

# KNOWLEDGE OF NURSING PROFESSIONALS REGARDING PRESSURE ULCERS IN TWO SURGICAL UNITS – PART 1

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**ABSTRACT:** A case study was undertaken in a teaching hospital, in December 2012 – February 2013, aiming to identify the knowledge of the nursing professionals regarding pressure ulcers in two surgical units, with emphasis on aspects relating to prevention. A total of 25 nursing professionals participated, and a validated instrument was used which considers appropriate knowledge to be held by those who obtained 90% of correct answers or more. The mean for correct answers in the units was equal to 73.88%. The most common errors were: the concept of stage III of pressure ulcers and the indication of massage in regions of bony prominence, raising the bed to an angle greater than 30°, the use of gloves full of water, gel inflatable ring cushion, and the repositioning of seated patients. There is also evidence for the need for updating regarding the issue of pressure ulcers in accordance with the guidelines.

**DESCRIPTORS:** Nursing care; Healthcare; Pressure ulcers.

## CONHECIMENTO DOS PROFISSIONAIS DE ENFERMAGEM SOBRE ÚLCERAS POR PRESSÃO EM DUAS UNIDADES CIRÚRGICAS – PARTE 1

**RESUMO:** Realizou-se um estudo de caso em um hospital de ensino, no período de dezembro de 2012 a fevereiro de 2013, com objetivo de identificar o conhecimento dos profissionais de enfermagem sobre as úlceras por pressão em duas unidades cirúrgicas, com destaque para aspectos relativos à prevenção. Participaram 25 profissionais de enfermagem e utilizou-se um instrumento validado que considera conhecimento adequado aos que obtiverem 90% de acertos ou mais. A média de acertos das unidades foi igual a 73,88%. Os erros mais comuns: o conceito de estágio III das úlceras por pressão e a indicação de massagem em regiões de proeminência óssea, elevação da cama a um ângulo superior de 30°, uso de luvas d'água, almofadas tipo roda d'água, reposicionamento de pacientes sentados. Os resultados evidenciam a necessidade de atualização sobre o tema úlceras por pressão de acordo com os *guidelines*.

**DESCRIPTORES:** Cuidados de enfermagem; Assistência à saúde; Úlceras por pressão.

## CONOCIMIENTO DE LOS PROFESIONALES DE ENFERMERÍA SOBRE ÚLCERAS POR PRESIÓN EN DOS UNIDADES QUIRÚRGICAS – PARTE 1

**RESUMEN:** Es un estudio de caso realizado en un hospital de enseñanza, en el periodo de diciembre de 2012 a febrero de 2013, con objetivo de identificar el conocimiento de los profesionales de enfermería acerca de las úlceras por presión en dos unidades quirúrgicas, con destaque para aspectos referentes a la prevención. Participaron 25 profesionales de enfermería y se utilizó un instrumento validado que considera conocimiento adecuado a los que obtuvieron 90% de aciertos o más. La media de aciertos de las unidades fue igual a 73,88%. Los errores más comunes: el concepto de fase III de las úlceras por presión y la indicación de masaje en regiones de proeminencia ósea, elevación de la cama a un ángulo superior a 30°, uso de guantes d'água, almohadas redondas, reposicionamiento de pacientes sentados. Los resultados apuntan la necesidad de actualización sobre el tema úlceras por presión de acuerdo con los *guidelines*.

**DESCRIPTORES:** Cuidados de enfermería; Asistencia a la salud; Úlceras por presión.

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## INTRODUCTION

Pressure ulcers (PU) are characterized as wounds in the skin which occur mainly in regions of bony prominence, due to pressure, shearing and friction. The pressure provokes a lack of blood flow in the region, causing ischemia and consequent tissue necrosis<sup>(1-2)</sup>.

In surgical patients, the PU are related to the length of time of surgery, positioning, sedation and the accentuated humidity of the skin caused by the use of antiseptic products. It is calculated that the incidence of wounds caused by inappropriate surgical positioning varies between 12% and 45%<sup>(3)</sup>.

The care taken for preventing and monitoring PU is of multi-professional responsibility; however, the nursing team is essential in the care for patients with these wounds<sup>(4)</sup>. Thus, knowledge of the factors contributing to the occurrence of PU is fundamental, as through understanding the cause, it is possible to detect patients prone to the appearance of these wounds and to direct actions towards their prevention<sup>(5-7)</sup>, so as to minimize the consequences of the PU.

The PU causes an overload in the work of the health professionals, and increases the use of material resources and the costs of the inpatient treatment<sup>(6)</sup>. For the patients, in addition to the discomfort, these wounds prolong the period of inpatient care and raise the risk of developing infections and consequent complications in the patient's state of health<sup>(8)</sup>.

In the light of this context, it is relevant to evaluate the professionals' knowledge, so as to identify possible gaps in their skills and competences regarding PU, in order to elaborate efficient educational measures, overcome shortcomings, and improve the quality of the care.

One of the ways of evaluating the nursing professionals' knowledge was developed by North-American nurses<sup>(9)</sup> in a questionnaire made up of 47 questions regarding the prevention, treatment and monitoring of PU. This test was translated and adapted to the Brazilian context<sup>(10-11)</sup>, in which six questions were excluded which referred to technologies which are not available in Brazil.

Understanding the importance of this knowledge in the work of the health professional

for the quality of the care, it is intended through this study to identify the knowledge which the professionals have regarding PU, with a focus on prevention, in the General Surgery and Digestive System Surgery units of a teaching hospital.

## METHOD

A case study was held in two nursing services. Data collection occurred in December 2012 – February 2013, in the following departments: General Surgery (GS) and Digestive System Surgery (DSS) of a teaching hospital of a tertiary level in the city of Curitiba, Paraná.

The inclusion criteria were: to be a nursing professional of a medium level or to have graduated with more than six months of experience, and not to be on leave in the data collection period. The exclusion criteria was the failure to hand in the questionnaire.

The inpatient GS unit had a total of 17 nursing professionals, of whom only 13 were involved in the study: five nurses, four nursing technicians and four auxiliary nurses, as one was on leave and three refused to participate in the study. The DSS department was made up of 17 professionals, of whom 12 answered the questionnaire: one nurse, six nursing technicians and five auxiliary nurses; one was on leave and four did not participate.

For measuring the professionals' knowledge, the evaluative questionnaire elaborated by the North-Americans, adapted to the Brazilian context, was used, indicated for all the professional categories of nursing, including students. The instrument is composed of socio-demographic questions and 41 items, indicated as true (T), false (F) or don't know (DK), referring to the concepts and care for identifying, classifying and preventing PUs. Knowledge considered as adequate corresponds to 37 (90%) correct answers or more<sup>(11)</sup>.

The data were tabulated with the help of the Microsoft Office Excel 2007 program. The questions answered correctly corresponded to one point, and those which were incorrect or which were not answered did not score. The professionals' knowledge was considered satisfactory when the sum of points in the test corresponded to 37 points, or more than 90% of correct answers.

The project was approved by the Ethics Committee of the hospital where the study was

undertaken, under Opinion number 181,924, on 26th December 2012. The ethical principles were respected in line with Resolution 196/96, after the terms of consent had been signed.

## RESULTS

For the contextualization of the socio-demographic scenario of the participants, the following results are presented: of the 17 nursing professionals from the GS department, 13 (76.47%) participated, 12 (92.31%) were female, the mean age was 44.33 years old, and six (46.15%) stated that they had attended courses and lectures on PU. In the DSS department, all of the 17 professionals, 12 (70.59%) answered the questionnaire, eight (66.67%) were female, the mean age was 46.83 years old, and only

three (25%) stated that they had participated in educational activities on this issue.

The individual results of the departments show a mean of correct answers of 32.08 (78.24%) in the GS department, and 28.50 (69.51%) in the DSS service. Emphasis is placed on the difference of 8.73 percentage points between the units' means for correct answers. Neither of the units achieved the score considered as satisfactory, that is, 37 correct answers and more, as the two units' mean was 30.29 (73.88%) correct answers.

In all, in the GS, none of those evaluated achieved the 90% or more of correct answers considered necessary, in spite of 53.85% of the professionals obtaining correct answers for more than 80% of the questions. The DSS department obtained a performance inferior to that of the GS, as represented in Table 1.

Table 1 – Distribution of the participants in the test of knowledge regarding PU, by percentage of correct answers. Curitiba-PR, 2013

Percentage of correct answers	General Surgery (n=13)	Digestive System Surgery (n=12)	Total (n=25)
	F	F	F
50 à 60	01	01	02
60 à 70	01	07	08
70 à 80	04	02	06
80 à 90	07	02	09
≥ 90	0	0	0
Total	13	12	25

Key: T – true; F – false; GS – General Surgery; DSS – Digestive System Surgery

In relation to the eight items regarding concepts of pressure ulcers and staging, the GS unit showed lack of uniformity in the knowledge. Although those evaluated obtained 100% correct answers in two questions on staging, it was observed that in other statements, the correct answers were of 53.85% and 61.54%. The mean in the percentage of correct answers for this category was 75.96%. In the DSS, the mean in the percentage of correct answers in this category was 48.96%, which corresponds to 27.01 percentage points less than the mean of the other department. Moreover, the same discrepancy of knowledge was observed, as in one of the questions, the number of correct answers was 0%.

In the six items related to the risk factors, the nursing professionals from the GS department showed satisfactory knowledge, that is, they obtained correct answers for over 90%, apart

from the question regarding skin hygiene, such as the use of soap and hot water, which resulted in a mean of 89.75% of correct answers. The DSS department obtained very similar results, and with poor performance in the question on skin hygiene. The mean for the department's percentage of correct answers was equal to 86.11%. In the total for the category, the units obtained a mean of 88%, with the difference between the means of the departments being 3.63 percentage points.

The GS department obtained satisfactory performance in relation to the 13 questions on prevention, namely: inspection of the skin, humidity/incontinence, nutrition and risk evaluation. The mean was 94.68%, it being the case that in eight questions, the team obtained 100% of correct answers. The DSS department obtained a mean of 91.03% of correct answers. It is highlighted that of

the total of the questions on prevention of PU, the professionals obtained 100% correct answers in six. Regarding the total result obtained by the two units, a mean of correct answers equal to 89.54% was obtained. The difference between the means of the departments was 3.65 percentage points.

In the item of prevention of extrinsic factors such as: friction forces, shearing and pressure and mobility of the patient, there was a total of 14 questions. The GS department obtained 100% of correct answers

in the three questions relating to the mobility of the patient. The mean percentage in the block was equal to 59.34%. The DSS department obtained the mean percentage of correct answers of 54.17%. Of the 14 questions, the professionals obtained correct answers in 100% for two, relating to the patient's mobility. The general mean obtained by the two units was equal to 53.71%, and the difference between the means of the two units was 5.17 percentage points. The correct answers are described in Table 2.

Table 2 – Percentage of correct answers in the evaluative questionnaire for measures preventing PUs in the general surgery and digestive system surgery units. Curitiba-PR, 2013

Questions	CG (n=13)		CAD (n=12)		Total (n=25)	
	f	%	f	%	f	%
It is important to massage bony prominences to promote circulation and prevent pressure ulcers, if these are hyperemic (F).	0	0	02	16,67	02	08
Creams, transparent dressings, and extra-fine hydrocolloid dressings assist in protecting against the effects of friction (T).	12	92,31	11	91,67	23	92
Persons confined to bed should be repositioned every 3 hours (F).	10	76,92	06	50	16	64
A scale with times for changing position must be used with patients with, or at risk of developing, PU (T).	9	69,23	11	91,67	20	80
Gloves full of water or air relieve the pressure on the heels (F).	4	30,77	0	0	4	16
Ring cushions (filled with water or air) assist in preventing PU (F).	4	30,77	0	0	4	16
In the lateral decubitus position, the patient with PU or at risk of the same must remain at an angle of 30° in relation to the mattress (T).	4	30,77	4	33,33	8	32
In the patient with PU or at risk of the same, the head of the bed must not be raised at an angle greater than 30°, if there is no medical contraindication (T).	0	0	4	33,33	4	16
A person who cannot move self should be repositioned while sitting in a chair every two hours (F).	04	30,77	0	0	04	16
The patient with limited mobility and who can change position of the body without help must be advised to relieve pressure every 15 minutes, when seated in a chair (T).	11	84,62	07	58,33	18	72
The patient with limited mobility and who can remain in a chair must have a cushion on the seat to protect the region of bony prominences (T).	13	100	11	91,67	24	96
Sliding sheets or mattress protectors must be used to transfer or move patients who cannot move on their own (T).	13	100	12	100	25	100
Mobilization and transference of patients who cannot move alone must always be undertaken by two or more persons (T).	13	100	12	100	25	100
A good way to decrease pressure on the heels is to elevate them off the bed (T).	11	84,62	11	91,67	22	88

Legenda: V – verdadeiro; F – falso; CG – Cirurgia Geral; CAD – Cirurgia do Aparelho Digestivo.

## DISCUSSION

The mean of 73.88% of correct answers obtained by the departments is similar to the 73.5% of correct answers obtained by 50 nursing professionals in the Intensive Care Center of a tertiary hospital in the non-metropolitan region of São Paulo<sup>(12)</sup>. One can also cite a study undertaken in the Hospital Universitário Sul Fluminense do Rio de Janeiro, where 51 professionals achieved a mean of 71.5%. These worked in adult and neonatal ICU units, in Emergency Room, in the rooms of those with private or company health care plans, and in adult and pediatric hospital wards<sup>(13)</sup>.

In the light of this result, one can observe the necessity for the constant updating of the nursing team regarding the care necessary for preventing and treating PU, given that they did not achieve the necessary percentage to have a satisfactory knowledge.

The participants demonstrated satisfactory knowledge in some items such as the staging of the PU in grade I and IV. This information is necessary in order to initiate the treatment at an early stage, as the PU in stage I, that is, hyperemia and intact skin, with appropriate care measures, such as the relief of the pressure, healing can occur within 24 hours<sup>(14)</sup>. It follows that evaluating the wound and the characteristics and indicating the appropriate actions are essential knowledges for the nurse, from the beginning of her academic training.

In the surgical units, PUs in stage I are common, as for the patient to remain in the surgical position for two hours or more already predisposes to the appearance of PU<sup>(15)</sup>. Another relevant aspect in the surgical patient is that the pain present in the postoperative period can reduce physical mobility and self-care<sup>(16)</sup>, promoting the appearance of PU.

In patients with morbid obesity who undertake bariatric surgery, the main complications are related to the immobilization of the patient. Pressure ulcers are among these complications<sup>(17)</sup>.

Among the errors committed by the professionals, emphasis is placed on questions of cleaning the skin, massaging regions of bony prominences, raising the bed at an angle superior to 30°, the use of gloves full of water, ring cushions, soap, and repositioning of patients.

In relation to cleaning the skin, it is highlighted that hot water and soap can dry out the skin and

leave it predisposed to breaking. A bath with soap triggers an increase of skin pH, which interferes with the physiological protection of this barrier, provoking a change in the composition of the cutaneous microbiota. The use of this product can also affect the epidermis, through dissolving the surface fat on this and changing the activity of enzymes. As a result of this, the hydration is impaired and there is predisposition for drying and scaling of the skin<sup>(18)</sup>.

Massage in regions of bony prominence when the skin is hyperemic is not indicated for prevention of PU. Believing that massage will help in the oxygenation of the area, many professionals use this practice; however, the activity only increases pressure, and may cause further damage<sup>(1,12,19)</sup>.

The bed must not be elevated at an angle superior to 30° in cases of patients with PU or who are at risk of acquiring them, as the sliding of the patient in the bed causes shearing, and, as a consequence, lesions occur in the sacral region<sup>(1,17,19)</sup>. Regarding the repositioning in a chair, this must be undertaken at least every hour, when the patient does not move on their own, inclining the seat so as to reduce the contact of the patient's buttocks and the support surface. Also recommended is the use of gel or air cushions to alleviate the pressure on the bony prominences<sup>(14)</sup>.

Gloves and ring cushions must not be used for relieving pressure, as these localize the pressure, thus making the appearance of lesions possible<sup>(2,20)</sup>. Furthermore, the gloves or gel cushions in contact with the skin or in direct contact with the pyjamas promote vasoconstriction; they promote the development of pathologies due to the low oxygen uptake, as is the case in the development of PU<sup>(21)</sup>.

The mechanical redistribution of the patient is an important strategy and must be undertaken appropriately in order to have an effect. Some mattresses with special viscoelastic foams are already available on the market, which can be used in surgical centers, as they allow the prevention of PU<sup>(15)</sup>.

In one study undertaken in a teaching hospital in the south of Brazil, with 219 medical records of patients with PU, it was observed that care in protecting bony prominences was the third care measure most prescribed by nurses<sup>(22)</sup>.

Some of the errors committed, such as the

use of gloves full of water, ring cushions and massage occur due to the staff's knowledge being out of date. These measures, which were once recommended, continue in use, promoting mistakes in the attendance<sup>(5,7,12,23)</sup>. Continuous education can minimize or resolve these errors, promoting the updating of scientific knowledge<sup>(23-24)</sup>.

Due to the small number of participants, and the failure to fill out information in the form referring to updating of knowledge regarding PU, it was possible to correlate the data with the mean of correct answers in the questionnaire. There is the hypothesis that participation in educational activities related to PU increases the mean for correct answers. This assertion was verified in another study, in which the educational intervention increased the percentage of correct answers of a group of auxiliary nurses and nursing technicians from 74.3% to 81.2%, confirming the importance of updating knowledge<sup>(13)</sup>.

Some health institutions' continuing education programs, however, have a limited ability to produce changes, as they maintain the programmatic logic of the actions, neither challenging the participants nor problematizing their own practices. The results of the continuing education end up remaining only on paper or in the notebooks. As a result, there are no significant changes between the 'before' and 'after' of the continuous education program. In order to ensure better results, one must evaluate the existing knowledge gaps, prior to undertaking studies and dissemination of the knowledge<sup>(24)</sup>.

## CONCLUSIONS

Knowledge is a fundamental requirement for good practices in nursing. In the case of PU, this knowledge avoids pain and suffering for patients, as well as a reduction of costs for the institutions. A shortage of knowledge was evidenced in the two units researched, in aspects related to prevention of PU and actions which are no longer indicated by international guidelines.

The results point to the need for, and the importance of, continuing education for updating and deepening knowledge for the professionals in their work, for there to be quality attendance to the patient.

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