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Hassan Y Faggeha
 Senior Nursing Specialist at Maternity
 and Children Hospital, Mecca, Saudi
 Arabia

Mohammed Y Fageha
 Nurse in Urgent Care Center, Mecca,
 Saudi Arabia

Emad K Alrobei
 Nursing Technician, Blood Draw,
 Department, King Abdulaziz Hospital,
 Mecca, Saudi Arabia

Hamda A Alshamrani
 Occupational Health Clinic at King
 Abdulaziz Hospital in Mecca, Saudi
 Arabia

Rabee O Algothami
 Optometrist at the Eye and Optometry
 Unit at King Abdulaziz Hospital, Mecca,
 Saudi Arabia

Nahiyah R Alotaibi
 Midwife at Sharaea, Primary Health
 Center 7, Mecca, Saudi Arabia

Mohammed E Alshabani
 Nurse Technician at Sharaea, Primary
 Health Center 2, Mecca, Saudi Arabia

Abdullwahab S Alzahrani
 Epidemiologist at Sharaea, Primary
 Health Center 7, Mecca, Saudi Arabia

Faisal A Althagafi
 Nurse Technician in the emergency at Al-
 Noor Hospital, Mecca Saudi Arabia

Mohsen M Alqurashi
 Nurse Technician at Infection Control
 Mecca, Saudi Arabia

Abdullah K Alotaibi
 Operation and Sterilization Technician at
 Preventive Medicine in Mecca Health
 Cluster, Saudi Arabia

Samar O Bresali
 Nursing Technician at Al-Noor Hospital,
 Mecca, Saudi Arabia

Adel A Felemban
 Nurse Technician at Health Affairs
 Control, Department in Mecca, Saudi
 Arabia

Mansour Ahmed Said Alzahrani
 Nursing Specialist, Al-Makhwah
 Hospital, Al-Baha, Saudi Arabia

Abdullah Hasan Alzahrani
 Nursing Technician, Al-Sharia Primay
 Health Center. 7, Mecca, Saudi Arabia

Corresponding Author:
Hassan Y Faggeha
 Senior Nursing Specialist at Maternity
 and Children's in Mecca, Saudi Arabia
 Hospital in Mecca, Saudi Arabia

The role of sterilization in health centers and its impact on the nature of work

Hassan Y Faggeha, Mohammed Y Fageha, Emad K Alrobei, Hamda A Alshamrani, Rabee O Algothami, Nahiyah R Alotaibi, Mohammed E Alshabani, Abdullwahab S Alzahrani, Faisal A Althagafi, Mohsen M Alqurashi, Abdullah K Alotaibi, Samar O Bresali, Adel A Felemban, Mansour A Alzahrani and Abdullah H Alzahrani

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Abstract

The aim of the study is to determine the value of sterilization for health centers, and its efficiency in terms of modern equipment, and people who have been brought up or have taken training courses in the field of sterilization, and therefore they are entrusted with the sterilization process, whether from the nursing or other categories. The questionnaire was distributed to 650 people (men and women) to know their opinions and the extent of their satisfaction with sterilization in their center, and the responses of 600 people were obtained in all health centers in Mecca region.

Keywords: Sterilization, role, health canters, nature of work

1. 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 communication 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	Nontoxic to a patient, staff, Environment Cycle easy to control and Monitor Rapidly microbicidal Least affected by by organic/inorganic	Deleterious for heat-sensitive instruments Microsurgical instruments damaged by repeated exposure
Hydrogen Peroxide Gas Plasma	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 moisturesensitive items since process temperature <50 °C. Simple to operate, install (208 V	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	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 Penetrates medical packaging and many plastics Compatible with most medical materials Cycle easy to control and monitor	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 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 (50-55 °C liquid immersion sterilization Environmental friendly by 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

2. 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 July 2022, and the study ended with data collection in December 2022. The researcher used the descriptive analytical path that uses a quantitative or qualitative description of the social phenomenon, and (The role of sterilization in health centers and its impact on the nature of work). 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].

3. 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)

Table 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, or 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 the 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].

4. Conclusion

The state, may God preserve 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 fighting microbes and viruses, especially the Coronavirus because sterilization completely eliminates all epidemics and represents a major task and even a supreme mechanism in preserving The lives of citizens and residents alike. It is responsible for preparing and qualifying citizens who work in the health system and qualifying them properly and properly in this field.

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6. References

1. Alserahy, Hassan Awad, *et al.* The thinking and scientific research, Scientific Publishing Center, King Abdul-Aziz University in Jeddah, the first edition; c2008.
2. Al Zoghbi Muhammad, Al-Talvah Abas. Statistical system understanding and analysis of statistical data, first edition, Jordon- Amman; c2000.
3. Kadasah NA, Chirwa GC, *et al.* Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. *Front. Public Health.* 2020;8:217.
4. Alahdal Ali, Mohammed Sharaf. “knowledge of the dental healthcare workers regarding the maintenance of sterilization integrity of autoclaved dental instruments” A Thesis Submitted in Partial Fulfillment of the Requirement for the Master Degree of Biomedical Sciences – Infection Control Track- College of Medicine -Alfaisal University; c2019. (Accessed on 30/12/2022AD)
5. Rutala. William A, Weber David J. *Disinfection, Sterilization, and Control of Hospital Waste.* Elsevier publication; c2020 Jan. (Accessed on 30/12/2022AD)
6. Who Glossary, Archived copy, May 11, 2009 AD, on the Wayback Machine website. (Accessed on 30/12/2022AD)
7. UCLA Dept. Epidemiology: Definitions Archived December 20, 2017, at the Wayback Machine (Accessed on 30/12/2022AD)
8. Garner JS, Favero MS. CDC Guideline for handwashing and hospital environmental control, 1985. *Infect .*(Accessed on 30/12/2022AD)
9. Rutala WA. Disinfection, sterilization, and waste disposal. In: Wenzel RP, ed. *Prevention and control of nosocomial infections.* Baltimore: Williams and Wilkins; c1997. p. 539-93(Accessed on 30/12/2022AD).
10. Association for the Advancement of Medical Instrumentation. *Good hospital practice: Steam sterilization and sterility assurance.* AAMI. Arlington, VA, 1993 Accessed 30/12/2022.
11. Association for peri-Operative Registered Nurses. *Recommended practice for sterilization in the perioperative practice setting.* *AORN J.* 2006;83:700-22. (Accessed on 30/12/2022AD)
12. Rutala WA, Weber DJ. Clinical effectiveness of low-temperature sterilization technologies. *Infect Control Hosp Epidemiol.* 1998;19:798-804. (Accessed on 30/12/2022AD)
13. Adler S, Scherrer M, Daschner FD. Costs of low-temperature plasma sterilization compared with other sterilization methods. *J Hosp Infect.* 1998;40:125-134. (Accessed on 30/12/2022AD)
14. Joslyn L. Sterilization by heat. In: Block SS, ed. *Disinfection Sterilization, and Preservation.* 5th ed. Philadelphia: Lip-pincott Williams & Wilkins; 2001:695-728. (Accessed on 30/12/2022AD)
15. Saudi Commission for Health Specialties (<https://ha.edu.sa/ar/career> on June 15, 2022 AD) Accessed on 30/12/2022AD.