

Approach to the person in emergency and intensive care after the pandemic covid-19: scoping review

RESUMO | Objetivo: Perceber quais as alterações que ocorreram na abordagem à pessoa em situação crítica no Serviço de Urgência e Unidade de Cuidados Intensivos após início da pandemia COVID-19. Método: A estratégia de pesquisa para a scopingreview foi realizada nas bases de dados Medline via PubMed, EBSCO Host, BioMed Central, ScienceDirect, BVS e Scielo através da utilização de descritores MeSH e DeCS, artigos com fulltext gratuito, publicados em língua portuguesa, inglesa e espanhola, com datas de publicação entre 2019 e 2021, implementados critérios de inclusão e exclusão. Resultados: Foram identificados 4 estudos elegíveis para análise, publicados em 2020, nenhum dos estudos em Português. Conclusão: As principais alterações estão relacionadas com a utilização de equipamento de proteção individual, colocando o enfoque nos profissionais de saúde.

Descritores: Cuidados à Pessoa em Situação Crítica; Serviço de Urgência; Unidade de Cuidados Intensivos; pandemia COVID-19.

ABSTRACT | Aim: To understand the changes that occurred in the approach to critically ill patients in the Emergency Department and Intensive Care Unit after the beginning of the COVID-19 pandemic. Method: The search strategy for the scoping review was conducted in Medline databases via PubMed, EBSCO Host, BioMed Central, ScienceDirect, BVS and Scielo by using MeSH and DeCS descriptors, articles with free full text, published in Portuguese, English and Spanish language, with publication dates between 2019 and 2021, implemented inclusion and exclusion criteria. Results: Four eligible studies were identified for analysis, published in 2020, and none of the studies was in Portuguese. Conclusion: The main changes are related to the use of personal protective equipment, focusing on the safety of health professionals.

Keywords: Critical Care; Critical illness; Emergency Room, Emergency Medical Services; Intensive Care Unit; Coronavirus infections -COVID-19.

RESUMEN | Objetivo: Conocer qué cambios se han producido en el abordaje a los pacientes críticos en el Servicio de Urgencia y en Unidades de Cuidados Intensivos tras el inicio de la pandemia COVID-19. Método: La estrategia de búsqueda para la revisión se realizó en las bases de datos Medline e PubMed, EBSCO Host, BioMed Central, ScienceDirect, BVS y Scielo con el uso de descriptores MeSH y DeCS, artículos con libre acceso a texto completo, publicados en portugués, inglés y español, entre el 2019 y 2021, usando criterios de inclusión y exclusión. Resultados: Identificamos 4 estudios elegibles para el análisis, todos publicados en 2020, e ninguno en portugués. Conclusión: Los principales cambios están relacionados con el uso de equipamientos de protección personal, con el enfoque en la seguridad de los profesionales de salud.

Palabras claves: Persona; Cuidados Críticos; Servicio de Urgencias; Unidad de Cuidados Intensivos; pandemia COVID-19.

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INTRODUCTION

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, is a reality that imposes new challenges and new demands on health systems.¹ COVID-19 is current and relevant, dominating an important part of the nursing care provided in the ER and ICU context, considering the changes that were necessary in the approach to the PCS in these care contexts, particularly in the approach to suspected patients or patients with confir-

med infection.

Nurses needed to acquire specific skills that would allow them to provide nursing care to people in critical situations in the Emergency Room (ER) and Intensive Care Units (ICU), that is, to act based on the best scientific evidence in order to stabilize the person and simultaneously protect themselves and all professionals involved in health care in these contexts. The ER and the ICU are contexts of enormous complexity, where the nursing team provides highly differentiated care, this care can be understood as one of the pillars for obtaining health gains for the person in a critical situation.² There are places qualified to assume full responsibility for patients with organ dysfunctions, supporting, preventing and reversing failures with vital implications³ and that the ER mission is to receive, diagnose and organize the treatment of patients who have had an accident or have sudden illnesses that require immediate care in a hospital environment.⁴

In this context, the person is usually in a critical situation, that is, whose life is threatened by failure or imminent failure of one or more vital functions and whose survival depends on advanced means of surveillance, monitoring and therapy.⁽⁴⁾ Nurses who provide nursing care to the PCS must hold a broad body of differentiated knowledge, technical procedures and master protocols and algorithms for action, in order to implement their clinical reasoning capacity to provide highly qualified nursing care with a view to maintaining vital functions, preventing complications and minimizing disabilities with a view to future recovery.²

Thus, the COVID-19 Pandemic demanded from health professionals an enormous effort to reorganize and adapt resources in the face of new needs, as well as sacrifice and creativity, especially those who perform functions in the Emergency Services.⁵

The approach to PCS, both in the SU and in the ICU context, has undergone particularly challenging changes in the provision of Nursing care, namely the constant changes in procedures, often daily, rules and guidelines, and because they are not very robust from the point of view of the soundness of

the underlying knowledge, due to the absence of studies with specific guidelines on the approach to the PCS in an ER or ICU.

This circumstance daily hinders the performance of professionals who provide nursing care to the PCS, and who collaborate with the ICU in the transfer of patients, and from this reality, the need emerged to ignore the changes implemented in the approach to the PCS in Emergency Services and ICU. In this way, we consider it pertinent to map the knowledge produced in the context of changing the procedures for approaching the PCS, in order to guide and support the daily practice of nurses who provide care in this area, namely in the ER and ICU, in this period of the COVID-19 pandemic.

Considering the review question "What are the changes in the approach to the person in a critical situation, in the context of emergency and intensive care services, after the beginning of the COVID-19 pandemic?" The objective was defined: to identify what changes occurred in the nursing approach to the person in a critical situation in the Emergency Service and Intensive Care Unit after the beginning of the COVID-19 pandemic.

METHOD

A scoping review was performed according to the methodology recommended by JBI 6, in order to map the existing scientific evidence regarding the approach to PCS in the context of COVID-19. We used the participants, concept and context (PCC) strategy, according to the requirement of the chosen methodology. The inclusion criteria were studies in which, regarding the type of population (P) they address people in critical situation; as for the concept (C), cover changes in the approach to the person in critical situation; and regarding the context (C) we considered the studies that focused on the emergency service and the intensive care unit after the onset of the COVID-19 pandemic.

We included all types of primary and secondary studies, as well as guidelines.

The following were admitted as inclusion criteria: PCS aged over 18 years (adults), all people in a critical situation who are admitted to the ES and ICU, articles with free full text, published in Portuguese, English and Spanish, with publication dates between 2019 and 2021, as this is the time interval since the identification of SARS-CoV-2 and the moment in which the changes were implemented in the referred contexts.

We excluded all studies that were not related to the research objective and the starting question, in which people in a critical situation were younger than 18 years old, and people in a critical situation who were not admitted to the ER or the ICU. Regarding ethical procedures, these do not apply as we are within the scope of a scoping review.

The search strategy consisted of 3 stages: 1st Stage – initial search in the Medline databases via PubMed, EBSCO Host, BioMed Central, ScienceDirect, VHL and Scielo through the use of previously validated MeSH and DeCS descriptors; 2nd Moment – second research using natural language; 3rd Moment – third survey including gray literature in the RCAAP. The survey was carried out between May 11 and 21, 2021, the strategy respected the aforementioned inclusion and exclusion criteria and are presented in Table 1.

The references obtained were managed using a software (Mendley), and duplicates were removed. The selection of articles was carried out by three reviewers, by reading the title and/or abstract, excluding records that did not meet the inclusion criteria.

After selection by title and abstract, the articles were read in full text, which were analyzed by the same reviewers, summarizing and recording the data collected in evidence sheets organized according to the following items: design, participants, intervention and results. The completion of these forms made it possible to identify relevant articles for the scoping review, given that when compiling the information, articles

were also identified that only the full text reading allowed to verify the presence of conditions related to the exclusion criteria.

The search strategy and the different stages of selection, eligibility and inclusion of articles are shown in Figure 1.

RESULTS

The initial search identified 9544 studies. Of these, 2310 were excluded because they were duplicate articles; of the remaining 7234 studies, 7227 were excluded after evaluating the title, the abstract, or because they were not available; 3 of the remaining 7 articles were excluded for not meeting the

inclusion criteria after reading the full text. In the end, 4 studies were included in this review. All studies are from 2020, three of which are narrative literature reviews, and one of them is a guideline. The synthesis of results is presented in Table 2.

DISCUSSION

The objective of this scoping review is to understand what changes have occurred in the approach to PCS in the ER and ICU after the onset of the COVID-19 pandemic. In order to respond to this objective, after analysis, 4 articles were included in the review, all published in

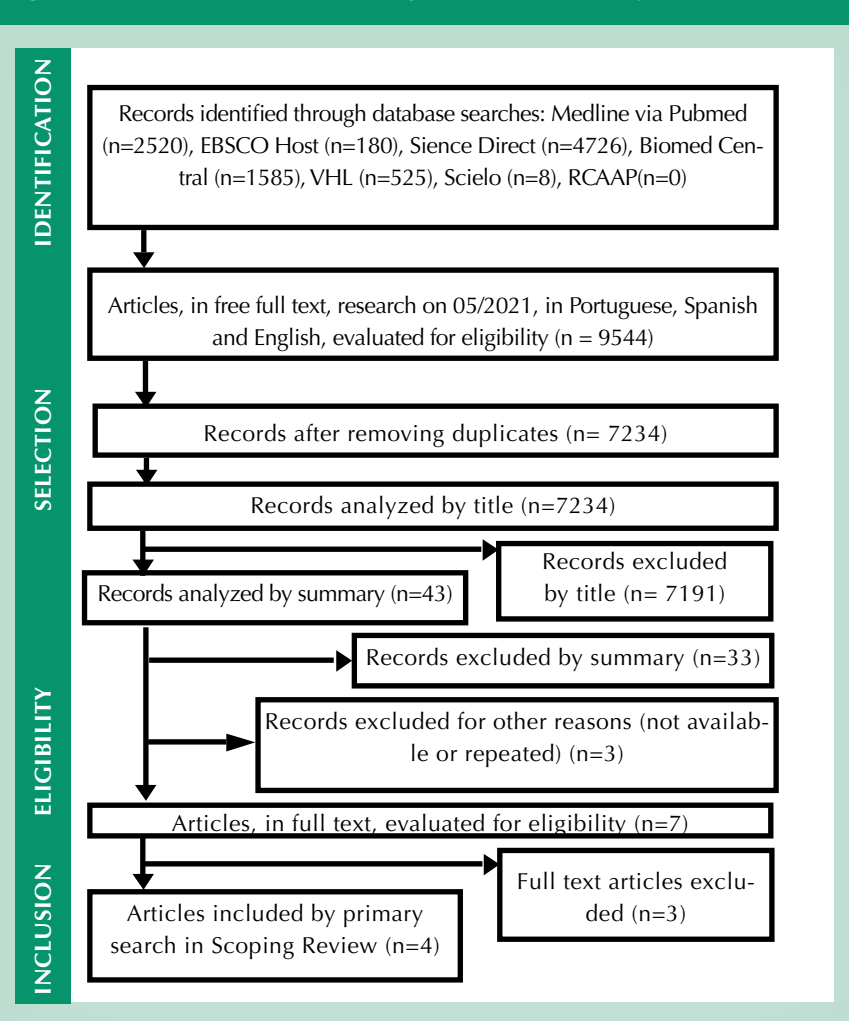
2020, which is justified by the fact that it was in this year that the WHO announced COVID-19 as a pandemic, this being a public health emergency that forced the adoption of procedures in order to safeguard public health safety following the highest scientific criteria.⁸

The analysis of the articles showed that nurses had to adapt to the new reality of providing care to the PCS, namely in the ER and the ICU, when dealing with patients with severe symptoms and uncertain serological status, under screening and referral criteria that are constantly updated. They were challenged to quickly become familiar with

Table 1- Search strategy and constraints in databases, 2021.	
DATABASE: MEDLINE (via PubMed); RESULTS: 2520; LIMITERS: Language: PT, ING, ESP/ free full text/ publication date (last 5 years)/ age group: Adult: 19+ years, Young Adult: 19-24 years, Adult: 19-44 years, Middle Aged + Aged : 45+ years, Middle Aged: 45-64 years, Aged: 65+ years, 80 and over: 80+ years. RESEARCH STRATEGY (05/12/2021)	
DATABASE: EBSCO HOST; RESULTS: 180; LIMITERS: Full Text/ Publication Date 2019-2021/ Peer Reviewed/ Language: PT, ING, ESP/ Age Ranges: AllAdult; EXPANDERS: Apply equivalent subjects RESEARCH STRATEGY (05/21/2021)	
DATABASE: BIOMED CENTRAL; RESULTS: 1585; LIMITERS: full text; RESEARCH STRATEGY (05/19/2021)	
DATABASE: SCIENCE DIRECT; RESULTS: 4726; LIMITERS: Open access/ Year of publication: 2019-2021; RESEARCH STRATEGY (05/18/2021) and (05/19/2021)	
DATABASE: VHL; RESULTS: 525; LIMITERS: Full text / Language: PT, ING, ESP / Publication year range: 2019-2021; RESEARCH STRATEGY (05/14/2021)	
DATABASE: SCIELO; RESULTS: 8; LIMITERS: Language: PT, ING; RESEARCH STRATEGY (05/18/2021)	
DATABASE: RCAAP; RESULTS: 0; LIMITERS: Language: Date: 2019 to 2021/ Language: PT, ING, ESP RESEARCH STRATEGY (05/11/2021)	

Source: authors' data, 2021.

Figure 1 – PRISMA⁷ Flowchart of the study location and selection process, 2021.



Source: adapted by the authors, 2021.

Table 2 – Studies included in the review, 2021.

Study (authors and year)	Study outline	Participants	Intervention	Results
In-hospital airway management of COVID-19 patients Sullivan, E. H. et al., 2020	Narrative literature review	Health professionals involved in airway management in patients with suspected or confirmed COVID-19 infection	Creation of a hospital protocol with the objective of protecting professionals against COVID-19 infection in the approach to the airway in four phases: before intubation, during, after and during extubation.	Creation of PPE kits for high-risk procedures; respiratory status monitoring, early tracheal intubation using video laryngoscopy and limiting the presence of professionals in the room; existence of ART (airway response team), controlled use of NIV and HFNC; management of available resources (ventilators, ICU beds, negative pressure rooms); post-intubation oxygen therapy plan.
Desafios de la reanimación cardiopulmonar avanzada en pacientes con la COVID-19. Montes de Oca, A. T.; López, B. R.; Morán, Y. D., 2020	Narrative literature review	Health professionals involved in the approach to patients without CA with COVID-19	Narrative review with a view to creating an action protocol with changes in CPR, CPR in prone position, contraindications for CPR maneuvers and prioritizing the safety of health professionals.	Availability of PPE in resuscitation cars and training in use; use of multipurpose electrodes in CPR: limit resuscitators to 3; prefer face mask or supraglottic device connected to filter; prioritize and tracheal intubation; if sick in prone position, perform CPR in that position; history of claustrophobia or heat stroke by rescuers are contraindications for CPR maneuvers.
Guidelines for critical care seriously Ill Adult Patients with Coronavirus (COVID-19) in the Americas Pan American Health Organization, 2020	Guideline	Health professionals who provide care to patients with suspected or confirmed COVID-19, in ER and ICU, and decision-makers and government entities who manage the provision of care for COVID-19 patients in ICUs in the Americas	Creation of guidelines based on the GRADE system (grading of recommendations assessment, development, and evaluation) for infection control, sample collection, supportive care, pharmacological treatments and prevention of complications.	Implementation of institutional protocols for screening critically ill patients suspected or with COVID-19 infection; negative pressure rooms for aerosol generating procedures; performance of EOT by the most experienced professional and use of videolaryngoscopy; prioritization of specimen collection in suspected patients; indication of ventilatory parameters, administration of oxygen therapy, HFNC, NIV, prone positioning, administration of fluid therapy, corticosteroids, crystalloids, antibiotics, PU prevention, thromboembolism, ventilator-associated pneumonia, and decreased risk of delirium.
Management of adult cardiac arrest in the COVID-19 era: consensus statement From the Australasian College for Emergency Medicine Allely, P. et al., 2020	Narrative literature review	Health professionals involved in approaching adults with CRA in the COVID-19 era	Narrative review with a view to creating an action protocol for the creation of an action protocol for decision-making according to the treatment objective in the context of COVID-19 and with indications on the type of PPE to be used through procedures to be carried out.	Defibrillation and chest compressions are not considered aerosol-generating procedures; Initiate compression resuscitation and perform it by experienced personnel equipped with PPE to minimize the number of people involved; aerosol-generating procedures, such as advanced airway maneuvers, aspiration of secretions and positive pressure ventilation must be performed in negative pressure rooms; the patient's mouth and nose must be covered with an O2 mask with a flow of 10L/min and this mask covered with a surgical mask; the "see, hear, feel" action is carried out by placing the hand on the patient's chest; prefer the use of filter-adapted supraglottic ventilation devices; observe removal of PPE to monitor for breaches in infection control. It is suggested the creation of post-resuscitation protocols that address clinical care, decision-making, communication, registration of team members for adequate monitoring of infection control if necessary.

Source: authors' data, 2021.

new action protocols and to manage the risk of contagion, often with insufficient protection measures and spending hours with patients in strict isolation.^{9,10}

The recommendation for the use of PPE to reduce the risk of contagion among professionals is transversal to 3 of the studies, namely 11,12 in the lat-

ter two, the importance of creating PPE kits (which should include gloves, caps, shoe protectors, visors or glasses, gowns and N95 respirators) available in resuscitation cars to perform high-risk procedures is highlighted. Also, in Portugal both in the ERs and in the ICUs, these prevention measures were implemented.

These indications are in line with the recommendations issued by the European Resuscitation Council 13, since there is a significant risk of transmission of the SARS-CoV-2 virus to health professionals, as they provide direct care to these patients, which requires changes in guidelines for approaching PCS. Pro-

tection through PPE became essential and the time spent on safety procedures started to be considered part of the resuscitation process; PPE must always be available along with the resuscitation material and must always be put on before contact with the patient.¹⁴

It's also indicated the formation and training of the multidisciplinary team on the placement and removal of PPE^{11,12} and its removal must be observed by a member of the team in order to monitor possible breaches in infection control.^{11,12}

These considerations on the type of PPE to be used in approaching PCS with suspected or confirmed COVID-19 infection constitute an amendment to pre-COVID-19 procedures. According to Lui et al.¹¹ only the use of a mask, goggles and gloves is considered when approaching the airway.

Patients suspected or with confirmed infection should be under even more controlled monitoring and surveillance to reduce the risk of Cardiopulmonary Arrest (CPA) and to enable a faster and more effective response.¹⁴

To Kang et al.¹⁵ authors of one of the reviewed studies, the use of strategies such as monitoring the respiratory status for early identification of signs of aggravation is one of the results presented. And according to the World Health Organization¹⁶ Institutional screening protocols for critically ill patients suspected or with COVID-19 infection should also be implemented, in order to properly identify those who need an ICU approach.

One of the points on which all articles under review agree is the approach to the airway: prioritizing early orotracheal intubation (OTI)¹⁷ with fast sequence^{17,18} using videolaryngoscopy¹⁶⁻¹⁸, this should be performed by the most experienced professional, to reduce the number of attempts and the probability of aerosolization^{16,18}; aerosol-generating procedures, such as advanced airway maneuvers, aspiration of secretions and positive pressure ventilation, must be performed in negative pressure rooms

¹⁸⁻²⁰ and the number of professionals in them should be limited¹⁷⁻²⁰ to protect the team from possible contagions; the use of manual insufflators or other open ventilation systems should be avoided whenever it's possible¹⁸⁻²⁰ by increasing the risk of viral transmission; according to Soh et al., Cabrini et al., Fried et al.^{17,18,20} face mask or supraglottic device connected to a filter must be used, but according to Fried et al.²⁰ when continuous ventilation is required, a well-adapted supraglottic device connected to a suitable filter should be used instead of a face mask, as the use of the former reduces the risk of aerosols.



It is important that the permeability of the airway is ensured, the best way being OTI: it should only be attempted immediately by trained and experienced professionals²¹, which is in line with the studies analyzed.



It also says that if this is not achieved, it is recommended to maintain ventilation with a face mask and manual insufflator^{21,22}. Since these guidelines are Post-COVID-19, they show the changes

in the approach to airway and ventilation recommended in the articles of this review.

According to the CER 22 Evidence demonstrates that chest compressions and cardiopulmonary resuscitation (CPR) have the potential to generate aerosols and it is not acceptable for staff to expose themselves to the risk of infection. However, Brown et al.²³ state that defibrillation as well as chest compressions are not considered aerosol-generating procedures, recommending only compressions in CPR until OTI has occurred.

Several authors^{12,15}, recommend the use of multifunction electrodes instead of paddles to avoid direct contact between the rescuer and the patient, whereas in CPR prior to the Covid-19 era, both the use of paddles and multifunction electrodes were allowed.²⁴

Another alteration identified in the review articles is the limitation of the use of non-invasive ventilation (NIV) to negative pressure rooms due to the high risk of aerosolization in a continuous open circuit¹⁸⁻²⁰, considering that in the pre-COVID-19 era, NIV should be used preferably in the ICU, but also in intermediate care units and wards.¹⁷

Scoping Review Limitations

This review only included articles published in English, Portuguese and Spanish, as well as studies that were available in full text. The inclusion of these could have been relevant for this review.

CONCLUSION

The objective of this scoping review was to understand which changes occurred in the approach to the Person in Critical situation in the emergency service and in the Intensive Care Unit after the beginning of the COVID-19 pandemic. In this sense, four studies were identified, three of them reviews of narrative literature and one in the form of a guideline. All studies outlined recommendations for approaching patients with

a suspected or confirmed diagnosis of COVID-19.

Carrying out this scoping review allows us to conclude, in line with what was described above, that in the context of the COVID-19 pandemic in approaching the Person in a Critical situation, priority should be given to the safety of health professionals to the detriment of starting Cardiopulmonary Resuscitation, which is ensured by the use of Personal Protective Equipment during procedures that generate aerosols, these interventions should also be carried out in negative pressure rooms, limiting the number

of professionals present in order to reduce the risk of contagion. This reflects a change in the approach to the Person in a Critical situation insofar as, previously in CPA or peri-arrest situations, emphasis was given to the early start of resuscitation maneuvers.

Other alterations that should be mentioned are related to: the use of NIV, preferably in negative pressure rooms, to minimize the risk of infection; and the non-use of manual inflators; early and rapid-sequence OTI aided by cough-inhibiting drugs to reduce aerosolization, using videolaryngoscopy.

In short, we can consider that the pandemic has forced us to implement changes in the approach to PCS, more evident in interventions related to airway and ventilation, with a special focus on the use of specific PPE. This work was limited by the situation of the COVID-19 pandemic, which is still recent and therefore there is a shortage of literature on this subject. This aroused in us an interest to deepen research on COVID-19 in the future, namely in contexts of intervention in the Person in Critical Situation. 🐦

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