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Healthcare waste management as influential factor in reducing risks

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Abstract

The nurse's role in healthcare waste management is fundamental. Knowledge, awarness, and perception of risk that nurses have for the appropriate management of hospital waste play an important role in administration of these residues, in prevention of hospital infections and reduction of risks to healthcare workers. Objectives of this study are to assess the knowledge and practice of nursing staff about healthcare waste management, their perception of risk; and the association, between the manner of healthcare waste management, implementation of professional safeguards, and the spread of nosocomial infections among nursing staff of Vlora Regional Hospital during 2013-2014. This is transversal, analytical and comparative study.The sample study was the nursing staff that works at Vlora Regional Hospital. The data were collected through the distribution of a self-administered questionnaire designed based on literature review. Descriptive statistics and Chi-square tests were used to analyze the data. All nurses had knowledge about the healthcare waste management. The staff's perception of risk was higher in 2014 than 2013. This was reflected in increasing awareness about health and safety measures as the use of gloves in nursing practice and the reduction of nosocomial infections among nursing staff. The need of projects information about healthcare waste management was expressed from all nurses (P > 0.05). Conclusion. The combination of the appropriate health education programs for nursing staff about health care waste management and the necessary conditions and means during nursing practice provided by health institutions are very important in reducing risks among nursing staff.

Keywords: *Nosocomial infection, nursing staff, administration, hospital waste*

1. Introduction

Health institutions are tools which protect the health, treat patients and save human life. These institutions also generate hospital wastes, a part of which contains the risk of spreading the infection, exposure to radiation and chemicals and the risk of causing different traumas. Nowadays, a good management of the hospital wastes has become an international topic. The mismanagement of them could risk the medical staff, the workers who deal with this problem, the patients, their family and the local population. Also, the inadequate management of these wastes or their throwing inti unauthorized places may affect in the environmental pollution and contamination. The number of clinics and private hospitals has been increasing rapidly. This means that a lot of hospital wastes are generated. The term "hospital wastes" means every product which is generated after the usage of hospital elements (instruments, tools), in every institution where health care is offered.

General division of hospital waste:

According to the World Health Organization (WHO), hospital wastes are classified into two major groups. The first group includes harmless wastes, which are 85% of the total and the second group includes the harmful wastes. They constitute about 15% of the whole total of hospital wastes. The harmful wastes are divided into two subcategories. The first one includes 10% of the harmful hospital wastes, which are infective while the rest 5% which is included in the second subcategory, isn't infective but still remains harmful.

World Health Organization has classified the hospital waste into 8 categories which are:
General waste, Pathological waste , Radioactive waste, Chemical waste, Infectious waste, Sharp wastes, Pharmaceutical waste ,Compressed containers

The way of hospital waste management has an important role in the prevention of the hospital infections and in the hospital institution hygiene. Hospital wastes can be considered as a reservoir of pathogenic microorganisms which may cause contaminations and may be initiators of different hospital infections start-up putting the patients and medical staff's health in danger. The hospital infections prevention and control must be the responsibility of every medical institution. The Royal Nursing Association emphasizes the fact that their aim is the promotion of the excellent nursing practice. It insists for the realization of a huge number of improvements which would affect in the prevention of nosocomial infections of the medical and nursing staff. These include medical staff training for the introduction to the protective measures for the infection prevention, 24-hour disposition and full security of nursing uniform.

Nosocomial infection prevention:

The prevention of the nosocomial infections requires a specific and well-detailed program. Some of the most important steps which must be followed for affecting in the prevention of nosocomial infections to the medical staff are: Decontamination of hands, Masks usage, Handles usage,Nursing proceedures realization inside the adequate parameters, Hospital equipment disinfection, Sterilization. In all the cases, when these proceedures which were mentioned above, are applied strictly by the medical staff, the spreading of nosocomial infection would decrease significantly.

Different studies which have been made for this topic have concluded differently.

- *A study on knowledge, attitude and practices regarding biomedical waste management among nursing staff in private hospitals in Udupi City, Karnataka, India"*

-*"A cross-sectional study to see the incidence of needle prick injury amongst health care workers in a Tertiary care hopital".*

-*"An evaluation of health care waste management in Base Hospital of Colombo District".*

- *Hospital waste management in the Teaching Hospitals of Karachi"*

- *Medical Waste Management of the Souss-Massa-Drâa Region, Morocco".*

Realization of the studies for this topic comes directly to the aid of medical institutions which will profit from the results of this study. This study is the first one of his kind, made in the city of Vlora, concretely in the Regionsl Hospital of Vlora in the time period of 2013-2014.

2. Material and methods

The study is transversal type, descriptive-analytical, quantitative and comparative. The population of this study was the nursing staff if Regional Hospital of Vlore which operates inside the pavilion of this health institution. The data collecting for this study was made by spreading a selfadministrated questionnaire,whose internal structure was based in the contemporary literature, but totally adjusted with the internal infrastructure of the Regional Hospital Vlore. The data processing was made by SPSS v 17.00

3. Results

After data collecting and statistical processing by the program SPSS, the results of the study were gained.

► ***Evaluation of professional protective tools use relating to the respective pavilion***

Tab.nr.1: *Evaluation of professional protective tools use relating to the respective pavilion*

Crosstab						
Pavilion	***Professional protective tools use***					
	frequently		rarely		never	
	Count	**% of total**	**Count**	**% of total**	**Count**	**% of total**
Pediatrics	4	3.3%	16	13.2%	3	2.5 %
Admission-emergency	2	1.7 %	12	9.9%	0	0%
Surgery	8	6.6%	17	14.0 %	10	8.3 %
Pathology	5	4.1 %	12	9.9 %	3	2.5 %
Obstetric-Gynecology	7	5.8%	5	4.1%	3	2.5 %
Blood Bank	2	1.7 %	1	0.8%	1	0.8 %
Infections	4	3.3 %	6	5.0%	0	0%
Total	32	26.4%	69	57.0 %	20	16.5%

► ***The relationship between the sharp tools injury and nosocomial infection spreading.***

Tab.nr.2: *The relationship between the sharp tools injury and nosocomial infection spreading.*

Parameter Estimates

							95% Confidence Interval	
		Estimate	Std.Error	Ëald	Df	Sig.	Lower Bound	Upper Bound
Threshold	[P24 = 1]	-1.948	.687	8.040	1	.005	-3.295	-.602
	[P24 = 2]	-.716	.662	1.171	1	.279	-2.014	.581
Location	[P26=1]	-2.931	.708	10.835	1	.001	-3.719	-.943
	[P26=2]	-2.322	.812	12.953	1	.000	-4.513	-1.331
	[P26=3]	0[a]	.	.	0	.	.	.

► ***Identification of the number of nursing staff touched by the nosocomial infections relating to the respective pavilions***

Tab.nr.3: Identification of nursing staff affected by nosocomial infections

Crosstab

Pavilion	***Touching nosocomial infections***					
	Yes		***No***		***No comment***	
	Count	**% of total**	**Count**	**% of total**	**Count**	**% of total**
Pediatrics	16	13.2%	7	5.8%	0	0%
Admission-emergency	7	5.8 %	3	2.5%	4	3.3%
Surgery	23	19%	6	5.0 %	6	5.0%
Pathology	10	8.3%	5	4.1%	5	4.1 %
Obstetric-Gynecology	9	7.4%	4	3.3%	2	1.7%
Blood Bank	1	0.8 %	1	0.8%	2	1.7%
Infections	5	4.1%	1	0.8%	4	3.3%
Total	71	58.7%	27	22.3%	23	19%

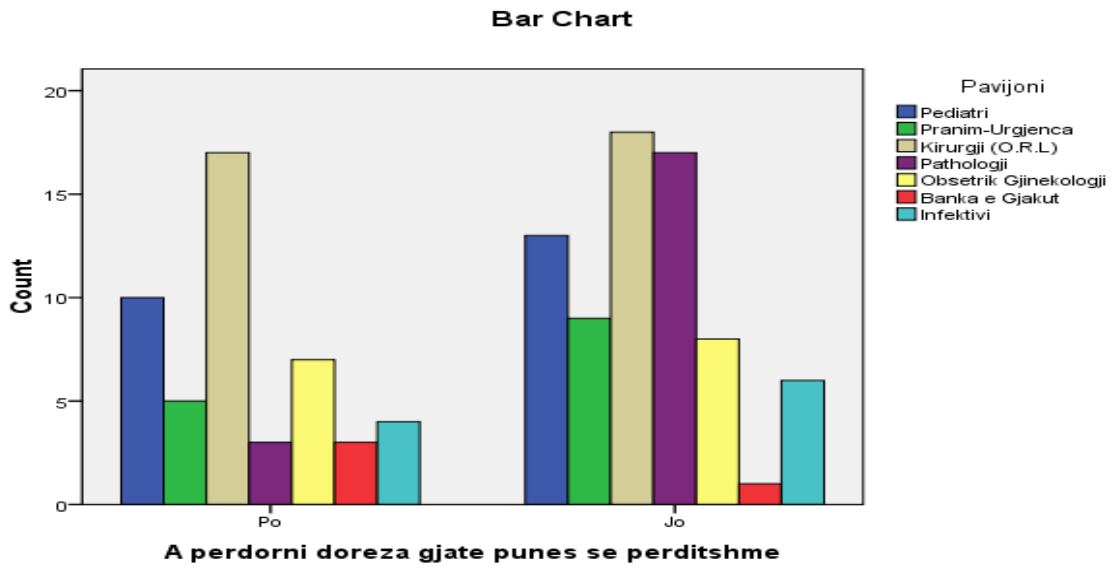
► ***The relationship between the cause which has induced the sharp tools injury of the nursing staff and the spreading of nosocomial infection.***

Tab.nr.22: Relacioni midis shkakut që ka çuar stafin infermieror në dëmtim me mjete të mprehta dhe përhapjes së infeksionit nosokomial

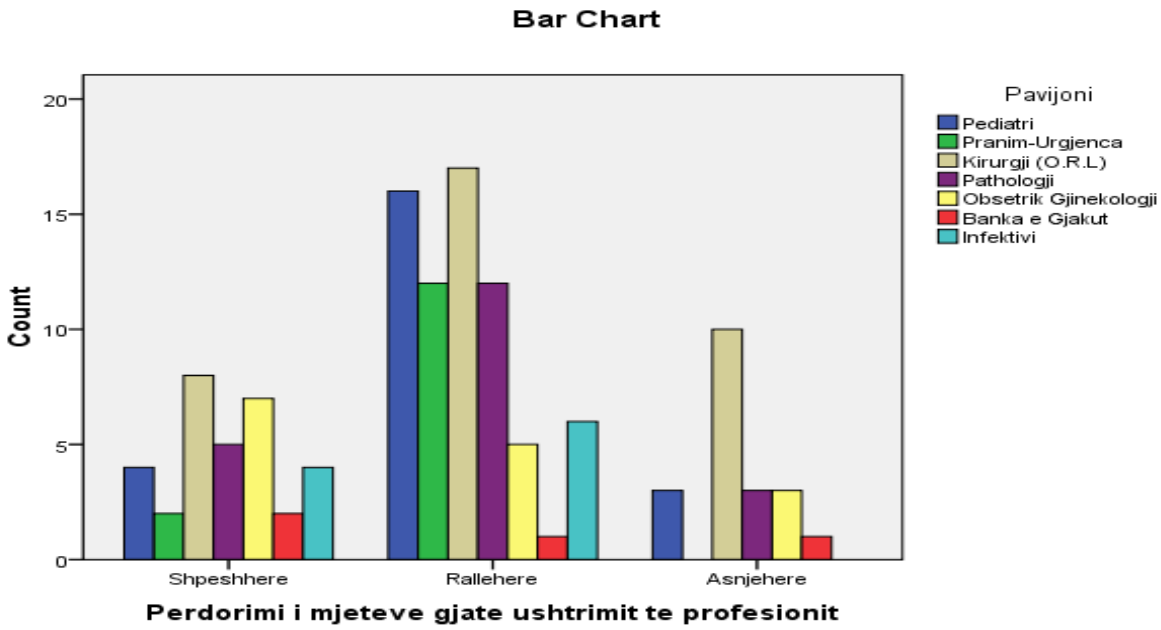
Parameter Estimates

							95% Confidence Interval	
		Estimate	Std.Error	Ëald	df	Sig.	Lower Bound	Upper Bound
Threshold	[P24 = 1]	18.163	.584	967.700	1	.000	17.019	19.307
	[P24 = 2]	19.446	.612	1011.001	1	.000	18.248	20.645
Location	[P29=1]	17.509	.704	619.053	1	.000	16.129	18.888
	[P29=2]	17.964	.646	773.483	1	.000	16.698	19.230
	[P29=3]	17.971	.000	.	1	.	17.971	17.971
	[P29=4]	0[a]	.	.	0	.	.	.

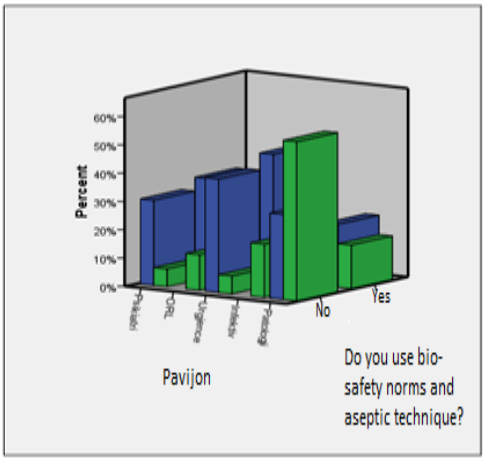
► ***Identification of handles use from the nursing staff during their work relating to the respective pavilions***

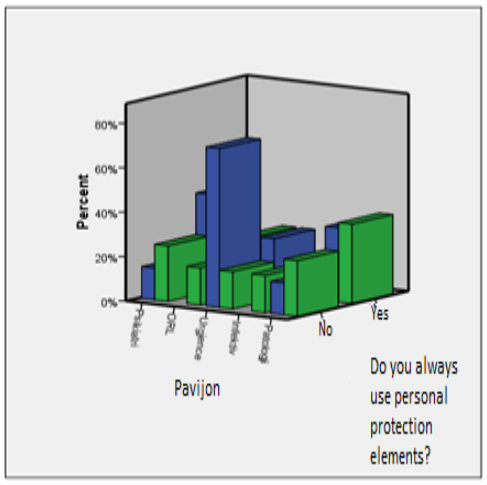


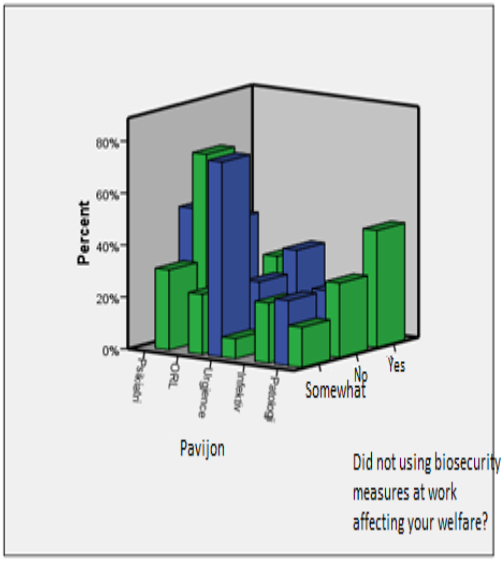
► ***Evaluation of professional protective tools use relating to the respective pavilions.***

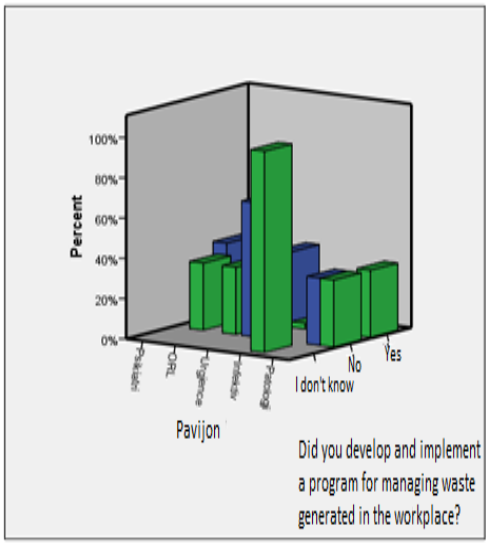


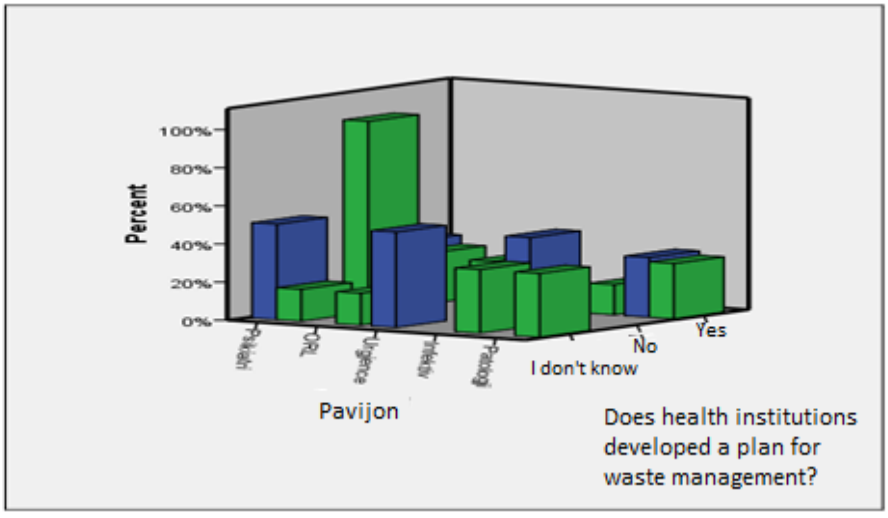
		Sum of Squares	df	Mean Square	F	Sig.
Do you Have knowledge about bio-security norms and aseptic technique	Between Groups	.803	4	.201	1.530	.206
	Within Groups	7.610	58	.131		
	Total	8.413	62			
Uses bio-security norms and aseptic techniques	Between Groups	2.315	4	.579	2.535	.050
	Within Groups	13.241	58	.228		
	Total	15.556	62			
Relies on the necessary elements for your personal protection	Between Groups	.782	4	.196	1.220	.312
	Within Groups	9.618	60	.160		
	Total	10.400	64			
Thinks that the use of personal protection elements is uncomfortable	Between Groups	1.543	4	.386	1.589	.189
	Within Groups	14.317	59	.243		
	Total	15.859	63			
Always uses personal protection elements	Between Groups	1.461	4	.365	1.760	.150
	Within Groups	11.621	56	.208		
	Total	13.082	60			
There's a program being developed and applied for managing waste generated in the workplace	Between Groups	.326	4	.082	.521	.720
	Within Groups	8.607	55	.156		
	Total	8.933	59			


Gender
Male
Female
Percent
60%
50%
40%
30%
20%
10%
0%
No
Yes
Pavijon
Do you use bio-safety norms and aseptic technique?


Gender
Male
Female
Percent
80%
60%
40%
20%
0%
No
Yes
Pavijon
Do you always use personal protection elements?


Gender
Male
Female
Percent
80%
60%
40%
20%
0%
No
Somewhat
Yes
Pavijon
Did not using biosecurity measures at work affecting your welfare?


Gender
Male
Female
Percent
100%
80%
60%
40%
20%
0%
No
I don't know
Yes
Pavijon
Did you develop and implement a program for managing waste generated in the workplace?


Gender
Male
Female
Percent
100%
80%
60%
40%
20%
0%
No
I don't know
Yes
Pavijon
Does health institutions developed a plan for waste management?

5. CONCLUSION AND RECOMMENDATIONS

- Handles usage during everyday nursing work was not applied by the whole nursing staff. 72 nurses declared that they didn't use the handles during their work and 49 declared that they did use the handles during everyday work.

- The nursing staff complained for pronounced absence of handles in this institution which was the cause of their scarce use.

- During the inspection made on the medical staff, after the questionnaire distribution, there was concluded that most of the nurses washed their hands only at the end of the therapy.
- The kind of solution that was used by the nursing staff during the hand washing is another topic which was discussed in this study. About 96 nurses declared that they washed their hands with usual solution dhe 25 others washed their hands with antiseptic solution.
- During the evaluation of professional protective tools use, there was concluded that 32 nurses did use these tools very often, 69 used them rarely and 20 nurses didn't use them at all.
- The disuse of the tools came as a result of their absence in this institution and not as a result of the medical staff's negligence.

- During the study of the relation between nursing staff's damage with sharp tools and the spread of the nosocomial infection, there was concluded that a statisticly significant relationship between these two variables existed.

- After the result analyzing, we can conclude that most of the nursing staff of the Regional Hospital Vlore were touched by the nosocomial infections, 27 were not touched and 23 preferred not to comment.

- After the realization of the study there was concluded that 35 nurses were damaged with used hospital instruments, 28 were damaged with unused instruments, 23 preferred not to comment for this question and 35 didn't even hear the question.

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