their own familial responsibility. This means that single clinical staffs have more time to learn and develop their knowledge in regards to proper waste management practices.

The finding that majority of the respondents are single suggest that the nurses are very focused on their job as nurse. Settling permanently could be a second priority. According to Bowen, et. al. (2012) marital status is related to job performance, single nurses are very focused on their job as nurses.

Table 4: Frequency and Percentage Distribution of the Respondents Profile as to Educational Attainment

Educational Attainment	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
Primary Level	0	0.00	1	4.00
Secondary Level	0	0.00	1	4.00
Tertiary Level	**13**	**100.00**	**18**	**72.00**
Vocational	0	0.00	1	4.00
With Ph. D. Units	0	0.00	2	8.00
Doctor of Medicine	0	0.00	1	4.00
Masters	0	0.00	1	4.00
Total	**13**	**100.00**	**25**	**100.00**

Table 4 shows that out of 13 clinical staff, 13 or 100% of the respondents from private clinics finished the tertiary level of educational attainment while 18 clinical staff or 72.00% also finished their tertiary level education making them very qualified to be a health care provider.

A study done by Madrigal et. al (2017) reveals that awareness, attitudes, and practices are significantly related to age and educational level. Their study validates how knowledge influences attitudes that subsequently determines behavior particularly in waste management as intervened by appropriate environmental education.

Table 5 presents that out of 13 clinical staff, 12 respondents or 92.31% from private clinics are in permanent position, 15 clinical staff or 60% out of 25 respondents are contractual. The use of temporary employees continues at a high rate, and in order to maintain a quality work environment, an organization must effectively manage both the temporary and permanent work force (Galup et. al, 2008).

Table 5: Frequency and Percentage Distribution of the Respondents Profile as to Work Status

Work Status	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
Permanent	12	92.31	5	20.00
Contractual	1	7.69	**15**	**60.00**
Casual	0	0.00	5	20.00
Total	**13**	**100.00**	**25**	**100.00**

Temporary contracts with no prospect of permanence also decrease satisfaction with job content as stated by Waaijer, C. et. al. (2017). Finally, contact of service affected the different aspects of the personal lives of employees, such as the ability to obtain a stability of life and the possibility to start a family.

Table 6: Frequency and Percentage Distribution of the Respondents Profile as to Length of Service

Length of Service	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
22 - 28 years	0	0.00	1	4.00
15 - 21 years	2	15.38	0	0.00
8 - 14 years	2	15.38	7	28.00
1 - 7 years	**9**	**69.23**	**17**	**68.00**
Total	**13**	**100.00**	**25**	**100.00**
Mean	**7.23 years**		**6.8 years**	

Table 6 shows that out of 13 clinical staff, 9 respondents or 69.23% from private clinics are within the length of work bracket of 1-7 years, same bracket with the public clinics that out of 25 respondents 17 clinical staff or 68%. Table 6 reveals that most of the respondents belong to the length of service bracket of 1-7 years in both private and public clinics. This may indicate that health care providers with longer years of service have more knowledge in maintaining safe practices of health waste management.

The result on the number of years in the service profile of the nurse respondents is consistent with Kalisch, Lee &Rochman (2010). In their study, majority of the registered nurse respondents have served the hospital below five years (6 months to 2 years). The nurse respondents in the study of Pietersen (2005) and Reddy (2015) have served the medical institution for less than five (5) years.

Table 7: Frequency and Percentage Distribution of the Respondents Profile as to Monthly Family Income

Monthly Family Income	Private Hospital/ Clinic		Public Hospital	
	Frequency	Percent	Frequency	Percent
Php 16,000 above	5	38.46	**16**	**64.00**
Php 11,000 - 15,999	**7**	**53.85**	3	12.00
Php 6,000 - 10,999	1	7.69	6	24.00
Total	**13**	**100.00**	**25**	**100.00**
Mean	**Php 15,038**		**Php 15,499.50**	

Table 7 presents that out of 13 respondents, 7 respondents or 53.85% from private clinics has a monthly family income of Php 11,000-15,999 while in public clinics out of 25 respondents 16 respondents or 64% has a family income of Php 16,000 above. Table 7 reveals that the monthly income from the public clinics are higher than the private clinics. This means that they have the financial capability to attend seminars in regards to new protocols and updates in waste management.

Remuneration or compensation programs were developed to motivate, attract, reward or retain work force (Berger, 2000). Financial compensation must be considered from three viewpoints. First, the effectiveness of money as a motivator must be understood. Second, consider whether people are happy or disappointed with their financial incentives. Finally, when designing financial incentive programs, it is necessary to determine which parameters to use. According to Herzberg's two-factor hypothesis, capital is a hygiene factor that does not lead to work satisfaction. Payment is intended to be proportionate to the amount of time and quality of work completed. According to Armstrong (2007), if the amount of income earned does not please the worker, money induces job discontent.

The indicator which states that “I am aware that billboards and other propaganda materials on environmental sanitation are posted around our facility to motivate cleanliness” in the private clinics with the most gained mean value of 3.86 (rank 1) while in the public clinics indicator which states that “I am aware that I need to check the expiry date of all products at the time of delivery” with the most gained mean value of 3.64 (rank 1) and in the item for private clinics indicating that “I know that I have to be immunized for anti-tetanus after being hired” had resulted the least mean value of 2.85 while in the public clinics the item indicating “I am aware that our clinic allocates sufficient funds to waste management” got the least mean value of 2.80 by the clinical staff among the above indicators.

Table 8: Mean Rating on the Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices in terms of Policies and Standards Procedures

Policies and Standard Procedures	Private Hospital/ Clinic		Public Hospital	
	AWM	Descriptive Rating	AWM	Descriptive Rating
1. I am aware of the no training no hiring policy that is instituted in our establishment.	3.31	Always	2.88	Often
2. I am aware that our clinic provides annual education on waste management.	3.31	Always	2.88	Often
3. I know that I have to be immunized for anti-tetanus after being hired.	2.85	Often	3.12	Often
4. I know that I have to be immunized for Hepatitis B after being hired.	3.46	Always	3.28	Always
5. I am aware that our clinic allocates sufficient funds to waste management.	3.62	Always	2.80	Often
6. I knowingly purchase select supplies and materials that are less wasteful and less hazardous.	3.38	Always	3.16	Always
7. I am aware that training for waste management is available to staff annually.	3.15	Often	2.92	Often
8. I know that I need to use less hazardous method in cleaning (e.g. steam disinfection instead of chemical disinfection)	3.69	Always	3.12	Often
9. I am aware that I need to check the expiry date of all products at the time of delivery.	3.85	Always	**3.64**	**Always**
10. I know that our clinic hazardous wastes are treated immediately by any method recommended by the DOH manual.	3.85	Always	3.28	Always
11. I am aware that our clinic has sufficient human resources allocated to hazardous waste management.	3.69	Always	3.16	Often
12. I am aware that billboards and other propaganda materials on environmental sanitation are posted around our facility to motivate cleanliness.	**3.86**	**Always**	3.16	Often
13. I know that I need to enforce proper safety measures daily.	3.85	Always	3.56	Always
14. I am aware of how to keep proper record of hazardous waste.	3.85	Always	3.48	Always
15. I know that I need to instruct visitors patients about policies regarding hazardous waste management	3.69	Always	3.24	Often
Overall Weighted Mean	**3.56**	**Always**	**3.18**	**Often**

According to Akpoghiran and Ese (2013), the use of billboard and other propaganda are very effective campaign strategy towards the attitude and behavior of clinical workers in health care waste management. The respondents agreed to the effectiveness of this method in spreading awareness to the proper handling, treatment, transportation, and disposal of health care waste. Checking of the expiry date of product and the delivery date of product also plays an important role in handling and storing of the medication (Purse, 2019). This will promote safety to the health consumer. However, health of the clinical worker cannot be ignored. They are at risk for exposure to pathological infections. It is very important that they protect themselves through vaccination and immunization (CDC, 2019).

Table 9: Mean Rating on the Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices in terms of Roles and Responsibilities

Roles and Responsibilities	Private Hospital/ Clinic		Public Hospital	
	AWM	Descriptive Rating	AWM	Descriptive Rating
1. I know how to identify hazardous waste.	3.92	Always	3.72	Always
2. I am aware of various types of hazardous wastes.	3.92	Always	3.64	Always
3. I am aware that all individuals exposed to hazardous waste are potentially at risk.	3.92	Always	**3.88**	**Always**
4. I am aware that improper waste management of hazardous waste is serious.	4.00	Always	**3.88**	**Always**
5. I know that presence of concentrated cultures of pathogens in the waste stream represents the most acute potential hazards to health.	3.85	Always	3.48	Always
6. I am aware that although chemical and pharmaceutical products may be found in small quantities in health care waste, these substances are hazardous.	3.92	Always	3.48	Always
7. I am aware that health care waste minimization is centered on the elimination or reduction of the health care waste stream.	3.85	Always	3.44	Always

8. I know that segregation is an important step to waste management.	4.00	Always	3.80	Always
9. I am aware of the color coding scheme for containers.	3.46	Always	3.44	Always
10. I received training on the principles of waste management.	2.85	Often	2.80	Often
11. I know that I need to use gloves every time I handle hazardous waste	3.92	Always	3.64	Always
12. I know that I need to wash my hands immediately after contact with hazardous materials.	**4.01**	**Always**	3.84	Always
13. I am aware that there are special precautions for clearing up spillage of potentially hazardous substances.	3.77	Always	3.60	Always
14. I am trained to deal with injuries and exposures of hazardous waste.	2.54	Often	2.92	Often
15. I know that I need to exercise caution when handling health care waste.	3.77	Always	3.60	Always
Overall Weighted Mean	**3.71**	**Always**	**3.54**	**Always**

The indicator which states that "I know that I need to wash my hands immediately after contact with hazardous materials" in the private clinics with the most gained mean value of 4.01 (rank 1) while in the public clinics indicator which states that "I am aware that improper waste management of hazardous waste is serious" and "I am aware that all individuals exposed to hazardous waste are potentially at risk" with the most gained mean value of 3.64 (rank 1) and the least mean value of 2.85 while in the public clinics the item indicating "I received training on the principles of waste management" got the least mean value of 2.80 by the clinical staff among the above indicators.

Education and training will increase the safety of the clinical staff and reduces the possibility of exposure to blood-borne pathogens and diminishes the risk of infection (Maina, 2018). Nonetheless, awareness and understanding in health care waste management will not only intensifies effectiveness, but ensures compliance to the rules and guidelines in health care waste disposal (Importance of Hospital Management, Daniels Health, 2018)

Table 10: Mean Rating on the Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices in terms of Facilities and Supplies

Facilities and Supplies	**Private Hospital/ Clinic**		**Public Hospital**	
	AWM	**Descriptive Rating**	**AWM**	**Descriptive Rating**
1. I am aware that an enclosed storage area is located within our establishment for hazardous waste.	3.77	Always	3.08	Often
2. I am aware that there is a washing facility available within the establishment	3.85	Always	3.12	Often
3. I am aware that there is a wheeled trolley that I can use when clearing out waste.	3.69	Always	2.52	Often
4. I am aware that there are garbage bins available that I can use for throwing out waste.	**3.85**	**Always**	**3.36**	**Always**
5. I know that there are cleaning equipments I can readily use when needed.	**3.85**	**Always**	3.12	Often
6. I am aware that there appropriate protective equipment available when handling waste. (gloves, masks, boots, etc)	3.77	Always	3.16	Often
7. I know that the trash containers I use are puncture proof and fitted with covers.	3.69	Always	3.24	Often
8. I use leak-proof containers for waste.	3.77	Always	2.80	Often
9. I know that there are color coded plastic bags readily available.	**3.85**	**Always**	3.00	Often
10. I am aware that formalin is readily available.	3.23	Often	2.32	Often
11. I am aware that black band for nuclear waste is readily available.	3.31	Always	2.28	Often
12. I am aware that scissors are readily available.	3.77	Always	3.12	Often
13. I am aware that forceps are readily available.	3.77	Always	3.08	Often
14. I am aware that markers for labeling waste are available.	3.77	Always	2.96	Often
15. I am aware that needle cutter destroyer is available.	3.54	Always	2.60	Often
Overall Weighted Mean	**3.70**	**Always**	**2.92**	**Often**

The indicator which states that " I am aware that there are garbage bins available that I can use for throwing out waste"; "I know that there are cleaning equipments I can readily use when needed"; "I know that there are color coded plastic bags readily available", in the private clinics with the most gained mean value of 3.85 (rank 1) while in the public clinics indicator which states that "I am aware that there are garbage bins available that I can use for throwing out waste" with the most gained mean value of 3.64 (rank 1) and the least mean value of 3.23 while in the public clinics the item indicating "I am aware that formalin is readily available" got the least mean value of 2.32 by the clinical staff among the above indicators.

Table 11: Summary on Mean Rating on the Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices

Waste Management Practices	Private Hospital/ Clinic		Public Hospital	
	AWM	Descriptive Rating	AWM	Descriptive Rating
Policies and Standard Procedures	3.56	Always	3.18	Often
Roles and Responsibilities	**3.71**	**Always**	**3.54**	**Always**
Facilities and Supplies	3.70	Always	2.92	Often

First from the rank in the private clinics was aspect of Roles and Responsibilities with mean of 3.71 and a verbal interpretation of always. The Facilities and Supplies was rank second with mean of 3.70 and a verbal interpretation of always. The Policies and Standard Procedures aspect was ranked third with mean of 3.56 and a verbal interpretation of always. For the public clinics Roles and Responsibilities aspect also rank 1st and a verbal interpretation of always. The Policies and Standard Procedures was rank second with mean of 3.18 and the least rank was the aspect of Facilities and Supplies with average weighted mean of 2.92.

According to Maroufi, et. al. (2012), improving waste management in healthcare facility should be initiated from the health care worker. Thus, all clinical staff is considered a team for efficient waste management. In other words, full participation of the clinical staff will lead to effective health care waste management (WHO, 2015) (DOH, 2011).

Table 12 shows analysis of variance to test the significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of policies and standards procedures when grouped according to profile variable.

For private clinic respondents; age (0.14); sex (0.73); civil status (0.52); work status (0.50); length of service (0.06) and monthly family income (0.53) are greater than 0.05 alpha level of significance. Therefore; the null hypothesis is accepted. The data provide ample evidence to suggest that there is no substantial variation in respondents' views of clinical factors impacting waste management activities in terms of policies and procedures based on age, ethnicity, civil status, employment status, length of service, and monthly family income profile variables of private clinic respondents.

Table 12: Analysis of Variance to Test the Significant Difference on Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices in terms of Policies and Standards Procedures when Grouped According to Profile Variable

Source of Variation		Private Hospital/ Clinic					Public Hospital				
		df	Mean Square	F	Sig.	Decision/ Interpretation	df	Mean Square	F	Sig.	Decision/ Interpretation
Age	Between Groups	4	0.33	2.37	0.14	Accept Ho Not Significant	4	0.43	1.45	0.26	Accept Ho Not Significant
	Within Groups	8	0.14				20	0.29			
	Total	12					24				
Sex	Between Groups	1	0.03	0.13	0.73	Accept Ho Not Significant	1	1.63	6.32	**0.02**	**Reject Ho Significant**
	Within Groups	11	0.22				23	0.26			
	Total	12					24				
Civil Status	Between Groups	2	0.15	0.70	0.52	Accept Ho Not Significant	1	0.01	0.02	0.90	Accept Ho Not Significant
	Within Groups	10	0.21				23	0.33			
	Total	12					24				
Educational Attainment	Between Groups	There is only 1 group of Educational Attainment (difference cannot be computed)					6	0.24	0.71	0.65	Accept Ho Not Significant
	Within Groups						18	0.34			
	Total						24				
Work Status	Between Groups	1	0.10	0.49	0.50	Accept Ho Not Significant	2	0.14	0.41	0.67	Accept Ho Not Significant
	Within Groups	11	0.21				22	0.33			
	Total	12					24				
Length of Service	Between Groups	2	0.53	3.87	0.06	Accept Ho Not Significant	2	1.22	5.22	**0.01**	**Reject Ho Significant**
	Within Groups	10	0.14				22	0.23			
	Total	12					24				
Monthly Family Income	Between Groups	2	0.14	0.67	0.53	Accept Ho Not Significant	2	1.03	4.10	**0.03**	**Reject Ho Significant**
	Within Groups	10	0.21				22	0.25			
	Total	12					24				

For public hospital respondents; age (0.26); civil status (0.90); educational attainment (0.65); and work status (0.67) are greater than 0.05 alpha level of significance. Therefore; the null hypothesis is accepted. The data provide reasonable evidence to indicate that there is no statistically meaningful variation in respondents' views of clinical conditions impacting waste management practices in terms of policies and procedures dependent on age, civil status, educational qualification, and employment status profile variables of public hospital respondents.

Furthermore; sex (0.02); length of service (0.01); and monthly family income (0.03) are less than 0.05 alpha level of significance. Therefore; the null hypothesis is rejected. The data provide sufficient evidence to conclude that there is a significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of policies and standards procedures as to sex, length of service and monthly family income profile variables of the public hospital respondents.

Table 13: Analysis of Variance to Test the Significant Difference on Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices in terms of Roles and Responsibilities when Grouped According to Profile Variable

Source of Variation		Private Hospital/ Clinic					Public Hospital				
		df	Mean Square	F	Sig.	Decision/ Interpretation	df	Mean Square	F	Sig.	Decision/ Interpretation
Age	Between Groups	4	0.03	0.58	0.68	Accept Ho Not Significant	4	0.09	0.97	0.44	Accept Ho Not Significant
	Within Groups	8	0.06				20	0.09			
	Total	12					24				
Sex	Between Groups	1	0.00	0.00	0.99	Accept Ho Not Significant	1	0.32	3.94	0.06	Accept Ho Not Significant
	Within Groups	11	0.05				23	0.08			
	Total	12					24				
Civil Status	Between Groups	2	0.18	7.59	**0.01**	**Reject Ho Significant**	1	0.03	0.32	0.57	Accept Ho Not Significant
	Within Groups	10	0.02				23	0.09			
	Total	12					24				
Educational Attainment	Between Groups	There is only 1 group of Educational Attainment (difference cannot be computed)					6	0.11	1.26	0.32	Accept Ho Not Significant
	Within Groups						18	0.08			
	Total						24				
Work Status	Between Groups	1	0.03	0.50	0.49	Accept Ho Not Significant	2	0.08	0.89	0.42	Accept Ho Not Significant
	Within Groups	11	0.05				22	0.09			
	Total	12					24				
Length of Service	Between Groups	2	0.00	0.08	0.92	Accept Ho Not Significant	2	0.24	3.05	0.07	Accept Ho Not Significant
	Within Groups	10	0.06				22	0.08			
	Total	12					24				
Monthly Family Income	Between Groups	2	0.03	0.58	0.58	Accept Ho Not Significant	2	0.54	10.92	**0.00**	**Reject Ho Significant**
	Within Groups	10	0.05				22	0.05			
	Total	12					24				

Table 13 shows analysis of variance to test the significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of roles and responsibilities when grouped according to profile variable.

For private clinic respondents; age (0.68); sex (0.99); work status (0.49); length of service (0.92) and monthly family income (0.58) are greater than 0.05 alpha level of significance. Therefore; the null hypothesis is accepted. The data provide sufficient evidence to conclude that there is no significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of roles and responsibilities as to age, sex, work status, length or service and monthly family income profile variables of private clinic respondents.

Moreover; civil status (0.01) is less than 0.05 alpha level of significance. Therefore; the null hypothesis is rejected. The data provide sufficient evidence to conclude that there is a significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of roles and responsibilities as to civil status profile variables of the public hospital respondents.

For public hospital respondents; age (0.44); sex (0.06); civil status (0.57); educational attainment (0.32); work status (0.42) and length of service (0.07) are greater than 0.05 alpha level of significance. Therefore; the null hypothesis is accepted. The data provide sufficient evidence to conclude that there is no significant difference on perception of the respondents on the clinical factors affecting waste

management practices in terms of roles and responsibilities as to age, sex, civil status, educational attainment, work status and length of service profile variables of public hospital respondents.

Furthermore; monthly family income (0.00) is less than 0.05 alpha level of significance. Therefore; the null hypothesis is rejected. The data provide sufficient evidence to conclude that there is a significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of roles and responsibilities as to monthly family income profile variables of the public hospital respondents.

Table 14: Analysis of Variance to Test the Significant Difference on Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices in terms of Facilities and Supplies when Grouped According to Profile Variable

Source of Variation		Private Hospital/ Clinic					Public Hospital				
		df	Mean Square	F	Sig.	Decision/ Interpretation	df	Mean Square	F	Sig.	Decision/ Interpretation
Age	Between Groups	4	0.52	5.56	**0.02**	**Reject Ho Significant**	4	0.34	0.91	0.48	Accept Ho Not Significant
	Within Groups	8	0.09				20	0.37			
	Total	12					24				
Sex	Between Groups	1	0.22	0.92	0.36	Accept Ho Not Significant	1	0.05	0.14	0.72	Accept Ho Not Significant
	Within Groups	11	0.24				23	0.38			
	Total	12					24				
Civil Status	Between Groups	2	0.01	0.02	0.98	Accept Ho Not Significant	1	0.01	0.04	0.85	Accept Ho Not Significant
	Within Groups	10	0.28				23	0.38			
	Total	12					24				
Educational Attainment	Between Groups	There is only 1 group of Educational Attainment (difference cannot be computed)					6	0.22	0.54	0.77	Accept Ho Not Significant
	Within Groups						18	0.41			
	Total						24				
Work Status	Between Groups	1	0.10	0.40	0.54	Accept Ho Not Significant	2	0.56	1.61	0.22	Accept Ho Not Significant
	Within Groups	11	0.25				22	0.35			
Length of Service	Between Groups	2	0.47	2.51	0.13	Accept Ho Not Significant	2	0.96	3.07	0.07	Accept Ho Not Significant
	Within Groups	10	0.19				22	0.31			
	Total	12					24				
Monthly Family	Between Groups	2	0.14	0.54	0.60	Accept Ho Not	2	0.37	1.02	0.38	Accept Ho Not
Income	Within Groups	10	0.26			Significant	22	0.37			Significant
	Total	12					24				

Table 14 shows analysis of variance to test the significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of facilities and supplies when grouped according to profile variable.

For private clinic respondents; sex (0.36); civil status (0.36); work status (0.54); length of service (0.13) and monthly family income (0.60) are greater than 0.05 alpha level of significance. Therefore; the null hypothesis is accepted. The data provide sufficient evidence to conclude that there is no significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of facilities and supplies as to age, civil status, work status, length or service and monthly family income profile variables of private clinic respondents.

However; age (0.02) is less than 0.05 alpha level of significance. Therefore; the null hypothesis is rejected. The data provide sufficient evidence to conclude that there is a significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of facilities and supplies as to age profile variables of the public hospital respondents.

For public hospital respondents; age (0.48); sex (0.72); civil status (0.85); educational attainment (0.77); work status (0.22), length of service (0.07) and monthly family income (0.38) are greater than 0.05 alpha level of significance. Therefore; the null hypothesis is accepted. The data provide sufficient evidence to conclude that there is no significant difference on perception of the respondents on the clinical factors affecting waste management practices in terms of facilities and supplies as to age, sex, civil status, educational attainment, work status, length of service and monthly family income profile variables of public hospital respondents.

Table 15: T – Test to Test the Significant Difference on Perception of the Respondents on the Clinical Factors Affecting Waste Management Practices Amongst Private and Public Hospital/ Clinic

Factors	t	df	Sig. (2-tailed)	Decision/ Interpretation
Policies and Standard Procedures	2.11	36	0.04	Reject Ho Significant
Roles and Responsibilities	1.79	36	0.08	Accept Ho Not Significant
Facilities and Supplies	4.01	36	0.00	Reject Ho Significant

Table 15 shows t – test to test the significant difference on perception of the respondents on the clinical factors affecting waste management practices amongst private and public hospital/ clinic.

The computed significant value for policies and standard procedures (0.04) and facilities and supplies (0.00) are less than 0.05 alpha level of significance. The data implies that there is a significant difference on perception of the respondents on the clinical factors affecting waste management practices between private and public hospital/clinic in terms of policies and standard procedures and facilities and supplies.

Furthermore, the computed significant value for roles and responsibilities (0.08) is greater than 0.05 alpha level of significance. The data indicates that there is no significant difference on perception of the respondents on the clinical factors affecting waste management practices between private and public hospital/clinic in terms of roles and responsibilities.

4. Conclusions and Recommendations

From the aforementioned findings, the conclusions which are binding on the respondents are arrived a typical clinical staff respondent from private clinic is a female, aged 30.42 years, single, finished tertiary level, with a length of work of 7.23 years in permanent position and with a monthly family income of Php 15,038 while a typical clinical staff respondent from public clinic is a female, aged 34. 78 years, single, finished tertiary level, with a length of work of 6.8 years in a contract of service position and with a monthly family income of Php 15,499.50, the respondents' perception on the clinical related factors affecting the hazardous waste management practices in private clinics are classified as "Always" and Very Knowledgeable with an overall mean of 3.66 while in public clinics are classified as "Often" with an overall mean of 3.21, there is no significant difference in the respondents profile and clinical related factors, there is significant correlation between the clinical related factors and the hazardous waste management practices.

In the view of the findings and conclusion, the researchers offer the following recommendations that there should be an annual seminar or symposium for the waste handler about current trends in waste management practices in order to gain new updates. The waste handlers should be well informed regarding the different hazardous waste products. The waste handlers should know about the proper handling and storage, collection and transportation and lastly about treatment and disposal of hazardous waste. The clinical staff should have trainings specifically targeted in current trends about waste management practices. They must be aware and knowledgeable in terms of the roles and responsibilities, policies and standard procedure, and facilities and supplies. The clients should also be familiar with the different hazardous waste products, for them to know how it would be properly disposed. They should also be knowledgeable in proper segregation for to avoid contamination and spread of any blood borne diseases or any diseases coming from contaminated objects produced by the health care facilities. The community should maintain proper management of hazardous products. They can help also in preventing any casualties brought by these hazardous waste products by having knowledge about the different hazardous waste products. Follow up studies along this line must be conducted to see the consistency of the knowledge of clinical staffs and that other researchers include other variables to add and contribute new ideas and insights.

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