

Planning and organization of the Material and Sterilization Center in times of COVID-19

Planificación y organización del Centro de Material y Esterilización en tiempos de COVID-19

Planejamento e organização da Central de Material e Esterilização em tempos de COVID-19

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Abstract

The aim was to describe the experience of planning and organizing the Material and Sterilization Center of a high-complexity hospital to meet the demands that emerged from the care of patients with suspected and confirmed cases of COVID-19. Observational, descriptive study, with a qualitative approach, of the experience report type on the organization of the Material and Sterilization Center to meet such demands. Local and intersectoral actions agreed upon through meetings and periodic meetings with those involved were carried out and implemented, designing new workflows and using facilitating instruments to guarantee the safety of processes, widely publicized in the institution. The planning and organization was developed with the collaboration of the team that was trained in time for the other party to need to leave. However, the Material and Sterilization Center has proved to be a place of continuous learning and a lot of physical, mental and professional work. The planning and organization of the Material and Sterilization Center to meet the hospital demand in times of COVID-19 took place in a record way, due to the urgency of the epidemiological situation and the choice of the institution as a reference for the care of the population in suspected or confirmed cases of the disease.

Descriptors: Sterilization; Nursing; COVID-19; Coronavirus Infections; Health Policy, Planning and Management.

Resumen

El objetivo fue describir la experiencia de planificar y organizar el Centro de Material y Esterilización de un hospital de alta complejidad para atender las demandas surgidas de la atención de pacientes con casos sospechosos y confirmados de COVID-19. Estudio observacional, descriptivo, con enfoque cualitativo, del tipo informe de experiencia sobre la organización del Centro de Material y Esterilización para atender tales demandas. Se realizaron e implementaron acciones locales e intersectoriales acordadas a través de reuniones y reuniones periódicas con los involucrados, diseñando nuevos flujos de trabajo y utilizando instrumentos facilitadores para garantizar la seguridad de los procesos, ampliamente difundidos en la institución. La planificación y organización se desarrolló con la colaboración del equipo que fue capacitado a tiempo para que la otra parte necesitara salir. Sin embargo, el Centro de Material y Esterilización ha demostrado ser un lugar de aprendizaje continuo y mucho trabajo físico, mental y profesional. La planificación y organización del Centro de Material y Esterilización para atender la demanda hospitalaria en tiempos de COVID-19 se llevó a cabo de manera récord, debido a la urgencia de la situación epidemiológica y la elección de la institución como referente para la atención de los población en casos sospechosos o confirmados de la enfermedad.

Descriptores: Esterilización; Enfermería; COVID-19; Infecciones por Coronavirus; Políticas, Planificación y Administración en Salud.

Resumo

Objetivou-se descrever a experiência de planejamento e organização da Central de Material e Esterilização de um hospital de alta complexidade para atendimento das demandas que emergiram a partir da assistência aos pacientes casos suspeitos e confirmados de COVID-19. Estudo observacional, descritivo, com abordagem qualitativa, do tipo relato de experiência sobre a organização da Central de Material e Esterilização para atender as tais demandas. Foram realizadas e implementadas ações locais e intersetoriais acertadas por meio de encontros e reuniões periódicas com os envolvidos, desenhando novos fluxos de trabalho e utilizando de instrumentos facilitadores para garantia da segurança dos processos, amplamente divulgados na instituição. O planejamento e organização foi desenvolvido com a colaboração da equipe que foi capacitada a tempo que a outra parte necessitou de afastamentos. Contudo, a Central de Material e Esterilização tem se mostrado um local de aprendizado contínuo e de muito trabalho físico, mental e profissional. O planejamento e organização da Central de Material e Esterilização para atender a demanda hospitalar em tempos de COVID-19 se deu de modo recorde, pela própria urgência da situação epidemiológica e escolha da instituição como uma referência para atendimento da população em casos suspeitos ou confirmados da doença.

Descritores: Esterilização; Enfermagem; COVID-19; Infecções por Coronavírus; Políticas, Planejamento e Administração em Saúde.



Introduction

At the beginning of 2020, the world was surprised by an unknown and challenging disease: the new coronavirus (SARS-CoV-2)¹. The World Health Organization (WHO) declared a pandemic status on March 11, 2020 after detecting outbreaks of COVID-19 in several countries around the world, with numerous cases and deaths².

Health services around the world had to organize themselves to meet the demand for care of patients considered suspected or confirmed cases of the disease. In Brazil, the Unified Health System (SUS) both in primary, medium and high complexity care and the private and complementary health network have learned and are constantly learning and adapting, both in terms of their physical, material and professional structure to provide the safest possible care to patients and also preserve the health of their employees who are more exposed to the virus due to the activity they perform.

In a health institution, the Material and Sterilization Center (CME) is considered by many to be the heart of the unit, considering that it is the sector where the cleaning, sanitizing, disinfection and sterilization processes of equipment and materials that come into contact directly with patients are performed, aiming at infection-free health care. Therefore, it is a health care sector for the population affected by COVID-19 as essential as the reception, triage, emergency and or hospitalization sectors. In other words, the MSC is a complex sector at an institutional and management level, as its functioning reflects on the control and guarantee of sterilization processes³⁻⁸.

As it is a highly infectious and contagious disease where the patient affected with the severe form often needs hospitalization that can evolve to critical and intensive health care, it must be considered that there is an increase in demand for the Central of Material and Sterilization in the processing of materials and equipment due to the greater use of health products, including especially those for ventilatory support^{3,5-7}.

Although the workers at the Material and Sterilization Center do not provide direct care to the patient, the risks of infection are considered high, due to the possibility of accidents with sharps and exposure to aerosols that are formed during the automated cleaning of materials, such as those generated by ultrasonic washers^{3,4}.

The quantity and characteristics of items processed in the Material and Sterilization Center directly follow the movement of hospitalizations and the severity of patients, which requires intensive care beds and ventilatory support^{3,4}. There must be time and resources necessary for processing products with high demand and teams must be trained to understand the risks in order to strictly follow the established protocols. Careful resource planning will ensure there are sufficient supplies and experienced workers⁵⁻⁸.

In this way, the present article aims to describe the experience of planning and organization of the Material and Sterilization Center of a high complexity hospital to meet the demands that emerged from the care of patients with suspected and confirmed cases of COVID-19.

Methodology

Descriptive study, of the experience report type, experienced by the immediate head of nursing of the Material and Sterilization Center on the organization of the sector to meet the demands of the health unit, as a result of the care of patients suspected or diagnosed with COVID-19.

The period for carrying out the experiment took place from March to July 2020 after the institution was intended as a reference for the care of patients with COVID-19.

The study setting was the Material and Sterilization Center of a large, highly complex federal hospital located in Rio de Janeiro, which has multidisciplinary health professionals and serves as a teaching and learning place for students in middle level, undergraduate and lato sensu graduate, in the residency model. It is noteworthy that many practical activities of health training schools were suspended at the beginning of the pandemic in the hospital and, in this service, 02 (two) nursing residents remained working, who helped in the construction of the new work processes..

The social agents involved in the experience were the professionals who work at the Material and Sterilization Center, which add up to a total of 100 (one hundred) of the nursing category (nursing assistants, nursing technicians and nurses), 01 (one) administrative agent, staff day and night cleaning and cleaning. The planning was organized by the Technical Nurse Responsible (RT) of the Material and Sterilization Center together with the routine nurse of the service, with the support and effective participation of the Nursing Coordination and the Hospital Infection Control Commission (CCIH) of the institution.

Observation, consultation of flows and internal instruments built and widely disseminated in the unit were used for the production and presentation of data. Even though it is not a field study, we respect the secrecy and confidentiality of the participating subjects and the institution, as recommended by Resolution No. 466 of 2012 of the National Health Council⁹.

Experience Report

The Material and Sterilization Center that we present in this report is Class II, according to Resolution - RDC No. 15 of 2012¹⁰ and processes health products compatible with its technical operational capacity, meeting hospital demand both in specialized outpatient and emergency levels and for clinical, surgical and intensive hospitalizations.

According to the Brazilian Association of Surgical Center Nurses, Anesthetic Recovery and Material and Sterilization Center (SOBECC)¹¹, the institution's CME, classified as Class II, processes complex and non-complex non-critical, semi-critical and critical healthcare products. It is divided into reception and cleaning room (dirty sector); preparation and sterilization room (clean sector); chemical disinfection room (clean sector); sterilization process monitoring area (clean sector); room for storage and distribution of sterilized materials (clean sector).

A study points out that the procedures used by the Material and Sterilization Center during its work are intended for reception of materials, cleaning, sterilization,



material preparation, packaging and distribution, as carried out in the institution in question⁸.

Such procedures occur respecting the unidirectional flows in and out (from the dirty area to the clean area)¹⁰, so that the contaminated material does not meet the clean and sterilized material; it has direct access to the institution's central and largest surgical center and; has specific cargo elevators to service the services that include another 03 (three) surgical centers, 06 (six) intensive care units, 01 (one) large emergency and hospitalization sectors of various specialties, all of which are reorganized and some temporarily closed or relocated to other health facilities in the federal network after the COVID-19 pandemic.

It uses chemical disinfection processes, physical sterilization in large autoclaves (a total of two) and low temperature sterilization with vacuum vaporized hydrogen peroxide (a total of one machine) of the materials and health products that can be processed, considering the specifics of each. It should be noted that the institution still has a service agreement with a private company for the sterilization of thermosensitive health products, such as ventilatory assistance.

After the hospital was referred to as a setting for the care of suspected and confirmed cases of COVID-19, there was an urgent need for re-planning and organization of the Material and Sterilization Center, which also took place through:

- Seat and participation of the immediate manager of the Material and Sterilization Center in the institutional crisis office that dealt with questions on the subject.
- Periodic meetings with the institutional nursing coordination and other nursing services of the health unit to design and align the new work processes.
- Meetings with professionals from the Material and Sterilization Center to organize the new logistics.
- Meeting with the nursing team that works at the Material and Sterilization Center for in-service education.
- (Re) organization of the physical structure of the sector, with its own space for storing the Personal Protective

Equipment (PPE) of professionals, in order to ensure proper preservation and rational use.

- Creation and dissemination of new flows for processed material and distribution to sectors.
- Creation and implementation of the use of flyers to receive and remove Personal Protective Equipment (PPE) in existing care sectors.

As everything was new and caused a lot of fear and concern for all professionals, including the heads of the services, the changes occurred faster than they could process and assimilate, with the official disclosure of regulations from the Ministry of Health^{4,10}, WHO², ANVISA^{4,5} and internal almost daily, which made it difficult to comply with the designed flows, in addition to the questioning, especially from those who could not follow the intense discussions and dynamics.

In the organization of the scenario for the storage of the Personal Protective Equipment exclusively for the professionals on duty at the Material and Sterilization Center, it was decided to use shelves, where the face shields were stored after cleaning and disinfection, and they were packed in transparent plastic bags, identified nominally and individually. Large white rectangular plastic boxes were also separated, which held the other individual materials per shift under a high plastic pallet, so that they would not be in direct contact with the floor.

In this way, 06 (six) boxes were destined, duly identified on the outside with the acronym of the referring shift, since the service works with a nursing team working 30 hours a week on a scale of 24 x 120 hours, retroactively, considering personnel sizing recommended by the Federal Nursing Council (COFEN) in Resolution No. 543 of 2017^{12,13}.

In order to carry out the actions, on many occasions, the immediate superior acquired the materials with their own financial resources in order to meet the urgent demand for the organization of the service, because, even in times of a pandemic and some authorized processes of acceleration for purchase by the institution are foreseen, could not handle the request from all sectors.

Figure 1. Flowchart for collecting and dispensing face shields and glasses in the sectors. Rio de Janeiro, RJ, Brazil, 2020

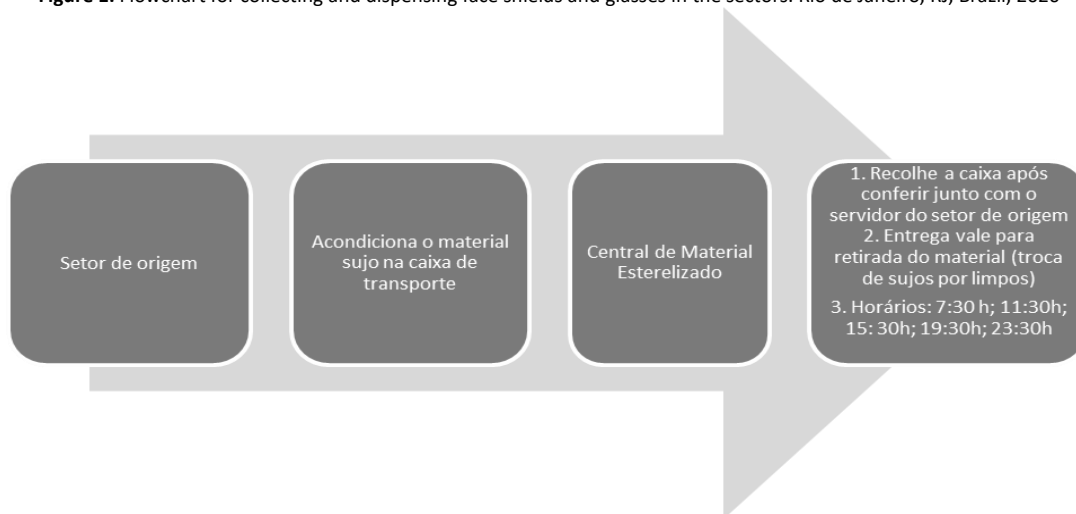


Figure 2. PPE collection flyer in the sectors for processing by the CME. Rio de Janeiro, RJ, Brazil, 2020

Central de Material e Esterilização				
Retirada de EPI				
Data: ____/____/____ Horário: ____:____				
Protetor facial (Quantidade)	Óculos de proteção (Quantidade)	Assinatura e matrícula do coletor	Sector de recolhimento	Assinatura e matrícula do entregador

Transport boxes (large size with lid) were used, one for each sector in operation in the institution at this time of COVID-19, to store the dirty material and the professional(s) assigned to this activity. The team from the Material and Sterilization Center collected (am) in the sector of origin after conference with the professional of this, delivering a voucher to withdraw the exchange base of the same amount of clean/sterilized material, if necessary. Times were stipulated for this service to occur, 03 (three) on the day shift and 02 (two) on the night shift, as shown in Figure 1.

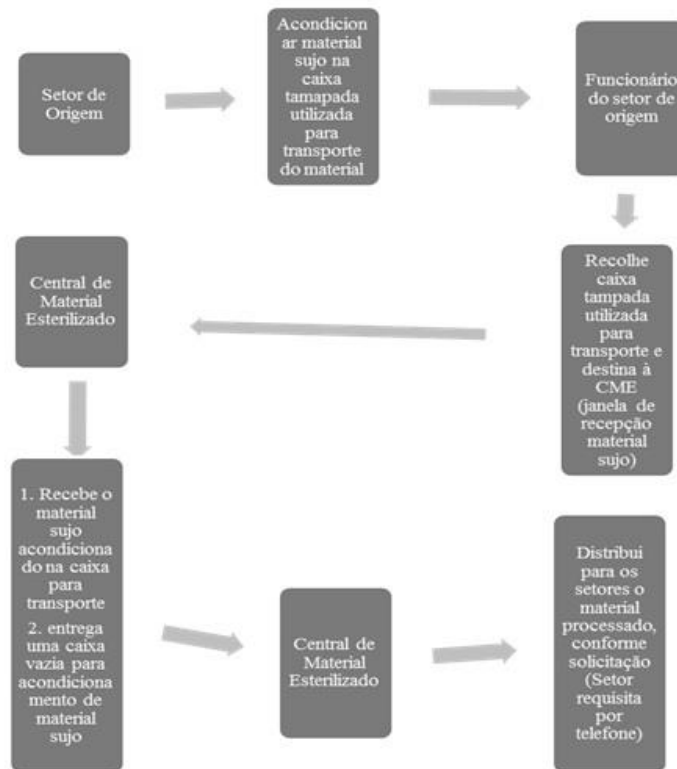
A printed instrument (one-way, which was in the possession of the CME) for the removal of personal protective equipment such as face shield type face shield and goggles was organized and constructed, with data on their quantity, sector of origin, and identifying both the

professional who delivered and the one who removed the material, as can be seen in Figure 2.

It is worth emphasizing that the team of professionals was guided and was very careful when handling the papers, in order to minimize and avoid the risks of infection and any contamination by the new virus, because, as there was no equipment or traceability system in the institution, and electronic control, it was necessary to use the forms to record the entire work process carried out.

Figure 3 shows the flowchart for collecting the other materials to be processed, except for PPE. It is important to emphasize that many procedures and care were suspended during the time frame of this experience report, especially those of an elective nature, such as some surgeries and aerosol dispersers, such as endoscopy and bronchoscopy, for example.

Figure 3. Flowchart of collection of materials to be processed and distributed. Rio de Janeiro, RJ, Brazil, 2020



The hospital had the creation of a rapid response team with the anesthesia service to care for patients who needed or evolved to need endotracheal intubation and specific sterilizable materials were organized in their own trays, providing what was needed according to the recommended¹⁻⁵, with the CME team responsible for processing, which before the advent of COVID-19 was in

charge of the sectors with their emergency cars and cardiorespiratory arrest care.

The pandemic increased the volume of treated materials, in view of those used for orotracheal intubation, which was not processed in the sector before and became. However, this context seems to be described in other institutions due to the increase in the arrival of materials

used in routine respiratory care and in procedures in the airways of patients with COVID-19^{3,6}.

It is noteworthy that in the planning and organization there was an understanding of the need to list each stage of this sterilization process in an objective way, in addition to directing them to the responsible professionals, as is currently discussed in the literature and in the services⁸.

A fact that also deserves emphasis was that the CME became a setting for the reception of new employees of the institution, who previously worked in the clinics and after they were adapted in clinics for the care of suspected or confirmed cases of COVID-19, they had to be transferred or relocated, because they have some condition that limits direct work with such patients, whether physical (comorbidities) or not.

On March 19, 2020, the Ministry of Health published Ordinance No.14 which provided for protective measures to deal with the public health emergency of international importance resulting from the coronavirus (COVID-19) within the scope of the units of the Ministry of Health in the Federal District and in the States, and thus in its Art. 2 authorized public servants and employees who fit the items I of the aforementioned ordinance to carry out their activities remotely. Its revocation took place through Ordinance No. 2,789 of October 14, 2020¹⁵, until this date, the removal of professionals aged sixty or older has lasted; immunodeficient; with preexisting chronic or serious diseases, such as cardiovascular, respiratory and metabolic diseases; as well as pregnant and lactating women.

As a result, despite receiving new employees, the CME had many absences as a result of the aforementioned Ordinance¹⁴. A challenge to be faced was dealing with the new unknown, teaching the attributions and specifics of the service to new employees.

It is worth mentioning the fear and fear (for the safety of their own lives, their professional colleagues and their families) that the beginning of the pandemic in the world and locally aroused in all professionals of the health institution, as well as the pressures for good professional practice. that have not ceased to exist.

A study in the same institution corroborates this context by highlighting the tension of the teams during the training carried out, characterized by anxiety, fear, insecurity and that this led to an increase in the time planned for training¹⁶.

The literature shows that in terms of interaction with daily work and involvement with the new, nursing professionals were considerably impacted, starting to experience, even more, a reality that exposes them to increasingly inadequate working conditions, affecting well-

being. being at work and consequently the psychological aspect^{17,18}.

It is worth mentioning that CME is often considered a sector for readapted nursing professionals or who are no longer able to provide direct care to patients at the bedside (due to age, physical or psychological condition). However, this view commonly portrayed and propagated, unfortunately even by managers, is wrong and goes against any and all theoretical-practical and scientific knowledge of the responsibility and importance of the Material and Sterilization Center. In these times of a pandemic, the Material and Sterilization Center has shown itself to be a place of continuous learning and a lot of physical, mental and professional work with all its demands.

Conclusion

The planning and organization of the Material and Sterilization Center to meet the hospital demand in times of COVID-19 took place in a record way, due to the urgency of the epidemiological situation and the choice of the institution as a reference for the care of the population in suspected or confirmed cases of the disease. disease. Being the same with reception of individuals at an emergency level, clinical and intensive hospitalization, which demanded processing and sterilization of all types of article and hospital material.

As a limitation, we can point out that the writing of this report evoked feelings of an intense and arduous time of a lot of struggle and suffering, which may have contributed to the absence of some detail of what had been experienced in the organization of the CME in the text. The following challenges stood out as: personnel dimensioning; the need for rapid training of new flows; welcoming employees, especially those who have experienced loss of family members and close people; the concern with non-waste and proper use of materials, especially PPE; the increase of working hours by the management, to participate in the always urgent meetings.

The present report demonstrates the power of the institution's management team (at micro and macro level) as well as of all the professionals in the Material and Sterilization Center service, who, even experiencing the fear and the unknown that everyone experienced at the beginning of the pandemic (and that still afflict us today), managed in a professional, technical way, based on legal and scientific principles, to meet the intra-hospital population in their demands for products processed and sterilized safely and respecting good practices, thus contributing and effectively saving lives.

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