REVISTA ONLINE DE PESQUISA

CUIDADO É FUNDAMENTAL

Universidade Federal do Estado do Rio de Janeiro • Escola de Enfermagem Alfredo Pinto

RESEARCH

DOI: 10.9789/2175-5361.2018.v10i3.824-831

Assessment of The Waste Management in Basic Health Units From a South Brazilian City

Avaliação da Gestão dos Resíduos em Unidades Básicas de Saúde de um Município Sul-Brasileiro

Evaluación de la Gestión de Residuos en Unidades Básicas de Salud de Una Ciudad del Sur de Brasil

Matheus Veber Teixeira[1], Maria Elena Echevarría-Guanilo[2], Franco Goulart Knuth[3], Teila Ceolin[2]*

How to quote this article:
Teixeira MV, Echevarría-Guanilo ME, Knuth FG, *et al.* Assessment of The Waste Management in Basic Health Units From a South Brazilian City. Rev Fund Care Online. 2018 Jul./Sep.; 10(3):824-831. DOI: http://dx.doi.org/10.9789/2175-5361.2018.v10i3.824-831

ABSTRACT

Objective: This study has aimed to analyze the waste management from health care services and the nursing professionals background about the current legislation. **Methods:** It is a descriptive-exploratory research with a quantitative approach, which has been developed in three Basic Health Units from *Pelotas* city, *Rio Grande* do Sul, Brazil. The participating nursing professionals were from the Family Health Strategy. It has been applied a structured questionnaire in order to identify the management of Health Solid Waste and the units' structure, from October to November 2014. Descriptive analyzes have been done. **Results:** Regarding the 19 professionals, 57.8% reported not knowing the legislation about waste management; 89.5% reported carrying out the segregation of these materials, but 73.7% said they did not know the classification of these residues and 36.8% were unaware of specific care toward it. The units did not have a waste management formal plan. **Conclusion:** Overall, the units have significant weaknesses in the management process, both in the physical structure as well as in the professionals' knowledge.

Descriptors: Nursing, Health Care Waste, Health Services Evaluation, Health Centers, Waste Management.

[1] Nursing Graduate, Nurse of the Emergency Room at the Hospital de Caridade e Beneficência de Cachoeira do Sul.

[2] Nursing Graduate, Doctor's Degree in Science, Professor of both the Nursing Department and the Nursing Postgraduate Program at the Universidade Federal de Santa Catarina.

[3] Biology Graduate, Master's Degree in Coastal Management, Environmental Manager, Sanitation Technician at the Universidade Federal de Pelotas.

[4] Nursing Graduate, Doctor's Degree in Nursing, Professor of the Nursing Faculty at the Universidade Federal de Pelotas..

RESUMO

Objetivo: Analisar a gestão dos resíduos de serviços de saúde e, o conhecimento dos profissionais de enfermagem acerca da legislação vigente. Método: pesquisa quantitativa, de caráter descritivo-exploratório, desenvolvida em três Unidades Básicas de Saúde de área urbana, de Pelotas, Rio Grande do Sul. Participaram profissionais da equipe de enfermagem de Estratégia de Saúde da Família. Foi aplicado questionário para identificar a gestão de Resíduos Sólidos de Saúde e estrutura das unidades, entre outubro a novembro de 2014. Foram realizadas análises descritivas. Resultados: dos 19 profissionais, 57,8% relataram não conhecer a legislação sobre Resíduos Sólidos de Saúde; 89,5% realizar a segregação desses materiais, porém 73,7% afirmaram não conhecer sua classificação e 36,8% desconheciam os cuidados específicos para cada tipo de resíduo. Observou-se ausência de plano de gestão. Conclusão: as unidades apresentam importantes fragilidades no processo de gerenciamento dos Resíduos Sólidos de Saúde.

Descritores: Enfermagem, Resíduos de Serviços de Saúde, Avaliação de Serviços de Saúde, Centros de Saúde, Gerenciamento de Resíduos.

RESUMEN

Objetivo: Analizar la gerencia de los residuos de salud y el conocimiento de los profesionales de enfermería sobre la legislación vigente. Método: investigación cuantitativa, de carácter descriptivo-exploratorio, desarrollada en tres Unidades Básicas de Salud del área urbana, de Pelotas, Rio Grande del Sur. Participaron profesionales del staff de enfermería de Estrategia de Salud de la Familia. Fue aplicado cuestionario para identificar la gerencia de Residuos Sólidos de Salud y estructura de las unidades, entre octubre y noviembre de 2014. Fueron realizados análisis descriptivos. Resultados: de los 19 profesionales, 57,8% relataron no conocer la legislación sobre Residuos Sólidos de Salud; 89,5% realizar la segregación de los materiales, pero 73,7% afirmaron no conocer su clasificación y 36,8% desconocían los cuidados específicos para cada tipo de residuo. Conclusión: las unidades presentan importante fragilidad en el proceso de gestión de los Residuos Sólidos de Salud.

Descriptores: Enfermería, Residuos Sanitarios, Evaluación de Servicios de Salud, Centros de Salud, Administración de Residuos.

INTRODUCTION

Since the end of the 20th century and the beginning of the 21st century, there have been intensified moments of discussion between the different countries due to the need to address various environmental issues generated by modernity, such as global warming, depletion of non-renewable resources and pollution of water resources. In this range of problems, solid waste is highlighted.[1]

Scientific and technological development has created an important paradox, since it represents the main generators of serious health and environmental problems arising from the manifestation of creativity in postmodern man.[1] Currently, among the greatest environmental problems pointed out is the lack of adequate solid waste management and the negative environmental impact, which reaches the most diverse areas.[2] Health Care Waste (HCW) generators are defined as all services related to human or animal health care, such as analytical laboratories, morgues, funeral homes, legal medicine services and pharmaceutical distributors.[3] Among these establishments, we can highlight hospitals and health units (basic and outpatient care) as the largest producers of HCW.

The erroneous management of HCW can make them the habitat and source of food from multiple vectors, thus a source of transmission of numerous diseases.[4] This is compounded by the concern with the fate of the residues of each municipality, since they may still be spaces close to families that make these waste disposal sites a source of work.

Basic care is characterized by a set of health actions, both individually and collectively. It covers the promotion and protection of health, as well as the prevention of diseases, diagnosis, treatment, rehabilitation and maintenance of health.[5] In this context, basic health care activities are developed through the exercise of management and health practices, through teamwork aimed at the populations of delimited territories, serving a large number of users, and then generating waste, which need to be managed responsibly and consciously.[5]

The knowledge, by the health professionals, of the main norms, laws, decrees and manuals that are in force in the country are instruments that allow to improve the management of waste, facilitating the management of these, thus contributing to the promotion of environmental health, and then avoiding harm to mankind.

Among health professionals involved in solid waste generation, nursing is often more involved in the development of Basic Health Units (BHU) management activities, such as waste management within this environment. Thus, the nursing team (Nurses, Nursing Technicians and Nursing Auxiliaries), in the development of their activities, requires to know and understand the theoretical and practical aspects contemplated in the generation of HCW and thus contribute with informative actions and social and collective awareness regarding the responsibility for environmental preservation.[7]

Authors highlight the relevance of HCW management and its inclusion in the training of health courses, as it is a public health issue, treating health care waste is, above all, a matter of citizenship.[8] Thus health professionals can develop specific skills and abilities that will also contribute with the necessary technical and scientific knowledge in the training of ethical and responsible professionals due to the issues involved in the production and management of HCW.[9]

In the national literature, several studies related to HCW have been evidenced in hospital settings[10-12] and there are few studies directed to other levels of health care, such as Basic Health Units and outpatient clinics, which are also of important contribution in the generation of HCW.[13-14]

Therefore, the present research has the objective of analyzing the health services waste management in three

Basic Health Units from *Pelotas*/RS and the nursing professionals' knowledge about the current legislation.

METHODS

It is a descriptive-exploratory research with a quantitative approach, which has been developed in three Basic Health Units from *Pelotas* city, *Rio Grande do Sul* State, Brazil.

The study includes a non-probabilistic sample, of the convenience type, and the sample units (Basic Health Units - BHU) selected from 28 BHUs of the municipality that have Family Health Strategy (FHS), out of the total of 52 BHUs in the municipality. It should be noted that it was not the researchers' goal to prove a hypothesis, instead it was aimed to know/explore a reality, in a defined space or reality, that contributes to the reflection of situations experienced in other similar health spaces.

Additionally, the units were chosen because they had a larger number of FHS teams. In addition, the choice of three BHUs with FHS was intentional (non-probabilistic, convenience sample), due to the location and number of visits, in orther words, with the probable higher waste generation in health care while assisting the population. This way, the data could approach the reality of the municipality.

The sample comprised nursing professionals (Nurses, Nursing Technicians and Nursing Auxiliaries), who had worked in FHS teams for at least six months, and who were full in participating BHUs, which are part of the urban area of the municipality of *Pelotas*. Professionals that, at the time of data collection, were away from work due to vacations or health needs were not included in the study. A total of 19 nursing professionals were interviewed, divided among the three basic health units with FHS from the urban area of the *Pelotas* city.

Data were collected through the application of a form that included sociodemographic information and related to the management dynamics of the HCW and structure of the BHU, developed by the authors based on the Resolução da Diretoria Colegiada (RDC) [Collegiate Directory Resolution] from the *Agência Nacional de Vigilância Sanitária (ANVISA)* [National Health Surveillance Agency] No. 306 of December 2007 and Law No. 12,305 of August 2010, which establishes the National Solid Waste Policy, the resolution of the *Conselho Nacional do Meio Ambiente (CONAMA)* [National Council for the Environment] No. 358 of 2005[15] and submitted to face and content evaluation by professionals (nursing professors) who are knowledgeable about the subject and methodology. It should be noted that the purpose of the evaluation was in relation to the clarity of the content and its relation with the purpose of the study.

For data collection, the following steps have been taken: 1) Contact with professionals that met the inclusion criteria. Participants were invited to participate in the study and were informed about the objectives and scheduled interview as available professionals; 2) Face-to-face structured interview. The interview was conducted individually, in a private setting. Prior to the beginning of the interview, a joint reading (researcher and participant) of the Consent Form Free and Informed (CFFI) was performed and, afterwards, confirmation of voluntary participation was requested by signing the CFFI and reading aloud and paused of each questionnaire item, which was filled out by the interviewer himself; analysis of the conditions of the basic health units by means of observation and filling of questionnaire contemplating aspects about the structure of the units in relation to the management of HCW.

The choice of the form of application of the questionnaires (face-to-face) was due to the care with the non-induction of response of the interviewees, since the questionnaires of the study present a set of answer alternatives for each question. The option of applying the questionnaire in the form of an interview presents among its main advantages, enabling a higher rate of responses, as well as allowing the interviewer to observe/evaluate possible comprehension difficulties, thus opportunizing the clarification of items that may not be understood by the interviewers. Interviewed.[16]

The data collection was carried out from October to November 2014 and in all stages of the study were followed the recommendations of the Resolution No. 466/2012 from the National Health Council of the Health Ministry and by the Code of Ethics of Nursing Professionals of 2007. The study was approved by the Ethics and Research Committee, under opinion No. 812,026, dated October 19th, 2014.

The data were organized and analyzed in the Statistical Package for the Social Sciences, SPSS® version 18.0 for Windows (IBM Corporation, Armonk, NY, 2011) and performed descriptive analysis of frequency and distribution.

As a strategy for analyzing and interpreting the ados, a comparison was made with that recommended by the RDC from the ANVISA No. 306, of December 2004 and the Law No. 12,305 of August 2010, which includes the National Solid Waste Policy to the CONAMA Resolution No. 358 from 2005.[15,17].

RESULTS

The results presentation was organized in two moments, the first is the data description concerning the answers of the questionnaires applied to the nursing professionals and, in a second moment, the data from the structural and functional evaluation of the Basic Health Units of the interviewed professionals.

Profile, knowledge and actions of nursing professionals

Most of the nursing professionals interviewed (68%) reported having a single employment relationship, being this with the BHU and having an average service time of 7.5 years. More than half (53.6%) of the professionals

DOI: 10.9789/2175-5361.2018.v10i3.824-831

interviewed stated that they had not received any type of training before joining the BHU (Table 1).

Table 1 – Participants' characteristics, *Pelotas*, 2014.

Participants Data (n = 19)	n	%
Age	42.47 anos (SD: 7.61)	
Sex		
Female	17	89.47
Male	02	10.53
Professional identification		
Nurse	10	52.6
Nursing technician	03	15.8
Nursing auxiliary	06	31.6
Time since graduation	13.63 anos (SD: 5.69)	
Working time at the BHU	7.5 anos (SD: 4.09)	
Additional job		
Yes	06	31.6
No	13	68.4
Previous training		
Yes	09	47.4
No	10	52.6

Regarding the packaging of health care waste in the BHU, it is observed that 57.8% of the professionals interviewed reported not knowing the legislation about HCW (Table 2).

Table 2 - Description of the actions related to the health waste packaging from the BHU, *Pelotas*, 2014..

Informations about the health waste (n = 19)	n	%
Know the legislation regarding the HCW management		
Yes	8	42.1
No	11	57.9
Know the waste types generated in the work environment		
Yes	19	100.0
No	-	-
In this unit the HCW is segregated		
Yes	17	89.5
No	2	10.5
Know the HCW classification		
Yes	5	26.3
No	14	73.7
What professionals are involved in the production of HCW?		
Nurse	5	26.3
Physician	3	15.8
Dentist	2	10.5
Nursing technician	6	31.6
Nursing auxiliary	5	26.3
Sanitation staff	2	10.5
All of the above	12	63.2
Which professional is responsible for the packaging of the HCW in the BHU?		
Nurse	2	10.5
Sanitation staff	15	78.9
There is none	2	10.5

All interviewed professionals reported knowing the generated waste, most of them (89.5%) reported segregation of these materials, and 73.7% stated that they did not know the HCW classification. Still, 57.8% did not know the legislation on health care waste and 36.8% of the professionals were unaware of the specific care for each type of waste (Table 3).

Regarding the HCW packaging, 78.9% of respondents placed this responsibility on hygiene service professionals, and a significant number of professionals (36.8%) reported not being aware of their unit's routine HCW collection. Also, when reported the frequency of collection of waste of the unit by the contracted company, there was a divergence of responses.

Table 3 – Professionals' knowledge on the dynamics of the HCW management at the BHU, *Pelotas*, 2014.

Management of the HCW at the BHU (n = 19)	n	%
Frequency that the HCW from the BHU is collected		
Once a week	8	42.1
Twice a week	3	15.8
Four times per week	1	5.3
Unknown	7	36.8
Conduct taken if there is a collection delay		
There is no conduct taken	14	73.7
Notify the Municipal Health Department	4	21.1
Unknown	1	5.3
Where the waste is packaged in the BHU		
Expurgation	3	15.8
There is no specific place	8	42.1
Bathroom	3	15.8
In the unit external area	5	26.3
Professional responsible for delivering the waste at the collection time		
Sanitation staff	12	63.2
There is none	5	26.3
All	1	5.3
Nurse, nuring tech., nursing aux. and sanitation staff	1	5.3
Is there a protocol for waste management in this BHU?		
No	14	73.7
I do not know	5	26.3
Know the specific care for each waste type		
Yes	12	63.2
No	7	36.8

When questioned about the taken conduct, in the case of delayed collection, 73.7% of the professionals verbalized that there was no action to be taken in this situation. Also, 42.1% of the professionals reported that there was no specific place to store the HCW on a temporary basis, and a portion of the interviewees also stated that this storage is carried out in the unit external area (Chart 1).

Chart 1 – Basic Health Units assessment. *Pelotas*, 2014.

BHU / Items assessed	BHU-A		BHU-B		BHU-C	
	Yes	No	Yes	No	Yes	No
Waste data from group A						
The residues are discarded in a milky white bag						
The collection is done manually (direct contact with the professionals)						
Waste data from group B						
Medications are packaged correctly						
Liquid wastes are stored in containers of compatible liquid-tight material, resistant, rigid and watertight, with screw cap and seal						
Storage containers are labeled						
The waste is stored in appropriate place						
Waste data from group D						
The waste is discarded in a plastic bag, properly identified, resistant to rupture and leakage and is replaced when it reaches 2/3 of its capacity						
Waste data from group E						
The waste is discarded in rigid containers, resistant to rupture, puncture and leakage						
Containers are replaced when they reach 2/3 of their total capacity, taking into account unit demand						
The containers are arranged in appropriate carriers						
Containers are properly labeled						
There is reuse of containers						
Internal transportation						
Containers for internal transport are made of rigid, washable, impermeable material, fitted with a hinged lid to the body of the equipment, corners and rounded edges						
Temporary storage at the BHU						
The unit has temporary storage						
The storage room is shared with other utilities						
The room is duly identified						
The room had adequate structural conditions						
The room is restricted to employees						
Temporary storage at the BHU						
The unit has temporary storage						
The storage room is shared with other utilities						
The room is duly identified						
The room had adequate structural conditions						
The room is restricted to employees						
External transportation						
It has an exclusive environment with easy access to transport vehicles						
There is an official responsible for the delivery of the waste						
External transportation has predefined days						
Transportation is done by appropriate vehicle						
General evaluation of the BHU						
The unit has a specific protocol for HCW management						
There is some training for BHU employees about the correct management of the HCW						
The coordinator of the BHU knows the current HCW legislation						
The professionals use IPE* during HCW collection						

*IPE: Individual Protection Equipment.

Regarding the delivery of this waste to the company responsible for the collection, 63% of the interviewees stated that it was the assignment of the sanitation team and 26% of the professionals stated that there was no professional responsible for this delivery.

When asked about the facilities and/or difficulties they encountered for the management of health service waste in the units, the lack of materials for proper management and lack of training regarding the HCW treatment and management were the most reported by the professionals.

Physical structure and general conditions of the BHU in relation to HCW

It was possible to identify the differences between the evaluated units regarding their physical structures and general conditions regarding HCW management.

In relation to the waste, the type E HCW (sharps tools), were stored in a container recommended by the RDC from the ANVISA No. 33/03 (containers, rigid, puncture-proof, ruptured and leak-proof with a lid, duly identified).[3] Though, in all BHU these containers exceed the border capacity, most of the packaging was in an inadequate location near the sink or floor, which increases the chance of damaging and deteriorating the container, increasing environmental and occupational risks (Chart 1).

The BHUs studied had a place for temporary storage, which were shared with other utilities, not restricted to employees and did not have the minimum structure to store HCW until the final disposal.

External transportation was carried out by an outsourced company contracted by the city's municipal government, assuming that the units had a vehicle appropriate for that function and specific days for collection in each health unit. The units had difficulty accessing the collection and the absence of a professional responsible for the delivery.

In a general overview, the health units under study do not present a Health Care Waste Management Plan. Also, there is a lack of training for the health professionals on waste management practices.

DICUSSION

EIn a study developed with the objective of analyzing the daily suffering of nursing workers submitted to an increase in working hours,[18] to the multiemployment and/or to extra work scales, identified a transversal relationship between working time and free time of the nursing professionals, concluding that the time dedicated to work directly affects the personal life of the workers, reporting that the form of work organization and the space it occupies in the daily life of the people, contributes to the deprivation of the same ones of experiencing other life experiences with fullness, once their world revolves around the work event. In this way, it is possible to identify that most of the interviewees in the present study perform their work activities in a single place, that is, there is no addition to the load of other responsibilities from other jobs and with different activities.

In this sense, analyzing for the professionals of the study, it was possible to observe that the fact that most professionals do not have another job could contribute to the reduction of stressors, and theoretically this would leave them with more time of dedication to both their work and their personal lives.

More than half (53.6%) of the professionals interviewed stated that they had not received any type of training before entering primary care. This information draws attention, once it is known that the professional qualification holds its importance in the contribution of the professionals' knowledge regarding the functions and actions developed and in the increase of the quality of the assistance.

The authors point out that the actions and/or activities aimed at the qualification of health professionals are considered strategic for the professional involvement in the actions recommended in the *Sistema Único de Saúde (SUS)* [Health Unified System], as well as in the consolidation of the *SUS*.[19] This indicator leads us to believe that the low number of professionals with training and/or participation in training could lead to poor quality of the service provided.

It is observed that 57.8% of the professionals interviewed reported not knowing the legislation about the HCW, nevertheless, all are producers of waste in their work places. This is confirmed when we analyze that all professionals know the types of waste generated in their work environment, but many are not aware of the legislation. Facts such as this can increase the risks of disposal and improper handling of waste.

A research carried out in 15 health institutions in the municipality of *Jataí-GO*, showed that there was no training of the employees of the analyzed institutions to manage the waste generated, training that is a requirement of the current regulatory standards.[20]

All interviewed professionals reported knowing the waste generated, most of them (89.5%) reported segregation of these materials, but 73.7% stated that they did not know the HCW classification. In addition, 57.8% did not know the health services waste legislation and 36.8% of the professionals did not know the specific care for each type of waste (Table 3). These contradictory data suggest inefficient management of HCW, since professionals may be disposing of waste improperly.

Adequate segregation has as main objective to reduce the volumes of waste that will require special disposal, leading to lower costs with the realization of special processes and, besides, it becomes possible, from the correct segregation, the accumulation of recyclable waste.[21]

Regarding the packaging of HCW, 78.9% of the interviewees placed this responsibility in the professionals of the hygiene service. Most of the sanitation professionals working in the BHU of the municipality under study are hired by outsourced companies and are not offered training activities in relation to the HCW. In this respect, authors refer to the stage of packaging waste as an indispensable part of an HCW management plan.[6] Directly linked to segregation, the correct packaging enables the prevention of contact with living beings and the environment, thus facilitating the destination. Incorrect segregation and packaging can lead to contamination of products that could be recycled and, unnecessarily, the volume of contaminated waste is increased. Still, in the analysis of the main stages of HCW management, which is segregation and packaging, authors point out that, in addition to knowing the correct segregation and packaging, it is imperative that professionals be aware, both professionals and citizens.[8]

None of the BHU had a collection car suitable for transporting health care waste (RDC from the *ANVISA* No. 33/03)[3] and the units did not have a formal plan for the management of health care waste (MPHCW), which concluded in the absence of a flowchart for collection and trained personnel to handle the HCW (Table 1).

The correct distinction of the waste, as well as the correct disposal, provide a coherent packaging, with lower risks to the health of the workers and to the environment; adding to this, the reduction of financial expenses with possible waste discarded in an erroneous way.[6]

In the results of the present study, it is highlighted that the nursing professionals claim to segregate, but they do not know the legislation and the types of residues of health services, which leaves doubts as to the effectiveness of the HCW segregation in these services. Also, in addition to this, they put the hygiene professionals in the task of packaging. As discussed above, these professionals, for the most part, do not have the technical-scientific knowledge to be able, at the time of packaging, to infer whether or not the waste deposited in their respective places is in accordance with what was recommended, and then it has been inputed to them only the collection of those HCW.

When questioned about the taken conduct, in the case of delayed collection, 73.7% of the professionals verbalized that there was no action to be taken in this situation. This is an important and worrying issue, since most units do not have a specific place for temporary storage, and when they do, that space is shared with other utilities. The temporary storage of the waste, until the external collection, must occur in an environment exclusively for this purpose, which must be of size compatible with the amount of waste generated by the unit.[22]

Also, 42.1% of the professionals reported that there was no specific place to store the HCW on a temporary basis, and a portion of the interviewees also stated that this storage is performed in the external area of the unit. To comply with this, the RDC from the *ANVISA* No. 33, February 2003[3], the guidelines on external storage are presented, and this should be done in an exclusive area, in an environment equipped with ventilation, adequate physical area, private to employees and in containers that do not have direct contact of the containers with the floor.

A study[20] carried out in 15 health institutions, 13 public (two hospitals, one polyclinic and ten Basic Family Health Units), one philanthropic hospital and one private

hospital, from *Jataí-GO*, identified that only one incinerated the garbage produced at the end of each day, in the institution itself. Among the institutions that stored the waste, six cited external shelter and eight declared to use internal shelter - two deposits; two purges; two deposits of cleaning materials; a shelter in the dressing room; and one on the unit itself. The internal storage time was on average 37.5 hours, and the external storage time ranged from 1 to 15 days.

Although it is a study developed from a reality of delimited space, the results contribute to the reflection of situations experienced in other similar health spaces, in which also the need of greater preparation of the professionals in relation to the management of HCW and adaptations of physical structure that favor the fulfillment of the preconized by the RDC and law in force

CONCLUSIONS

In a general overview, the units present significant weaknesses in the management and management of HCW, most of them associated with the lack of professional qualification, as well as ignorance of the current legislation that deals with health care waste.

The absence of either an MPHCW or an unsystematic management has been highlighted here. Furthermore, there is no health professionals training programs about waste management, and the coordinator unit is not aware of both the legislation and MPHCW.

Regarding the delivery of waste to the company responsible for the collection, this responsibility is attributed to the sanitation staff. The lack of materials for correct management and lack of training regarding the treatment and management of HCW were the difficulties most reported by professionals, and may reflect on the precariousness of waste management in health facilities.

Regarding the residues, what else or the attention were those of type E (sharps tools), because although they were stored in a container recommended by *ANVISA*, in all units it was observed that these containers exceed the border capacity, most of the packages is in an improper place near the sink or floor, a factor that increases the chance of damaging and deteriorating the container, increasing environmental and occupational hazards.

There is no easy access for this collection to take place, nor the professional responsible for the delivery, which generates some insecurity regarding the collection, transportation and final destination, since it is the responsibility of the production unit to manage all its waste, from production to final destination. Regarding the collection of the HCW by the professionals, it was observed that the periodicity is insufficient, considering the large flow of demand of the units under study, which was noticed through many boxes of sharps being found exceeding its limit in the different units visited.

Although professionals use personal protective equipment during the handling of waste, the lack of knowledge of those who collect it contributes to the increase of potential risks. Finally, the units, because they do not have an MPHCW, do not have a flowchart for collecting waste within the unit, according to CONAMA Resolution No. 283/01, where it advises that the HCW be collected at a time when there is no flow of users, In a single direction and by professional duly equipped with individual protection equipment.

REFERENCES

1. Brasil. Ministério da Saúde. Resíduos sólidos: gerenciamento de resíduos de serviços de saúde: guia do profissional em treinamento: nível 2. Brasília: Ministério das Cidades, 2008. 98p.
2. Dias MS, Penna LFR. Diagnóstico da geração dos resíduos de serviço de saúde e análise do seu plano de gerenciamento no hospital municipal de Governador Valadares – MG. [acesso 28 maio 2014]. Available at: http://www.ifmg.edu.br/site_campi/g/images/arquivos_governador_valadares/TCCMichelleSilveiraDias.pdf.
3. Brasil. Manual de gerenciamento de resíduos de serviços de saúde. Ministério da Saúde, Agência Nacional de Vigilância Sanitária. Brasília: Ministério da Saúde, 2006a. [acesso 20 nov 2016]. Available at: http://www.anvisa.gov.br/servicosaude/manuais/manual_gerenciamento_residuos.pdf.
4. Phillipi Jr. A, Aguiar AO. Resíduos sólidos: características e gerenciamento. In: Phillipi Jr A, organizador. Saneamento saúde e ambiente: fundamentos para um desenvolvimento sustentável. Rio de Janeiro: Manole; 2005.
5. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Política nacional de atenção básica. Brasília: Ministério da Saúde, 2006b. [acesso 2 nov 2016]. Available at: http://bvsms.saude.gov.br/bvs/publicacoes/politica_nacional_atencao_basica_2006.pdf.
6. SANTOS, Maíra Azevedo dos; SOUZA, Anderson de Oliveira. Conhecimento de enfermeiros da Estratégia Saúde da Família sobre resíduos dos serviços de saúde. Rev bras enferm. 2012;65(4):645-52.
7. Seraphim CRUM. Abordagem dos Resíduos de Serviço de Saúde (HCW) na Formação Profissional dos Auxiliares e Técnicos de Enfermagem de Araraquara/SP [dissertação]. Centro Universitário de Araraquara – UNIARA, SP; 2010. [acesso 23 out 2016]. Available at: http://www.uniara.com.br/arquivos/file/cursos/mestrado/desenvolvimento_regional_meio_ambiente/dissertacoes/2010/carla-regina-ulian-manzato-seraphim.pdf.
8. Corrêa LB, Lunardi VL, Conto SM de. O processo de formação em saúde: o saber resíduos sólidos de serviços de saúde em vivências práticas. Rev bras enferm. 2007;60(1):21-5.
9. Gessner R, Piosiadlo LCM, Fonseca RMGS, Larocca LM. O manejo dos resíduos dos serviços de saúde: um problema a ser enfrentado. Cogitare Enferm. 2013;18(1):117-23.
10. Castro RR, Guimarães OS, Lima VML, Lopes CDF, Chaves ES. Management of healthcare waste in a small hospital. Rev RENE. 2014;15(5):860-8.
11. Costa WM, Fonseca MCG. A importância do gerenciamento dos resíduos hospitalares e seus aspectos positivos para o meio ambiente. Hygeia.2009;5(9):12-31.
12. Baroni FCAL, Oliveria JCM, Guimarães GL, Matos SS, Carvalho DV. O trabalhador de enfermagem frente ao gerenciamento de resíduo químico em unidade de quimioterapia antineoplásica. REME rev min enferm. 2013;17(3):554-9.
13. Pereira Milca Severino, Alves Sergiane Bisinoto, Souza Adenicia Custódia Silva e, Tipple Anaclara Ferreira Veiga, Rezende Fabiana Ribeiro de, Rodrigues Érika Goulart. Gerenciamento de resíduos em unidades não hospitalares de urgência e emergência. Rev. Latino-Am. Enfermagem [Internet]. 2013 Feb [cited 2017 Apr 16] ; 21(spe): 259-266. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692013000700032&lng=en. http://dx.doi.org/10.1590/S0104-11692013000700032.

14. OliveiraI LL, Souza PM, Clementino FS, Paiva SC, Rocha FDLJ. Resíduos dos serviços de saúde: desafios e perspectivas na atenção primária. Rev enferm UERJ. 2014;22(1):29-34.

15. Brasil. Resolução da Diretoria Colegiada – RDC nº 306, de 7 de dezembro de 2004. Ministério da Saúde, Agência Nacional de Vigilância Sanitária. Brasília: Ministério da Saúde, 2004. [acesso 23 out 2016]. Available at: http://www.feam.br/images/stories/2015/HCW/rdc%20anvisa%20306%202004.pdf.

16. Polit DB, Cheryl T. Fundamentos de pesquisa em enfermagem: avaliação de evidências para a prática da enfermagem. 7ª ed. Porto Alegre: Artmed; 2011.

17. Brasil. Presidência da República. Casa Civil – Subchefia para Assuntos Jurídicos. Lei Nº 12.305, de 2 de agosto de 2010. Brasil, DF, agosto 2010.

18. Medeiros SM de, Ribeiro LM, Fernandes SMBA, Veras, VSD. Condições de trabalho e enfermagem: a transversalidade do sofrimento no cotidiano. Rev eletrônica enferm. 2006;8(2):233-40.

19. Silva JAM da, Ogata MN, Machado MLT. Capacitação dos trabalhadores de saúde na atenção básica: impactos e perspectivas. Rev eletrônica enferm. 2007;9(2):389-401.

20. Melo CP de, Barbosa LB, Souza MR de, Barcelos IS da C. Estudo descritivo sobre o gerenciamento de resíduos de serviços de saúde no município de Jataí, Goiás, 2010. Epidemiol serv saúde. 2013;22(3):517-24.

21. Almeida VCF, Pinto SL, Nascimento AJR, Feitosa CR, Alencar PRP. Gerenciamento dos Resíduos Sólidos em Unidades de Saúde da Família. Rev RENE. 2009;10(2):103-12.

22. Corrêa EK, Corrêa LB, organizadores. Gestão de Resíduos Sólidos. Pelotas: UFPel; 2012.

Received on: 01/24/2017
Required Reviews: None
Approved on: 02/07/2017
Published on: 07/05/2018

***Corresponding Author:**
Maria Elena Echevarría-Guanilo
BLOCO I (CEPETEC)-Centro de Ciências da Saúde,
4º Andar - Sala 408
Trindade, Florianópolis/SC, Brazil
Zip Code : 88040 900
E-mail Address: elena_meeg@hotmail.com
Telephone number: +55 48 3721 3425