

The Importance Of Sterilization Tools Used In Health Facilities

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Abstract

The study aims to know the importance of sterilization for health centers, the extent of its efficiency in terms of modern equipment, and the importance of knowing the scientific and educational capabilities of the people in charge of the sterilization process in health facilities and those entrusted with the sterilization process, whether nurses or other groups. A questionnaire was conducted via the Google Drive program, where the questionnaire was distributed to residents of the city of Mecca, 650 people (men and women) employees of health facilities, to know their opinions and the extent of their satisfaction with sterilization in their centers, where responses were obtained from 620 people in all health centers in the city of Mecca. It was found through this current study that 80% of private employees received training courses in sterilization, while the remaining 20% did not. Regarding their satisfaction with sterilization in health facilities, 40% stated that they were satisfied, while 60% said that they were dissatisfied with the performance of sterilization in health facilities.

Keywords: *The importance, sterilization tools, used in health facilities*

Introduction

Sterilization is the global extermination of germs and the elimination of their parts, and the process of throwing or killing life appearance of microorganisms; these contain bacteria and viruses on the face of human skin or flats of surgical tools with antiseptic medicines or

liquids (or by radiation in the case of surgical instruments). The World Health Organization has determined it as “a code referring to the process of removing or killing all shapes of life and other organic matter, such as prions and viruses, which are not living creatures but

biological pathogens; containing infectious workers such as bacteria, fungi, viruses, prions, spores, and single-celled eukaryotes. Such as Plasmodium (Plasmodium) discovered in a set site, such as liquids, or in complexes such as biological media (6)(7). Most medical and surgical tools used in healthcare facilities are made of materials that are heat steady and therefore undergo heat, primarily steam, sterilization. However, since 1950, there has been a rise in medical systems and agents made of substances (e.g., plastics) that require low-temperature sterilization. Ethylene oxide gas has been used since the 1950s for heat- and wet-sensible medical tools. Within the past 15 years, a number of new, low-temperature sterilization systems (e.g., hydrogen peroxide gas plasma, peracetic acid immersion, ozone) have been improved and are being used to sterilize medical equipment. Sterilization technologies are used in healthcare and make reference for their optimum showing in the processing of medical instruments (8, 9, 10-11). A medical system that has to connect with disinfected body tissues or fluids is seen as a critical section. These items should be disinfected when used because any microbial communicated could outcome in

illness transmission. Such items include surgical tools, biopsy forceps, and implanted medical instruments. If these articles are heat reluctant, the advice sterilization process is steam sterilization, because it has the largest edge of solidity due to its fineness, uniformity, and lethality. However, reprocessing heat- and moisture-sensitive subjects requests the use of low-temperature sterilization ethylene oxide, hydrogen peroxide gas plasma, and peracetic acid (12).

Of all the paths ready for sterilization, moist heat in the shape of saturated steam under pressure is the most widely used and the most credible. Steam sterilization is nontoxic, inexpensive (13), rapidly microbicidal, and sporicidal and rapidly heats and penetrates fabrics (14). Like all sterilization processes, steam sterilization has some deleterious effects on some materials, including erosion, there are other types of sterilization like Immediate-Use Steam Sterilization "Flash" steam sterilization", ethylene Oxide "Gas" Sterilization, hydrogen peroxide gas plasma, vaporized Hydrogen Peroxide, Table No.1.

Table 1. Summary of advantages and disadvantages of commonly used sterilization technologies (4).

Sterilization Method	Advantages	Disadvantages
Steam	<ul style="list-style-type: none"> Nontoxic to a patient, staff, environment ·Cycle easy to control and monitor Rapidly microbicidal ·Least affected by organic/inorganic 	<ul style="list-style-type: none"> Deleterious for heat-sensitive instruments ·Microsurgical instruments damaged by repeated exposure
Hydrogen Peroxide Gas Plasma	<ul style="list-style-type: none"> Safe for the environment ·Leaves no toxic residuals ·Cycle time is 28-75 minutes (Varies with model type) and no aeration necessary ·Used for heat- and moisture-sensitive items in process temperature <50oC· Simple operate, install (208 V) 	<ul style="list-style-type: none"> Cellulose (paper), linens and liquids cannot be processed ·Sterilization chamber size from 1.8-9.4 ft³ total volume (varies with model type) ·Some endoscopes or medical devices with long or narrow lumens cannot be processed at this time in the United States
100% Ethylene Oxide (ETO) ETO Mixtures 8.6% ETO/91.4% HCFC 10% ETO/90% HCFC	<ul style="list-style-type: none"> Penetrates packaging materials, device lumens ·Single-dose cartridge and negative- pressure chamber minimizes the potential for gas leak and ETO exposure ·Simple to operate and monitor ·Compatible with most medical 	<ul style="list-style-type: none"> Requires aeration time to remove ETO residue ·Sterilization chamber size from 4.0-7.9 ft³ total volume (varies with model type) ·ETO is toxic, a carcinogen, and flammable

	Penetrates medical packaging and many plastics · Compatible with most medical materials · Cycle easy to control and moni	· ETO emission regulated by Some states (e.g., CA, NY, MI) require ETO emission reduction of 90-99.9% · CFC (inert gas that eliminates
Peracetic Acid	Rapid cycle time (30-45 minutes) Low temperature (50-55oC liquid immersion sterilization · Environmental friendly products · Sterilant flows through endoscope which facilitates salt, protein and microbe removal	point of use system, no sterile storage · Biological indicator may not be suitable for routine monitoring · Used for immersible instruments only · Some material incompatibility

Material and Methods:

This study was started in (the city of Mecca in the kingdom of Saudi Arabia), began writing the research and then writing the questionnaire in January 2022, and the study ended with data collection in June 2022. The researcher used the descriptive analytical path that uses a quantitative or qualitative description of the social phenomenon, (the importance of sterilization tools used in health facilities). This kind of study is described by analysis, reason, objectivity, and reality, as it is interested in persons and communities, as it studies the chargeable and their marks on the health of the individual, society, and consumer, the publishing of illness and their relations to demographic variables such as age, gender, nationality, and marital status. Status, occupation (1), and use of the Office Group 2010 histogram for Excel to rank the results by dragging them on the statistical software (2).

Results and Discussion:

A questionnaire is a serious and helpful tool for collecting a huge amount of data, however, researchers were disabled 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 question electronically, because the questionnaire

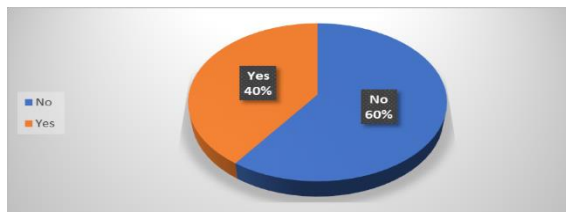
consisted of eleventh questions, all of which were closed. The online way has also been used to beard valid samples in similar studies in Saudi Arabia and elsewhere (3). With regard to the first question, it was about Do you have knowledge of sterilization, its tools, and methods? 100% of them answered yes. As for the second question, did you receive training courses on sterilization? 80% answered yes and 20% answered no. Regarding the third question, did you receive training courses on sterilization? And the answer was that 80% were yes, and 20% were no. The fifth question was about to do you have certificates in the field of sterilization from institutes, colleges, or centers specialized in this field. 80% answered yes and 20% answered no. The sixth question is: Are you satisfied with the level of sterilization in your workplace? 40% answered yes and 60% answered no. The seventh question was about whether sterilization is an essential part of your work. 100% of them answered yes, The eighth question was about to do you have a sterilization device in the place where you work in the center. 60% answered yes and 40% answered no. The ninth question was about Do you have knowledge of how the sterilizer works properly? 40% of the participants answered yes, while 60% answered no. The tenth question was: Are you the person in charge of the sterilization device, or are there others in the center? 100% of the participants answered “no.” As for the last question, “Do you have innovative or new information about the sterilization process recently?” 20% answered, “yes,” while 80% answered “no.” (Table No.2)(figure No.1)

Table No.2: Opinions, attitudes and impressions of the participants about sterilization in health centers

Questions	Yes	No
Do you know about sterilization and methods?	100%	0%
Did you receive training courses on sterilization?	80%	20%
Did you receive training courses on sterilization?	80%	20%
Do you have certificates in the field of sterilization from institutes, colleges, centers specialized in this field	80%	20%
Are you satisfied with the level of sterilization in your workplace?	40%	60%
whether sterilization is an essential part of your work?	100%	0%
Do you have knowledge of how the sterilizer works properly?	60%	40%
Are you the person in charge of the sterilization device, or are there others in center?	100%	0%
Do you have innovative or new information about the sterilization process recently?	20%	80%

Considering the importance of sterilization and the interest in Their practices, she announced, through many sites, such as the Saudi Commission's website on her Twitter page for health specialties, in cooperation with the Health Academy of the Saudi Commission for Health Specialties, announcing the opening of the admission and registration portal for the medical sterilization program. To apply via the link:(15)

Figure.no.1: Opinions and trends of participants regarding their satisfaction with sterilization in health centers (health facilities).



Conclusion:

The state, may God protect it, represented by the Ministry of Health, is interested in the issue of sterilization in health facilities and gives it a great and even important priority, because the sterilization process is important in combating microbes and viruses, especially the Corona virus, because sterilization completely eliminates all epidemics (microbes and viruses), and it represents a major task and even a supreme mechanism in preserving On the lives of citizens and residents alike. It is responsible for preparing and qualifying citizens working in

the health system and qualifying them properly and soundly in this field. Through the opinions of those complaining in the questionnaire, it was found that 80% had received training courses in sterilization and 20% had not. As for the extent of their satisfaction with sterilization in health centers (health facilities), it was found that 40% were satisfied and 60% were dissatisfied with sterilization in health centers.

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