

Management in a sterilization material center in a university hospital from a restructuring by an outsourced firm

Gestión en un centro de material de esterilización en un hospital universitario a partir de una reestructuración por una empresa subcontratada

Gestão em central de material de esterilização em instituição hospitalar federal universitária a partir de reestruturação por firma terceirizada

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With the technological advancement and the foreseen development in the country, adding ongoing evolutions and the reframing of products, there is a need for improvement by viable techniques to the procedures of preparation, sterilization, cleaning, storage, and care with all types of products directed to health aspects¹.

Regarding issues involving the health area, the nurse becomes a professional capable of handling the needs of care, treatments, and management around the hospitals.

As it appears, the eminent need to promote new methods of care with aspects of product sterilization is emphasized, in its narrative, there is the previous procedures in which they did not present a standard or correct order of structuring. It is also said that certain health education departments used pressure cookers in the use of their sterilization procedures, which distanced themselves from the contexts of care and hygiene¹.

For there to be a veracity in their treatment, and assiduity in aspects related to cleaning and the treatment of instruments used in the preparation of patients and surgical procedures, it is necessary to form a team that aims to prepare all these steps.

In bias of this type of work, the use of a Sterilization Material Center (SMC) is confirmed in the health area, which corroborates such practices through its actions in the process of mechanization in procedures, aiming at the wide performance and preparation in the health segment².

The waste elimination process is configured in the destruction of all impurities to reduce the impacts of diseases or contamination in the use of instruments in the health sectors that require the necessary preparation to ensure the patient's health³.

In these aspects, SMC has the capacity to understand its dimensions and to make sense of the use of these tools. For there to be security, it is notorious to use a scheme that contributes to the practice of these procedures. With such an approach, this study aims to reflect on the procedures adopted by an outsourced company with the SMC proposal.

Sterilization Material Center

Regarding the understanding of the data regarding the structure and functioning of the SMC, there is a resolution called RDC no. 307, of November 14, 2002, which considers the description of the SMC to be: "a technical support unit, which has as a purpose the supply of properly processed medical and hospital materials, thus providing conditions for direct care and health care for sick and healthy individuals"^{1,2}.

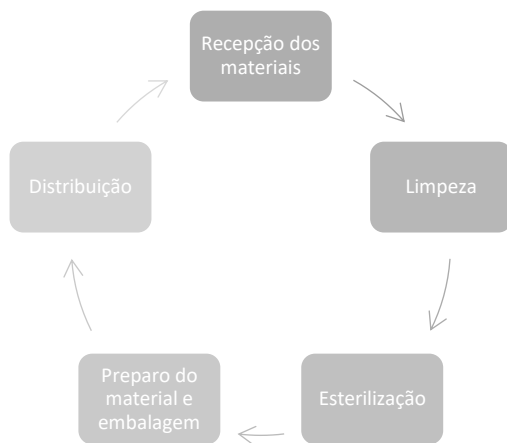
In other words, the intention of having a SMC space in hospital units consists of a support group to provide better working conditions.

"SMC is a technical support unit within the health establishment designed to receive material considered dirty and contaminated, decontaminate it, prepare and sterilize it, as well as prepare and sterilize clean clothes from the laundry and store these items for future distribution"^{1,2}.

The proposal prevents the proliferation of infection and mortality, as it appears, the proper functioning of the SMC structure corroborates so that the equipment and clothing are in accordance with the needs of the environment, preventing external factors from causing collateral damage to patients.

Literature⁴ presents a structure about the procedures applicable to the SMC to perform its functions within the health system. Figure 1 shows a schematic which reports the step by step of the processes developed:

Figure 1. Five main activities of the SMC. Rio de Janeiro, RJ, Brazil, 2020



Source: Lima⁴.

In what corroborates the progress of the stages, it is disproved which are the movements and activities of each sector. Regarding the receipt of materials, this step is intended for the knowledge and registration of the materials that were received, so that there is a quantitative control to be measured in the following steps until the end of the process, avoiding possible losses or carelessness⁴.

The cleaning stage consists of one of the indexes of greatest care and attention to the way it provides for the elimination of organic or inorganic indigence, with the elimination of all possible bacteria from instruments and materials. This cleaning procedure uses materials such as: water, soap, detergent, and equipment for cleaning, sanitizing and decontamination⁴. In this process, there is a need for caution and control, with a detailed work to be developed. Failure to perform this step can cancel the actions developed in the following steps, since it is extremely important to completely decontaminate the material.

In continuity and presenting a relation with the previous stage, the Sterilization movement is of great value for the progress of the processes developed at SMC, as it aims at the elimination of all microorganisms still present in the instruments⁴.

With the sterilization movement, the cleaning steps are closed, which represent the most careful and relevant indices in terms of the obligations attributed to the SMC.

The movement of preparing the material and packaging "involves the drying and sterility of the material, its useful life, its conditions for transportation, storage, going to its use"⁴. In other words, it is necessary to ensure that the previous movements are not invalidated. Every care is necessary and redoubled in the steps following the cleaning processes. Proper packaging equates to the durability of the instrument and its effectiveness in use in hospital areas.

In a last step, the distribution is organized so that there is easier access by the professionals. The containers must be in a clean environment with closed condiments so that there is no new contamination and, therefore, it is irrevocable that there is identification to facilitate access⁴.

It is of utmost importance that there is a control and monitoring system regarding the steps to be taken to combat infection and sterilization issues in hospital wards.

This movement of recording and monitoring of each stage and team in the SMC sector allows the monitoring of all procedures without permitting errors that may compromise life within healthcare spaces⁴.

Cleanliness is the determining factor in these processes, as it corroborates for the segment that are intended for health practices. It should be noted that:

"There is a need for a physical barrier between the area for cleaning and preparing materials (packaging), as it is considered a dirty area and a clean area, respectively. Likewise, a physical barrier between the clean area and the sterile area is recommended to avoid contamination of materials. The physical barrier avoids the contact of the clean material with the dirty material. Ideally, it should have an entrance for contaminated materials and an exit for clean and / or sterile materials, not crossing one material with the other"^{3,8}.

In short, the capacities attributed to SMC consist of processing health materials to prevent infection, promoting patient safety. To ensure better quality and follow-up in the process of receiving, sterilizing, and distributing, a study³ points to a procedural scheme that is aimed at professionals to ensure an even higher quality in this practice bias.

According to the PebMed platform, a study⁵ restructures the team that formulates the movements destined to the SMC. In discussion bias, the team is formed by nurses, primarily, being the positions of coordinator, on duty and technician. Team members are fully members of the SMC movements and seek improvement to perform the tasks assigned to the agency.

In the process of his research, a study⁶ manifested a descriptive report about the professionals who worked in front of the system and the SMC. According to the figure below, the data were related to the professionals working.

Figure 2. Procedures. Rio de Janeiro, RJ, Brazil, 2020

Ação	Justificativa
# Receber o material, da sala de higienização para a central de material esterilizado, conferindo os dados do aluno e a etiqueta abaixo deve estar fixada na embalagem com fita para autoclave (indicador químico):	# A etiqueta fixada no material e fornecida pela instituição, facilita a esterilização segura do material de cada aluno, evitando o risco de trocas. Como a data de validade estará fixada na embalagem, o próprio aluno pode avaliar se o material está próprio para o uso ou necessita reesterilizar.
Instituição	
Nome do Aluno	
Data da Esterilização	Nº ciclo-
Data de Validade	Observação-
# Observar o pacote quanto a rasgos, perfurações, aspecto.	# Qualquer imperfeição no pacote ou embalagem pode interferir no processo de esterilização e tornar o material impróprio para o uso.
# Registrar em um livro ata no momento do recebimento: nome do aluno, data, hora, nº de pacotes e coletar sua assinatura.	# O registro em livro ata, dá a segurança para o funcionário da instituição e para o aluno. Evitam-se mal-entendidos.
# Separar os materiais conforme tamanho, peso, e o tipo de esterilização adequado para cada um.	#Importante separar os instrumentais cirúrgicos das vidrarias, materiais de silicone, gazes e compressas. Cada material resiste a um tempo de esterilização e calor máximo.
# Montar as cargas na autoclave e esterilizar conforme tempo recomendado pelo fabricante da máquina.	

Source: Paurosi et al³.

Figure 3. Data from professionals working at SMC in research. Rio de Janeiro, RJ, Brazil, 2020

Características da equipe	n	%
Sexo		
Feminino	15	93,75%
Masculino	01	06,25%
Formação Profissional		
Aux. Enfermagem	05	31,25%
Téc. Enfermagem	04	25,00%
Infermeiro	07	43,75%
Regime de Trabalho		
CLT	01	06,25%
Estatutário	12	75,00%
Selecionista	03	18,75%
Tempo de Atuação na CME		
> 10 anos	04	25,00%
1 a 10 anos	07	43,75%
< 1 ano	05	31,25%
Total	16	100%

Source: Bugs et al⁶.

The profiles were summarized, mostly, in female audience, and all linked to the nursing area, being divided between assistants, technicians and nurses.

In another research sample, it was found that the profile of the professional was summarized in its highest percentage being female. In terms of training, 50% of the professionals were nursing technicians, and the other nursing assistants, completing the staff belonging to SMC⁵.

Regarding the issues related to Resolution RDC No. 15/2012, and their contributions, changes are understood that can boost the expansion of conditions related to the SMC. Regarding the sterilization and cleaning

processes, these must be presented in an automated way to include all types of instruments, as shown below:

“Art. 67. In SMC Class II and in the processing company, cleaning of health products with complex conformations must be preceded by manual cleaning and complemented by automated cleaning in an ultrasonic washer or other equipment of proven efficiency. Single paragraph. For health products whose lumen has an internal diameter of less than five millimeters, it is mandatory that the automated cleaning phase be carried out in an ultrasonic washer with a cannulated connector and that uses intermittent flow technology”.

The proposal linked to SMC Management is set out in the proposal for COFEN Resolution No. 424 of the year 2012, in which it provides for attributions of nursing professionals in relation to issues related to SMC. As well as it also attributes conditions to companies that are causally related to the procedures in relation to health products. In accordance with Art. 1 of this proposal, the legislation guides the issues related to professionals related to the SMC, leaving to those who work in the process of cleaning health devices:

“I - Plan, coordinate, execute, supervise and evaluate all stages related to the processing of products for health, reception, cleaning, drying, evaluation of integrity and functionality, preparation, disinfection or sterilization, storage and distribution to consumer units.

II - Participate in the elaboration of the Standard Operational Protocol (POP) for the stages of processing health products, based on updated scientific reference and pertinent regulations. Protocols must be made widely available and available for consultation.

III - Participate in the elaboration of a registration system (manual or computerized) for the execution, monitoring and control of the cleaning and disinfection or sterilization stages, as well as the maintenance and monitoring of the equipment in use at the SMC.

IV - Propose and use quality control indicators for the processing of health products, under your responsibility.
V - Assess the quality of the products supplied by a third-party processing company, when applicable, according to pre-established criteria.

VI - Monitor and document, systematically, the technical visits to qualify the operation and performance of SMC equipment, or the health products processing company.

VII - Define criteria for the use of materials that do not belong to the health service, such as time limit for entry into the SMC, before use; need, or not, for reprocessing, among others.

VIII - Participate in the prevention and control of adverse events in the health service, including infection control.

IX - Guarantee the use of Personal Protective Equipment (PPE), according to the working environment of the SMC, or the company that processes health products.

X - Participate in the dimensioning and definition of the necessary qualification for professionals to work in the SMC, or in the company that processes health products.



XI - Promote training, permanent education and performance evaluation of the professionals who work at the SMC, or in the company that processes health products.

XII - Guide and supervise the units that use the products for health, regarding their transport and storage.

XIII - Prepare a term of reference or issue a technical opinion regarding the acquisition of health products, equipment, and supplies to be used in the SMC, or in the health products processing company.

XIV - Update continuously on technological innovations related to the processing of health product⁸.

In addition, the distribution of functions is designated through a demand for hierarchy, in which it is mandatory for nurses to supervise the contributions manifested by technicians and assistants. The provisions of COFEN Resolution No. 424/2012, Art. 2, are set forth, where “[...] Nursing Technicians and Assistants who work in SMC, or in companies that process health products, carry out the activities provided for in the SOPs, under the guidance and supervision of the Nurse”⁸.

Final Considerations

Health care processes, such as surgeries, procedures, and treatments, are extremely necessary to meet the population's demand and ensure a prolonged quality of life over the years. For this capacity to be viable, doctors and nurses need to be aware of the needs of their health regions to ensure such aspects to their patients, enabling a peaceful and safe treatment.

The research aimed at discussions on the health bias is broad and encompasses the dimensions of the entire area, however, it was up to us to pay attention to the understanding of aspects aimed at the cleaning and sterilization processes of the materials used in the hospital environments. The cleaning and sterilization process is intended for SMC, which aims to enable better conditions of use, ensuring both tranquility for the health professional, as well as procedures without contamination.

The research highlighted here pointed to the procedures used by SMC during its activities, as it appears, the processes are aimed at: receiving the materials, cleaning, sterilizing, preparing the material and packaging and distribution.

For a better understanding of legal aspects, the proposal for sterilization in instruments aimed at the health area is supported by laws that aim at movements aimed at the well-being of all. In short, the laws seek to point to the objective of this work, to list the responsibility of each professional, among them: technicians, nurses, and assistants, who present their control dimensions at each stage.

The works discussed here understood the need to list each stage of this sterilization process in a clear and objective way, as well as pointing out the responsible professionals. It is understood that this movement is of great need in the health area because it corroborates the entire progress of the work of nurses and doctors who work directly in surgical procedures and patients, thus enabling the need for this practice as protection for all.

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