

Reorganization of nursing work in an intensive care unit during the COVID-19 pandemic



Reorganização do trabalho da enfermagem em uma unidade de terapia intensiva durante a pandemia de COVID-19

Reorganización del trabajo de enfermería en una unidad de atención intensiva durante la pandemia COVID-19

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ABSTRACT

Objective: To describe the reorganization of nursing work in an intensive care unit of a public hospital due to the COVID-19 pandemic.

Method: Report of the experience from February to April 2020, about the reorganization of a unit.

Results: The description of the experience was divided into four moments: Definition of the cohort isolation; Reorganization of the intensive care units as General and Respiratory; Health care teams and work shifts; and Wearing and removing protective clothing by the teams.

Conclusion: The COVID-19 pandemic brought numerous challenges to the management of intensive care units. The socialization of management experiences can contribute to the definition of new strategies, including in the post-pandemic period.

Keywords: Coronavirus infections. Epidemics. Intensive care units. Practice management. Resources management. Health planning.

RESUMO

Objetivo: Descrever a reorganização do trabalho da enfermagem de uma unidade de terapia intensiva de um hospital público em função da pandemia de COVID-19.

Método: Relato da experiência vivenciada no período de fevereiro a abril de 2020, acerca da reorganização de uma unidade.

Resultados: A descrição da experiência está dividida em quatro momentos: Definição do isolamento por coorte, Reorganização das unidades de terapia intensiva em Geral e Respiratória, Equipes assistenciais e escalas de serviço e Paramentação e desparamentação das equipes.

Conclusão: A pandemia de Covid-19 trouxe inúmeros desafios para a gestão das unidades de terapia intensiva. Socializar as experiências de gestão pode contribuir para a definição de novas estratégias, inclusive no período pós-pandemia.

Palavras-chave: Infecções por Coronavírus. Epidemias. Unidades de terapia intensiva. Gerenciamento da prática profissional. Gestão de recursos. Planejamento em saúde.

RESUMEN

Objetivo: Describir la reorganización del trabajo de enfermería en una unidad de cuidados intensivos de un hospital público debida a la pandemia de COVID-19.

Método: Relato de la experiencia que ocurrió de febrero a abril de 2020, sobre la reorganización de una unidad.

Resultados: La descripción de la experiencia se dividió en cuatro momentos: Definición del aislamiento por cohorte, Reorganización de las unidades de cuidados intensivos en general y respiratoria, Equipos de asistencia y horarios de servicio, y Poner y remover el EPP.

Conclusión: La pandemia de COVID-19 trajo numerosos desafíos al manejo de las unidades de cuidados intensivos. Compartir las experiencias de gestión puede contribuir a la definición de nuevas estrategias, incluso en el período posterior a la pandemia.

Palabras clave: Infecciones por Coronavírus. Epidemias. Unidades de cuidados intensivos. Gestión de la práctica profesional. Gestión de recursos. Planificación en salud.

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■ INTRODUCTION

Intensive Care Units (ICUs) were the focus of discussions about health assistance during the COVID-19 pandemic⁽¹⁾. This is not only due to the difficulties in managing this syndrome, but also to the use of specific equipment that is necessary to treat the patients, such as multiparameter monitors and mechanical ventilators^(2,3).

The management of these units was always seen as a complex and multifaceted endeavour, and during the COVID-19 pandemic, it became an even greater challenge, due to operational capacities and number of beds, which were overloaded worldwide. In the first countries to be affected, part of the organization of ICUs intended to offer the best care possible to serious patients, allied to guarantees of individual protection to health team workers. The specification of the levels of protection for the teams, considering the incipient knowledge about the ways in which the virus is transmitted, and the definition of new workflows were the first actions^(4,5).

In this setting, the management of nursing care is one of the main responsibilities of the nurses, involving both the management of people and that of material, physical, and environmental resources^(3,6). Therefore, considering the COVID-19 pandemic and the need to reorganize an ICU for general care (clinical and surgical), the relocation of physical and material resources and the redefinition of workflows, it became essential to restructure the actions of the nursing team, aiming for shared governance. Therefore, the objective of this study is to describe the reorganization of the nursing work of the ICU of a public hospital due to the COVID-19 pandemic.

■ METHOD

This is an experience report about the activities of the workers, before and during the hospitalization of patients with confirmed or suspected COVID-19 infections in a university hospital in the South of Brazil, from February to April 2020.

The setting of the study was the ICU of the institution. In January, the unit had 20 beds, eight of which were blocked due to administrative issues. Clinically, high-complexity care was offered to severely ill patients in many areas, such as: clinics, general surgeries, digestive tract surgeries, vascular surgeries, oncohematology, nephrology, urology, gynecology, and obstetrics. The unit was equipped with technological devices to monitor and treat the critical patient, and health care flows were all protocolled.

Operationalization

During February, there were still no patients with suspected or confirmed COVID-19 cases in the hospital. The institution started to elaborate a plan to deal with the pandemic, while the nurses in the ICU, together with the multiprofessional team (physicians, physical therapists, and pharmacists) defined protocols and specific routines for COVID-19 patients, such as ventilation weaning and extubation.

Although some indispensable activities were discussed as a group, the nursing workers assumed the main role, which became evident during the process, especially considering the organization of the moments in group and the identification of the demands. Actions that were absolutely necessary were analyzed by the group of ICU nurses, namely: the restriction of patient contact (PPE, the organization of clean teams and COVID teams, mapping of hospital units as contaminated or uncontaminated); the need for permanent education (training related to the transmission of the virus, PPEs, etc.); and the urgency in the preparation of beds and equipment (monitors, infusion pumps, etc.).

The contingency plan of the hospital prescribed the opening of 20 beds for the Respiratory ICU. To attend to the other needs of intensive care (non COVID-19 patients), 10 General ICU beds were organized in another area, adapted for them, in a physical structure which had been an isolation unit for patient with multidrug-resistant bacteria.

Needs surfaced daily and were discussed in meetings between nurses, according to the demand. Although the experience with the H1N1 pandemic had generated significant learning, the size of the current pandemic led to the learning of new practices personnel management; conflict management; information systems; continued education; management of material, physical, and environmental resources; worker's health; and decision-making processes, all of which were considered and discussed by the intensive care nurses.

The occupational health service of the institution, accordingly, carried out a qualitative test of the sealing of the respirators with PFF2 masks in all professionals. Although this test is extremely important for their safety, it required the nurses to make administrative changes to the work scales, since the PFF2 did not adjust to the face of some of the professionals, leading to air leaks and, as a result, to potential exposure. These workers, therefore, could not provide care to COVID-19 patients⁽⁷⁾.

Meetings and participants

The first multiprofessional meeting aimed to discuss clinical attention protocols. After that was done, specific meetings with nurses were carried out daily and weekly, in small groups. The other activities were conducted by the head nurse of the unit (who became the coordinator of both the Respiratory ICU, with 20 beds, and the General ICU, with 10) with the aid of two nurses from the unit and one professor from the Nursing Faculty of the university that is partnered with the hospital. This group had meetings with the Service for the Control of Hospital Infections (SCIH), the Physical Therapy Service, the Hotel Service (responsible for the Hygiene and Laundry Service).

The plans for work and management were made daily between these four nurses, who attempted to predict the needs and anticipate for the events and demands from the two ICUs. The physical structure of the unit was always evaluated *in situ*, and the demands of materials were sent through an information system to the Storeroom service. Since this is an experience report, it does not require an approval from the Research Ethics Committee.

■ RESULTS

The description of the experience is divided in four moments: Definition of the cohort isolation; Reorganization of the intensive care units as General and Respiratory; Health care teams and work shifts; and Wearing and removing protective clothing by the teams.

Organization of the Respiratory ICU – cohort isolation

The Respiratory ICU included two isolation beds that shared an antechamber with negative pressure. These were used to isolate the first two patients with suspected or confirmed COVID-19 cases. Starting with the hospitalization of the third patient, the Respiratory ICU started to function in a cohort system. The workers wore a water-repellent coat and a N95 mask at all times during their shift, leaving the ICU during previously determined breaks so they could rest and eat (three intervals for resting and eating throughout the 12-hour shift).

This decision was made by the team of nurses, SCIH, and by the direction of the hospital, to optimize the use of PPEs according to the recommendations from the ANVISA⁽⁶⁾. At first, the group of nurses decided that the teams from the different ICUs should not go from one to another; however,

this was not possible due to the number of workers available after the qualitative test of the sealing of the PFF2 respirators and the health certificates.

Reorganizing the intensive care units as Respiratory and General ICUs

The contingency plan of the institution, at first, organized 20 new intensive care beds from the COVID-19 and reorganized 10 beds for general intensive care. These were structured in two separate units. The nurses were responsible for organizing these units and all their demands, from materials to personnel.

At this point, the main challenges were related to the adaptation of the physical structure there is in a general care ICU. Previously, this unit had 14 beds, all in individual rooms with bathrooms, a nursing station, waste room, lunch room, dressing room with bathrooms, and storeroom. The group of nurses worked by coordinating and asking for revisions in the electric network, medicinal gases, and in the vacuum system. It was necessary to install new counters for monitors and infusions pumps. The group of nurses chose to organize two nursing stations, to make the circulation and vision of the patients and cardiac monitors easier.

The change for another location within the hospital not only required the readaptation of the space by the teams, accustomed to working in an ICU exclusively designed for intensive care (since that one was being prepared, exclusively, for COVID-19 patients). In the new general ICU, in adapted individual rooms, there was no exhaustion system and the air-conditioner was a split model, which had an impact in the environment. It was also not possible, due to technical and structural issues, to guarantee a monitoring center for the 10 beds available.

Teams and work shifts

The ICU had 23 intensive care physicians, 4 resident physicians, 14 nurses, 1 resident nurse, 45 nursing technicians, 4 nursing auxiliaries, 10 physical therapists, 2 resident physical therapists, 1 nutritionist, 1 psychologist, 1 pharmacist, and 1 speech-language therapist. This team was complemented by new workers, relocated from other sectors: 5 nurses, 1 resident nurse, and 17 nursing technicians. Thus, 23 new nursing workers were brought to the ICUs. 6 physicians and 4 physical therapists were also hired to form the multiprofessional team.

The change in the location took place in April and was organized by the nurses. The work shifts were readjusted by the head of nursing of the unit according with the number of

workers, organizing who would be on duty and separating the teams in General ICU and Respiratory ICU, depending on the number of patients. In the case of up to five patients, one nurse was to stay in the Respiratory ICU, while the other would join the nurse responsible for the General ICU. Thus, daily, there were three nurses per work shift, considering both ICUs. The number of technicians, in turn, was of 10 per turn, for the two ICUs.

Wearing and removing protective clothing in the Respiratory ICU

It was defined that all workers would wear the PPEs adopted by the institution on in the order defined by the SCIH (N95 mask, coat, surgical cap, procedure gloves, and safety goggles) before entering the Respiratory ICU. When procedures that could generate aerosols were to be performed, face shields were also recommended.

Regarding the removal of the items, it followed the order defined by the SCIH: the disposable coats, gloves and caps were removed while still in the Respiratory ICU and disposed in the adequate location. Guidance was provided regarding the cleaning of goggles, face shields, and the use of the N95 masks. Although the discussions raised many controversies about the use of the PPEs, the institution, based on national and international protocols and on recommendations from ANVISA and the WHO, decided to adopt, as a rule, to provide healthcare to bedridden patients, the water-repellent coat over a fabric coat, N95 mask, two procedure gloves, protective goggles, face shield, and cap. Although the use of a double layer of procedure gloves is controversial, there are studies from other epidemics in which this technique was used as a measure of extra protection during procedures such as intubations⁽⁸⁾.

■ DISCUSSION

In this earlier process of reorganizing the ICU, it was found that preparing the environment and the workers to care for the patients with COVID-19 generated several other demands, requiring from the nurses a new work routine, in addition to leadership strategies to carry out new processes and guide the multiprofessional team. The need of a strict adherence to the use of the PPEs involved changes in group dynamics and led to conflicts that had to be managed by the group of nurses. The ICU was organized with the goal of mitigating the effects of contaminations in the professional team, avoiding, within the existing physical and structural limits, the potential propagation for the virus, while also rationing materials⁽⁹⁾.

The separation of ICUs and the need to relocate the General ICU distressed the multiprofessional team and disturbed the safety climate in the unit. In this regard, some did manifest the impact of the psychosocial difficulties and hardships in adapting to the new physical environment, both in regard to the comfort of the patients and to the health team, causing tension at work and adding to the physical and emotional challenges and requiring a quick but not always successful management from the health team⁽¹⁰⁾.

In practice, it was found that more training in the use of PPEs were necessary, in addition to the development of standardized routines for invasive procedures, that generated much stress during the pandemic. Data from the Hubei province indicated that more than 3,000 physicians and nurses were infected by SARS-CoV-2⁽¹¹⁾. This type of information caused a lot of suffering between members of the multiprofessional team, who needed to be managed by the group of nurses. Another information that caused much stress was that the actions of putting on and removing the safety clothing increased the risk of contamination of the teams, especially during the removal of the PPEs⁽¹¹⁾. This, coupled with how demanding the situation was to the physiological limits of the workers – seen that they were not free to go to the bathroom at any time due to the need to remove and then wear again the PPEs – the times for rest were made more flexible in an agreement with the nurses responsible for the duties and for the division of the breaks in the team, to minimize physical stress and mental exhaustion. The nursing team, especially the nurses who formed the group that managed the ICUs, made efforts to develop strategies to listen and give support to the health workers in this challenging moment, in addition to having difficulties in finding scientific support for certain actions, due to the little research there has been about the topic or even about the management of critical units during pandemics⁽¹²⁾.

■ FINAL CONSIDERATIONS

Among the several challenges imposed by the COVID-19 pandemic to the group of nurses involved in this report, the management of intensive care was an opportunity to reconsider what type of work could guide these professionals during a crisis in the absence of validated guides or protocols. This report raised several questions and showed that the management of critical areas in situations such as the one caused by the COVID-19 pandemic will cause changes in the organization of intensive care nurses in regard to shared governance. The limitations of this study are related to the fact that this unit is in constant reorganization, due to the new knowledge being produced about providing care to

COVID-19 patients. Furthermore, it was developed from a single experience in an intensive care unit, that dealt with infrastructure issues that must be addressed empirically.

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