

## The importance of nurses' knowledge in the prevention of pressure injuries in patients submitted to the prone position

*La importancia del conocimiento del enfermero en la prevención de lesiones por presión en pacientes sometidos a decúbito prono*

*A importância do conhecimento do enfermeiro na prevenção das lesões por pressão em pacientes submetidos à posição prona*

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### Abstract

The aim was to describe the importance of nurses' knowledge in the prevention of pressure injuries in patients submitted to the prone position. The study presents an integrative literature review of an exploratory-descriptive nature. Eleven articles related to the subject of the study were selected. For better understanding, the discussion was divided into categories and subcategories and presented as follows: Integumentary System and Pressure Injury, Factors predisposing to PL, Pronation Position, Nurse's Responsibilities in patients submitted to pronation, The importance of the Nurse's knowledge regarding prevention of pressure injury during the pronation technique, Care plan and nursing interventions in patient management under the pronation technique. Some nursing care is prescribed through care planning, such as: promoting small changes in position and evaluating skin conditions; regularly monitor the tension of invasive device fixtures; keep the skin free of moisture; perform control records of the ventilatory response parameters of the safe pronation technique.

**Descriptors:** Ventral Decubitus; Pressure Injury; Nursing Care; Pandemic; Coronavirus Infections.

### Resumen

El objetivo fue describir la importancia del conocimiento del enfermero en la prevención de lesiones por presión en pacientes sometidos a decúbito prono. El estudio presenta una revisión integradora de la literatura de carácter exploratorio-descriptivo. Se seleccionaron once artículos relacionados con el tema de estudio. Para una mejor comprensión, la discusión se dividió en categorías y subcategorías y se presentó de la siguiente manera: Lesión del sistema tegumentario y por presión, Factores predisponentes a PL, Posición de pronación, Responsabilidades del enfermero en pacientes sometidos a pronación, La importancia del conocimiento del enfermero sobre la prevención de lesiones por presión durante la técnica de pronación, plan de cuidados e intervenciones de enfermería en el manejo del paciente bajo la técnica de pronación. Algunos cuidados de enfermería se prescriben a través de la planificación del cuidado, como: promover pequeños cambios de posición y evaluar las condiciones de la piel; monitorear regularmente la tensión de los dispositivos invasivos; mantenga la piel libre de humedad; Realizar registros de control de los parámetros de respuesta ventilatoria de la técnica de pronación segura.

**Descriptoros:** Decúbito Ventral; Lesión por Presión; Cuidados de Enfermería; Pandemia; Infecciones por Coronavirus.

### Resumo

Objetivou-se descrever a importância do conhecimento do enfermeiro na prevenção de lesões por pressão em pacientes submetidos à posição de prona. O estudo apresenta uma revisão integrativa de literatura de caráter exploratório-descriptivo. Foram selecionados 11 artigos relacionados à temática do estudo. Para melhor compreensão, a discussão foi dividida em categorias e subcategorias sendo assim apresentadas: Sistema Tegumentar e Lesão por pressão, Fatores predisponentes a LP, Posição de Pronação, Responsabilidades do enfermeiro em pacientes submetidos à pronação, A importância do conhecimento do Enfermeiro quanto à prevenção de lesão por pressão durante a técnica de pronação, Plano de cuidados e intervenções de Enfermagem no manejo do paciente sob a técnica de pronação. Alguns cuidados de Enfermagem são prescritos através do planejamento do cuidado como: promover pequenas mudanças de posição e avaliar as condições da pele; monitorar regularmente a tensão das fixações de dispositivos invasivos; manter a pele sem umidade; realizar registros de controle dos parâmetros de resposta ventilatória da técnica de pronação segura.

**Descritores:** Decúbito Ventral; Lesão por Pressão; Cuidados de Enfermagem; Pandemias; Infecções por Coronavirus.



## Introduction

Nursing is a profession that aims to provide comprehensive care for everyone. As a primary factor, prevention as well as health promotion are crucial in practice that aim to prevent the incidence of pressure injuries in patients undergoing the pronation technique<sup>1</sup>.

The prone position, also known as the prone position or prone position, is the position in which the client has the anterior face of the body facing down, with the abdomen in contact with the bed and the head lateralized to one side<sup>2</sup>.

The main objective of performing the pronation position is to increase arterial oxygenation through alveolar recruitment, reducing the impact of oxygen toxicity and the risk of Barotrauma, in addition to favoring postural drainage in the removal of bronchial secretion, reducing the risk for development of secondary pulmonary infection (Nosocomial Pneumonia)<sup>2</sup>.

Performing the prone position is a technique first described 40 years ago and is considered a supplementary strategy available in the treatment of patients with acute respiratory distress syndrome (ARDS)<sup>3</sup>.

ARDS is defined as an acute, diffuse, inflammatory lung injury that causes an increase in pulmonary vascular permeability, lung weight, and a decrease in aerated lung tissue, with hypoxemia and bilateral radiographic opacities, associated with greater venous mixing, greater empty space physiological, and lower lung compliance<sup>4</sup>.

When patients on artificial ventilation are placed in the prone position, oxygenation improves through the recruitment of dependent pulmonary units, redistributing blood flow to the less affected lung regions and decreasing the ventilation-perfusion imbalance<sup>2</sup>.

Although the procedure is considered a therapeutic resource that can improve the oxygenation process of patients with ARDS, caution is advised when indicating this position, as it is not without risks and various complications associated with pressure injuries can occur<sup>5</sup>.

The most common complications are pneumonia associated with mechanical ventilation, obstruction or decannulation of the endotracheal tube, accidental extubation and pressure injuries<sup>6</sup>.

Pressure injury is a localized change in the skin and/or underlying tissue, related to breakage of the integumentary system over a bony prominence that is in contact with the surface, because of prolonged unrelieved pressure, whose etiology of LP development is associated to two determining factors: duration and intensity of pressure<sup>7</sup>.

The incidence of pressure injuries is an important indicator of the quality of care. In view of the development of a pressure injury, it is possible to analyze, through its prevalence, the factors to which patients are exposed during the period of application of the pronation technique<sup>8</sup>.

Aiming at the resources that are directed to the treatment of pressure injuries, the costs are mentioned with some frequency in publications since they are easy to verify and can cause social sequelae that are often irreversible. Even with the modernization and use of tools in care, preventing the onset of injuries is still an issue to be

The application of a specific injury prevention care plan for patients submitted to the prone position allows for the effectiveness of the technique and the feasibility of the objectives proposed by it. Using tools that enable quality patient care becomes essential since care and technology are directly linked and based on principles, laws and theories<sup>10</sup>.

The maneuver, when performed in a team and with skill, significantly reduces the incidence of adverse events. With protocols and guidelines in nursing care, this risk can be mitigated, making the maneuver safe<sup>6</sup>.

Therefore, it is proposed as a research problem: What is the importance of nurses' knowledge in the prevention of pressure injuries in patients submitted to the prone position? The relevance of the problem also refers to the fact that the prevention of LP has been considered an indicator of quality in nursing care.

In this context, the Nurse as an integral part of the Nursing team has a fundamental role in assisting with better care practices, managing, and providing specific care aimed at the feasibility of the proposed technique<sup>1</sup>.

Given the above, the objective was formulated: To analyze the importance of nurses' knowledge in patients who need to be submitted to the prone position, preventing pressure injuries and, through the collected data, develop a specific care plan of interventions for the prevention of pressure injury based on the NANDA - NOC NIC diagnostic list during the technique.

Therefore, it is up to nursing to manage through instruments already predisposed, such as the PL assessment scales to include the diagnosis, in terms of pressure injuries, nursing intervention through the recommendations and evaluation of the results of the implemented care<sup>1</sup>.

## Methodology

This study was carried out using the integrative literature review method, a resource of evidence-based practice, which enables the synthesis and analysis of scientific knowledge already produced on the topic investigated. For the elaboration of the integrative review, five stages were covered, which we will discuss below.

The first step consisted of formulating the guiding question: What is the importance of nurses' knowledge in the prevention of pressure injuries in patients submitted to the prone position?

In the second stage, searches were carried out in databases, SciELO (Scientific Electronic Library Online), VHL (Virtual Health Library), PubMed relevant to the health area, covering the period 2011 to 2020, using the descriptors: "prone position", "prone position", "pressure injury" and "nursing care". The research was carried out from August to October 2020.

The inclusion criteria defined were full articles available in the established databases, national publications in Portuguese and English, and electronic journals. The exclusion precepts indicated: repetition in databases and articles that did not directly address the subject of this study.

After analyzing the publications, according to the

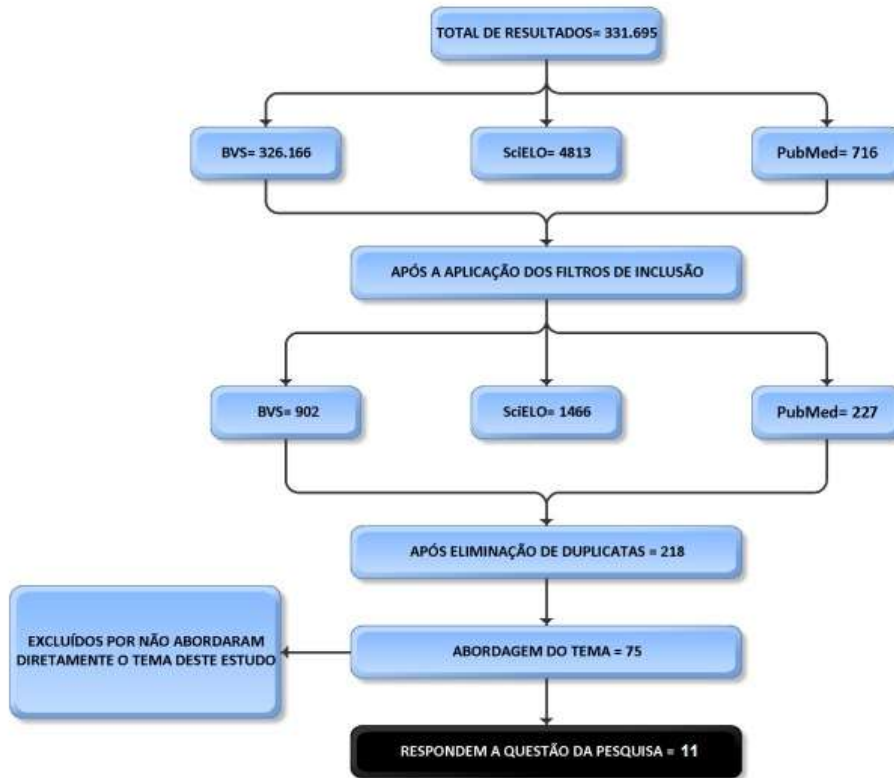


inclusion and exclusion criteria, the articles with relevance to the accessibility and applicability of the Braden Scale were established, which was used as a predictive tool, as it is the guiding tool in the assessment of pressure injuries and continuing with the results and discussions.

In the third and fourth stages, the articles were evaluated and the topics that emerged from the reading

were discussed. Finally, the fifth stage included the analysis of selected articles, describing the results obtained. It is noteworthy that both the analysis and the synthesis of the information extracted from the articles were done in a descriptive way, which made it possible to observe, describe and classify the information to gather the knowledge published on the topic chosen for this review.

Diagram 1. Flowchart of the results collection process to answer the research question. Rio de Janeiro, RJ, Brazil, 2020



Results

Chart 1. Details of the articles selected to compose the objectives of this research. Rio de Janeiro, RJ, Brazil, 2020

TITLE	JOURNAL/ DATA BASE	AUTHORS/ YEAR	MAIN TOPICS COVERED	OBJECTIVES	METHODS	LEVEL OF EVIDENCE
Comparação de escalas de avaliação de risco para lesão por pressão em pacientes em estado crítico	Acta Paulista de Enfermagem/ SciELO	DE ARAUJO et al, 2011	Assessment of care tools	Compare pressure injury risk scales	Exploratory and longitudinal study	A2
Escalas Utilizadas Para Prevenir Lesão Por Pressão Em Pacientes Críticos	Revista Enfermagem Contemporânea	NEVES; SANTOS; SANTOS et al. 2013	Pressure Injury	Identify the scales used to prevent pressure injuries	Integrative review	B5



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Classificação das Lesões por Pressão	Revista Eletrônica da SOBEST	ASSOCIAÇÃO BRASILEIRA DE ESTOMATOLOGIA 2016	Pressure Injury	Issue recommendations for the development of public policies, education, and research	Systematic review	Not applicable
Pressure ulcers in critically ill patients: incidence and associated factors	Revista Brasileira de Enfermagem/ Scielo	BORGHARDT et al. 2016	Pressure Injury, Risk Measurement, Scales, Nursing Care	Identify the incidence and describe the factors associated with pressure injury	Prospective cohort	A2
Safe prone checklist: Construction and implementation of a tool for performing the prone maneuver	Revista Brasileira de Terapia Intensiva/ Scielo	OLIVEIRA et al. 2017	Prone position, methods	Build and implement an instrument to improve safety when performing the prone maneuver	Literature review	B2
Cartilha educacional para enfermeiros sobre lesão por pressão: um estudo de validação	Dissertação de mestrado/RIU	PORTUGAL 2018	Pressure Injury, Risk Assessment	Build an educational technology for the patient at risk of developing pressure injury	Technology validation	Not applicable
Escalas preditivas utilizadas por enfermeiros na prevenção de lesão por pressão	Revista Eletrônica Cesva/ periódicos CAPES	SALGADO et al. 2018	Pressure Injury, Nursing Care, Nursing Assessment	Characterize the support tools used by nurses to prevent pressure injuries	Literature review	Not applicable
Prevenção e Tratamento de Lesão por Pressão	EBSERH	BRASIL, Ministério da Educação, 2018	Patient safety, pressure injury	Implement preventive actions on customers at risk for LP	Literature review	Not applicable
Construção e validação de protocolo para manejo de crianças ventiladas mecanicamente em posição prona	BVS	SILVA 2019	Nursing care, prone position	Build a protocol for the management of mechanically ventilated children in prone	Integrative review	Not applicable
Instrumento para mensuração dos riscos relacionados à pronação de pacientes críticos	BVS	SÁ 2019	Adult Respiratory Distress Syndrome / Pronation	Develop a risk scale for pronation in critically ill adult patients	Systematic review	Not applicable
Pronação em clientes com síndrome do desconforto respiratório agudo	EBSERH	BRASIL, Ministério da Educação (2020)	Pronation	Identify eligible cases for performing pronation therapy in patients with ARDS	Literature review	Not applicable

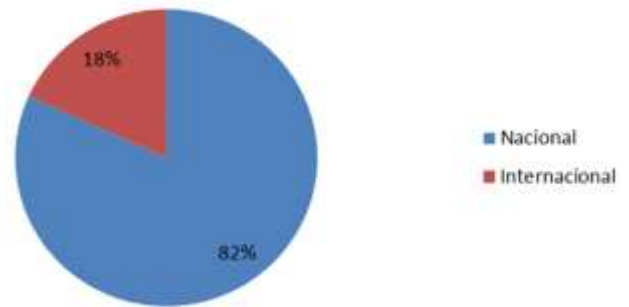
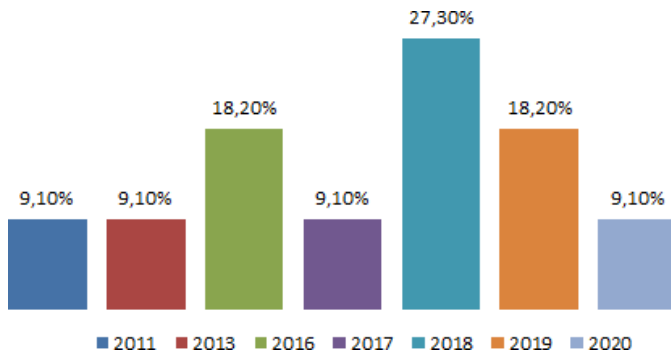
Based on the surveys, of the 11 publications selected, all are related to pressure injury prevention and/or nursing care. There are 8 articles, 1 master's thesis and 1 protocol established by EBSERH linked to the Ministry of Education. As for the year of publication: 1 (9.1%) was

published in 2011; 1 (9.1%) in 2013; 2 (18.2%) in 2016; 1 (9.1%) in 2017; 3 (27.3%) in 2018; 2 (18.2%) in 2019 and 1 (9.1%) in 2020. Regarding the origin of these publications: 9 (81.8%) national and 2 (18.2%) international.



Graph 1. Year of publication. Rio de Janeiro, RJ, Brazil, 2020

Graph 2. Origin of publications. Rio de Janeiro, RJ, Brazil, 2020



The review made it possible to identify that among the 11 articles that were used to develop the discussion of this study, the incipience of clinical studies focused on this theme, as studies aimed at the knowledge of nurses in LP prevention are of paramount importance to reduce the incidence, and mainly to improve the safety and quality of life of the patient.

### Discussion

An integrative review of the guidelines for the prevention of pressure injuries in patients submitted to the prone position was carried out, with the aim of understanding the data collected, answering the formulated question, and expanding knowledge about the proposed topic.

For a better understanding of the study, the discussion was divided into categories and subcategories. The study is presented in the categories: Integumentary System and Pressure Injury, Factors predisposing to PL, Pronation Position, Nurse's Responsibilities in patients submitted to pronation, The importance of the Nurse's knowledge regarding the prevention of pressure injury during the technique of pronation, care plan and nursing interventions in patient management under the pronation technique.

### Integumentary System and Pressure Injury

To approach the subject of LP, we first need to conceptually and simply approach the structures involved. The skin is the largest organ in the human body, which has essential functions such as protection, thermoregulation, and perception. Being vulnerable to aggressions from intrinsic and extrinsic agents that can cause the development of changes in its constitution, such as pressure injuries<sup>13</sup>.

Pressure injury (LP) is a common damage, characterized as the structural and physiological rupture of the skin integument, the mucous membrane, or any part of the body, which can be caused by extrinsic agents such as chemical and physical agents or intrinsic biological agents.

According to the National Pressure Ulcer Advisory Panel (NPUAP), it occurs mainly on a bony surface or related to the use of healthcare devices, or other artifacts<sup>14</sup>.

The lesion may present as an intact skin or an open lesion and may be painful. Injury occurs because of intense and/or prolonged pressure in combination with shear. Soft tissue tolerance to pressure and shear can also be affected by microclimate, nutrition, perfusion, comorbidities, and your condition. LP is organized and defined in stages, being characterized to define the extent of tissue damage<sup>14</sup>.

According to a researcher<sup>13</sup>, currently, there are studies in most literature reviews that around 40 risk assessment scales for LP are expert opinions or adaptations of existing instruments. However, they do not report the identification of weights attributed to risk factors or the use of adequate statistical techniques. In this sense, authors created assessment instruments capable of predicting the occurrence of LP, the best known and most used being those by Norton, Waterlow and Braden.

The Norton Scale assesses five parameters for degree of risk: physical condition, level of consciousness, activity, mobility, and incontinence. Each parameter was scored from 1 to 4, reaching a total of 20 points. Thus, the smaller the final sum, the greater the risk for the development of LP, being more susceptible in patients with scores lower than 12 points. It was the pioneer of scales, being formulated in 1962<sup>15</sup>.

The Waterlow Scale was based on the Norton scale but encompasses more classifications. It assesses seven main topics and the higher the score, the higher the risk of developing LP. The scale is divided into three groups: At risk (10 to 14), high risk (15 to 19) and very high risk >20. The items evaluated on the scale are weight/height ratio (BMI); visual assessment of the skin in risk areas; sex/age; continence; mobility; appetite and medications, in addition to four items that score special risk factors: cell tissue malnutrition, neurological deficit, surgery time over two hours and trauma below the lumbar cord<sup>16</sup>.



Chart 2. Classification of pressure injuries. Rio de Janeiro, RJ, Brazil, 2020

Grau	Definição	Características
LESÃO POR PRESSÃO GRAU I	Perda íntegra com eritema que não desaparece	Perda íntegra com área localizada de eritema que não desaparece e que pode apresentar diferença em pelo de cor rosada. Presença de eritema que desaparece ou mudanças na sensibilidade, temperatura ou cor (arroucho) podem apresentar-se mudanças locais. Mudanças na cor não incluem descoloração purpura ou lastaria; essas podem indicar dano tecidual profundo.
LESÃO POR PRESSÃO GRAU II	Perda de pele em sua espessura parcial com exposição de derme	Perda de pele em sua espessura parcial com exposição da derme. O local de lesão é viável. Os bordos são bem definidos e podem apresentar-se com uma borda fibrinosa (preenchida com coágulo seroso) ou coágulo. O tecido adiposo e lesões profundas não são visíveis. Tecido de granulação, esfacelo e escara não estão presentes. Essas lesões geralmente resultam de má circulação sanguínea e esmagamento da pele na região da pélvis e no calcanhar. Esse estágio não deve ser usado para determinar se lesões de pele associadas à síndrome, incluindo a síndrome associada à síndrome (SAS) e síndrome de morte súbita, a lesão de pele associada a adesivos médicos ou a lesões traumáticas (lesões por fricção, queimaduras, abrasões).
LESÃO POR PRESSÃO GRAU III	Perda de pele em sua espessura total	Perda de pele em sua espessura total (o que a penetra e visível). Frequentemente, lesão de granulação e esfacelo (não com bordas entediadas) estão presentes. Esfacelo e o que resta pode estar visível. A profundidade do dano tecidual varia conforme a localização anatômica; áreas com adiposidade significativa podem desenvolver lesões profundas. Podem ocorrer necrosamento e fibrin. Não há exposição de tecido muscular, tendão, ligamento, cartilagem ou osso vivo. Quando o esfacelo ou escara profunda e identificação da extensão da perda tecidual deve-se classificá-la como Lesão por Pressão total Classificada.
LESÃO POR PRESSÃO GRAU IV	Perda de pele em sua espessura total e perda tecidual	Perda de pele em sua espessura total e perda tecidual com exposição da pele profunda da pele, músculo, tendão, ligamento, cartilagem ou osso. Esfacelo e o que resta pode estar visível. Esfacelo (não com bordas entediadas) frequentemente estão bem definidos. Quando o esfacelo ou escara profunda e identificação da extensão da perda tecidual, deve-se classificá-la como Lesão por Pressão total Classificada.
LESÃO POR PRESSÃO NÃO CLASSIFICÁVEL	Perda de pele em sua espessura total e perda tecidual não visível	Perda de pele em sua espessura total e perda tecidual, de modo que o conteúdo do dano não pode ser confirmado através de métodos para confirmar o estágio. No entanto, quando há perda de pele em sua espessura total e perda tecidual, deve-se classificá-la como Lesão por Pressão total Classificada.
LESÃO POR PRESSÃO TIBULAR PROFUNDA	Descoloração avermelhada, escara, necrose ou escara profunda e que não desaparece	Perda de pele em sua espessura total e perda tecidual de profundidade variável, com exposição de pele profunda da pele, músculo, tendão, ligamento, cartilagem ou osso. Esfacelo e o que resta pode estar visível. Esfacelo (não com bordas entediadas) frequentemente estão bem definidos. Quando o esfacelo ou escara profunda e identificação da extensão da perda tecidual, deve-se classificá-la como Lesão por Pressão total Classificada ou Estágio 3 ou Estágio 4, dependendo da extensão da perda tecidual.

Source: Brazilian Association of Stomatherapy<sup>14</sup>.

The Braden Scale includes sensory perception, moisture, mobility and activity, nutrition, friction, and shear. Each parameter receives a score ranging from 1 to 4, totaling

the score in ranges: no risk (>16), moderate risk (12-16) and high risk (≤ 11), so lower values indicate worse conditions<sup>16</sup>.

Chart 3. Scales and Subscales. Rio de Janeiro, RJ, Brazil, 2020

Escalas de Norton	Escalas de Waterlow	Escalas de Braden
<b>Subescalas</b> Condição física; Nível de consciência; Atividade; Mobilidade; Incontinência.	<b>Subescalas</b> Peso/altura (IMC); Avaliação visual da pele; Sexo/idade; Continência, Mobilidade; Appetite; Medicamentos.	<b>Subescalas</b> Sensorial; Atividade; Mobilidade; Umidade; Nutrição; Fricção ou cisalhamento.
Sub escalas: 1 a 4; Total: 20 pontos; Quanto menor o escore maior risco de UP; Pontuação < 12 maior o risco. (6)	Quanto maior o escore, maior risco de UP; Em risco (escore de 10 a 14); Alto risco (escore de 15 a 19); Altíssimo risco (escore ≥ 20). (13)	Quanto menor o escore, maior risco de UP; Risco muito alto (escores ≤9); Risco alto (escores de 15 a 18 pontos); Sem risco (escores ≥ 19). (14)

Source: Santos and collaborators<sup>10</sup>.

Due to space restrictions on health forms or the time to perform the various nursing cares in Intensive Care Units (ICU), it is important that nurses have access to practical instruments that are more capable of predicting the risk of patients in this condition. critical to develop LP<sup>9</sup>.

Patients in Intensive Care Units (ICU) are the most likely to develop LP due to the difficulty in keeping the skin intact from the first day of hospitalization, having a high risk, mainly due to the limitation in physical activity and mobility. The pronation technique further enhances the limitations and significantly increases the risk of developing pressure injuries<sup>16</sup>.

**Predisposing Factors to Pressure Injury**

Intrinsic factors (humidity; heat; pressure, shear

force and friction) and intrinsic factors (body mass index (BMI) > 30 kg/m<sup>2</sup> or < 18.5 kg/m<sup>2</sup>, anemia, nutritional protein deficiency; age, systemic arterial hypotension, urinary/fecal incontinence, edema, hyperthermia, smoking, dehydration; systemic or local infections; chronic comorbidities (diabetes mellitus; immunosuppression; renal, cardiovascular, neuromuscular, gastrointestinal and other diseases); use of some types of medications (corticosteroids; sedatives; anesthetics, vasoactive) are predisposing to the onset of lesions<sup>11</sup>.

**Pronation Position**

With studies started in the 1970s, the prone position, also known as the prone position or prone position, is the position in which the client has the anterior face of the



body down, with the abdomen in contact with the bed and the head lateralized<sup>17</sup>.

The prone position, conceptually, has as main physiological effect the improvement of oxygenation, being attributed to several isolated or associated mechanisms that can result in a regional improvement in lung mechanics and chest wall, due to the distribution of pressures in the lung parenchyma and of the homogenization of alveolar ventilation<sup>3</sup>.

As described in the study, the pronation technique provides benefits in improving the client's oxygenation,

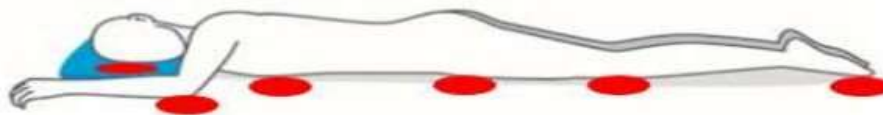
however, it is not without risks, even though they are considered to have a low index. According to studies developed, the development of LP is one of the risk factors that most arise during the technique, being considered as one of the criteria for interruption of the procedure<sup>6</sup>.

Reports in the literature suggest that the incidence of adverse events is significantly reduced in the presence of a trained and experienced team, making the maneuver safe. The emergence and development of LP is a quality indicator in nursing care, as it is predicted, addressed correctly, and diagnosed effectively<sup>6</sup>.

Chart 4. Nurse's responsibilities in patients submitted to pronation. Rio de Janeiro, RJ, Brazil, 2020

Alternate the positioning of the arms and head every 2 hours, to avoid brachial plexus injury and pressure injuries to the face and ear, respectively.
Promote small changes in position and assess skin conditions, especially at points of greater pressure, every 2 hours (figure 1).
Also pay attention to the breast region, especially in women with prosthesis, and to male genitalia.
Regularly monitor the tension of invasive device attachments and assess the skin under and around them.
Alternate the positioning of the arms and head every 2 hours, to avoid brachial plexus injury and pressure injuries to the face and ear, respectively.
Manage facial moisture through aspiration of oral and nasal secretions and placement of an absorbent diaper under the face, changing it whenever it is damp.
Keep sheets clean, dry and well stretched.

Figure 1. Main pressure points in PRONE position: ear, face, elbow, chest, iliac crest, knee and toes. Rio de Janeiro, RJ, Brazil, 2020



Source: Ministry of Education, 2020.

### The importance of the Nurse's knowledge regarding the prevention of pressure injuries during the pronation technique

The Nurse, as well as the entire Nursing team, has a fundamental role in providing comprehensive care to the patient, and in this context, the nurse, when planning and scheduling care delivery actions, must consider the potential risk of developing PL throughout the patients submitted to the PRONE position, since the technique already has high rates of development of the disease, as well as monitoring the developed lesions. The nurse not only manages, but also guides and executes the dressing, since in their training they present curricular components aimed at the development of technical, scientific, and managerial competence in this area<sup>13</sup>.

Generally, these injuries are associated with nursing planning, an assessment tool that guides the team to predict whether the patient has risk factors for developing a

pressure injury, as the maintenance of skin integrity, as well as prevention and the treatment of pressure injuries (PL) is one of the most important responsibilities and priorities of the nurse<sup>18</sup>.

Nursing care is a predictor of the outcome of the injury, from admission, as it is responsible for examining the client's skin, installing preventive supplies, and monitoring with instruments of effective positive and negative predictive power, with the possibility of ensuring the absence of LP during hospitalization. The risk assessment scales for LP are important tools for nurses, as they point out vulnerable points, reinforce the need for constant assessment and encourage prevention. However, it is necessary, in addition to skill, for nurses to adopt the most viable and effective instruments for your work scenario<sup>9</sup>.

### Plano de cuidados e intervenções de Enfermagem no manejo do paciente sob a técnica de pronação

Chart 5. Nursing Diagnoses and Interventions. Rio de Janeiro, RJ, Brazil, 2020

Diagnóstico de Enfermagem	Fatores relacionados	Intervenções de Enfermagem
Risco de integridade da pele prejudicada	<b>Externos:</b> - Agente químico lesivo; - Excreções; - Hidratação; - Hipertermia; - Hipotermia; - Pressão sobre saliência óssea; - Secreções; - Umidade.	<b>Internos:</b> - Alteração no volume de líquidos; - Fator psicogênico; - Nutrição inadequada.
Risco de infecção	- Alteração na integridade da pele	- Realizar lavagem das mãos antes e depois dos procedimentos - Monitorar exames laboratoriais - Monitorar sinais e sintomas sistêmicos
Risco de lesão por pressão	- Atrito em superfície; - Conhecimento insuficiente do cuidador sobre prevenção de lesão por pressão; - Conhecimento insuficiente sobre os fatores modificáveis; - Déficit no autocuidado; - Desidratação; - Forças de cisalhamento; - Hidratação da pele;	<b>Populações em risco</b> <b>ADULTO: escore na Escala Braden &lt; 17</b> - Alívio da pressão sobre as proeminências ósseas; - Terapia Nutricional; - Controle da Sensibilidade Periférica - Posicionamento correto durante a técnica
Troca de gases prejudicada	- Dispneia - Gasometria arterial anormal Hipoxemia - Hipóxia	- Controle da ventilação mecânica - Controle de medicamentos - Aspiração de vias aéreas - Monitorização de sinais vitais.
Risco de integridade tissular prejudicada	- Conhecimento insuficiente sobre manutenção da integridade tissular - Conhecimento insuficiente sobre proteção da integridade tissular - Mobilidade prejudicada	- Cuidados com lesões - Cuidados com lesão por pressão - prevenção de lesão por pressão - Supervisão da pele - Cuidados com a pele
Mobilidade no leito prejudicada	- Conhecimento insuficiente sobre estratégias de Mobilidade	- Cuidados com o repouso no leito
Distúrbio na Imagem Corporal	- lesão	- Redução da ansiedade - Apoio emocional

Chart 6. NANDA I 2018 - 2020 Nursing Diagnoses and NANDA NOC-NIC Links. Rio de Janeiro, RJ, Brazil, 2020

Plano de cuidados
- Promover pequenas mudanças de posição e avaliar as condições da pele, principalmente em pontos de maior pressão.  - Atentar também para a região mamária, principalmente em mulheres com prótese, e para genitália masculina.  - Monitorar regularmente a tensão das fixações de dispositivos invasivos e avaliar a pele sob os mesmos e ao redor.  - Manter a pele sem umidade.  - Gerenciar a umidade do rosto por meio de aspiração de secreção oral e nasal e posicionamento de fralda absorvente sob a face, trocando-a sempre que estiver úmida.  - Manter os lençóis limpos, secos e bem esticados.  - Adotar as recomendações para prevenção de lesão por pressão.  - Coletar amostra de sangue arterial, para análise de gasometria, uma (1) hora antes de retornar à posição supina.  - Realizar os registros de controle dos parâmetros de resposta ventilatória da técnica de pronação segura.

Source: Ministry of Education, 2020.

**Conclusion**

Nurse professionals, as well as the entire nursing and health team involved in the care of the client submitted to the Pronation position, need to be constantly updated and trained to approach the technique. Having a different look at a disease that can be prevented is essential for the management of health care.

The effectiveness and benefits of the technique

have already been proven by studies evidenced by practice, and over the years it has been improved and explored as an aid tool in the care of clients who need an improvement in ventilatory support.

Based on nursing diagnoses, it is important to discuss with the care management team the possible complications based on the individualities and particularities of everyone, such as age, weight and other





associated factors that can contribute to the development of pressure injuries during the technique.

It is concluded that the nurse must be the guide of care with the prevention of pressure injuries, since it is the team member who, through tools, is able to collect the

individual's data, perform nursing diagnoses and possible risks, plan the care of the client in an integral way, assist in the implementation and evaluate the results from the prescription of care.

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