

<http://dx.doi.org/10.1590/0104-07072017006680015>

WASTE MANAGEMENT OF HEALTHCARE SERVICES FROM THE PERSPECTIVE OF NURSING PROFESSIONALS¹

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¹ Paper taken from the thesis – Strategies of the pediatric nursing team for the appropriate disposal of health service waste in the hospital context, presented to the Graduate Program in Nursing Care Management at *Universidade Federal de Santa Catarina (UFSC)*.

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ABSTRACT

Objective: to identify the knowledge of nursing professionals at pediatric inpatient units about waste management of health services.

Method: this descriptive, exploratory research was developed at two inpatient units of a children's hospital in Southern Brazil. Data collection was carried out between July and August 2014 through questionnaires to 30 nursing team professionals. The data were analyzed in a quantitative and qualitative perspective.

Results: the results show that few professionals at the investigated institution know the Health Service Waste Management Program. The majority performs care related to the waste, but does not participate in training on the subject.

Conclusion: the training of nursing professionals is critical for the effectiveness of the waste management program at the health institution, favoring proper disposal, facilitating the collection and contributing to environmental preservation.

DESCRIPTORS: Waste management. Medical waste. Professional training. Nursing, team. Nursing.

O GERENCIAMENTO DE RESÍDUOS DE SERVIÇO DE SAÚDE SOB A ÓTICA DOS PROFISSIONAIS DE ENFERMAGEM

RESUMO

Objetivo: identificar o conhecimento dos profissionais de enfermagem de unidades de internação pediátrica sobre o gerenciamento de resíduos do serviço de saúde.

Método: pesquisa exploratória, descritiva, desenvolvida em duas unidades de internação de um hospital infantil do Sul do Brasil. A coleta de dados foi realizada entre julho e agosto de 2014, através de questionários aplicados junto a 30 profissionais da equipe de enfermagem. Os dados foram analisados em uma perspectiva quanti-qualitativa.

Resultados: os resultados apontam que poucos profissionais da instituição investigada conhecem o Programa de Gerenciamento de Resíduos de Serviço de Saúde. A maioria realiza cuidados em relação aos resíduos, mas não participam de capacitações sobre o tema.

Conclusão: a capacitação dos profissionais de enfermagem é fundamental para a efetivação do programa de gerenciamento dos resíduos da instituição de saúde, favorecendo o descarte adequado, facilitando a coleta e contribuindo para preservação do meio ambiente.

DESCRIPTORIOS: Gerenciamento de resíduos. Resíduos de serviços de saúde. Capacitação profissional. Equipe de enfermagem. Enfermagem.

LA ADMINISTRACIÓN DE RESIDUOS DE SERVICIO DE SALUD BAJO LA ÓPTICA DE LOS PROFESIONALES DE ENFERMERÍA

RESUMEN

Objetivo: identificar el conocimiento de los profesionales de enfermería de unidades de internamiento pediátrica sobre la administración de residuos de servicios de salud.

Método: investigación exploratoria, descriptiva, desarrollada en dos unidades de internamiento de un hospital infantil del Sur de Brasil. La recolección de datos fue realizada entre julio y agosto de 2014, a través de cuestionarios aplicados junto a 30 profesionales del equipo de enfermería. Los datos fueron analizados bajo una perspectiva cuanti-cualitativa.

Resultados: los resultados apuntan que pocos profesionales de la institución investigada conocen el Programa de Administración de Residuos de Servicios de Salud. La mayoría realiza cuidados en relación a los residuos, más no participan de capacitaciones sobre el tema.

Conclusión: la capacitación de los profesionales de enfermería es fundamental para la efectivación del programa de administración de los residuos de la institución de salud, favoreciendo el descarte adecuado, facilitando la recolección y contribuyendo para la preservación del medio ambiente.

DESCRIPTORES: Gerenciamiento de residuos. Residuos de servicios de salud. Capacitación profesional. Equipo de Enfermería. Enfermería.

INTRODUCTION

Health Service Waste (HSW) is any waste resulting from patient care at home and at public and private institutions. In Brazil, each day, 149,000 tons of domestic and commercial waste are produced, one to three percent of which is HSW. Of this total, only between 10 and 25% needs special treatment.¹ A large amount of waste produced and handled in health care is considered high-risk and, when managed inappropriately, it can affect people's health and cause environmental damage.² In a way, due to the characteristic of its activity, the hospital should be considered as an environment that makes the transmission and dissemination of illnesses possible, entailing potential risks for the different communities that make up the natural habitat on our planet.³

HSW management in hospitals, whether public or private, represents a great challenge. The Brazilian National Health Surveillance Agency (ANVISA) regulates and guides the elaboration of a Health Service Waste Management Program (HSWMP), through Collegiate Board Directive 306/04, in which each institution that produces HSW should elaborate a plan for the management, segregation, conditioning, collection, storage, transportation and final disposal of the waste produced.⁴ A structured and active program avoids illnesses, promotes the diagnosis of problems and permits early intervention.⁵

Lack of knowledge and the non-implementation of the HSWMP at institutions entails further

risk, for the professionals working at the health services as well as for the waste collectors.⁶ Investments in HSWMP should consider the importance of raising the health teams and society's awareness on the responsibility of each stakeholder's role in care for HSW.⁷ The nursing profession is clearly present in the health team and stays with the patient throughout the hospitalization. Therefore, nursing professionals can lead the solution of this problem. At the inpatient units, nursing activities are highly relevant, as the nursing professionals are in charge of the organization, maintenance and coordination of activities for its total functioning, playing a fundamental role in articulating the different health professionals' work.⁸

The nursing professionals' proximity to the patient during care delivery exposes them to different risks, including biological risks. Contact with blood, body fluids, instruments like catheters, syringes, needles, among others, can cause contamination, whether in care delivery and/or in the inappropriate disposal of the materials used in care.⁶

There is a gap in the knowledge production on HSW. Also, little discussion on this theme has taken place in the academic context and in health professionals' daily practice.⁹⁻¹¹ Studies highlight the need to equip these health professionals for the appropriate management of HSW.^{2,9-12}

In that sense, this research was developed to identify the knowledge of nursing professionals at pediatric inpatient services about health service waste management.

METHOD

An exploratory and descriptive research with qualitative and quantitative analysis was developed at two inpatient services of a pediatric hospital that is a referral institution for care delivery to children and adolescents in the South of Brazil. At this institution, the Hospital Infection Commission is in charge of the HSWMP. One of the authors of this research is a member, responsible for the activities related to waste management, which was the main motivator to choose the place of study.

The research participants were 30 nursing professionals. The inclusion criterion was: working at the units where the research was undertaken, excluding professionals on holiday or leave of absence. No time limit was established for the length of experience at the hospital, as the objective was to investigate the knowledge in general, gained in professional education as well as in professional practice. It should be highlighted that, out of the 44 nursing team professionals, only three did not accept to participate in the research. The remaining two were on medical leave or holiday.

The data were collected between July and August 2014, during the afternoon and night. The professionals were not contacted during the morning shift as all of them work on a 12h regimen and the morning period is the most demanding for the nursing professionals in terms of routine care actions. Thus, the intent was to avoid interference in the dynamics of each service. One of the researchers invited the participants to participate in the research at their workplace and during their work shift. Initially, the objective and form of participation were explained and any doubts were clarified. All professionals who accepted to participate signed the Informed Consent Form and were informed that they could drop out of the research at any time.

The data were collected by applying a questionnaire with questions about the characteristics of the nursing professionals, what they consider as HSW and HSWMP, about training on the theme and about the care taken in the management and

disposal of HSW. In addition, the participants were asked to identify the symbols referring to the different types of HSW. While completing the questionnaire, one of the researchers stayed at the unit to give advice and solve doubts.

The data were analyzed from two perspectives: one quantitative, in which the information was categorized according to the variables, calculating absolute and relative frequencies. For the qualitative data, all answers to the questionnaires were fully read. Next, a second reading was undertaken to mark important aspects found in the answers. After the exploration phase of the material, the results produced were summarized to present the most important points that expressed the participants' discourse. Against the background of the literature, the results were subject to critical and reflexive analysis.

Approval for the research project was obtained from the Research Ethics Committee at the research institution, registered under CAAE 31045914.4.0000.5361 and Opinion 682.580 on June 5th 2014. The research complied with the requisites of National Health Council Resolution 466/12 on ethics in research involving human beings. To guarantee the participants' anonymity, they were identified by means of the professional category*, Auxiliary Nurse (AN), Nursing Technician (NT) and Nurse (N), followed by Arabic numerals.

RESULTS

Among the 30 nursing professionals who participated in the study, 27 were women (90%) and three men (10%). As regards the professional category: seven were nurses (23.3%), 21 nursing technicians (70%) and two auxiliary nurses (6.7%). The professionals' age range varied from 20 to 60 years. Concerning the length of experience at the hospital, three professionals worked for at least one year (10%), 16 between one and nine years (53.3%), and 11 for more than ten years at the hospital (36.7%).

With regard to the questions about HSW, the participants' answers indicate: lack of training on the theme and lack of knowledge on HSW and HSWMP (Table 1).

* In Brazil, nursing is divided into three categories: nurse, nursing technicians and nursing auxiliaries, being the highest level is a nurse, followed by technicians and auxiliaries. Translator's note.

Table 1 – Nursing team professionals' knowledge on health service waste. Florianópolis, SC, Brazil, 2014

Question	Answers	n	%
What is health service waste?	Any material used at the health service (common, infectious, contaminated, piercing waste, etc.)	12	40
	Hospital waste	08	26.7
	Waste disposed of by health professionals	04	13.3
	Drugs and needles	01	3.3
	Waste from procedures	01	3.3
	Did not answer	04	13.4
What is the Health Service Waste Management Program according to you?*	Planning of actions and management	10	33.3
	Advice to professionals/training	09	30.0
	Controls waste disposal	07	23.3
	Does not know	05	16.6
	Does not see the program at the institution	01	3.3
Have you received any training on HSW?	Yes	07	23.3
	No	23	76.6

*The participants' answers fit into more than one option, according to the clustering the authors elaborated.

Concerning the concept of HSW, the records revealed that, although four professionals did not answer this question, many are able to appropriately describe the concept.

It is any material used and disposed of at hospital and health services (NT8).

Is the material used in procedures involving the patients (NT12).

Is any and all waste produced in the health environment and that needs to be disposed of in accordance with standards (N2).

Collection of hospital waste, infectious, piercing and cutting material (AN2).

When asked about the NSWMP, disagreements came up, as some professionals know the program and/or its functions, while others present many doubts.

It advises on the steps for the waste to be taken in the right direction and in the correct manner. Conducting this program well leads to less spending in economic terms and to the correct disposal of the waste (NT1).

Program that manages the waste the hospital produces and where this waste goes (NT13).

Program that guides and trains us on the correct way to dispose of infectious and common waste (N4).

I'm not sure (AN1).

All waste (AN2).

I don't know (NT17).

As regards the care the professionals take during the management and disposal of the HSW, the following actions were appointed:

[...] put the contaminated waste [dirty with blood, used syringes, used gauze] into the white garbage. And paper, wrappings, paper towels, plastic bags, into the black garbage (NT20).

I try to dispose of the material in the suitable place for better use when that is the case and the appropriate disposal. Use Individual Protection Equipment correctly and dispose of it when necessary (NT3).

I try to separate the white and the black garbage at the indicated place (AN2).

Dispose of common waste in the black garbage and infected waste in the white one (NT5).

I always try to protect myself and use the correct garbage containers (N2).

As for the training on HSW, it is observed that, independently of the instruction level, more than 75% of the nursing professionals did not participate in any orientation activity on the theme.

Yes, at another company where I used to work, the theme was about better recycling, environment awareness (NT6).






I did not receive any training on waste, only advice from colleagues (NT4).

No. The minimum I received was incipient (N1).

No. Sometimes [...] comes to inform us about the bags that are used (AN2).

When asked about the symbols that identify the HSW groups, some participants still do not know the representative figures. Different types of waste were indicated for the same symbol (Table 2).

Table 2 - Knowledge of nursing team professionals about the symbols of health service waste. Florianópolis, SC, Brazil, 2014

	Symbol	Description	n	%
1		Piercing-cutting	07	20
		Contaminated	01	3.3
		Infectious	19	63.3
		Chemical waste	01	3.3
		Biological residue	02	6.6
		Does not know	03	10
2		Radiation (X-ray)	25	83.3
		Does not know	05	16.6
3		Chemical	12	40
		Toxic	15	50
		Contaminated danger	02	6.6
		Does not know	01	3.3
4		Recyclable	30	100
5		Common	03	10
		Biological	13	43.3
		Infectious	02	6.6
		Waste limb pieces	01	3.3
		Does not know	11	36.6

Legend: 1= piercing-cutting waste; 2= radioactive material; 3= chemical substance; 4= recyclable waste or for reuse; 5= infectious substance.

DISCUSSION

The HSWMP needs to train and recycle the health professionals, particularly the nursing professionals, as they deliver integral care to the patients and handle materials contaminated with biological agents. RDC 306/04 established that continuing education should be offered to advise, motivate, raise the stakeholders' awareness and inform them about the health service waste.^{1,4}

The research participants are mostly female young adults, nursing technicians, with one to nine years of professional experience, who did not receive training on HSW at the institution where they work and where the research was undertaken. If they are knowledgeable and receive constant recycling on the HSWMP, the professionals can act in all phases of HSW processing, promoting care at the workplace and in the environment.¹³ "The elaboration, implementation and development of the HSWMP should involve all hospital sectors, observing the characteristics of each environment and, based on this context, determine the actions related to the program."^{3,92}

It is important to highlight that, when they are asked about the HSW concept, most of the nursing team constructed a concept. Only one of the nurses

who participated did not answer this question. As regards the symbols used to identify the disposal sites of the HSW, opinions greatly differed. The sites the nursing team recognized least were related to piercing-cutting waste and biological material. That does not mean inappropriate disposal though, but calls attention to the lack of knowledge on the symbols recommended in the HSWMP.¹⁴

The concern with this result is related to the internal phase developed at the hospitals, which according to the HSWMP corresponds to the management, segregation and disposal of the HSW. Are these activities performed appropriately? Can it be inferred that there is a great risk of occupational accidents and of an increased volume of materials mistakenly disposed of in the containers of piercing-cutting material.¹⁵ The elaboration of a training and recycling plan on HSWMP and HSW is extremely necessary and urgent.¹¹

The lack of knowledge on the appropriate management of HSW calls attention to the biohazard of occupational accidents and the contamination by infectious agents, such as HIV, Hepatitis B and Hepatitis C, present in the fluids and body fluids like blood.¹⁶ "Occupational accidents involving exposure to biological material is a preoccupying

reality in health institutions. The gaps in the completion of important information reveal the need to train the responsible professionals for the registration and make it difficult to elaborate preventive strategies.^{17,145} On the opposite, despite the lack of knowledge on some aspects of the HSW problem at health institutions, the nursing professionals try to structure a concept of HSWMP in their own manner.

Managing the HSW for disposal is a vital phase in the HSWMP, as it determines the appropriate placement of the waste in the collection container. The inappropriate segregation entails losses for the workplace in terms of the risk of occupational accidents for workers and waste collectors, as well as for the environment, as it increases the need to build landfills and exploit raw materials.¹⁸

The health services are responsible for establishing HSW production and management control programs, making the standards accessible concerning the production, segregation, conditioning, collection, storage, transportation, treatment and final disposal, and also guaranteeing continuing in-service education about the theme, thus guaranteeing the safety and minimizing the dangers of exposure to human health.^{12,14}

CONCLUSION

The study permitted the identification of nursing professionals' knowledge at the pediatric hospitalization services about HSW management. The results outline the health institutions' challenge in terms of continuing education, addressing the HSWMP, occupational safety and the environment.

As the leader of the nursing team, the nurse plays an important role in guiding and overseeing the steps related to the appropriate management of HSW at the health services until their final disposal. Spaces for reflection in daily care can produce changes in the professional reality. This research calls attention to the need to implement educational strategies with a view to minimizing health and environmental problems due to the HSW.

Although the participants demonstrated some knowledge on the concepts and recognize the symbols used to represent the HSW, the simple act of waste disposal in the collection container involves professional qualification, logistics and continuing education, steps that were not visualized in this study.

Further studies are suggested, involving the other professional categories who work at the health services, as all multiprofessional team professionals need training to put the HSWMP in practice,

contributing to appropriate waste disposal in each container, facilitating the collection and contributing to the environmental preservation.

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