

**PROCESSO DE ENFERMAGEM PARA PACIENTES COM MANIFESTAÇÕES RESPIRATÓRIAS DA COVID-19**  
**NURSING PROCESS FOR PATIENTS WITH RESPIRATORY MANIFESTATIONS OF COVID-19**  
**PROCESO DE ENFERMERÍA PARA PACIENTES DEL COVID-19 CON MANIFESTACIONES RESPIRATORIAS**

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**RESUMO**

**Objetivo:** discutir sobre o Processo de Enfermagem diante dos aspectos clínicos respiratórios da COVID-19. **Método:** trata-se de um estudo qualitativo, descritivo, informativo que partiu de uma revisão narrativa da literatura, documentos da Organização Mundial da Saúde e das taxonomias aplicadas ao Processo de Enfermagem *North American Nursing Diagnosis Association*, *Nursing Interventions Classification* e *Nursing Outcomes Classification*. Realizou-se uma busca bibliográfica de artigos científicos que abordassem o tema na Biblioteca Virtual de Saúde e Biblioteca Virtual SciELO. Utilizaram-se descritores como: Coronavírus OR COVID-19 AND pessoal da saúde OR Enfermagem. **Resultados:** informa-se que diante da clínica apresentada, os principais diagnósticos são: Hipertermia, Padrão respiratório ineficaz e Troca de gases prejudicada. Ressalta-se que, para isso, são necessárias as intervenções de Enfermagem, as quais terão como resultado esperado a temperatura normalizada, conforto e padrão respiratório normal e a melhora na troca de gases. **Conclusão:** reconhece-se a importância do Processo de Enfermagem, o qual possibilita reconhecer as necessidades do paciente e atuar diretamente neles, identificando aqueles que forem prioritários e fortificando o cunho científico da profissão, padronizando uma linguagem própria e facilitando a comunicação entre os enfermeiros do mundo.

**Descritores:** Vírus da SARS; Infecções por Coronavírus; Sinais e Sintomas; Enfermagem; Processo de Enfermagem; Saúde.

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**ABSTRACT**

**Objective:** to discuss the Nursing Process in view of the respiratory clinical aspects of COVID-19. **Method:** It is a qualitative, descriptive, informative study that started with a narrative review of literature, World Health Organization documents and taxonomies applied to the Nursing Process *North American Nursing Diagnosis Association*, *Nursing Interventions Classification* and *Nursing Outcomes Classification*. A bibliographic search of scientific articles addressing the topic was

conducted in the Virtual Health Library and the SciELO Virtual Library. Descriptors such as: Coronavirus OR COVID-19 AND health personnel OR Nursing were used. **Results:** it is informed that in view of the clinic presented, the main diagnoses are: Hyperthermia, ineffective respiratory pattern and impaired gas exchange. It is important to emphasize that, for that, it is necessary the nursing interventions, which will have as an expected result the normalized temperature, comfort and normal respiratory pattern and the improvement in gas exchange. **Conclusion:** recognizes the importance of the Nursing Process, which makes it possible to recognize the needs of the patient and act directly on them, identifying those that are priority and fortifying the scientific nature of the profession, standardizing its own language and facilitating communication among nurses worldwide.

**Descriptors:** SARS Virus; Coronavirus infections; Signs and symptoms; Nursing; Nursing process; Health.

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## RESUMEN

**Objetivo:** discutir el Proceso de Enfermería ante los aspectos clínico-respiratorios del COVID-19.

**Método:** se trata de un estudio cualitativo, descriptivo e informativo que se inició con una revisión narrativa de la literatura, los documentos de la Organización Mundial de la Salud y las taxonomías aplicadas al Proceso de Enfermería *North American Nursing Diagnosis Association*, *Nursing Interventions Classification* y *Nursing Outcomes Classification*. Se realizó una búsqueda bibliográfica de artículos científicos que abordaron el tema en la Biblioteca Virtual en Salud y Biblioteca Virtual SciELO. Se utilizaron descriptores como: Coronavirus o COVID-19 y personal de salud o Enfermería. **Resultados:** se informa que, a la vista de la clínica presentada, los principales diagnósticos son: Hipertermia, Patrón respiratorio ineficaz y Alteración del intercambio gaseoso. Se enfatiza que, para ello, son necesarias intervenciones de Enfermería, las cuales tendrán el resultado esperado de temperatura normalizada, confort y patrón respiratorio normal y mejora en el intercambio de gases. **Conclusión:** se reconoce la importancia del Proceso de Enfermería, que permite reconocer las necesidades del paciente y actuar directamente sobre ellas, identificando aquellas que son prioritarias y fortaleciendo el carácter científico de la profesión, estandarizando el lenguaje propio y facilitando la comunicación entre enfermeros en el mundo.

**Descriptores:** Virus del SRAS; Infecciones por coronavirus; Signos y síntomas; Enfermagem; Proceso de enfermagem; Salud.

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## INTRODUCTION

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It is reported that in December 2019, there was the first case of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in Wuhan, China and, since then, more than 27 countries have confirmed cases of COVID-19, including Brazil. Due to the rapid spread of the virus, on March 11, 2020, a pandemic was declared by the World Health Organization (WHO).<sup>1</sup>

SARS-CoV-2 is known to be highly contagious, transmitted through unprotected contact with secretions or excretions from an infected patient, mainly by salivary droplets.<sup>2</sup> This pandemic, with erratic behavior and rapid dissemination, is responsible for 396,249 confirmed cases and 17,252 deaths distributed around the world.<sup>3</sup>

The spectrum of disease severity varies from asymptomatic infection, mild upper respiratory tract disease, to severe, with respiratory failure and/or death. This has led to an abrupt change in the routines of health services, observing a scenario of intensification of hospitalizations for respiratory complications.<sup>2</sup>

The WHO recommends measures to combat the spread of the virus, which involve, for example, social isolation, constant cleaning of the hands, wearing masks and some changes in habits.<sup>4</sup> Within the health service, it is also necessary to offer good assistance to the infected patient as a defront to the disease and, therefore, it is necessary to have the organization and preparation of the professional for these clinical conditions.

It is believed, understanding that the object of Nursing's work is the patient's needs, that it must develop its activities in a competent way, with skills for safe decision making, making use of the Nursing Process,<sup>5</sup> that is: the duty of Nursing as a profession in front of the user infected with SARS-Cov-2 must involve the exploration and empowerment of the scientific tools that the category has for a quality practice, listing a thorough preparation and knowledge of all the stages of the process.

## OBJECTIVE

Discussing the Nursing Process in view of the respiratory clinical aspects of COVID-19.

## METHOD

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It is a qualitative, descriptive, informative study that started from a narrative review of the literature based on publications pertinent to the clinical respiratory manifestation of SARS-CoV-2. A bibliographic search of scientific articles that approached the subject in the following in the Virtual

Health Library (VHL) and SciELO Virtual Library was carried out. Descriptors such as: Coronavirus OR COVID-19 AND health personnel OR Nursing were used.

It is detailed that the documents of the World Health Organization and the books North American Nursing Diagnosis Association (NANDA), Nursing Interventions Classification (NIC) and Nursing Outcomes Classification (NOC), which are taxonomies applied to the Nursing Process, have also been used.

RESULTS

Table 1. Results of defining characteristics, Nursing diagnosis, expected results and Nursing interventions. Source: NANDA, NIC and NOC taxonomies.

Defining characteristics	Nursing Diagnosis	Expected Results	Nursing Interventions
- Warm skin; - Lethargy; - Flushed skin; - Vasodilation; - Tachycardia;	Hyperthermia related to respiratory infection;	Normalized temperature;	- Offer of liquids; - Remove excesso clothing; - Monitor vital signs; - Administer antipyretics;
- Nose wing beating; - Dyspnea; - Tachypnea; - Use of accessory musculature to breathe;	Ineffective breathing pattern;	Comfort and normal breathing pattern;	- Classify respiratory pattern; - Observe peripheral and end cyanosis; - Perform airway opening; - Administer oxygen therapy, if necessary; - Monitor presence of adventitious noises; - Observe respiratory failure;

- -Confusion;	Damaged gas	Improve gas	- - Maintain vigilance;
- Abnormal arterial	exchange.	exchange.	- Offer oxygen therapy;
gasometry;			- Perform arterial gasometry;
- Hypoxia;			- Maintain high decubitus when
- Restlessness;			possible.
- Abnormal arterial			
PH;			
- Abnormal skin			
color.			

DISCUSSION

Pathophysiology and clinical aspects of COVID-19

It is noted that there is not yet a satisfactory study of the behavior of patients infected with the new virus that can describe the entire range of clinical manifestations, however, there is already a study that describes the pathophysiology and thus the understanding of some symptoms. The patient can remain infected, however, asymptomatic or have a mild, severe and even fatal state.<sup>6</sup>

The physiopathology of Coronavirus is part of two interrelated processes: right cytopathic effect due to viral infection, which predominates in the early stages of the disease and in the unregulated inflammatory response of the host, which predominates in the late stages.<sup>7</sup>

It is warned that, faced with these two processes, the evolution of the disease occurs in three stages: the first is due to viral replication, which conditions the activation of innate immune response. It is added that, at this stage, the patient presents clinical signs such as cough, fever, asthenia, headache and myalgia associated with lymphopenia.<sup>7-8</sup> In stage 2, considered the pulmonary phase, by the activation of the adaptive immune response, resulting in the reduction of viraemia, however, an inflammatory cascade capable of causing tissue injury is initiated, characterized by worsening of the respiratory condition that may condition acute respiratory failure.<sup>6</sup>

Stage 3 corresponds to the hyperinflammatory phase, characterized by fulminant multiorgan failure with frequent worsening of pulmonary involvement. A deregulated immune response is presented, conditioned precisely by the amount of cytokines released.<sup>6</sup>

It should be noted that the stages, evolution and severity are dynamic, and elderly individuals and/or those with comorbidities, such as diabetes, chronic lung diseases, cardiovascular diseases, cancer and immunocompromised, have shown to be more prone to more severe conditions.<sup>8</sup>

Nursing process in view of COVID-19 manifestations

The Nursing Care Systemization (NCS) is implemented through five phases (History, Nursing Diagnosis, Prescription, Implementation and Evaluation of Nursing Care) coordinated with each other, which work as an organized structure, known as the Nursing Process.<sup>9</sup>

The Nursing Process should be carried out before the presented clinic of COVID-19 in order to elaborate a patient centered plan, thus providing a qualified and evidence based assistance. For this, it is necessary to collect data from the anamnesis, which is constituted by the identification of the patient; main complaint; history of the current disease ("when it started", "what symptoms", "fever picture", "what are the characteristics of fever", "how the disease evolved", "presence of respiratory discomfort and its characteristics"); collect data from the previous history; family history and life habits.<sup>9</sup>

After that, a thorough review of the patient is carried out, detecting the main needs, consisting of the first stage of the process, the history of Nursing.<sup>9</sup> It is revealed that the main findings of the physical examination before COVID-19 are warm skin, tachycardia, lethargy, dyspnea, restlessness, nasal wing beating, altered gasometry, abnormal skin color.

Thus, it is inferred from the anamnesis and physical examination that the main diagnoses of Nursing before the respiratory clinic of COVID-19 are: Hyperthermia related to respiratory infection; Ineffective respiratory pattern and impaired gas exchange.<sup>10</sup>

In hyperthermia, it is necessary to have an adequate supply of liquids to maintain metabolic functions. The nurse must intervene in this aspect, as well as perform the water balance, and another intervention is to remove excess clothing and blankets to promote heat loss and the reestablishment of the ideal temperature. It is also necessary to monitor the vital signs and administer antipyretics as prescribed.<sup>11-2</sup>

It is described, regarding the ineffective breathing pattern, as the diagnosis itself says, that there is a dysfunction in the physiological mechanism of breathing, and what is expected as a result of this diagnosis is that there is effective breathing, with permeability of the airways.<sup>12</sup> Thus, it is understood as a nursing intervention to monitor this pattern and classify it from its characteristics, such as: kussmaul; cheyne-stokes respiration; apneustic pattern; biot respiration and ataxic patterns.<sup>14</sup> Add peripheral and end cyanosis observation, perform airway opening using the chin lifting technique or mandibular maneuver, as appropriate, keep the headboard elevated and, from that, administer oxygen therapy in the necessary cases.<sup>11</sup>

It is noted that another sign to be monitored is the presence of adventitious noises such as snores, creptors, wheezing and wheezing, in addition to the occurrence of respiratory efforts, such as nose wing beats, altered thoracic excursion and the use of accessory muscles and, in the

conjunction of these manifestations, it is fit as Nursing intervention to perform aspiration of lung secretions.<sup>11</sup>

A very important factor for care should be mentioned: being ready for acute respiratory failure. It is therefore crucial to provide orotracheal intubation material if necessary and assist in intubation.<sup>11</sup>

It is pointed out, regarding the damaged gas exchange, that the expected result is an effective gas exchange.<sup>12</sup> Nursing should be vigilant, so it is necessary that the patient is located in order to be visualized continuously, because sudden changes can occur, leading to the need to be assessed as to respiratory need.<sup>11-3</sup>

It is explained that, in general, patients with respiratory alterations receive oxygen therapy in order to raise the Blood Pressure of Oxygen (PaO<sub>2</sub>), aiming to return it to the normal baseline of the individual.<sup>10</sup> It is important to stress that the administration of oxygen therapy and the effectiveness of mechanical ventilation are critical measures for survival<sup>13</sup> and it is, mainly, at this moment, that the multidisciplinary team's performance needs to be well defined so that it does not culminate in a more critical evolution of the user's state.

Any changes in skin color should be observed because, due to the installed picture, there is vasoconstriction and increase in carbonic gas concentration, which may be causing ischemia in the peripheral regions and, with this, cell death.<sup>11-3</sup> This care is also given by monitoring arterial gasometry and O<sub>2</sub> saturation by capillary oximetry.

It should be noted that another measure to be implemented involves keeping the patient in high decubitus position, when possible, favoring respiratory mechanics and reducing the consumption of O<sub>2</sub> through the limitation of movements, because the elevation of the patient's thorax, under stable hemodynamic conditions, accentuates the action of gravity on the secretions of the pulmonary peripheries, draining them to the bronchial tree in the most calibrous branches from where they can be aspirated or eliminated by coughing.<sup>11-3</sup>

Finally, keeping the information about the patient's needs and being able to establish a diagnosis of their respective interventions becomes essential to carry out the evaluation stage of the process. It is possible, at this stage, to capture if the applied work is in fact being effective or if changes need to be made. The process is dynamic and the evaluation allows new diagnoses to be identified, which can change the whole course of the planned service, increasing its resolutiveness towards the user.

## CONCLUSION

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It can be affirmed that the objectives listed were achieved, since it was possible to describe the Nursing Process from the perspective of the respiratory symptomatology of the user affected by the SARS-Cov-2 virus.

It becomes crucial to recognize how valuable the Nursing Process is for the NCS to materialize. It is possible for the professional to recognize the Nursing diagnoses and act directly on them, mainly by identifying those that are priority and fortifying the scientific nature of the profession, standardizing its own language and facilitating communication among the nurses of the world. It is also strengthening the patient's safety by having safe communication and their health needs be successfully met.

It is known, in view of the current scenario of the disease, that there is not yet much consolidated information, so studies with greater evidence are suggested to better treat the applicability of the Nursing Process in practice. It is added, in view of the respiratory clinical picture of these users, that there is the possibility of identifying more related factors and defining characteristics of these cases, besides being able to capture other signs and symptoms that are not contemplated in NANDA, contributing significantly to Nursing as a science.

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