

Brief Report

HOSPITAL GENERATED WASTE: A PLAN FOR ITS PROPER MANAGEMENT

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إن المستشفيات مصادر هامة للنفايات الضارة وكل مستشفى له طابعه الخاص في إنتاج النفايات وأسلوب نقلها و من المهم إدارتها بطريقة سليمة للوقاية من مضارها الصحية و البيئية. يوضح هذا التقرير خطة للإدارة الآمنة للنفايات الطبية تم وضعها من قبل لجنة إدارة النفايات الطبية بمستشفى الملك فهد الجامعي بالخبر. وضمت هذه الخطة عدة مراحل منها جمع البيانات المطلوبة والتعرف على حجم المشكلة ومن ثم تطبيق برنامج لفصل وجمع ونقل النفايات الطبية داخل المستشفى. وتم تقييم العمل بهذه الخطة لتلافي المشاكل التي تواجه التطبيق الأمثل لهذه الخطة. ويمكن الاستفادة من هذه التجربة في المنشآت الطبية المشابهة لما أثبتته من فعالية في التعامل الآمن مع النفايات الطبية وكذا جدواها الاقتصادية.

الكلمات المرجعية: نفايات المستشفى، النفايات الطبية، نفايات الرعاية الصحية، إدارة المستشفيات، الخدمات البيئية

Hospitals are important sites for the generation of hazardous waste. Each hospital has its own profile for the generation and transportation of waste according to its location. It is extremely important to manage hospital generated waste properly in order to avoid health and environmental risks.

This article reports the plan designed and used by the hospital waste management committee in King Fahad Hospital of the University , Alkhobar, Saudi Arabia, for the safe management of hospital generated waste starting from the collection areas to the final disposal procedure. The plan was in four stages: background information, identification of problems, intervention and monitoring. The possible solutions for problems encountered are suggested.

This plan which was efficient and cost effective can be used in other medical establishments.

Key Words: Hospital waste, healthcare waste, medical waste, hospital management, environmental services.

INTRODUCTION

Hospitals are important sites for the generation of waste. Every department in

the hospital generates waste and the overall product is waste of different kinds; healthcare, household and administrative

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waste. Healthcare waste includes infectious, chemical, expired pharmaceutical and radioactive items and sharps. These items can be pathogenic and environmentally adverse. They are referred to in this article as hazardous healthcare waste. Other waste items generated through healthcare but not hazardous include medication boxes, the packaging of medical items and food, remains of food, and waste from offices.

The management of hospital generated waste is not only the responsibility of the hospital administration but also of every department and every healthcare providing personnel in the hospital. It is a process that should begin at the site of generation where medical waste has to be properly collected and segregated from other non-hazardous waste in specific color-coded receptacles. Transportation of hazardous healthcare waste should be well mapped in the hospital and conveyed by special carts. Storage should be carried out in utility rooms specially prepared for this purpose. Various methods, on-site or off-site are available for the final treatment of hazardous healthcare waste.^{1,2} The work force handling this kind of waste should be thoroughly trained.

There are reports of programs directed at the reduction of hazardous healthcare waste and the control of the cost of disposal.³ Evaluating the individual hospital profile of generation and flow of hazardous healthcare waste is a necessary primary step required for initiating effective management of hospital generated waste. This article reports the plan designed and used by the hospital waste management committee in King Fahd Hospital of the University (KFHU), Alkhobar, Saudi Arabia, to upgrade the management of hospital waste. This plan which is efficient, cost-effective and that requires no extra human resources can also be used in other hospitals.

PLAN

The committee was composed of the director of the hospital, associate director of nursing, infection control nurses and the director of housekeeping.

The plan was in four phases: background information, identification of problems, intervention and monitoring.

A. Background information

The following are the requirements: (1) Test of the awareness of the healthcare staff of the hospital generated waste. (2) Review of the items of medical supplies used by the hospital. (3) Determination of the weight of the generated hospital waste. (4) Review of policy and procedure on the handling of healthcare waste and lists of items designated as hazardous healthcare or other types of waste. (5) Assessment of the number, location, condition, proper color coding and content of the means of collection. (6) Mapping and inspection of the storage areas and the route of transportation.

B. Identification of problems

The following are the possible problems envisaged: (1) Change of contracted housekeepers and/or environmental cleaning services. (2) Lack of awareness of healthcare staff. (3) Inaccurate disposal of waste items in the designated receptacles. (4) Failed means of collection, transporting or storage. (5) Injuries resulting from inaccurate disposal of hazardous healthcare waste items such as needles and glassware.

C. Interventions

The following actions are recommended: (1) Launching of educational and orientation campaign. (2) Amendment of the policy and procedure on the handling of healthcare waste. (3) Modification of the means of collection, transportation systems and storage areas in accordance with the setting

and layout of the hospital. (4) Appointment of inspectors to oversee the handling of waste. (5) Establishment of management plans for individual departments with the active participation of the departmental chiefs, head nurses or chief technicians. (6) Establishment of contingency plans to deal with spills of hazardous healthcare waste and the possible failure of the final treatment method.

D. Monitoring

The following measures are suggested: (1) Regular inspection of the means of collection, transportation and storage. (2) Feed-back from the departments. (3) Assessment of the weight of healthcare waste. (4) Re-testing the awareness of the healthcare staff of the generation of waste in hospitals. (5) Auditing the upgraded management.

DISCUSSION

The flow of hazardous healthcare waste should be well controlled from the sources of generation to the final treatment. The plan presented here is an important step for the proper management of hazardous healthcare waste. It provides an appraisal of the profile of generation, collection, transportation and storage of healthcare waste in a hospital.

Having a policy and a set of procedures that regulate the handling of healthcare waste is essential for the implementation of an effective plan of management. The policy and procedure ought to take into consideration the peculiar setting of the hospital. The classification of waste items generated by the individual hospital as hazardous healthcare or other wastes should be very clear and precise.^{4,5} There should be no problems with any staff attitude on the disposal of waste items.^{6,7} Measures to deal with spillage of waste and the failure of the

on-site final treatment method should be dealt with in the policy and procedure.

Healthcare waste is viewed as a defect of the healthcare provision.⁸ With the expansion of the use of disposable medical items, this defect has also expanded.⁹ Healthcare providers should be educated on the generation of waste in the course of providing healthcare and encouraged to utilize medical items rationally. Orientation on the way the hospital handles healthcare waste should be made part of all in-service training and education programs. All hospital staff regardless of status, medical students and cleaners not excepted, should be responsible for the proper handling of healthcare waste.¹⁰ It is vital to motivate the healthcare staff to follow the policy and procedure paying particular attention to the correct disposal of waste items into the proper receptacles. Contracted house keepers and/or environmental services should be well-acquainted with the layout of the hospital and comprehend thoroughly the policy and procedure of that hospital on the management of waste in order to use the proper methods of disposal.

The means of collection, transportation and storage sites should be efficient and meet the necessary standards required by the regulatory body.^{11,12} The location of these areas should take into consideration the peculiar setting of individual departments, the flow of patients in ambulatory services, bed locations and number in wards. Access to these areas should be restricted to healthcare staff only and be off bounds to patients and visitors.

The type and weight of healthcare waste can be determined and planned for in advance by reviewing the inventory of the medical supplies purchased. It is wise to bear in mind the waste potential of these supplies when making an order. Recycling practices are set up by hospitals to reduce healthcare waste, protect the environment

and save money.^{13,14} The weight of healthcare waste is related to the items considered as medical waste. It is also related, in the long run, to the level of the healthcare provided by a hospital and in the short run, to the daily clinical work and bed occupancy. We recommend that an assessment of the weight of hospital wastes be made; hazardous and other kinds of waste with base line figures. The amount of waste per bed or patient can be calculated and the cost of disposal of hazardous healthcare waste estimated.^{3,9}

There should be close monitoring of follow-up measures taken and regular inspections. Central to any plan is the proper maintenance of the physical line of handling hazardous healthcare waste i.e., the means of collection, transportation and storage. The means of collection, i.e., collection receptacles must be particularly scrutinized for the kind of waste items disposed in them. Hazardous healthcare waste disposed of in the wrong receptacles would not be given the proper final treatment required. This is one source of injury to workers particularly from needles and broken glassware.¹⁵ Conversely, non-hazardous healthcare waste items collected with hazardous healthcare waste creates an overload in the transportation and storage as well as an unnecessary disposal by the final treatment method. Increase or decrease in the weight of hazardous healthcare waste, therefore, should be interpreted cautiously in conjunction with the inspection of the means of collection. Violations have to be recorded and brought to the attention of the department chiefs and head nurses. Feedback from the staff on all aspects of the plan should be encouraged. Total quality management should be used to evaluate the performance of the plan at a later time.^{16,17} Finally, the result of the proper monitoring of hazardous healthcare waste would be the handling of a controlled amount of waste

leading to cost-effective and risk-free management.

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