

Knowledge and practices of nursing professionals in pressure injury prevention and care

Conhecimentos e práticas de enfermagem na prevenção e cuidado às lesões por pressão

Conocimientos y prácticas de enfermería en la prevención y atención de las úlceras por presión

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Abstract: Objective: to identify the knowledge of the nursing staff about multiple factors that may predispose to development and imply to the care of pressure ulcers in hospitalized patients admitted in clinical units. **Method:** descriptive study with mixed method, with data collected between 2018 April and July, in a university hospital in Rio de Janeiro, with 47 nursing professionals. After approval by the Research Ethics Committee, the tool “Instrumento para Identificação do Nível de Conhecimento Sobre Úlcera de Pressão e Medidas Preventivas” was applied, with results analyzed by descriptive and inferential statistics. Latter, participants answered a semi-structured interview, evaluated through content analysis. **Results:** a knowledge deficit related to injury prevention was identified. Regarding care, there is prejudice related to the lack of human and material resources. **Conclusion:** permanent in-service education about these issues are necessary, as well as the guarantee of human and material resources.

Descriptors: Nursing care; Pressure ulcer; Knowledge

Resumo: Objetivo: identificar o conhecimento da equipe de enfermagem sobre os múltiplos fatores que predispõem ao desenvolvimento e implicam no cuidado de lesões por pressão em pacientes internados em unidades

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clínicas. **Método:** estudo descritivo, de abordagem mista, com dados coletados entre abril e julho de 2018 em um hospital universitário do Rio de Janeiro, com 47 profissionais de enfermagem. Após aprovação pelo Comitê de Ética em Pesquisa, aplicou-se o Instrumento para Identificação do Nível de Conhecimento Sobre Úlcera de Pressão e Medidas Preventivas, com resultados analisados por estatística descritiva e inferencial. Posteriormente, realizou-se a entrevista semiestruturada, analisada por meio de análise de conteúdo. **Resultados:** identificou-se déficit de conhecimento da equipe de enfermagem voltada à prevenção de lesões. Em relação aos cuidados, constatou-se que são prejudicados pela falta de recursos humanos e materiais. **Conclusão:** faz-se necessária a educação permanente em serviço sobre o tema, além da garantia de recursos humanos e materiais.

Descritores: Cuidados de enfermagem; Lesão por pressão; Conhecimento

Resumén: Objetivo: identificar el conocimiento del personal de enfermería sobre los múltiples factores que pueden predisponer al desarrollo e implicar en el cuidado de las úlceras por presión en pacientes hospitalizados en unidades clínicas. **Método:** estudio descriptivo, método mixto y datos recopilados entre abril y julio de 2018, en un hospital de Río de Janeiro, con 47 profesionales. Después de la aprobación del Comité de Ética en Investigación, se aplicó la herramienta “Instrumento para Identificação do Nível de Conhecimento Sobre Úlcera de Pressão e Medidas Preventivas”. Resultados se analizaron mediante estadística descriptiva e inferencial. Posteriormente, respondieron una entrevista semiestructurada, evaluada a través del análisis de contenido. **Resultados:** se identificó un déficit de conocimiento relacionado con la prevención de lesiones. Hay prejuicios relacionados con la falta de recursos humanos y materiales. **Conclusión:** la educación permanente en el servicio sobre estos temas es necesaria, así como la garantía de recursos humanos y materiales.

Descriptorios: Atención de enfermería; Úlcera por presión; Conocimiento

Introduction

The present study aims to determine the knowledge of the nursing staff about the factors that predispose the development of Pressure Injuries (PI), as well as the care involved in patients admitted to a clinical inpatient unit.

PI have the characteristic of damage to the skin and/or underlying soft tissue, usually over bony prominences, or related to device use. It may present with intact skin or open ulcer¹. In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) defined the term pressure injury, which accurately describes lesions on intact or ulcerated skin, with changes in its classification. Further, the term “category” was replaced for “stage” and the term “suspected” was removed¹⁻².

Its development is associated with etiological factors related to the intensity and duration of tissue pressure, as well as extrinsic factors such as friction, shear and moisture, and intrinsic factors such as age, nutritional condition and tissue perfusion³.

The occurrence of PI is a public health problem. It has aroused concern among nurses and the multidisciplinary team, as its incidence and specificity increase the patient's suffering, as well as difficult the recovery process and extend hospitalization time⁴. Upon the presence of the lesion, it is necessary to reassess the risk factors, with a wider point of view of the phenomena that are involved, and to direct effective actions according to the identified needs⁵.

Although studies on prevention and care actions carried out after the development of this condition continue to advance, in care practice, as in scientific studies, there is still low adherence to recommendations for the evaluation, prevention and treatment of PI⁶.

The present study refers to the continuity of a previous field research, which indicated that, even when risk factors for PI are identified, they were still developing in patients admitted to a clinical inpatient unit. Therefore, it is necessary to identify the reasons that led to this outcome to support local education and management actions⁷. In addition, this hospital has recently been designated for a pilot PI prevention project by the institution's Safety Commission. Thus, the question is: what is the knowledge of the nursing staff about predisposing factors and care of PI?

Literature describes that nursing professionals often know the measures to prevent such injuries, but there is a need to reinforce good practices based on scientific evidence on a daily basis to ensure the implementation of these actions⁸. Continuing education actions can also promote the adoption of systematized measures focused on the individuality of each patient⁹. It is also noteworthy that considering the international patient safety goals, PI are among the adverse events considered as an action priority¹⁰.

Consequently, the present study aimed to identify the knowledge of the nursing staff about the multiple factors that predispose the development of PI and at the same time influence the care of PI in patients admitted to clinical units.

Methods

This is a descriptive study with a mixed approach, integrating quantitative and qualitative data, collected sequentially, in 11 clinical inpatient units of a state university hospital of quaternary level of care, in the city of Rio de Janeiro. Data collection took place between April and July 2018.

Three clinical inpatient units were selected, which had between 10 and 12 hospital beds, for both sexes, available to patients during the study. These units assist patients over 18 years old, in medical clinic, diagnosed with cardiovascular, renal, gastrointestinal, dermatological and oncohematological diseases.

Including the three units, the nursing staff consisted of 5 nurses and 51 nursing technicians, working in day and night shifts, with an average of 3 nursing technicians and 1 nurse in the day shift and 3 nursing technicians during the night shift. All work on 12-hour shifts for 60 weekly hours at the institution.

All nursing professionals were invited to participate in the study, however 5 nurses and 42 nursing technicians, day and night shift, agreed to participate voluntarily. Six nursing technicians who were on leave were excluded. There were 3 cases of refusal to participate.

Data collection took place in two stages: the first was performed with 47 nursing staff professionals, when the instrument for Identification of the Level of Knowledge on Pressure Injury and Preventive Measures was applied, consisting of 41 objective questions to assess knowledge of nursing professionals on the classification, risk assessment and preventive measures to the development of PI¹².

This instrument was adapted to the Brazilian context and evaluated for its content as part of the activities of the Doctoral Thesis “Effects of educational interventions on the knowledge

and practices of nursing professionals and the incidence of pressure injuries in an intensive care center”, in 2006. It is significant that the original version was developed in 1995, with the objective of investigating the right/wrong index related to knowledge about prevention and staging of PI¹³.

In a second stage, a semi-structured interview was conducted, consisting of three open questions: “What do you know about preventive measures against pressure injuries?”, “How does your nursing work routine influence the prevention of pressure injuries?” and “How can the performance of other members of the multiprofessional team (e.g., doctors, nutritionists or physiotherapists) contribute to the prevention of pressure injuries?”.

In this stage participated 5 nurses and 6 nursing technicians, professionals working in the 3 inpatient units, during the day and night shift defined by convenience, from the sample composed in the first phase. The interviews were held inside the institution, in a reserved place chosen by the participant, during his/her work shift, lasted around 30 minutes and were recorded on digital media.

The same importance was attributed to the data from both approaches, opting for their separate presentation. However, the qualitative analysis was directed, based on the knowledge gaps observed in the quantitative phase during the application of the instrument for Identification of the Level of Knowledge on Pressure Injury and Preventive Measures.

The quantitative data collected from the Instrument for Identification of the Level of Knowledge on Pressure Injury and Preventive Measures were tabulated in Microsoft Excel® software and analyzed using descriptive and inferential statistics with the aid of Statistical Package for the Social Sciences®(SPSS), using the Chi-square test to investigate possible associations between the professional categories and the answers found, as well as between the work units (1, 2 or 3) and the answers found ($p < 0.05$).

Afterwards, content analysis was performed according to the methodology composed by: (1) pre-analysis, with organization of the material and composition of the study frame; (2) material exploration process by which data is systematically transformed and aggregated into units; and (3) treatment of results, with inference and interpretation, seeking to base the analysis and give meaning to interpretation¹⁴, emerging 166 record units (RU), 17 meaning units (MU) and 2 categories: Preventive measures of pressure injuries and factors that influence the onset of pressure injuries.

The project was approved on March 7, 2018 by the institution's Research Ethics Committee, under protocol 2.531.761 and CAAE 81997517.3.0000.5259, in compliance with the valid ethical principles. It also obtained authorization from the institution involved for its realization. By signing the Informed Consent Form, all participants were informed about the study objectives and the participants' individual confidentiality. Care was taken to avoid any embarrassment and there was no financial or material compensation for participation.

Results

Among the 47 participants, the majority were female (76.6%), and had a mean age of 39.47 years (SD = 8.24). Regarding the professional category, there was a predominance of nursing technicians (89.4%), with an average work time of 16.8 years (SD = 7.28). There was a predominance of day shift participants (65.9%).

Assessment of knowledge on prevention and care for pressure injuries

Assessment data using the instrument for Identification of the Level of Knowledge on Pressure Injury and Preventive Measures is presented in Table 1, which shows the hit scores for the relevant outcomes on the assessed knowledge, with questions grouped according to evaluated content, or presented individually, in the case of results relevant to this study. It was

also important to investigate whether there was an association between knowledge and practices evaluated, with professional categories and work units.

Table 1: Chi-square test of association between the answers to the questions of the instrument for Identification of the Level of Knowledge on Pressure Injury and Preventive Measures, in order to identify the level of knowledge about pressure injuries: preventive measures, professional category and work unit (n = 47), Rio de Janeiro-RJ, 2018.

Assessed knowledge (Topic)	Right answer		p-value*	p-value*
	N	%	Professional category	Work unit
Assessed knowledge (sets of questions)				
Skin assessment	47	100,0	-	-
Skin assessment and cleansing	43	91.5	0.505	0.571
Assessment of risks associated with PI	45	95.8	0.673	0.477
PI preventive measures	43	91.9	0.422	0.336
Patient mobilization	43	91.5	0.505	0.443
Classification and staging of lesions	40	85.8	0.573	0.318
Isolated questions				
Patient guidance	47	100.0	-	-
Bony prominences protection	45	95.7	0.618	0.108
Skin moisture care	43	91.5	0.670	0.253
Patient's nutritional factor	42	89.3	0.717	0.632
Pressure reduction with calcaneal elevation	41	87.2	0.011	0.250
Use of protective pads for sitting the patient	38	80.9	0.025	0.138
Use of pressure reducing mattress	35	74.5	0.003	0.193
Systematic skin inspection	29	61.7	0.291	0.834
Classification of injury stages	29	61.7	0.619	0.781
Low elevation of headboard	21	44.6	0.025	0.709
Use of covers as a preventive measure	9	19.1	0.058	0.363

Source: Research data (2018).

In the questions regarding skin assessment and patient/family orientation concerning the risks of PI, all participants obtained 100% of correct answers. More than 80% of hits were observed in 19 items of the instrument related to skin evaluation and cleansing, lesion classification, protection of bony prominences, preventive measures to PI and patient mobilization. Approximately 60% of correct answers regarding skin inspection and classification of lesion stages were obtained.

The rates of correct answers dropped in questions related to protective skin covers against friction (70.3%) and preventive measures (over 50%). In addition, more than 50% of participants had an incorrect response pattern or stated not knowing the answer regarding the right time of position changing in sitting patients, PI classifications and types of protective covers.

It was found there was an association between the response pattern and the professional category of the participants. It was also identified in 3 questions about equipment use and positioning change a predominance of right answers among nursing technicians ($p < 0.05$). For 2 questions related to the positioning of the patient in the bed and coverage types used on the skin to avoid friction, there was a predominance of errors among nursing technicians ($p < 0.05$).

At the intersection between the 3 units and the professionals' responses, there was no association between the response pattern and the unit where they worked. From the qualitative data, it is observed in the participants' statements the identification of elements related to knowledge and also to the nursing work routine that favors the development of pressure injuries in patients admitted to clinical inpatient units.

Preventive measures for pressure injuries

This category presents the knowledge of nursing professionals about preventive measures for PI. The category encompassed a total of 8 MU and 72 RU, the units of significance that stood out were “dry skin” and “patient mobilization in bed” both with 19 RU (11.4%), followed by “body hygiene of the patient” with 10 RU (6.0%).

Regarding patients on diapers we always ask to keep this patient dry
(Nurse 01).

These patients that depend on nursing need more care in terms of constant diaper changes (Tech.09).

We try to increase the number of decubitus changes, which is also utopic, because we know it will not happen, but we try it (Nurse 05).

So, we must always change the patient's position, with decubitus changes every 2 hours or so (Nurse 07).

Other preventive measures mentioned were the themes “patient's body hygiene” with ten RU (6%) and “well hydrated skin” with four RU (2.4%).

The point is to keep always a clean skin (Tech. 09).

We have what is needed to moisture the patient's skin, for example, urea cream. We do it also with zinc oxide (Nurse 05),

Positioning changing was the most frequently mentioned preventive measure in the interviews. In the question on “mobilization of the patient in the bed” emerged 19 RU (11.4%), according to the statements.

We try to increase the number of decubitus changes, we know we won't make it, but we try it (Nurse 05).

We can't do the decubitus changing routine every 2 hours (Tech. 11).

Factors that influence the onset of pressure injuries

Four MU emerged in this category, out of a total of 37 RU. The units that stood out were “individual patient conditions” with 20 RU (12.6%), and “professionals’ deficit in the medical clinic unit” with 10 RU (6.0%).

As preventive measures in the nursing area, we focus on issues related to positioning changes in an individualized way. It is because each patient has their own need (Nurse 01).

Here in the ward there is no routine like in the closed sector because there are not enough professionals to do it. Here in the ward there is always lots of bedridden patients, and just a few professionals (Nurse 11).

Whenever possible we try to follow these norms, however, it is not always possible, due to our lack of professionals that ends up negatively affecting nursing care (Nurse 07).

The clinical reasoning of the nurse was indirectly identified in the speeches, being essential to determine the stages of this process, which includes the patient's evaluation.

Patients at risk for pressure injury are comatose or numb patients, those with a low level of consciousness, malnourished, cachectic, patients with difficulties to move. These are the patients who are usually most at risk for open pressure injuries, patients who have some dermatological disease, and especially those in use of amines that also has an influence on this type of problem (Nurse 09).

Discussion

As proposed, it was possible to investigate the knowledge and practices of nurses and nursing technicians of 3 inpatient units on prevention and care with PI.

As observed in this study, nursing is a profession that historically since its emergence has been constituted by females, either by cultural tradition or other factors that contributed to feminization in this area of health. Research data on the Brazilian nursing profile confirm that the nursing staff is still predominantly female (85.1%), in full rejuvenation due to the existence

of numerous age groups and the growth of recent graduates, with a predominance of nursing technicians due to the characteristics of the labor division¹⁵.

Worldwide, there is concern about the knowledge of professionals about preventive measures of PI, recognized as lower than expected in different studies¹⁶⁻¹⁷.

Among the preventive measures, it is noteworthy that, in addition to the assessment of risk factors, care such as daily skin inspection, patient repositioning and skin hygiene are relevant. A number of strategies can be adopted, but the actions developed depend on the knowledge of nursing professionals to perform an appropriate care conduct¹⁸⁻¹⁹.

Nursing professionals recognize decubitus change as the main measure to prevent PI, as well as the importance of maintaining the patient's skin. But they mention that this care is impaired due to the deficient situation of the nursing staff in the inpatient units.

Minor changes in position include moving the patient on the bed and changing the position of the lower limbs. These strategies help relieve pressure and improve perfusion of compressed tissues²⁰. During mobilization of the bed patient, the presence of more than one professional is necessary to avoid the effect of friction and shear. The nursing staff has difficulty in mobilizing the patient due to the smaller number of professionals.

It is significant that the increase of nurses and nursing technicians has the potential to significantly reduce sick leave, overtime bank, overtime pay rates, as well as reduce the rates of pressure injury, falls and infections related to the use of long-term catheterization of the bladder²¹. Still, there are no publications or recommendations available on the appropriate amount of human resources considering the prevention of PI²².

The need for professional updating is ratified, even in the context of a reduced number of the nursing staff. Correct use of the concept and terminology presented by NPUAP in 2016 enables health professionals to evaluate and develop coping strategies more effectively^{1,23}.

The literature describes that regarding direct skin care, the change of position is usually reported in preventive actions, losing attention when the injury is already installed. At this time, curative care is a priority. Patient hygiene performed daily by the nursing staff is one of the measures recognized for providing comfort^{24,25}. Thus, it is found that preventive actions, which must be continued in order to avoid new injuries or existing complications, are abandoned at a certain moment of care.

It is known there are extrinsic and intrinsic factors that are associated with the patient's health state, which indicates the establishment of individualized care. The specificity of the implemented care should be assessed individually, according to the risk factors for PI that the patient has^{20,25}.

Injuries are complex phenomena and, prevention and related care require evidence-based knowledge and a set of measures by the healthcare professional, but also require management and education policies as initiatives of the institution itself, with human and material resources that enable safe care²⁵.

Finally, it is inferred that the questions that presented the highest number of correct answers are related to daily care and that require less scientific and technological knowledge. The data obtained demonstrate deficiency in the knowledge of the nursing staff about the new technologies used as preventive measures for PI.

It is emphasized the importance of encouraging the professional training, in order to strengthen knowledge based on existing evidence, with the aim of improving the quality of care.

Conclusion

Although the theme is widely studied and discussed in the scientific field, the results showed, there is still a deficiency in the nursing staff knowledge about the multiple factors that

predispose to PI, including new nomenclatures, injury classification and incorporation of new care technologies.

Regarding the instrument used, the correct answers were in accordance with the basic measures of PI prevention such as skin cleansing and inspection. However, they are unaware of covers to protect the skin against friction. The interviews corroborated the results found in the first stage and it was mentioned by the professionals that, the patient's individual conditions and the deficit of nursing professionals contribute to the occurrence of PI.

Therefore, according to the findings, the need to implement permanent education measures in order to reinforce contents on the subject is highlighted, in addition to bringing professionals closer to changes and new knowledge based on scientific evidence.

To contribute to the field of study, a report was sent with the results obtained to the Patient Safety Center of the institution, to assist in the planning of educational actions.

Regarding the study limitations, the reduced number of nursing professionals in the hospital's medical units, mainly related to the night shift, plus the absence of participants due to vacation, leave or refusal to participate, was considered negative. It is important to note that the political instability in the state of Rio de Janeiro and the successive cuts in the hospital's budget contribute negatively to the acquisition of human resources, not only of the nursing staff, but also in the general workforce.

References

1. National Pressure Ulcer Advisory Panel (NPUAP). NPUAP pressure injury stages [Internet]. Washington (DC); 2016 [acesso em 2017 maio 10]. Disponível em: <https://npuap.org/page/PressureInjuryStages>
2. Associação Brasileira de Estomaterapia (SOBEST). Classificação das lesões por pressão: consenso NPUAP 2016 – Adaptada culturalmente para o Brasil. São Paulo; 2016 [acesso em 2019 ago 28]. Disponível em: <http://www.sobest.org.br/textod/35>

3. Quirino DES, Faustino AM, Freitas RO, Oliveira AB, Medved IV. Fatores de risco para desenvolvimento de úlcera por pressão em unidade de internação clínica. *Estima* [Internet]. 2014 [acesso em 2017 jul 10];15(1):1-17. Disponível em: <https://www.revistaestima.com.br/index.php/estima/article/view/99>
4. Laranjeira CA, Loureiro S. Fatores de risco das úlceras de pressão em doentes internados num hospital português. *Rev Salud Pública* [Internet]. 2017 [acesso em 2017 jul 10];19(1):161-70. Disponível em: <https://doi.org/10.15446/rsap.v19n1.42251>
5. Neiva GP, Carnevalli JR, Cataldi RL, Furtado DM, Fabri RL, Silva PS. Alterações dos parâmetros hematológicos em pacientes portadores de úlcera por pressão em um hospital de longa permanência. *Einsten* [Internet]. 2014 [acesso em 2017 jul 10];12(3):304-9. Disponível em: http://www.scielo.br/pdf/eins/v12n3/pt_1679-4508-eins-12-3-0304.pdf
6. Galvão NS, Serique MAB, Santos VLCG, Nogueira PC. Conhecimentos da equipe de enfermagem sobre prevenção de úlceras por pressão. *Rev Bras Enferm* [Internet]. 2017 [acesso em 2017 jul 10];70(2):312-8. Disponível em: http://www.scielo.br/pdf/reben/v70n2/pt_0034-7167-reben-70-02-0294.pdf
7. Cedraz RO, Gallasch CH, Pérez Júnior EF, Gomes HF, Rocha RG, Mininel VA. Risks management in the hospital environment: incidence and risk factors associated with falls and pressure injuries in a clinical unit. *Esc Anna Nery Rev Enferm* [Internet]. 2018 [acesso em 2017 jul 10];22(1):e20170252. Disponível em: <http://dx.doi.org/10.1590/2177-9465-ean-2017-0252>
8. Jesus JAP, Machado DG, Almeida JS, Rodrigues APB, Maranhão TA, Silva GB. Saberes e práticas de enfermeiros sobre a prevenção de lesão por pressão. *Rev Prev Infecç Saúde* [Internet]. 2018 [acesso em 2019 ago 28];4:7771. Disponível em: http://www.ojs.ufpi.br/index.php/nupcis/article/download/7771/pdf_1
9. Mattos RM, Melo FBS, Araújo AKC, Gomes GMS, Vasconcelos LDS, Souza LDT. Educação em saúde aos trabalhadores de enfermagem e acompanhantes sobre prevenção e tratamento de lesões de pele em dois hospitais de Petrolina-PE. *Interfaces* [Internet]. 2015 [acesso 2019 ago 28];3(1):22-32. Disponível em <https://www.ufmg.br/proex/revistainterfaces/index.php/IREXT/article/view/44/pdf>
10. Ministério da Saúde (BR), Agência Nacional de Vigilância Sanitária. Assistência segura: Uma reflexão teórica aplicada à prática [Internet]. Brasília (DF): Ministério da Saúde; 2013 [acesso em 2019 ago 28]. Disponível em: <http://portal.anvisa.gov.br/documents/33852/3507912/Caderno+1+-+Assistencia+Segura+-+Uma+Reflexao+Teorica+Aplicada+a+Pratica/97881798-cea0-4974-9d9b-077528ea1573>
11. Santos JLG, Erdamnn AL, Meirelles BHS, Lanzoni GMM, Cunha VP, Ross R. Integração entre dados quantitativos e qualitativos em uma pesquisa de métodos mistos. *Texto & Contexto Enferm* [Internet]. 2017 [acesso em 2019 out 22]. Disponível em: <http://dx.doi.org/10.1590/0104-07072017001590016>
12. Fernandes LM. Efeitos de intervenções educativas no conhecimento e práticas de profissionais de enfermagem na incidência de úlceras de pressão em Centro de Terapia Intensiva [tese]. São Paulo (SP): Universidade de São Paulo; 2006. 238 p.

13. Pieper B, Mott M. Nurse's knowledge of pressure ulcer prevention, staging and description. *Adv Wound Care*. 1995;8(3):38-40.
14. Bardin L. *Análise de conteúdo*. São Paulo: Edições 70; 2011. 229 p.
15. Machado MH, Aguiar Filho W, Lacerda WF, Oliveira E, Lemos W, Wermelinger M, et al. Características gerais da enfermagem: o perfil sociodemográfico. *Enferm Foco (Brasília)* [Internet]. 2016 [acesso em 2018 out 01];7(S1):9-14. Disponível: <http://revista.cofen.gov.br/index.php/enfermagem/article/view/686/0>
16. Fulbrook P, Lawrence P, Miles S. Australian nurses' knowledge of pressure injury prevention and management: a cross-sectional survey. *J Wound Ostomy Continence Nurs* [Internet]. 2019 [acesso em 2019 ago 28];46(2):106-12. Disponível em: <https://www.ncbi.nlm.nih.gov/pubmed/30801563>
17. Dalvand S, Ebadi A, Gheshlagh RG. Nurses' knowledge on pressure injury prevention: a systematic review and meta-analysis based on the Pressure Ulcer Knowledge Assessment Tool. *Clin Cosmet Investig Dermatol* [Internet]. 2018 [acesso em 2019 ago 28];11:612-20. Disponível em: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6257136/pdf/ccid-11-613.pdf>
18. Brandão ES, Mandelbaum MHS, Santos I. Um desafio no cuidado em enfermagem: prevenir úlceras por pressão no cliente. *Rev Pesqui Cuid Fundam* [Internet]. 2013 [acesso em 2019 ago 28];5(1):3221-8. Disponível em: <https://www.redalyc.org/articulo.oa?id=505750897041>
19. Gomes FSL, Bastos MAR, Matozinhos FP, Temponi HR, Velásquez-Meléndez G. Avaliação de risco para úlcera por pressão em pacientes críticos. *Rev Esc Enferm USP* [Internet]. 2011 [acesso em 2018 ago 20];45(2):313-8. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342011000200002&lng=pt&tlng=pt
20. Silva MLN, Caminha RTÓ, Oliveira SHS, Diniz ERS, Oliveira JL, Neves VSN. Úlcera por pressão em unidade de terapia intensiva: análise da incidência e lesões instaladas. *Rev RENE* [Internet]. 2013 [acesso em 2018 julho 10];14(5):938-44. Disponível em: <http://www.periodicos.ufc.br/rene/article/view/3623>
21. Quadros DV, Magalhães AMM, Mantovani VM, Rosa DS, Echer IC. Análise de indicadores gerenciais e assistenciais após adequação de pessoal de enfermagem. *Rev Bras Enferm* [Internet]. 2016 [acesso em 2017 jan 18];69(4):684-90. Disponível em: <http://dx.doi.org/10.1590/0034-7167.2016690410i>
22. Tonole R, Brandão ES. Recursos humanos e materiais para prevenção de lesão por pressão. *Rev Enferm UFPE On Line* [Internet]. 2018 [acesso em 2019 ago 28];12(8):2170-80. Disponível em: <https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/235091>
23. Moraes JT, Borges EL, Lisboa CR, Cordeiro DCO, Rosa EG, Rocha NA. Conceito e classificação de lesão por pressão: atualização do National Pressure Ulcer Advisory Panel. *Rev Enferm Cent Oeste Min* [Internet]. 2016 [acesso em 2019 ago 28];6(2):2292-306. Disponível em: <http://www.seer.ufsj.edu.br/index.php/recom/article/view/1423>

24. Menezes LCG, Fernandes MMJ, Guedes MVC, Oliveira RM, Leitão IMTA, Moura DJM. Cuidados clínicos e gerenciais de enfermagem na prevenção de úlcera por pressão. Estima [Internet]. 2017 [acesso em 2019 ago 28];15(2):107-14. Disponível em: <https://www.revistaestima.com.br/index.php/estima/article/view/486>

25. Tonole R, Brandão ES. Recursos humanos e materiais para a prevenção da lesão por pressão. Rev enferm UERJ[Internet]. 2019 [acesso em 2019 nov 12];27:e38742. Disponível em: <https://www.e-publicacoes.uerj.br/index.php/enfermagemuerj/article/view/38472/29906>

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