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Research Article

**THE IMPORTANCE OF DISPOSING OF MEDICAL WASTE IN  
MEDICAL LABORATORIES**

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**Abstract:**

*The aim of the study is the importance of disposing of medical waste in medical laboratories, knowing the type of medical waste disposed of in medical laboratories, the type of containers used for medical waste in medical laboratories, and how to dispose of medical waste in medical laboratories. The questionnaire was created electronically via the Google Drive program, and then it was distributed via mobile phone on the social networking program (WhatsApp). Using e-mail for all participants to respond to the questionnaire. 800 questionnaires were distributed to all mobile groups, and 700 questionnaires were received on the researcher's e-mail.*

**Keywords:** Importance, disposing of medical waste, medical laboratories.

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**INTRODUCTION:**

Medical waste is waste that is potentially contagious or biodegradable <sup>(1)</sup>. Medical waste may contain waste produced from a medical facility or laboratory and waste created from examination centers and laboratories that consist of biomolecules or organic organisms that are not allowed to be emitted into media. As shown below, severe materials are looking for medical waste that must be disposed of, whether they are polluted or not, due to the possibility of them being contaminated with blood and causing injury when damaged incorrectly and incorrectly. Medical waste is a kind of biological waste. Medical waste is generally qualified as any solid/liquid waste that is generated in the course of diagnosis, curing, or immunization of human beings, or animals, in research pertaining to, or in the production or testing of biological materials <sup>(2)</sup>, including but not limited to blood-soaked bandages;-culture dishes and other glass wares; careless surgical gloves after surgery;-discarded surgical instruments scalpels, needles used to give shots or draw blood-cultures, stocks, and swabs used to fertilize cultures; taken away body organs tonsils, appendices, limbs, etc – <sup>(3)</sup>. Though not all medical waste is dangerous some waste from healthcare or medical facilities is a high risk, critical, and can impact human health as well as contaminate the environment. In a working environment where poor healthcare waste management practices are observed, the presentation to infectious wastes by healthcare workers, patients, and clients could, in turn, differentiate infections due to blood-borne pathogens <sup>(4) (5)(6) (7)</sup>.

Medical waste may be rigid or fluid. Examples of infectious medical waste include polluted blood, sharps, unwanted microorganisms, discarded body parts, other human and animal tissues, used bandages and gloves, and other medical tools that may have been exposed to direct contact. Blood or body fluids. Laboratory waste that displays one of the above-mentioned characteristics, and sharps waste, includes contaminated needles, scalpels, scalpels, whether used or unused that were discarded, and other tools capable of penetrating the skin. Disposing of this waste is an environmental issue, as many medical wastes fall under the classification of hazardous or infectious, which may lead to many infectious illnesses. A 1990 US Agency for Toxic Substances and Disease Registry report concluded that the general public was unlikely to be adversely influenced by medical waste bearded in traditional health care. It was found, however, that medical waste from this field may lead to injuries and exposure to risks for doctors, nurses, and all workers in healthcare institutions through contact with medical waste resulting from professional activity. Moreover,

there is an opportunity for the general public to be exposed to the dangers of this waste, such as exposure to illicitly used needles outside healthcare institutions or in-home healthcare situations <sup>(8)</sup>. Medical waste should be collected in leak-proof containers that are strong enough to prevent breakage during handling. The biological hazard symbol is printed on the containers, and red containers are often used. Sharp tools are disposed of by collecting them in special containers, often called needle boxes. The medical waste management process requires special equipment to meet safety standards <sup>(9)</sup> and <sup>(10)</sup>. Recommended tools that must be available as a minimum include a fume hood and primary and secondary containers to block overloading from leaking. Even under the fume hood, there are containers containing chemical contaminants that must be kept closed when not in use. The lid of some containers is usually kept open. This permits the chemicals to evaporate into the surrounding atmosphere, which is then inhaled by laboratory workers. To keep the health and safety of workers as well as civilians in the neighborhood of this work environment, waste, and equipment must be managed in an appropriate manner, such as the use of Perkel caps in Europe, and must be used in any department that handles chemical waste.

**2-MATERIAL AND METHODS:**

The study started in (the holy city of Mecca in Saudi Arabia), began writing the research and then recording the questionnaire in March 2023, and the study ended with data collection in August 2023. The researcher used the descriptive analytical approach that uses a quantitative or qualitative description of the social phenomenon (The importance of disposing of medical waste in medical laboratories). This kind of study is characterized by analysis, reason, objectivity, and reality, as it is concerned with individuals and societies, as it studies the variables and their effects on the health of the individual, society, and consumer, the spread of diseases and their relationship to demographic variables such as age, gender, nationality, and marital status. Status, occupation <sup>(11)</sup>, And use the Excel 2010 Office suite histogram to arrange the results using: Frequency tables Percentages <sup>(12)</sup>. A questionnaire is a remarkable and helpful tool for collecting a huge amount of data, however, researchers were not able to personally interview participants on the online survey, due to social distancing regulations at the time to prevent infection between participants and researchers and vice versa (not coronavirus participation completely disappearing from society). He only answered the questionnaire electronically, because the questionnaire consisted of ten questions, all of which were closed.

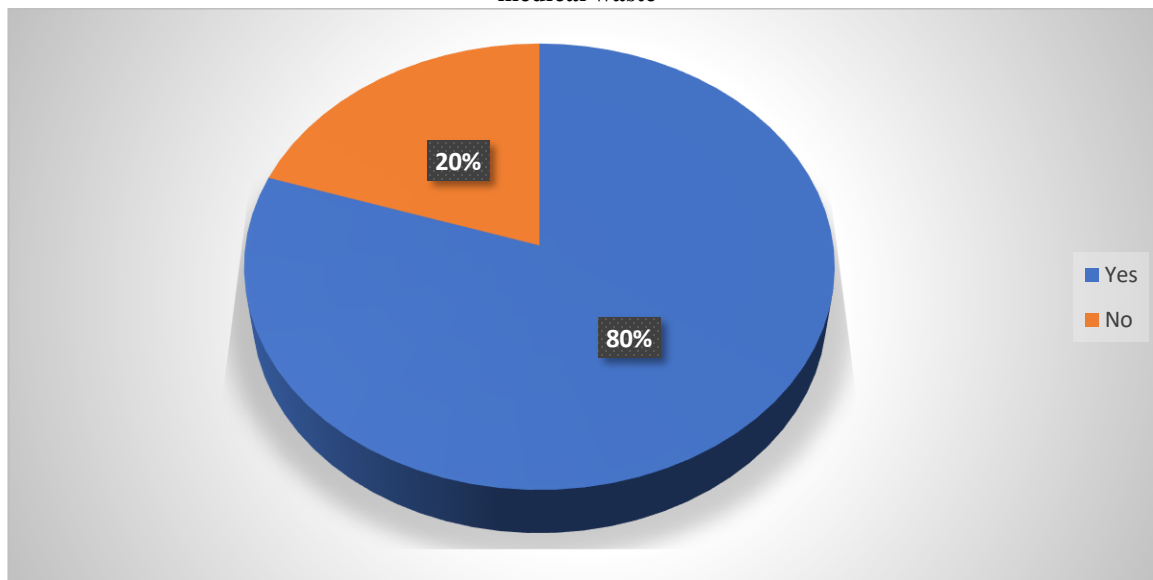
The online approach has also been used to gather valid specimens in similar studies in Saudi Arabia and elsewhere<sup>(13)</sup>

### 3- RESULTS:

The percentage of consenting participants in the research was 100%, and their age from 25-34 years was 31.3%, and from 35-44 years their percentage was 37.8%, and from 45-54 years old their percentage was 24.9%, and from 55-60 years their percentage was 60%, and the percentage of males was 70%. 1%, the percentage of females was 29.9%, the nationality of the participants was 88.4% Saudis, and 11.6% were non-Saudis. From a professional standpoint, the percentage of technicians was 81.1%, and administrators were 18.9%. In terms of education, the percentage of those holding an intermediate certificate was 1%, those holding a high school diploma were 5%, a diploma was 18.9%, 55.2% were university graduates, 13.4% were master's degree holders, and 6.5% were doctoral degree holders. When moving to the questionnaire questions, they were as follows: The first question is: Do you have a written and documented guide on how to dispose of medical waste for medical laboratories? The answer was as follows:

Yes, 64.2%, and No, 35.8%. As for the second question, it was: Do you know how to dispose of medical waste from medical laboratories? Yes 80.1%, and no 19.9%. The third question: Have you undergone training courses on how to dispose of medical waste for medical laboratories? Yes, 52.2%, and No, 47.8%. The fourth question: Do you know the meaning of medical waste for medical laboratories? Yes, 92%, and no, 8%. As for the fifth question: Do you know the types of medical waste from medical laboratories? The answers were: yes, 81.9%, and no, 18.1%. The sixth question: Do you know the types of medical waste containers for medical laboratories? Yes, 85%, and no, 15%. The seventh question: Do you define how to deal with medical waste spilled on the floor of the medical laboratory? Yes, 81%, no 19%. The eighth question: Is there a relationship between medical waste and the application of quality standards in medical laboratories? The answers were yes 92.5%, and no 7.5%. The ninth question: Is there a medical waste room close to the medical laboratory? Yes, 81.4%, and no 18.6%. The tenth question: Are there data or records of the destruction of medical waste in the medical laboratory? The answer was yes 79.9%, and no 20.1%. (Figure No.1)

**Figure NO.1: Opinions and trends of health practitioners and practices on how to dispose of laboratory medical waste**



**4-DISCUSSION:**

We conclude from this study that, I conclude from this study that, Health practitioners have complete knowledge of what medical waste is and its types, and the types of medical containers in which medical waste is placed, and that they have a written guide on how to dispose of it, as there is a complete and absolute guide to how to dispose of it.

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