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# Incidence of pressure injury in patients in the intensive care unit of a philanthropic hospital

**ABSTRACT** | The aim of this research was to determine the incidence and analyze the profile of patients with pressure injuries, focusing on risk factors, clinical and demographic characteristics of patients admitted to the Intensive Care Unit (ICU) of the IMIP hospital, as well as the stage and location of the injuries on body. This is a descriptive, documentary study, with a quantitative approach. Held in the Surgical ICU of the hospital complex of the Instituto de Medicina Integral Professor Fernando Figueira (IMIP), located in Recife in the state of Pernambuco, through the collection of data from the daily censuses and the use of the Braden scale with a specific form during the period of October 2018 to December 2018. One realizes the importance of teamwork, with strategic planning, always seeking to resolve failures not in isolation, but together, whether in the medical, nursing, nutritional, physical therapy, and of other professionals involved in the care of the patient admitted to this unit.

**Keywords:** Pressure Injury; Health Care Quality Indicators; Intensive Care Unit.

**RESUMEN** | El objetivo de esta investigación fue determinar la incidencia y analizar el perfil de los pacientes con lesiones por presión, enfocándose en los factores de riesgo, las características clínicas y demográficas de los pacientes ingresados en la Unidad de Cuidados Intensivos (UCI) del hospital IMIP, así como el estadio y la ubicación de las lesiones. en el cuerpo. Este es un estudio documental descriptivo, con un enfoque cuantitativo. Realizado en la UCI Quirúrgica del complejo hospitalario del Instituto de Medicina Integral Professor Fernando Figueira (IMIP), ubicado en Recife en el estado de Pernambuco, a través de la recopilación de datos de los censos diarios y el uso de la escala de Braden con una forma específica durante el período de Octubre de 2018 a diciembre de 2018. Uno se da cuenta de la importancia del trabajo en equipo, con planificación estratégica, siempre buscando resolver las fallas no de forma aislada, sino en conjunto, ya sea en la medicina, enfermería, nutrición, fisioterapia y de otros profesionales involucrados en el cuidado del paciente ingresado en esta unidad.

**Palabras claves:** Lesión por Presión; Indicadores de Calidad de Atención Médica; Unidad de Terapia Intensiva.

**RESUMO** | O objetivo desta pesquisa foi determinar a incidência e analisar o perfil dos portadores de lesão por pressão, enfocando fatores de risco, características clínicas e demográficas dos pacientes internados em Unidade de Terapia Intensiva (UTI) do hospital IMIP, assim como estágio e localização das lesões no corpo. Trata-se de um estudo descritivo, documental, com abordagem quantitativa. Realizado na UTI Cirúrgica do complexo hospitalar do Instituto de Medicina Integral Professor Fernando Figueira (IMIP), localizado em Recife no estado de Pernambuco, através da coleta de dados dos censos diários e do uso da escala de Braden com um formulário específico durante o período de outubro de 2018 a dezembro de 2018. Percebe-se a importância de um trabalho em equipe, com planejamento estratégico, buscando sempre solucionar as falhas não de forma isolada, mas em conjunto, seja na área médica, da enfermagem, nutricional, fisioterapia, e dos outros profissionais envolvidos no cuidado do paciente internado nesta unidade.

**Palavras-chaves:** Lesão por Pressão; Indicadores de Qualidade em Assistência à Saúde; Unidade de Terapia Intensiva.

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## INTRODUCTION

The Ministry of Health, through Ordinance No. 466 of 1998, defines the Intensive Care Unit (ICU) as a sector that "[...] consists of a set of functionally grouped elements, intended for the care of critically ill patients or at risk, requiring uninterrupted medical and nursing assistance, as well as specialized equipment and human resources"<sup>(1)</sup>.

The role of the ICU is of paramount importance in increasing the survival of critically ill patients, from those usual victims of trauma, neurological, respiratory or any other type of dysfunction. Environment composed of a multidisciplinary team, where qualified, specialized assistance and cons-

tant observation are provided<sup>(2)</sup>.

In this context, factors that change our social and epidemiological reality, such as the introduction of advanced technologies, the increase in the number of elderly people, new diseases and the increase in the rate of illness due to chronic diseases that require intensive care, at some point, have generated new assistance demand, determining the rapid evolution of new specialties<sup>(3)</sup>. Consequently, ICUs have been a strategy for offering specialized support for health care, being one of the most complex sectors within the hospital environment and requires the use of cutting-edge technological and therapeutic resources. Thus, these are some factors that contribute to the increase in costs related to intensive

care, being extremely important that the treatment of inpatients in this sector has a good cost-efficiency ratio<sup>(4)</sup>.

Although the ICU increases the patient's survival, the deleterious effects of immobility and exposure to it deserve attention. Due to the patient's clinical condition and the variety of invasive procedures performed, the risk of acquiring an infection increases dramatically<sup>(5)</sup>. On the other hand, immobility contributes significantly to the patient's functional decline, increasing the incidence of neuromuscular, pulmonary, cognitive complications, pressure injuries and worsening quality of life<sup>(6)</sup>.

In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) standardized a new concept on pressure ulcers (pressure injuries) and their staging. Currently, pressure ulcers are called "pressure injuries" and are defined as:

"localized damage to the underlying skin and / or soft tissue, usually on a bony prominence or related to the use of a medical device or other artifact. The lesion can appear on intact skin or as an open ulcer and can be painful. The injury occurs because of intense and / or prolonged pressure in combination with shear. Tolerance of soft tissue to pressure and shear can also be affected by microclimate, nutrition, perfusion, comorbidities and their condition"<sup>(7)</sup>.

In this context, the World Health Organization (WHO) uses the incidence and prevalence of pressure injuries as one of the indicators to determine the quality of care provided, as around 95% of PIs are preventable, so it is essential to use all the means available to carry out effective prevention and treatment of already



One of the preventive mechanism is the Braden Scale, which was developed based on the pathophysiology of PIs, using three determinants: intensity, pressure duration and tissue tolerance. It has six subscales: sensory perception, skin moisture, activity, mobility, nutritional status and friction and shear, which are scored from one to four, except for friction and shear, whose score ranges from one to three.



established PIs<sup>(8)</sup>. In this context, the World Health Organization (WHO) uses the incidence and prevalence of pressure injuries as one of the indicators to determine the quality of care provided, as around 95% of LPs are preventable, so it is essential to use all the means available to carry out effective prevention and treatment of already established PIs<sup>(9)</sup>.

In Brazil, studies have evaluated the incidence and prevalence of PI both in the hospital environment and in long-term care facilities and in households, revealing that the numbers vary according to the scenario and the profile of the patients studied, with the incidence between 3.6% and 66.6%<sup>(10)</sup>.

In this circumstance, prevention ends up being the focus of professionals responsible for patient care. The preventive approach must be multidisciplinary and begins with the early identification of susceptible patients, covering the care team, in addition to the family members involved and the patient himself, when possible. Pressure distribution mechanisms, periodic change of position, incontinence control, skin care and nutrition are the main measures involved<sup>(11)</sup>.

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This study aims to identify the incidence of PI in patients admitted to the ICUs in a hospital complex, relating to its main causes.

## METHODOLOGY

This is a cross-sectional, documentary and analytical study of a quantitative nature, whose place of study took place within the adult ICU of the Professor Fernando Figueira Institute of Integral Medicine (IMIP), located in the Bairro da Boa Vista, in the city of Recife, Pernambuco. This ICU has 10 beds, admitting patients from small, medium and large surgeries in the following specialties: vascular, otolaryngology, general surgery, orthopedics, plastic surgery, head and neck, gynecology and urology, occasionally also admitting transplant patients and the Emergency Service (SPA). The population consisted of patients admitted to the adult ICU of the IMIP hospital complex, who were at risk of developing pressure injuries according to the Braden scale, which comprises a total of 91 patients of both genders. The collection period was from October to December 2018.

It was a sequential sample composed of all the medical records of adult ICU patients at the IMIP hospital complex who were complete for data collection and who were admitted during the study period. As this was a case series study, no sample calculation was necessary.

To start the data collection, the project was first presented to the Coordinator of the research sector and to the Board of Directors of the health center, in order to make the project viable through the authorization to carry out the research provided in a documentary form through the letter of consent. Thus, the project was submitted to the Research Ethics Committee (CEP) with human beings from the institution. After a favorable opinion from the CEP, the collection began, whose inclusion criteria were patients with complete medical records

and who accepted to participate in the research by signing the Informed Consent Term (ICF), patients evaluated using the Braden scale at risk of develop PI and patients aged 18 to 80 years. And as exclusion criteria, patients who, even after signing the informed consent form, expressed interest in not participating in the research or patients already admitted with PI.

During the study period, daily visits were made to the ICU of the IMIP hospital complex in search of medical records for the collection of personal and identification data, hospitalization data, diagnosis, associated comorbidities, patient origin, clinical severity, mortality and functionality indicators. All data were collected through a data collection form, built for this study and after expressing interest in participating in the research through IC. The data were recorded in a Microsoft Excel® spreadsheet with double entry for data validation, eliminating possible typing errors. After validation, the data were transferred to the EpiInfo® program version 7 for application of statistical analysis. The results will be presented in frequency graphs.

The research is governed by Resolution No. 466/2012 of the National

Health Council (CNS) and counts with the letter of consent and Opinion No. 2,836,607 from the CEP of the Pernambuco Health College in the city of Recife - PE. And it has minimal risks of exposure of patient data, which were mitigated by ensuring the confidentiality of the research. As benefits, the research serves as an instrument to assess and recognize the factors that favor the development of pressure injuries and propose measures to minimize this occurrence, providing subsidies for the creation of management methods that can reduce the incidence in the ICU environment, promoting a better quality of care.

The data will be kept by the researchers for five years, guaranteeing their secrecy and confidentiality.

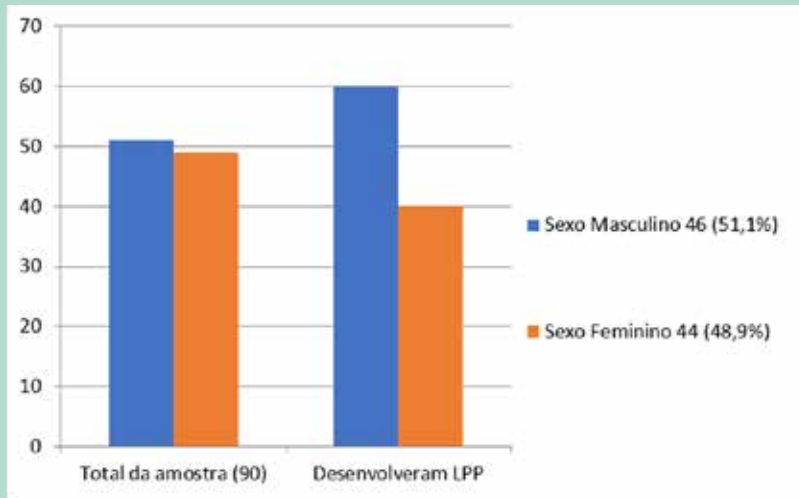
## RESULTS

In the period, 90 patients participated in the research after signing the informed consent form, all of them presented some risk of developing pressure injury, according to the Braden scale. Five PI notifications were identified in this period, corresponding to an incidence of 5.6% of the total sample, as shown in Graph 1.

Graph 1. Incidence of Pressure Injury. Recife, PE, Brazil, 2018



Graph 2. Incidence by sex. Recife, PE, Brazil, 2018

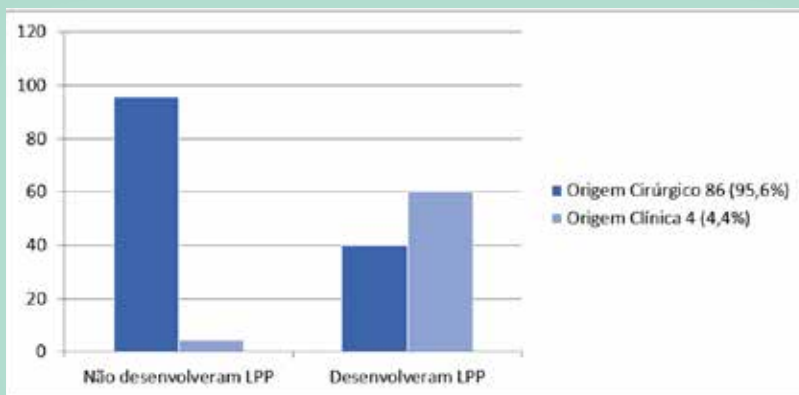


It was observed that among the research patients, 46 (51.1%) were male and 44 (48.9%) female, referring to those who developed LP, 3 (60%) were male and 2 (40%) female, according to Graph 2.

Regarding the origin of these patients, 86 (95.6%) of surgical origin and 4 (4.4%) of clinical origin, of these, developed LP 3 (60%) of clinical origin and 2 (40%) of surgical origin, as Graph 3.

Regarding the Braden scale, of the total sample participating in the research, 3 (3.3%) had a minimal risk, 68 (75.6%) had a moderate risk and 19 (21.1%) had a high risk for the development of injury, when referring to those who developed LP, 3 (60%) moderate risk and 2 (40%) high risk. According to Graph 4.

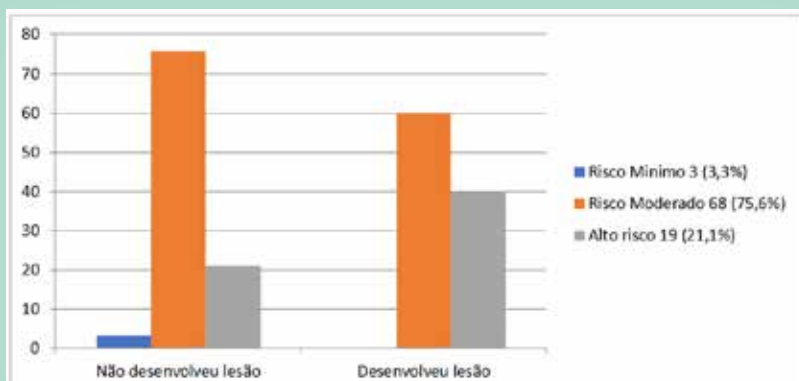
Graph 3. The PI incidence by source in the unit. Recife, PE, Brazil, 2018



According to the TISS assessment, of the total sample, 12 (13.3%) had class II, 18 (20%) class III, 3 class IV (3.3%), and 57 (63.3%) without evaluation, as they were discharged before 24 hours, of those who developed LP, 4 (80%) were classified as class III and 1 (20%) class IV. According to Graph 5.

Regarding the reason for the patient's departure from the ICU, of the total sample, 82 (91.1%) were transferred and 8 (8.9%) died, when referring to those who developed PI, 4 (80%) were death and 1 (20%) per transfer. According to Graph 6.

Graph 4. The PI incidence by risk assessment. Recife, PE, Brazil, 2018

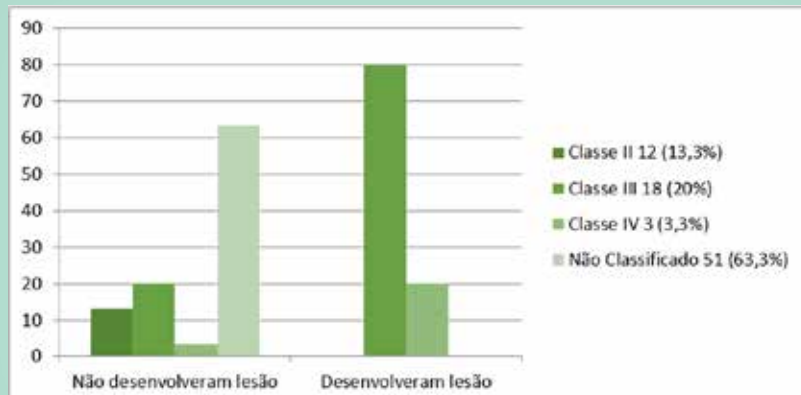


## DISCUSSION

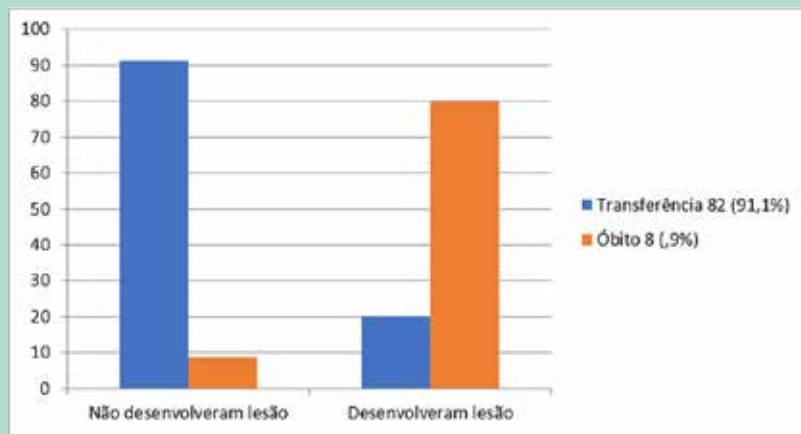
The presence of PI represents one of the main complications of patients hospitalized in critical locations, due to their severe clinical conditions or the need for more rigorous and frequent procedures, whether invasive or not.

Due to these injuries compromising the patient's clinical condition and increasing the length of hospital stay, a multidisciplinary team's attention is required for prevention, always applying

Graph 5. Incidence of PI development according to severity. Recife, PE, Brazil, 2018



Graph 6. Incidence of patients leaving the unit. Recife, PE, Brazil, 2018



effective techniques, and encouraging the theory of self-care.

According to NPUAP data, the prevalence of LPs in hospitals is 15% of admitted patients, and the incidence is 7%. In the United Kingdom, new cases of LP affect between 4 and 10% of admissions. In Brazil, although there are few studies on incidence and prevalence, a study carried out in a general university hospital showed an incidence of 39.81%. Regarding the incidence in the ICU, national studies have indicated values ranging from 23.1 to 62.5%<sup>(13)</sup>. In view of the above, the result of 5.6% identified for the incidence of PI in the investigated ICU

is below expectations for hospital units and intensive care centers.

This low incidence can be attributed to a set of factors and the importance of teamwork, in addition to the Nursing Care Systematization (SAE), which operates continuously and promotes a positive recovery of patients admitted to this unit. The nurse's assessment carried out daily using the Braden scale contributes to prevention and to making decisions in the event of developing PI, in addition, the hospital unit has a specialized stomatherapy team to monitor these injuries.

It is noted that of the patients who developed PIs, the highest percentage

was of clinical patients, verifying that care should be more intense and cautiously directed towards this clientele, since the unit in its vast majority receives surgical patients.

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International and national guidelines advise the use of the Braden scale to contribute to the identification of patients who are at risk for PI since admission and during the hospitalization period and the application of preventive measures by professionals. It is suggested that the reevaluation occurs at least every 48 hours after admission or whenever the patient's conditions change. Given the above, it was seen that all patients present some risk for the development of the lesion, and that of those who developed it, no patient was evaluated as a minimum risk, but a moderate risk and a high risk, which also needs to be paid attention to which measures are being applied when patients receive this assessment.

As for the evaluation criteria by TISS, it was analyzed that patients who developed PI, received classification III or IV, meaning patients who require intensive care, hemodynamically unstable patients, requiring a differentiated and directed action plan, with the participation of the multidisciplinary team.

About the research participants,

it was seen that there was a predominance, as a reason for leaving the ICU, the transfer, however, of those who developed PI, the predominance was death, meaning that the patient's clinical condition was severe, therefore, the importance of SAE, which acts in an individualized way and directed to each patient, in order to provide a positive prognosis. Knowing that there is a direct relationship between the development of PI and the position in which the patient remains for a longer period, it can be concluded that the patients remained in bed for a prolonged time in the same decubitus position, favoring the development of the lesion. Such facts refer us to the need for assessment and registration by the team about the patient's hemodynamic condition, as well as the importance of scheduling the decubitus change according to clinical condition, which must be evaluated at each shift change.

#### CONCLUSION

The study shows a low incidence of PI in patients admitted to the ICU, considering the reference of international and national studies. It was also observed that the predominance was in cli-



Such measures aim to further reduce the incidence of PI in this unit, especially in patients of clinical origin, reinforcing the use of the maximum mechanisms to prevent the development of these lesions



nical and non-surgical patients, which is the specialty of the study ICU.

Although there is an effective performance of the multidisciplinary team, especially the nursing staff who have the SAE instrument and are with the patient 24 hours a day, previously identifying cases at risk for developing PI, continuous education and protocol evaluation are still necessary established by the unit for their prevention. Such measures aim to further reduce the incidence of PI in this unit, especially in patients of clinical origin, reinforcing the use of the maximum mechanisms to prevent the development of these lesions, acting intensely in these patients who receive a higher score according to the TISS and a more attenuated assessment according to the Braden scale.

One realizes the importance of teamwork, with strategic planning, always seeking to solve the failures, not in an isolated way, but together, whether in the medical, nursing, nutritional, physical therapy, and other professionals involved in the care of the patient admitted to this unit. It is essential to act holistically to provide the patient with a good recovery and a better quality of life. 🐾

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