

## HOSPITAL GENERATED WASTE: AN ASSESSMENT OF THE AWARENESS OF HOSPITAL STAFF

**Salih H.M. Aljabre, PhD, Frank Hoffmann, DNT, Basmah S. Almorzog, BSc (Nursing), Lilia Mikiling, BSc (Nursing), Mohammad Alabdulatif, Abdulaziz A. Al-Quorain, MD.**

King Fahd Hospital of the University, Al-Khobar, Saudi Arabia

**خلفية:** ينتج من تقديم الرعاية الصحية نفايات ضارة بالصحة و البيئة وعلى مقدمي الرعاية الصحية إدراك التعامل الصحيح مع النفايات الطبية و نظام إدارتها المتبع بالمستشفى.  
**طريقة الدراسة:** تم دراسة إدراك أطباء وممرضات وفنيين طبيين بما ينتج من نفايات طبية في المستشفى و طريقة التعامل معها و ذلك باستخدام استبيانات مصممة لهذا الغرض.  
**نتائج الدراسة:** أوضحت الدراسة ضعف إدراك تكون النفايات الطبية و تجاهل نظام التعامل معها و قصور في الحضور الى الأنشطة التثقيفية المتعلقة بها.  
**الخلاصة والتوصيات:** هناك ضرورة لوضع خطة لتطوير إدراك العاملين بالرعاية الصحية بالنفايات الطبية و التعامل الصحيح معها.

**الكلمات المرجعية:** نفايات المستشفى, النفايات الطبية, نفايات الرعاية الصحية. إدارة المستشفيات, الخدمات البيئية.

**Background:** The provision of healthcare generates waste which can be detrimental to health and environment. Staff who provide healthcare ought to be aware of the proper handling and the system of management of healthcare waste used by different hospitals.

**Materials and Methods:** A survey of doctors, nurses and allied medical staff for their awareness of the hospital generation and handling of waste was conducted. A self-administered questionnaire was used.

**Results:** Lack of awareness, ignorance of policy and procedure on the handling of healthcare waste and failure to attend educational activities were major defects found among healthcare staff in the study.

**Conclusion:** There is a need for a plan to improve the awareness of healthcare workers about hospital generated waste and its proper handling.

**Key Words:** Hospital waste, Medical waste, Healthcare waste, Hospital management, Environmental services.

### INTRODUCTION

Healthcare waste (HCW) is generated as a result of healthcare processes and other activities in healthcare establishments. This

waste can be categorized into hazardous and non-hazardous waste. Laboratory and isolation materials, sharps, pathological specimens, expired drugs, chemotherapeutic

### Correspondence to:

Dr. Salih H.M. Aljabre, P.O. Box 10011, Dammam, Saudi Arabia

drugs and items used to prepare and administer them, radioactive and chemical elements are hazardous healthcare waste (HHCW). Non-hazardous healthcare waste includes dietary, packaging and boxes of drugs and medical supplies. Hospitals also generate ordinary household waste (HW) from the kitchens, housekeeping and administrative jobs. Hazardous healthcare waste is deleterious to people and the environment, and unlike the non-hazardous healthcare waste, has to be treated in a special way. There are regional guidelines on this subject.<sup>1,2</sup>

Proper management of healthcare waste begins directly at the collection sites where hazardous is segregated from non-hazardous waste into specific color-coded containers and sent to the final treatment site. Each hospital has its pattern of generation and flow of healthcare waste. The awareness of healthcare providers is crucial for its proper management.

The present study surveyed the awareness of hospital personnel on hospital generated waste. To the best of our knowledge, this survey is the first of its kind in this area.

#### **METHODS**

The survey was undertaken by the hospital waste management committee in King Fahd Hospital of the University (KFHU), Al-Khobar, Saudi Arabia in 1998. The committee was composed of the director of the hospital, associate director of nursing, infection control nurses and the director of housekeeping. The survey was part of a plan in 1998 to upgrade the management of hospital generated waste. In addition to patients' care, KFHU is the teaching center for medical and nursing students and the training center for internship and various medical specialty programmes.

A pre-tested self-administered questionnaire was designed to obtain the following

information; (1) Education or orientation received on the handling of healthcare waste in the past, (2) attendance at educational activity on the handling of healthcare waste while in the present position, (3) attendance at practical orientation at the KFHU practice of handling healthcare waste, (4) awareness of the existence of the KFHU policy and procedure (P&P) regulating the handling of the healthcare waste, (5) reading the P & P regulating the handling of healthcare waste in KFHU, (6) knowledge of the final method of treatment of hazardous healthcare waste in KFHU, (7) knowledge of three examples of hazardous healthcare waste, (8) knowledge of three examples of household waste, (9) knowledge of three risks of improper handling of hazardous healthcare waste.

The responses to the first five elements were by yes or no and to elements 6 to 9 by statements. The survey questionnaire was distributed randomly in the various clinical departments to 100 doctors, 250 nurses and 100 allied medical staff.

#### **RESULTS**

Of the 450 questionnaires distributed, 331 were completed giving an overall response rate of 73.6%. The response rate for doctors was 45%, nurses 84% and allied medical staff 77%. The table shows the negative responses i.e. responding with no to elements 1 to 5 and failing to answer elements 6 to 9 of the questionnaire. The deficit between the positive responses to elements 4 and 5, awareness of, and reading the P & P, was 31 (8%) giving an awareness: reading ratio of 1.2:1.

#### **DISCUSSION**

Hospitals are principal sites for the generation of healthcare waste. In the United States, for example, 441 community, teaching and private hospitals with a bed

**Table:** Negative responses of the hospital staff surveyed

Survey element	Doctors (%) N=45	Nurses (%) N=210	AMS* (%) N=77
Past orientation or education exposure	42 (93)	32 (15)	13 (17)
Recent orientation or education	38 (84)	57 (27)	22 (29)
Orientation to KFHU practice of handling HCW	38 (84)	17 (8)	14 (18)
Awareness of KFHU P & P of HCW	30 (67)	22 (11)	8 (10)
Reading the KFHU P & P of HCW	39 (87)	34 (16)	15 (19)
Final method of treatment of HHCW in KFHU	25 (56)	24 (11)	12 (16)
Examples of HHCW	4 (9)	9 (4)	6 (7)
Examples of HW	16 (36)	12 (27)	5 (6)
Risks of improper handling of HHCW	16 (36)	20 (10)	12 (16)

\*Allied medical staff

range of less than 100 to more than 500 generated a median of 6.93 Kg of hospital waste per patient per day, of which infectious waste made 15% of the total.<sup>3</sup>

The awareness of healthcare providers on the generation of hazardous waste in the course of providing healthcare is fundamental for the planning of its effective management. Currently, there are projects for the reduction and cost effective management of hazardous healthcare wastes<sup>4-7</sup> but studies on the awareness of healthcare personnel of the generation of waste during healthcare processes are few. Kishore et al<sup>8</sup> surveyed dentists for their awareness of management of biomedical waste and infection control and found that the majority of them were unaware of the proper management of hospital waste and had no knowledge of infection control measures. We surveyed healthcare personnel on four aspects: education and orientation on the handling of healthcare waste, awareness of P & P regulating its handling in KFHU, and awareness of health risks and the dangers of improper handling of household waste. Statistical analysis has not been done on the findings because it was felt that the default of one worker was one too many for the safe management of hospital generated waste. Despite routine briefings and orientation activities in the hospital, the study showed that there were

inadequacies. These were, broadly, the lack of awareness of not only of the healthcare generated waste, but also of policy and procedure on the handling of waste and failure to read them. The most important underlying factor was the ignorance of educational briefings and orientation. It was obvious that personnel were ignorant of P & P. A significant number of those who had seen P & P on the handling of healthcare waste had not read it. It is hoped that these results would help in designing education and orientation programmes on the safe handling of healthcare waste. The setting, structure, training and employment profile of the individual hospital should be taken into account when the policies and procedures are being devised. A policy and procedure regulating healthcare waste is mandatory and it is important to encourage staff to read and apply the rules. Healthcare personnel should realize that hazardous material is a potential cause of a public disaster<sup>9</sup> and that minimising the negative effects of healthcare is an objective that should be sought not only by the healthcare managers but also by the providing personnel.<sup>10,11</sup>

The results of our survey are unique to the hospital studied since there are no studies for comparison. We recommend that health-care facilities conduct similar studies on the management of health-care waste. The

current survey was beneficial, in the sense that it raised the awareness of hospital staff on the management of hospital generated waste. The questionnaire itself provided a means of drawing the attention of the hospital staff to the issue. It is also felt that the management of hospital generated waste should be included in the educational and orientation packages for new employees and candidates enrolling in the various training programmes. Staff should also be encouraged to attend the educational programmes.

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