

# CUIDADO É FUNDAMENTAL

Escola de Enfermagem Alfredo Pinto – UNIRIO

RESEARCH

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## THE USE OF THE PRESSURE ULCER SCALE FOR HEALING IN THE EVALUATION OF THE HEALING PROCESS OF THE PRESSURE INJURY

*O uso do pressure ulcer scale for healing na avaliação do processo de cicatrização da lesão por pressão*

*El uso de la pressure ulcer scale for healing en la evaluación del proceso de curación de la lesión por presión*

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### ABSTRACT

**Objective:** to describe the healing process of pressure injuries in medical clinic wards according to Pressure Ulcer Scale For Healing and to discuss the contributions of nursing to specialized wound care with a view to the quality of health care. **Method:** this is a cross-sectional research, the scenario of which was a public hospital in the State of Rio de Janeiro. The participants were eight adult patients, admitted to medical clinic wards and with pressure injury. Data were collected during dressings. **Results:** the analysis of the healing process of the lesions, according to the instrument showed that no patient progressed to score 0 (epithelialized wound) during the follow-up time of 4 weeks. **Conclusion:** the use of a validated instrument to monitor healing is an important tool for the management of care, because it allows the reliably and systematic analysis of the evolution of each patient.

**DESCRIPTORS:** Pressure ulcer; Wound healing; Nursing care.

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## RESUMO

**Objetivo:** descrever o processo de cicatrização das lesões por pressão em enfermarias de clínica médica segundo Pressure Ulcer Scale for Healing e discutir as contribuições da enfermagem para o cuidado especializado em feridas com vistas a qualidade da assistência em saúde. **Método:** trata-se de uma pesquisa transversal, cujo cenário foi um hospital público no Estado do Rio de Janeiro. Os participantes foram oito pacientes adultos, internados em enfermarias de clínica médica e portadores de lesão por pressão. Os dados foram coletados durante a realização dos curativos. **Resultados:** a análise do processo de cicatrização das lesões, segundo o instrumento demonstrou que nenhum paciente evoluiu para o score 0 (ferida epitelizada) durante o tempo de acompanhamento de 4 semanas. **Conclusão:** a utilização de um instrumento validado para acompanhamento da cicatrização é uma ferramenta importante para a gerência do cuidado, pois permite analisar de maneira confiável e sistemática a evolução de cada paciente.

**DESCRITORES:** Lesão por pressão; Cicatrização; Cuidados de enfermagem.

## RESUMEN

**Objetivo:** describir el proceso de curación de lesiones por presión en las clínicas médicas de acuerdo con la Pressure Ulcer Scale For Healing y discutir las contribuciones de enfermería a la atención especializada de heridas con miras a la calidad de la atención médica. **Método:** se trata de una investigación transversal, cuyo escenario fue un hospital público en el estado de Río de Janeiro. Los participantes fueron ocho pacientes adultos, ingresados en clínicas médicas y con lesiones por presión. Los datos se recopilaban durante los apósitos. **Resultados:** el análisis del proceso de curación de las lesiones, según el instrumento mostró que ningún paciente avanzó a score 0 (herida epitelizada) durante el tiempo de seguimiento de 4 semanas. **Conclusión:** el uso de un instrumento validado para monitorizar la curación es una herramienta importante para la gestión de la atención, ya que permite el análisis fiable y sistemático de la evolución de cada paciente.

**DESCRIPTORES:** Úlcera por presión; Cicatrización de heridas; Atención de enfermería.

## INTRODUCTION

Pressure ulcers (PU) have always been a problem for health services, mainly because they are an indicator of quality. In addition, the financial issue repercurs in large costs from its treatment. For the nursing and multidisciplinary teams it is also a challenge, either because of the high incidence, prevalence, and even the diversity of existing prophylactic and therapeutic measures, besides impacting on the increase of mortality and morbidity.<sup>1</sup>

The process of assessing and documenting patients' injuries is an important step to guide the planning and implementation of therapeutic interventions. The use of instruments for this evaluation allows unifying the way of observation of professionals and the adopted conducts.<sup>2-3</sup>

Pressure ulcers are complex wounds that require a thorough and complete assessment of the individual, in addition to regular systemic evaluations of both the patient and the wound.<sup>4</sup>

As established by the National Pressure Ulcer Advisory Panel (NPUAP), the classification of a pressure ulcer is by localized damage to the skin and/or underlying soft tissues, usually over a bony prominence, related to the use of a medical device or other artifact, considering that the lesion may present itself in intact skin or as an open ulcer. The lesions are divided into stages 1, 2, 3, 4, unclassifiable PU, and deep tissue PU. Additional classifications include medical device-related PU and PU on mucous membranes.<sup>5</sup>

The importance of wound assessment has led to the development of standardized instruments that are included in institutional protocols for topical and systemic treatment. Numerous

assessment instruments for wound types are known as: Shea Scale, Sussman Wound Healing Tool (SWHT), Sessing Scale, The Pressure Sore Status Tool (PSST), and Wound Healing Scale, whose publications, although lacking evaluation of their predictive validity, present different described reliability and validity indices.<sup>6</sup>

The PUSH was created in 1996 by the North American Task Force of the National Pressure Ulcer Advisory Panel (NPUAP) responsible for developing protocols for PU prevention.<sup>7</sup> In Brazil, the PUSH was cross-culturally adapted and validated in 2005.<sup>6</sup>

From the initial contextualization about the object, a research problem was elaborated: how does the pressure ulcer healing process occur according to the PUSH?

The following hypothesis emerged: the PUSH is a tool that can help nurses in the evaluation of the pressure ulcer healing process.

In order to answer the research problem, the following objectives were established: to describe the healing process of PUs in medical wards according to the PUSH and discuss nursing contributions to specialized wound care with a view to quality of health care.

## METHODOLOGY

Research with a quantitative and cross-sectional approach. Cross-sectional studies are those that involve data collection at a certain point in time, where it is possible to contemplate all the phenomena studied and describe them at a fixed time.<sup>8</sup>

The setting for this research was a large public university hospital with approximately 525 beds and more than 60 specialties and subspecialties. The data collection field was three

clinical medicine wards, located on the third floor of the unit, with respectively 10, 12 and 12 beds divided into 50% female and 50% male.

Regarding ethical aspects, this research was registered in the Plataforma Brasil of the Ministry of Health, as recommended by Resolution No. 466/2012, of the National Health Council (CNS/MS), which regulates the development of research involving human beings.<sup>9</sup>

As data collection occurred at the time of dressings, according to the unit's routine, and no interview with the participants was necessary, the waiver of the informed consent form was requested. Data collection only started after approval by the Ethics Committee of the investigated institution through opinion number: (CAAE: 04192018.9.0000.5259), anonymity was respected, and the participants' identity was preserved.

Eight adult patients admitted to the medical clinic wards of the aforementioned hospital participated in this study, selected by convenience, according to the following inclusion criteria: having a PU in stages 1, 2, 3 or 4, and the injury could have been acquired during the current hospitalization or in a previous situation. Exclusion criteria: patients admitted to the medical wards with skin lesions of etiologies other than the one that this study is about, and patients with PUs followed as outpatients, that is, who were not hospitalized. In case of hospital discharge, death, transference or any circumstances that would prevent the follow-up, the patients would be excluded from the study. In accordance with the exclusion criteria, 5 patients were removed from the study due to the impossibility of follow-up.<sup>8</sup>

Data were collected during the daytime during the dressing of the PU patients selected for this study. The follow-up occurred once a week, on alternate days in each of the three medical clinic wards in the study setting, respecting the four evaluation periods for each patient, with a seven-day interval for each evaluation.

Data collection occurred as follows: after opening the dressing and cleaning the lesion with 0.9% saline solution by the sector nurse responsible for the dressing, the lesion area was measured (length x width in cm<sup>2</sup>), and the type of tissue prevalent in the bed was evaluated, as well as the amount of exudate present (in the removed dressing) to fill the tool (PUSH). The assessments were done during the period March 14, 2019 to August 22, 2019, totaling 32 investigations.

There are many instruments used to evaluate different types of wounds, with different reliability and validity rates described in the literature. For this study, the Pressure Ulcer Scale for Healing (PUSH) was chosen because it is an instrument already adapted and validated in Brazil. This instrument is composed of 3 parameters: wound area in cm<sup>2</sup> (greatest length versus greatest width); amount of exudate present in the wound (absent, small, moderate, or large); and wound bed appearance (type of tissue prevalent in the wound bed).<sup>5</sup>

Each of these parameters generate subscores that when added together generate a total score ranging from 0 to 17. The higher the score, the worse the conditions of healing, while the scores that decrease indicate improvement in the healing process.<sup>6</sup>

The data were organized in a Microsoft Excel 2010 database and later analyzed through simple descriptive statistics and presented through the graphic of the evolution of the wound healing process according to the PUSH and discussed based on the previously selected literature.

## RESULTS

Of the total patients evaluated, three (37.5%) were male and five (62.5%) were female; the mean age was 59.75 years, ranging from 40 to 78 years. Of these, six (75%) had acquired the PU during a previous stay in the ICU of the same hospital, one (12.5%) patient in an emergency care unit and one (12.5%) in the medical clinic unit of the studied setting.

Regarding mobility, most patients were bedridden, six (75%), and two (25%) walked with assistance (P7 and P8). Regarding the use of the pneumatic mattress by the patients with impaired mobility, it was found that only three (37.5%) of the patients (P3, P7 and P8) were using the mattress in all visits. About the dimensioning of the pneumatic mattresses, it was noteworthy the fact that the patients who were using the mattress, two (25%) were walking with assistance (P7 and P8) and those six (75%) of patients who were bedridden and needed the pneumatic mattress were not prioritized for use, being only one patient (12.5%) (P2) contemplated from the third visit of the researcher.

Regarding bladder-intestinal elimination, six (75%) patients (P1, P2, P3, P4, P5 and P6) were using a diaper, two (25%) of these (P1 and P2) were also using indwelling urinary catheter (indwelling catheter).

It was observed that all patients were equivalent regarding the primary dressing used, which was papain. The investigated institution handles the powdered version of the dressing in several concentrations.

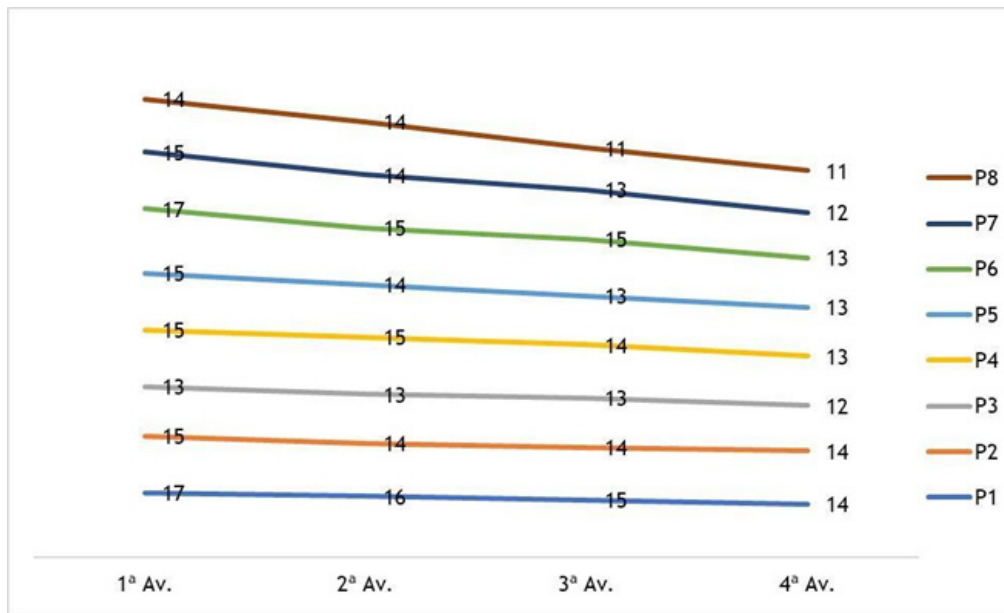
Regarding nutritional support, six (75%) (P1, P3, P5, P6, P7 and P8) fed orally, of these, only P6 and P7 did not use hyperprotein supplementation due to restrictions of their underlying diseases, two (25%) fed enterally.

In this study, the overall healing scores according to PUSH ranged from 17 to 11 in the patients investigated, and the overall mean score was 13.9.

Regarding wound area (greatest length versus greatest width), eight (100%) of the investigated participants had an average score ranging from 7 to 10 points, which means that the lesions were considered medium or large, with dimensions of 4.1 to more than 24 cm<sup>2</sup>.

It was observed, according to the PUSH, that three (37.2%) of the patients (P1, P3 and P4), had a considerable reduction of the lesion, above 20 cm<sup>2</sup>, but there was no decrease in the score, because although the reductions were significant, the lesions remained above 24 cm<sup>2</sup> (score 10), which represents the maximum score in this category.

Continuing the analysis, two patients (P5 and P6), obtained reduction with change in score, leaving the score 10 (greater than 24 cm<sup>2</sup>) for 9 (12.1 to 24 cm<sup>2</sup>) and two (25%) patients,

**Graph 1** – Evolution of the healing process of PUs according to PUSH. Rio de Janeiro, RJ, Brazil, 2019

represented by P7 and P8, obtained a more favorable reduction in this category, (P7) migrating from score 10 (greater than 24 cm<sup>2</sup>) to 8 (8.1 to 12 cm<sup>2</sup>) and (P8) that varied from the initial score 9 (12.1 to 24 cm<sup>2</sup>) to 7 (7.4 to 8 cm<sup>2</sup>). Only one patient (12.5%), represented by P2, had an increase in wound area totaling 20 cm<sup>2</sup> between the first and fourth assessment.

Regarding the second variable of PUSH, which corresponds to the amount of exudate present in the wound, the measurement of exudate to the naked eye is a subjective variable and the following parameters were considered: 0 corresponds to absent exudate (dry primary dressing), 1 exudate in small amount (primary dressing with exudate), 2 moderate amount (primary and secondary dressing covered with exudate) and 3 large amount (exudate leaking out of the dressing).

That said, three (37.2%) of the patients (P4, P6 and P8) evolved from moderate quantity (score 2) to small quantity (score 1) as of the third week of evaluation. The same number of patients, three (37.2%) (P2, P5 and P7), kept the same score in the four evaluation visits (score 2), that is, moderate exudate. One patient (12.5%) (P3) showed evolution migrating from exudate in small amount to absent (score 1 to 0), obtaining the lowest score and consequently the best parameter in this aspect, on the other hand, another patient (12.5%), represented by P1, had the highest score (score 3), exudate in large amount, which only evolved to moderate from the third week of follow-up.

About the third and last aspect investigated in the PUSH, which corresponds to the type of predominant tissue in the wound bed (necrotic tissue/ eschar; sphacelo granulation and epithelialization), the data show that there was a prevalence of sphacelo as the prevalent tissue in the bed of lesions, since it appeared in 19 of 32 assessments, granulation tissue appeared in 11 and necrotic tissue / eschar (coagulation necrosis) only in 2 assessments corresponding to two (25%) of patients (P1 and

P6), both in the first evaluation visit. Most patients, six (75%) showed improvement in relation to the type of tissue present in the wound bed, as evidenced by the presence of granulation tissue in the fourth visit, thus showing that the lesions evolved positively. However, two (25%) of the patients (P6 and P8) ended the evaluations keeping slough as the predominant tissue in the bed. Sphacellum is a type of devitalized tissue and hinders the evolution of tissue repair. Thus, these patients had a delay in the healing process.

Based on the analysis of the healing process of PUs, according to the PUSH, it can be seen that of eight (100%) of the patients investigated, none evolved to score 0, i.e. epithelialized/healed wound during the follow-up time of 4 weeks (approximately 1 month). However, in chronic wounds, as is the case with PU, this time may vary and last for months or even years, depending on complex intrinsic and extrinsic factors.

## DISCUSSION

According to the results obtained, it was possible to evaluate that the healing process of hospitalized patients with chronic wounds occurs slowly and not always gradually. One of the measures for prevention and minimization of PU is the use of special mattresses that distribute body pressure, however, in this research, it was possible to observe that neither the quantity nor dimensioning of this utensil was adequate to the health needs of patients with PU. It is the nurse's role to develop and implement preventive protocols, which include commitment to quality and improvement of structural issues, including human and material resources.<sup>10-11</sup>

Another considerable factor of paramount importance for both prevention and management of patients with PU is the change of decubitus every 2 hours, which does not occur in the



investigated institution due to the lack of human resources in the nursing team, which has no 24-hour nurse and the team of nursing technicians is not enough to meet the complexity of patients admitted to the medical clinic units. It is considered that the change of decubitus should be adopted as routine in all places where there are bedridden patients, it is recommended that every 2 hours the change of decubitus is done in order to prevent and treat the PU. It is known that human resources are of paramount importance for a better quality of care, however, nursing leaders encounter many difficulties in adjusting the number of professionals to the demand for care in health institutions, mainly due to budgetary issues.<sup>12-13</sup>

PU stands out as the most prevalent wound in Brazil, affecting about 25% of hospitalized patients, this factor is considered a public health problem due to the increasing costs to the health system. However, studies have shown that the appearance of chronic wounds is becoming more common due to the increase in life expectancy and the onset of chronic diseases.<sup>14</sup>

A Brazilian study carried out in a university hospital in the state of Maranhão evaluated patients admitted to the medical clinic wards with chronic wounds. The total number of patients evaluated was 30, 6 of which had PUs. The study shows that the average length of stay of these patients with chronic lesions was 51.8 days. As for the area of the lesions evaluated, most (76.6%) were smaller than or equal to 50 cm<sup>2</sup>. The study concluded that although the chronic lesions may show signs of healing, the repair process may last for years and directly affect the quality of life of the affected people.<sup>15</sup>

Considering the high hospitalization time of patients with chronic lesions, it is possible to think of the high cost of both the pharmacological treatment and the supplies to change the dressings, a factor that may generate a large increase in hospital expenses. For this reason, it is important to think about prevention, because if there are resources to inhibit the appearance of PU, one can invest in other improvements in hospital units.<sup>16</sup>

Regarding the primary cover, papain, its properties are highlighted: anti-inflammatory, bactericidal, bacteriostatic, selective debridement, thus favoring the tissue repair process.<sup>17</sup>

This factor may be associated with the fact that in the same week the patient underwent two intestinal preparations for the colonoscopy exam, which led to intense diarrhea with many diaper changes during the 24 hours, in addition to hydroelectrolytic and nutritional losses. It is noteworthy that there are intrinsic factors that contribute to an inadequate evolution of the PU, such as nutritional status and hemodynamic instability.<sup>18</sup>

It can also be stated that poor nutritional status is directly related to the development and poor prognosis of PU, in addition to the extrinsic factor of humidity, which is related to the case cited, a patient with diarrhea due to preparation for specific exams, but the main factor for the development and worsening of PU is the extrinsic pressure on the area.<sup>19</sup>

There are some prevention strategies, such as risk assessment scales. These establish, by scoring, the probability of PU occurrence in a patient based on a series of parameters considered

as risk factors. The use of risk classification scales (predictive scales), decubitus change, and nutritional support are some care strategies to prevent the occurrence of PUs.<sup>20</sup>

The Braden scale is the most cited in literature on this subject. Its criteria consider: nutritional status, mobility level, sensory perception, friction, shear, humidity, and activity level. One of the functions of nurses can be the application of this scale, considering the items indicated in it, which should occur from the moment of admission, so that the team can act upon the risk.<sup>21</sup>

Other preventive measures include a careful skin evaluation, at least once a day, especially in areas of bony prominence, such as knees, elbows, heels, sacral and scapular regions; the use of special mattresses and cushions to redistribute pressure; maintaining body hygiene by keeping the skin clean and dry; daily moisturizing of the patient's skin with moisturizing and humectant creams; change of decubitus every two hours, favoring a reduction in local pressure.<sup>11</sup>

It is known that these prevention measures have existed for more than 30 years, but their implementation depends on the support of the team, which needs to interact in order to associate the clinical, educational, and managerial aspects.<sup>11</sup>

However, when there is no possibility of applying preventive factors, and in fact an injury starts, it is essential that there is the proper knowledge of the team about the ideal factors for healing, thus reducing the risks of complications, hospitalization and treatment time, and consequently health costs.<sup>21</sup>

## CONCLUSION

This study identified that the use of a validated instrument to assess the wound healing process is an important tool for care management, since it allows a reliable and systematic analysis of the lesions of each patient.

We conclude that through the use of this tool the nurse can statistically prove parameters for the acquisition of better resources and technologies and thus increase the quality of nursing care provided to patients with skin lesions.

Among the limitations of the study that deserve to be highlighted are the number of participants and the investigation carried out in only one scenario; therefore, it is not intended to generalize its results. However, as a cross-sectional research, it is considered that the objectives set out were achieved and that the research problem was answered.

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