Evaluation Of Medical Waste Management In Two Hospital Of Karbala Governorate 2024

by Seror Kadhim Hamza

Submission date: 24-Jul-2024 08:40AM (UTC+0700)
Submission ID: 2421563242
File name: Obat_vol_2_no_4_juli_2024_hal_298-302.pdf (1.13M)
Word count: 1727
Character count: 9859

OBAT: Jurnal Riset Ilmu Farmasi dan Kesehatan
Vol. 2 No. 4 Juli 2024
e-ISSN: 3031-0148, p-ISSN: 3031-013X, Hal 298-302
DOI: https://doi.org/10.61132/obat.v2i3.586
Available Online at: https://journal.arikesi.or.id/index.php/OBAT

Evaluation Of Medical Waste Management In Two Hospital Of Karbala Governorate 2024

Seror Kadhim Hamza[1],Ali Daher Habeeb[2],Dunia Fawaz Mohammed[3]
[1-3]Holy Karbala Health Department Karbala,Iraq

Email: Dropdew29@yahoo.com[1], Alidaher1981.aa@gmail.com[2], duniafawaz50@gmail.com[3]*

Abstract.*Background: Medical waste (MW) includes various materials such as used needles and syringes, medications, body parts, diagnostic samples, blood, radioactive materials, synthetic compounds, medical gadgets, and surgical masks. Healthcare waste is a subset of overall waste generation. Hospital waste may be harmful or non-hazardous. Hazardous waste presents physical, chemical, and microbiological risks to both the general public and healthcare workers involved in its processing, treatment, and disposal. The pandemic has accelerated the development of solid medical waste, leading to rising concerns about its handling. This highlighted the challenges of medical waste management, such as separation, storage, and transportation. Materials and Methods: descriptive cross-sectional study conducted to assess the management of medical waste in two of Holy Karbala Governorate hospitals (Imam Hassan Al-Mujtaba Teaching Hospital, Imam Hussein Medical City), Data were collected by hospital field visits and direct interviews with medical waste management workers, officials, and health care providers using questionnaire. Results: It was documented that the two hospital trained there staff infrequently an as need and had sufficient but sometime not appropriate personal protective equipment. Both of hospital are segregate medical waste and had incinerator which used to burn medical waste.*

Keywords*: Medical waste management, Segregation, Collection, Transportation and treatment.*

1. INTRODUCTION

Globally, the medical field has seen major developments. Medical waste first got notice in 1980 when its infectious nature drew it to the attention of people all over the world (Harhay et al., 2009). Medical waste in the field of healthcare refers to waste generated by laboratories, research centers, and healthcare facilities. Apart from waste produced from "secondary" or "scattered" sources, such as those resulting from home health care (insulin injections, dialysis, etc.) (Chartier, 2014).

Health care waste is defined as abandoned materials or equipment contaminated with blood and blood products or other body fluids or secretions from patients with serious infectious diseases" (Khaled & Ali, 2023). Medical waste can be defined as solid, liquid, or gaseous waste produced by a variety of healthcare facilities, labs, medical research facilities, factories, and warehouses that produce both human and veterinary medicine, veterinary clinics, and home nursing facilities, It is estimated that around 80% of the total waste produced by healthcare activity is general (non-hazardous) waste, and just approximately 20% is hazardous waste (Aziz et al., 2022).

The formation of a health care system is an essential requirement for all societies. As a result, the challenges associated with medical waste management have drawn major attention

Received Juni 12, 2024; Received Juni 26, 2024; Accepted Juli 22, 2024; Publish Juli 24, 2024
* Seror Kadhim Hamza, Dropdew29@yahoo.com

from throughout the world, and several studies and research projects have been conducted in this area (Babanyara et al., 2014).

Iraq has issued many laws to safeguard and preserve the environment from pollution and protect the health of people, In addition to the guidelines and directions given by the Ministry of Health and Environment regarding the management of hazardous waste, the National Infection Control Manual, provided guidelines for Iraqi health facilities on how to handle and manage medical waste from the time it was created until its disposal (Khaled & Ali, 2023). The research was done to gather information on isolation, collection, carrying, storage, and ultimate disposal and evaluate the present condition of the medical waste management method in two general hospitals in Karbala Governorate, Iraq.

Developing countries generate a smaller amount of waste than developed countries, but then they face serious problems with the health of human and environmental pollution because they do not have controlled waste collection and disposal systems (Krivokuća, 2021). It was confirmed by (Singh et al., 2022) who described a study made in 24 low-income countries in which just 58 % of the facilities had adequate disposal of healthcare waste. In fact, open dumping of contaminated sharps with infectious diseases and respiratory difficulties has been reported in many countries with economies in transition (Mazzei & Specchia, 2023).

2. MATERIALS AND METHODS

2.1 Description of the Study:

The type of the current study was a descriptive cross-sectional study done to assess the management of medical waste in two of Holy Karbala Governorate hospitals (Imam Hassan Al-Mujtaba Teaching Hospital, Imam Hussein Medical City), which is located about 105 kilometers southwest of Baghdad, the capital of Iraq., estimated the area of the governorate is about 52,856 km2 , and its population in 2022about Materials and methods 33 1,350,577 people.

2.2 Sampling and Data Collection:

The researcher conducted the current study from January to April 2024 and modified an initial questionnaire from other research to gather data and information grounded on earlier studies (Khaled & Ali, 2023), the Iraqi National Infection Control Manual,and the instructions of the Iraqi Ministry of Health (Health, 2009) (Khalaf, 2009) Cronbach's alpha scale was used to analyze the forms' of questionnaire reliability, and a score of 78.9 was obtained, which is regarded as satisfactory. The questionnaires were submitted to a group of arbitrators who provided advice and guidance while also modifying the questionnaire items.

Data were gathered via hospital field visits and direct interviews with medical waste management leadership, staff, and healthcare professionals. The questionnaire focuses on hospital policy and is divided into four sections: containers and waste segregation, trash collection and transportation, medical waste storage, and training and occupational safety.

2.3 Statistical data analysis

The current study's data were analyzed using SPSS version 23. The samples for the investigation were obtained using Stephen Thomson's equation. Cronbach's alpha scale was used to evaluate the studies' reliability. The answer in the questionnaire samples was evaluated using a three-point Likert scale.

Table 1 shows that the training in the hospitals are infrequently and as need and all worker were vaccinate with Hepatitis B virus.

Table 1: Medical waste management in hospitals includes training, personal safety equipment, vaccinations, and routine examinations for health personnel

Hospital	Training	Personal protective equipment	Vaccination	Routine examination
Imam Hassan Al-Mujtaba Teaching Hospital	Infrequently and as needed	sufficient and sometimes not appropriate	Hepatitis B virus (HBV)	None
Imam Hussein Medical City	Infrequently and as needed	sufficient and sometimes not appropriate	Hepatitis B virus (HBV)	None

3. RESULTS

Table 2 shows that the color base segregation of waste and there are no place for storage because there is an incinerator in the hospital

Table 2: Segregation, collection, transportation and storage of medical waste in hospitals

Hospital	Segregation	Collection	Transportation	Storage
Imam Hassan Al-Mujtaba Teaching Hospital	1- For common medical waste, use black bags 2- Yellow bags are used for infectious, pathological medical , and pharmacological waste 3- Red bags for very high infectious medical waste 4- Solid boxes for sharp medical waste	Four times a day, or extra as needed	By trolleys	There is no place for storage because there is an incinerator in the hospital
Imam Hussein Medical City	1- For common medical waste, use black bags 2- Yellow bags are used for infectious, pathological medical , and pharmacological waste 3- Red bags for very high infectious medical waste 4- Solid boxes for sharp medical waste	Four times a day, or extra as needed	By trolleys	There is no place for storage because there is an incinerator in the hospital

Table 3 shows the distribution of waste treatment process by type

Table 3: Treatment and disposal of medical waste in hospitals

Hospital	General waste	Infectious waste	Pathological waste	Pharmaceutical , Chemical and Radiological waste	Liquid waste
Imam Hassan Al-Mujtaba Teaching Hospital	To landfill	▪ To incinerators ▪ By autoclaved	By burial	To incinerators	To the wastewater treatment system, then finally to the sewage
Imam Hussein Medical City	To landfill	▪ To incinerators ▪ By autoclaved	By burial	To incinerators	To the wastewater treatment system, then finally to the sewage

4. DISCUSSION

In the research organizations, medical waste is segregated using color-coded bags. Due to a restricted budget for medical waste, the bags used were of low quality and easily ripped.

4.1 Training, personal safety equipment, vaccination and routine checkup of health workers in the organization of medical waste in hospitals

Management in hospitals. There were inadequate medical waste containers at garbage-producing facilities, as they were not labeled with medical waste symbols. There are recommendations for properly segregating medical waste near manufacturing locations. Some hospitals may not properly segregate medical waste.

The two hospitals have enough personal protective equipment, however it may not be appropriate for the medical waste management staff's task. Medical waste management service staff at the surveyed institutions often use non-appropriate clothing, such as gloves and shoes.

According to the National Guide to Infection Control in Iraq for the year 2009, all employees must obtain the hepatitis B vaccine, as both hospitals give the vaccine to employees, but there are no regular examinations for them.

4.2 Segregation, collection, moving and storage of medical waste in hospitals

Medical waste bags are not classed based on their contents. Medical waste collection bags are folded manually rather than using tape to bind them. Regular monitoring and attentive supervision .The health institution's regular and continual checks to facilities helped control medical waste and ensure compliance.

The two hospitals have an incinerator room but no storage room, and when garbage is available, it is redirected continually rather than placed up, leading to the best possible outcome in terms of pollution removal without spreading.

In this study, nearly all of health worker were trained in Medical Waste Management and know the importance of waste segregation but not all of them do it.

4.3 Treatment and disposal of medical waste in hospitals

Hospitals in Karbala use incinerators to treat and dispose of medical waste, both hospitals burn waste continuously without storing it. As for liquid medical waste, it is treated and disposed of in sewage.

5. REFERENCE

Aziz, H. A., Omar, F. M., Halim, H. A., & Hung, Y.-T. (2022). Health-care waste management. In Solid waste engineering and management: Volume 3 (pp. 163–229). Springer.

Babanyara, Y. Y., Ibrahim, D. B., Garba, T., Bogoro, A. G., & Abubakar, M. Y. (2014). Poor medical waste management (MWM) practices and its risks to human health and the environment: A literature review. SSRN.

Chartier, Y. (2014). Safe management of wastes from health-care activities. World Health Organization.

Harhay, M. O., Halpern, S. D., Harhay, J. S., & Olliaro, P. L. (2009). Health care waste management: A neglected and growing public health problem worldwide. Tropical Medicine & International Health, 14(11), 1414–1417.

Health, I. M. of. (2009). National guide to infection control in health institutions.

Khalaf, A.-S. A. (2009). Assessment of medical waste management in Jenin district hospitals.

Khaled, S. J., & Ali, W. A.-A. (2023). Evaluation of medical waste management in three hospitals in Basrah Governorate, Iraq. University of Thi-Qar Journal of Science, 10(1 (SI)).

Krivokuća, M. (2021). Medical waste management. Serbian Journal of Engineering Management, 6(1), 30–36.

Mazzei, H. G., & Specchia, S. (2023). Latest insights on technologies for the treatment of solid medical waste: A review. Journal of Environmental Chemical Engineering, 11(2), 109309.

Singh, N., Ogunseitan, O. A., & Tang, Y. (2022). Medical waste: Current challenges and future opportunities for sustainable management. Critical Reviews in Environmental Science and Technology, 52(11), 2000–2022.

Evaluation Of Medical Waste Management In Two Hospital Of Karbala Governorate 2024

ORIGINALITY REPORT

5%	5%	0%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	iiste.org Internet Source	1%
2	www.texilajournal.com Internet Source	1%
3	garuda.kemdikbud.go.id Internet Source	1%
4	www.bahrainmedicalbulletin.com Internet Source	1%
5	ijbea.com Internet Source	1%
6	fada.birzeit.edu Internet Source	1%
7	www.jsci.utq.edu.iq Internet Source	1%
8	www.resource-recycling.com Internet Source	1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	On		