Identification of the difficulties faced by the top management of the public hospital health waste management

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Abstract
This study aims to analyze the administrative aspects of health waste management service in hospitals. The method was case study. The results showed that the difficulties faced by the top management of public hospitals in the management of RSS are mainly the issue of human resources.

Keywords: management, waste, health, environment.

INTRODUCTION

Environmental management in public institutions should be exemplary among the various actors in society, because of the role of these institutions in achieving social welfare. Unfortunately, the environmental issue is often treated as a novelty; it is undervalued and poorly disseminated on a daily basis in public institutions. In addition to their failure to follow legal and regulatory requirements, the organizational culture in these institutions does not address issues such as waste, reuse, recycling and sustainability.

The concept of sustainability not only enters the question of conscious consumption of natural resources, but also the proper disposal of waste, to ensure that this allocation does not interfere with the ability of nature to provide the services and environmental resources necessary for the lasting development of human societies.

According to Cubas (2010), the European Environmental Agency (EEA) says that “waste is an enormous waste of resources, both in the form of material as well in the form of energy.” In this sense, the waste problem has attracted increasing management attention to political-administrative decisions related to the implications of thousands of tonnes of waste produced in the world every day (Guassu, 2007). It is estimated that the world population today of over 6 billion people is generating 30 billion tonnes (metric tons) of waste per year (Estadão, 2011). This affect the lives of every citizen, be it through health, social or economic problems.

Healthcare waste (HCW) is included in this environmental context, and its proper management is important to assure social welfare. This is because HCW can
contain pathogenic organisms as well as toxic, radioactive, perforating and cutting substances (ANVISA, 2006).

Due to its unique characteristics, HCW requires different procedures for handling, treatment and final disposal than does ordinary waste (ANVISA, 2006). Rodrigues (2004) states that while health services can cure diseases, if the waste generated is not responsibly managed, more diseases will be generated.

Moreover, besides the difficulty in structuring the entire chain of waste management in the health sector in Brazil, the lack of awareness of the actors involved and the resulting lax supervision by health service managers also contributes to the problem.

In this scenario, there are the managers of public hospitals, trying to implant efforts to enforce existing regulations and instill in their employees environmental awareness and sustainable thinking. Unfortunately, bad examples of waste management and total lack of environmental awareness on the part of those who should set an example can be found.

Thus, this study aims to answer the following question: Regarding healthcare waste management practices, what role can senior managers play in improving these practices at public hospitals?

The paper is organized into the following sections, from this introduction. The following section focuses on the management administrative aspects of health waste management service in hospitals. Next, we present details of the methodology used and in the following section are presented and discussed the results. Finally, the conclusions are made.

Legal and Environmental Aspects

Resolution 5 of August 5, 1993 from the National Environmental Council (CONAMA) defines the responsibilities of organizations for the management of waste, from generation to final disposal. This resolution determines that health service providers and transport terminals must develop plans for managing solid waste, to be reviewed and approved by environmental and health agencies within their respective spheres of competence and in accordance with current legislation.

Based on this resolution, and following various discussions on the subject, new guidelines have been created, improved and updated, with the more stringent rules on waste management by healthcare establishments.

The National Health Surveillance Agency (ANVISA), another regulator, also assumed the role of guide, defining rules and delimiting conduct of the different generators of healthcare waste, particularly addressing issues such as segregation, handling, packaging, transportation, treatment and final disposal. In 2003, ANVISA published Board Resolution (RDC) 33, containing the technical regulations for waste management by health services, but with different rules for different types of waste generated in healthcare establishment, with a classification system that caused a lot of confusion at the time.

It was only from public meetings and consultations between the competent environmental and health authorities and representatives of society, such as trash collection companies, nongovernmental organizations, environmental groups and citizens in general, that a consensus was reached on regulatory management of wastes from health services, with the issuance of ANVISA (2004) and CONAMA (2005).
It can be said that besides the common classification for the different types of waste generated by health service establishments, the biggest gain from this harmonization of guidelines was improved management of healthcare waste (HCW), because of the requirement for the generator to prepare a Healthcare Waste Management Plan (HCWMP) covering all stages of the planning of the physical resources, material resources and training of human resources involved in the handling of HCW and also considering the development of assessment and control tools, including the formulation of clear, self-explanatory and reliable indicators and goals, to allow monitoring the effectiveness of the HCWMP.

In general, Brazilian laws dealing with waste management are relatively new and face an entrenched culture of lack of environmental awareness and concern for nature.

Classification of HCW

According to the health and environmental laws in force, the classification of wastes from healthcare services is divided into five groups according to their properties, namely:

- **GROUP A**: Waste components with the possible presence of biological agents that, by their characteristics of high virulence or concentration, can present risk of infection. Examples: laboratory instruments, carcasses, anatomical parts, tissues, blood transfusion bags. This group in turn has five divisions according to the degree of risk of transmission of infection.

- **GROUP B**: Waste containing chemicals that can pose a risk to public health or the environment, depending on its characteristics of ignitability, corrosiveness, reactivity and toxicity. Examples are seized illegal drugs, laboratory reagents and waste containing heavy metals, among others.

- **GROUP C**: Any materials resulting from human activities containing radioactivity in excess of the limits specified in the disposal standards of the National Nuclear Energy Commission (CNEN) and for which reuse is improper or not allowed. Examples are materials from radiotherapy and nuclear medicine.

- **GROUP D**: Waste not presenting biological, chemical or radiological health or environmental risks, which can be treated the same as household waste. Examples are food scraps and food preparation waste from hospital administrative areas.

- **GROUP E**: Sharp materials such as razor blades, needles, scalpels, glass bulbs, burs, endodontic files, lancets, capillary tubes, pipettes, slides and cover slips, spatulas, and broken glass utensils.

In general the classification of HCW aims to facilitate the activity of segregation, essential for the management of waste and to maintain the quality of hygiene services. It reduces the amount of infectious waste, reduces risks offered because of incorrect segregation, facilitates the actions in case of accidents and decreases the costs of treatment and disposal. In other words, it facilitates appropriate management of these residues in the context of internal and external health facilities (Almeida, 2003). For each of these wastes there is a proper operating procedure for their handling, packaging, identification, storage, transport, treatment and disposal, according to the degree of danger of each type of waste. Table 1 below presents a summarized ranking each major form of packaging and disposal.

**Administrative Aspects of GHCW**
The administrative aspects of healthcare waste management are formalized through the ANVISA (2004)

“[...] A set of management procedures, planned and implemented from scientific and technical, normative and legal bases, aiming to minimize the production of waste and to provide for the waste generated an efficient and safe route, aiming at protecting workers and preservation of public health, natural resources and the environment.”

This RDC also brings in its Chapter IV - Responsibilities, the need for health services to designate one or more persons to be responsible for coordinating the implementation of HCWMP and to provide initial and ongoing training of the staff involved in waste management.

Within public institutions such involvement is still embryonic, since often the occupants of these positions are there by political indication, without having the technical knowledge necessary for the position or any commitment to public services and resources. Other times, they have training in the area of health (doctors or nurses) and do not have any administrative experience.

It is important to verify the extent to which public bodies are prepared to enforce compliance with the management of healthcare waste, because besides the administrative aspects already mentioned, others are also present, such as inspection contracts, environmental licensing, occupational health and safety programs, prevention of environmental hazards programs, medical oversight, hospital infection control committees and the formulation of indicators for monitoring the process.

Other administrative aspects go beyond the institutional sphere, creating government problem, as for example the designation of places for the proper disposal of HCW. In Brazil, the most recent data, from the National Basic Sanitation Survey (NBSP) conducted in 2008 (IBGE, 2008), shows that 61.1 % of Brazil’s municipalities dump healthcare wastes in the same landfills with ordinary wastes.

It is noteworthy that the authorities in most Brazilian states are not prepared to deal with the issues surrounding healthcare waste, be it simple disposal or adopting reuse, recovery and recycling

According Lopez et al. (2011), the situation of HCW in Brazil is improving, but there is still a great need to implement an efficient supervision policy in the country. Fortunately, there are not only bad examples. Some health institutions, especially in the private sphere, have adopted environmental management principles and practice sustainability initiatives focused on today and on tomorrow.

In this respect, the private Hospital Sírio Libanês stands out as a pioneer in the environmental management process. In the public sphere, those that can be commended for their actions are Hospital das Clínicas of Sao Paulo, Hospital das Clínicas of Porto Alegre, Hospital das Clínicas of Uberlândia and the National Cancer Institute in Rio de Janeiro.

These environmental actions cannot be allowed to shrink to a small sphere. Instead, they need to be strengthened, so that a culture of environmental prevention, conservation of natural resources and quality of life can take root in these institutions.

Some authors have proposed a broader approach to the issue of waste generated in hospitals, highlighting the need to expand the vision of the HCW to the more general context in which it is embedded: the institution (company) and the environment. The proposal of these authors includes the implementation of an Environmental Management System (EMS) within hospitals, seeking, beyond the technical question, to foster change on the part of employees and senior managers.

According to Cova (2010), an EMS is a set of interrelated administrative and operational activities that operate continuously to address current environmental
problems and prevent their emergence. Burg and Silveira (2008), studying the management of HCW in a nephrology service, proposed the establishment of an EMS and stated that the success of this implementation depends on the importance that senior management of the health facility gives to environmental issues, as well as other factors such as environmental and cultural characteristics of each service and place, but mainly the employees, who should be properly motivated and involved in the process.

**METHODOLOGY**

Before conducting the survey, we consulted the relevant literature, consisting of books, newspapers and magazines, as well as laws and regulations. Thus, the theoretical foundation is based on the review of topics such as the importance of environmental issues in the context of public institutions, more specifically the issues of waste generated in public health facilities, the development of legislation, the participation of senior managers in the process of healthcare waste management and the current difficulties in managing HCW, among others.

We tried to group these diverse topics in a logical manner in order to convey an overview of the interrelationships between health facilities, their management and the environment.

Through the literature research, we found little discussion of the administrative aspects of the management of HCW.

There is often a lack of technical or administrative skills by senior managers, either because they are career civil servants with little health expertise or health professionals (doctors or nurses) with little experience in administration. This can lead to mismanagement or failure to give the necessary importance to the issue of waste management. Hence there is a need for better knowledge of the correct handling of HCW among hospital administrators.

The choice of the hospital was for three main reasons. The first refers to the fact that it is just starting the implementation of a healthcare waste management plan (HCWMP), which allowed tracking obstacles arising from the beginning. The second is related to the fact that the hospital is a reference service in the Rio de Janeiro metropolitan region, engaged not only in treatment of patients, but also research. This makes the hospital as a huge generator HCW. The third reason is that one of the authors is a member of the hospital’s waste management committee, which facilitated access to interviewees and brought field experience to the job.

The interviews followed a pre-established script (Appendix A), adapted from Guassu (2007), with open-ended questions applied to members of the senior managers, where we sought to evaluate their understanding, interest and monitoring of issues relating to managing HCW.

Zyger (2005), apud Richardson (1999), states that open-ended questions: “[...] are questions or statements that lead the interviewee to respond with phrases or sentences. The researcher is not interested in anticipating the answers; instead he wants further elaboration of the views of the interviewee.”

The main purpose of the interview is to assess the level of awareness of senior management of the hospital on the aspects inherent to healthcare waste, especially regarding the administrative needs for correct management. Another was to learn the comprehension and commitment of the organization for the preservation and/or conservation and compliance with applicable laws.

The interviews occurred between April and May 2013. The results of the evaluation of the data are presented in Section 4.
RESULTS AND DISCUSSION

This section summarizes the responses and comments of the senior managers who were interviewed. To ensure privacy, they are identified only by position, as shown in table 1. The numbers indicate the order the interviews were conducted.

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Position</th>
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<tr>
<td>1</td>
<td>Head Director</td>
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<tr>
<td>2</td>
<td>Medical Director</td>
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<tr>
<td>3</td>
<td>Nursing Director</td>
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<tr>
<td>4</td>
<td>Nursing Vice-Director</td>
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<tr>
<td>5</td>
<td>Administrative Director</td>
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<tr>
<td>6</td>
<td>Chairperson of the Advisory Council</td>
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Source: Survey

Regarding the knowledge of senior managers about the different wastes generated in the hospital, the interviewees said they knew the different types of waste generated in hospitals. Some interviewees still believed hospital waste only to be of the infecting type, when in reality hospital waste is all waste generated in hospitals, whether or not infectious. Only four respondents cited radioactive waste. Half of the interviewees mentioned chemical residues and none cited sharp/cutting waste materials.

With respect to segregation of different types of waste, all interviewees said that the hospital segregates the different types of waste generated, even without always being able to identify them. These responses reveal a gap between planning and acting. That is, the act of segregating happens with no real understanding of why it is important or why they it is done.

With regard to knowledge of legal responsibilities and implications for the management of healthcare wastes, the senior managers recognized that the relevant responsibilities are not fully known about waste management. Some had heard about RDC 306/04, but were not aware of its full scope. Such lack of knowledge can cause the hospital to suffer legal and administrative penalties, such as loss of funding.

In SHRJ, there is no overall responsibility for waste management, a fact that all interviewees acknowledged. The absence of a specific sector to address issues related to waste management can lead to decentralized information and actions of a few people aimed at specific issues. Respondent 4 cited an industry that is not responsible for the waste management issues but by technical surveillance, pharmacovigilance and hemovigilance.

Regarding the question about the existence of a HCWMP deployed in the hospital, the interviewees' answers showed there it is not yet deployed. Two interviewees stated that the HCWMP is under implementation. For them, there are many difficulties to the implementation of waste management. Respondent 1 stated that the greatest difficulty is the awareness of the different waste generators. Respondent 3 raised the issue of awareness of the managers and respondent 5 the lack of personnel and planning. In reality, all of these issues contribute to the difficulties of implementing the HCWMP.

According to all respondents except respondent 3, the institution makes outlays for the purchase of dumpsters, construction and renovations. However, none of them
were able to tell us more precisely what these investments are. Respondent 3 could not answer the question and said that it should be directed to the administrative director, because he represented a more "operational side" of the hospital.

Some of the respondents recognized the environmental impact as the main problem that can be caused by the lack of a waste management plan. Most, however, showed the typical concern of high authorities who give more priority to the financial than the environmental side. This finding demonstrates that the concern with environmental issues in government agencies is still not widespread.

As administrative measures that can be adopted by management to help implement waste management, the respondents cited as the main measures the need to invest in training and awareness by HCW generators and the need to create a committee that will be responsible for waste matters at the hospital. These measures undoubtedly will contribute greatly to the effectiveness of deploying a HCWMP; however these cannot be the only measures adopted.

Finally, was asked if there is any effort to improve waste management. The majority of respondents were unaware of the existence of some type of improvement project for waste issues. Only two respondents said there was an improvement project within the hospital that addresses issues relating to waste management. This fact indicates a lack of consolidation of information and actions within the administration itself, because if the project exists, it is not known to all senior managers.

**FINAL CONSIDERATIONS**

As stated in the introduction, the general objective of this study was to evaluate the problems of lack of perception of the senior managers of a public institution regarding the administrative aspects related to healthcare waste management. We believe this goal was achieved from the interviews conducted, indicating many deficiencies in the current status and enabling identification of aspects that particularly need improvement.

Besides the technical and operational aspects, such as the classification, minimization, segregation, pretreatment, storage, packaging, collection and internal and external transport of wastes, the hospital administration should also worry about administrative aspects such as the definition of responsibilities, action planning and training.

Regarding the research question, it is clear how important it is for senior managers to realize importance of the issue and take the necessary steps to correct the failings of the current waste management measures.

The interview responses revealed that issues relating to the environment are still not treated as a priority by senior managers. Instead, they are just a minor part of the diverse demands requiring daily decisions of the administration of a hospital.

The issues that permeate healthcare waste management range from administrative planning, availability of budget resources and awareness and involvement of all health professionals. All these aspects, if not comprehensively evaluated and discussed, end up representing obstacles to the implementation of a waste management plan. It is the duty of top managers to pay attention to all these issues in order to delineate the necessary management actions.

In general, among the administrative aspects of greatest relevance to HCW management, the following issues need more attention from the senior managers of the hospital studied:

**Commitment**
The concept of management requires joint action involving responsibilities of individuals, institutions and the government, enabling the targeting of actions to improve the quality of waste management by and environmental preservation by hospitals.

Unfortunately, many of the people within hospitals (health professionals, users, family and staff) do not feel responsible for the waste they generate and ultimately did not participate or do not find it important to participate in its management. The success of programs designed to for appropriate waste management by healthcare facilities is directly related to the participation and knowledge of these people.

Therefore, effective management of waste by public health facilities requires commitment, especially from the senior managers, to comply not only with the legal requirements but also to stimulate environmental awareness and encourage participation among different HCW generators in the process of preservation of the environment.

The involvement of senior managers in the implementation of environmental policies in public institutions should be an obligation and a commitment, so that the social and environmental guidelines established by the government are effectively obeyed.

Planning
It is necessary for senior managers to understand that a few simple measures, such as the planning of the purchase products that are likely to yield waste, should be prepared, described and implemented.

The establishment and critical analysis of purchasing protocols that require minimal conditions of suppliers of products for participation in the bidding process can be used to demonstrate their concern regarding the environmental problems that can be associated with the products to be purchased.

This question is very common and relevant, for example, in the purchase of chemicals for laboratory analysis. Requiring chemical manufacturers to recommend a suitable disposal method, or even to take back the used substances (reverse logistics), is a measure that can facilitate the management of waste in general, and shows the interest of the institution regarding the environmental aspects. Not always is the lowest price the most appropriate environmentally.

Other actions such as planning the purchase of non-disposables, and when this is not possible, using recyclable materials, also can contribute to minimizing any possible environmental impacts and can in some cases save money as well, by reducing the need to pay for expensive disposal and incineration processes.

Responsibility
One point that slows the effective implementation of waste management programs is the lack of a structured team with representatives from all related areas of the hospital, charged with working specifically on waste issues. The structure of this team or sector should be established formally, with clear responsibilities of the team as a whole and each of its members, inserted within the organizational structure of the hospital.

The main functions of the team would be to monitor the segregation of waste by each unit or sector, hold monthly meetings, establish indicators, coordinate and monitor the implementation of HCWMP, establish a partnership with outsourced janitorial company on every floor, and plan and execute training, among others.

The basis for the success of this process is the awareness of environmental issues by all agents involved, mainly senior managers, who play (or should play) a guiding role within any organization. This requires a culture change by public health institutions.
with regard to healthcare waste management. Unless there is involvement of senior managers, it will not be possible to carry out an effective waste management program.

**Training**

Training is essential at all levels, from senior managers to low-level employees. This lack of training among the senior managers of the hospital was revealed by the fact that none of the respondents knew how to classify different types of waste generated in healthcare facilities according to the applicable regulations.

The basis for the effective implementation begins by understanding of different types of waste, since correct classification starts the whole process of waste management. Therefore, the process of training and qualification of all personnel is one of the most important administrative measures to be taken by the senior managers (including their own training).

Schedule training for different generators HCW (doctors, nutritionists, pharmacists, lab technicians, administrative staff, patients, residents, visitors) is not an easy task and should consider ways to ensure effective understanding of the scope. It is necessary to plan the training in a structured way, contemplating physical structure, audiovisual resources, target audience, different times to cover the various teams and multipliers of the HCWMP. All these training efforts need to be mandatory.

**Environmental Perception**

The senior managers of health institutions are involved with the planning and execution of various issues, such as fund raising, interface with public officials, purchase of medicines, equipment and other supplies, paying employees and many other matters. These multiple responsibilities often results in neglect of waste management issues, which are often only remembered when an inspection visit occurs.

Moreover, it can be said that in practice, health facilities, especially public ones, are still not fully compliant with environmental laws and regulations, mostly revealed by deficiencies in planning, documenting and keeping basic statistics for decision making in the management of HCW.

Unfortunately, in public institutions, unlike private institutions, it is not common to think and act with such concern. It is still commonplace to waste material, energy and time.

In the case of public institutions, besides the factors discussed above, other ones that also interfere with the administrative aspects of the HCW are the frequent changes that occur in the political and administrative setting of the government, at least every four years, which ends up generating changes in the top positions (directors) and in other senior managers. In the final analysis, this undermines the implementation of waste management programs.

Considering the whole context presented in this work, it can be concluded that it is critical to address the issue seriously. A greater effort is necessary on the part of senior managers of public hospitals to develop a management structure with defined responsibilities and planned actions consistent with the reality of the public service, so as to achieve the waste management goals.

Finally, more than assessing the understanding and participation of senior managers in the administrative aspects involved in the healthcare waste management, our intention is to sensitize them on the importance of proper HCW management, thus avoiding environmental damage and legal sanctions. We hope that the discussion of this question does not get lost within the set of issues related to environmental preservation in the country.
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