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Assessment of the management of medical waste during the Coronavirus epidemic was occurring in Al-Diwaniyah Hospital

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***Abstract*—Medical waste is a global issue because of its detrimental effects on societal safety and the environment.**

Due to its contagious and harmful nature, which can have negative consequences on people and the environment, medical waste treatment is crucial.

Objective: assessment of the medical waste management during the Coronavirus epidemic was occurring in Al-Diwaniyah Hospitals.

Methodology: A cross-sectional survey was used to carry out the investigation. To randomly select cases, a self-administered Arabic language questionnaire was used. The analysis uses SPSS Version 21.

Results: General trash has been accounted for the majority of the waste produced in hospitals, with hazardous medical waste accounting for the second-highest percentage (63%) of waste handlers. In Al-Diwaniyah General Hospital, management levels were subpar, and medical waste management (MW) awareness among the entire medical teams was lacking.. the administrative employees, health professionals, and the cleaning staff did not have the necessary level of understanding concerning medical waste. The report suggests that integrated medical waste management should be clarified, suitable roles should be established, regulatory and legislative departments need to be supported, and increasing the training programs in the that medical institusion

Keywords—Medical waste management, Training, monitoring, Waste disposal, Coronavirus

I. INTRODUCTION

Due to the importance of occupational safety, the interest has been growing in recent years. Entrepreneurial departments pursued international business and organizations, particularly the International Labor Organization, concerned with this issue and how to achieve and improve occupational safety as well as providing special requirements for workers (Samsudin 2020).

The majority of the tasks carried out by healthcare professionals are related to patient care. While performing their jobs, they may be exposed to a variety of occupational risks, including those that are ergonomic, biological, chemical, and physical risks.(Abarca 2021). The majority of hospital visitors have contagious diseases, which means that, their waste could be dangerous for employees and other medical professionals(Singh et al., 2014). Medical waste management (MWM) may not be able to completely eliminate the risk, but it can assist in minimizing the detrimental effects on the environment and public health. As a result, MWM is viewed as a significant issue globally (Barua and Hossain 2021). Clinical waste destruction and disposal are critical measures in lowering the risk of disease or injury from interaction with potentially dangerous subjects (Blenkharn 2006). In many cities in developing countries, waste management is a significant challenge(Aziz et al., 2011). The novel coronavirus SARS-CoV-2, which was initially submitted to the Chinese WHO office on December 31st, 2019, as an uncommon pneumonia case from Wuhan, was identified as COVID-19 on 11th of February, 2020. Due to the widespread use of hand sanitizer, gloves, and face masks as a precaution against the easy spread of the coronavirus, there is a lot of medical waste in the environment. Concerns regarding handling waste produced by ill patients, carers, and medical labs are mounting as Covid-19 becomes more active and expands over time. By May 2020, it had spread to 188 different nations(Alrawi, Amin, and Al-Ani 2021)

II. MATERIALS AND METHODS

Study Location:

Al-Qadisiyah Governorate, one of Iraq's 18 governorates, was the site of this experimental research. There were four areas (Al-Diwaniyah, Al-Hamza, Al-Shamiya, and Afaq). The population of Al-Qadisiyah has reached 911 thousand in 2013(Kadhim Ibadi and Hamedon 2015), and the survey

for this study was only conducted in Al-Diwaniyah General Hospital.

Study design

A cross-sectional study design was used. The case is determined by conducting interviews through a multi-questioned questionnaire with those who handle medical waste, including management staff, health workers and cleaners at Al-Diwaniyah General Hospital.

Inclusion and Exclusion criteria

Inclusion criteria

All hospital employees who worked in Al-Diwaniyah General Hospital have dealt directly or indirectly with medical waste.

Exclusion criteria

Employees who wouldn't conduct an interview with them and those who don't deal with medical waste.

Collection of data

Data were collected after obtaining oral informed consent from each participant to assess medical waste management at Al-Diwaniyah General Hospital. Data was collected by using a questionnaire.

Data Analysis:

The statistical program SPSS, version 21, was used to examine the data. Frequencies, percentages, means, and standard deviations are descriptive statistics.

Ethical

Each participant received a study form from the researcher with an explanation in Arabic for each questionnaire. Participants also received information that outlining the aims and purpose of the study, the voluntary nature of participation, and a guarantee that their statements and opinions would be treated confidentially. All information is kept private and securely archived

III. RESULTS

The figures shows that females represent (57.7%) of the medical workers in, and this study is consistent with a previous study in one of the governorates of Iraq for the same subject, and the number of women was more than 62.2%)(Hasan, Abdul-wahid, and Al-musawi 2021). For cleaners, the situation was the opposite; males (88.5%) were the majority because women do not want this profession for social and customary reasons. As administrators, females were more than males in this hospital. Waste officials are women because they are specialists in community of medicine and family medicine, they work in the environment's health and are not charged in any other field than waste management. In addition, there is a highly significant difference between groups (0.001).

Figure 1 shows that most of the health workers dealing with general medical wastes (86.8%) followed by (63.1%) of the total number who deal with infectious medical wastes, which is a considerable percentage, then (64.6%) of them deal with sharps medical wastes, A previous study was conducted in Nigeria in 2016, where the results in different hospitals, general waste was about 69.5% as a higher percentage, then infectious waste came in order(Awodele, Adewoye, and Oparah 2016).

In addition, (34.5%) of them were exposed to pathological medical wastes; however, (2.7%) were exposed to radioactive wastes. Almost all cleaning workers are exposed to a group of medical wastes such as (general, infectious, sharps, pathological, pharmaceutical) and others. For the administrators, the situation is the same thing for cleaning workers. This study also found a significant difference between the types of medical wastes that the sample of this hospital was exposed to (F=8.673, df= 2 and p-value = 0.002).

Table1 shows that, most health workers have bad knowledge (51.9%), and for cleaning, workers (38.5%) of them have good knowledge about the management of medical wastes, but the situation for the administrators was different. It is also found that there is a significant difference (F= 34.21, df= 2 and p-value = 0.001) between groups according to the management of medical wastes.

On the other hand, this table shows that (59.3%) of health workers have bad attitudes toward managing medical waste. A prior study backed up the researcher's findings, which included medical waste knowledge. In all groupings, management was lacking, especially among biological waste treatment facilities of class IV. Biomedical waste management guidelines, which control proper disposal of biomedical waste, were unfamiliar to 90% of clinicians. This was due to a lack of training and a lack of vigilance in the implementation of biomedical waste management(Kulkarni, 2013).

Table 2 shows that females (57.7%) in health workers were more than males, and this study is consistent with a previous study in one of the governorates of Iraq for the same subject, and the number of women was 62.2% more than (Hasan, Abdul-wahid, and Al-musawi 2021). For cleaners, the situation was the opposite; males (88.5%) were the majority because women do not want this profession for social and customary reasons; for administrators, females were more than males in this hospital. Waste officials are women because they are specialists in community medicine. And family medicine and they work in the health of the environment and are not charged in any other field than waste management. In addition, there is a highly significant difference between groups (0.001).

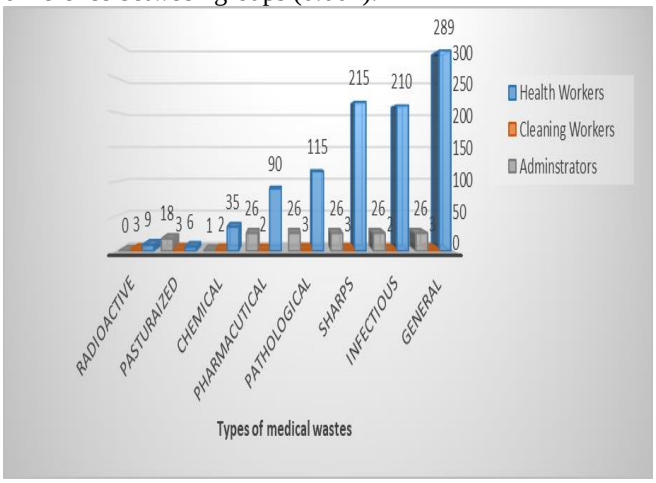

Figure 1 Distribution of medical wastes for three groups (Health Workers, Cleaning workers and Administrators

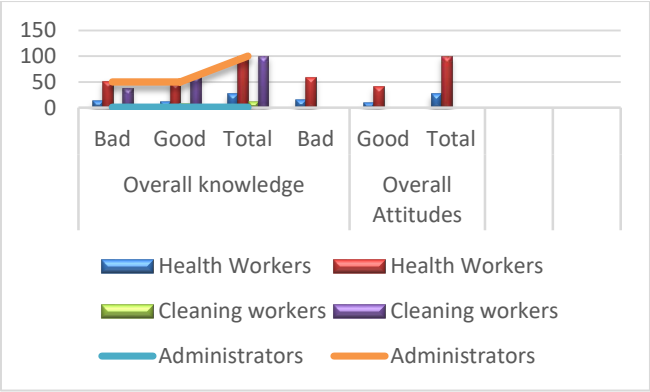

figure 2 Distribution of respondents from three groups (Health Workers, Cleaning workers and Administrators) according to the overall knowledge about the management of medical wastes and overall

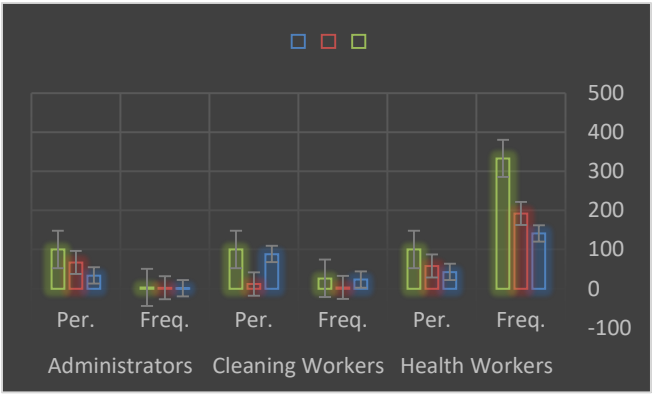

Figure 2 Distribution of respondents from three groups (Health Workers, Cleaning workers and Administrators) according to gender

IV. Conclusion and Recommendation

The most significant results, were the lack of adequate practice for the correct management of medical waste in Al-Diwaniyah Governorate, was achieved through the study area and based on the statistical analyses utilized. Most hospital employees were unaware of the waste concerns, and management did not adhere to established standards; the unit's (training and development) function is inadequate. According to the international standards and conditions required in the three hospitals, there isn't an outside incinerator or biological waste storage station, so medical facilities must properly sort and manage solid medical waste in accordance with guidelines provided by the relevant authority, methods, foundations for control and supervision of all waste operations, and a follow-up mechanism.

V. Acknowledgement

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