

COVID-19 patients in prone position: validation of instructional materials for pressure injury prevention

Pacientes com COVID-19 em prona: validação de materiais instrucionais para prevenção de lesões por pressão

Pacientes con COVID-19 en decúbito prono: validación de materiales instructivos para la prevención de lesiones por presión

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ABSTRACT

Objective: to perform the content and face validation of a checklist and a banner on pressure injury prevention in patients in prone position. **Method:** this is a methodological study of content and face validation with 26 nurses with specialization. Professionals assessed the checklist and the banner in relation to clarity, theoretical relevance, practical relevance, relation of the figures to the text and font size. The Content Validity Index was calculated for each item, considering one with a value equal to or greater than 0.8 as valid. **Results:** all the actions described in the checklist and in the banner had a Content Validity Index greater than 0.80, with standardization of verbal time and esthetic adjustments in the banner's layout, as suggested. **Conclusions:** the checklist and the banner were validated and can be used in clinical practice to facilitate pressure injury preventions in patients in prone position. **Descriptors:** Pressure Ulcer; Validation Study; Prone Position; Coronavirus; Critical Care.

RESUMO

Objetivo: realizar a validação de conteúdo e de face de um *checklist* e de um *banner* sobre prevenção de lesão por pressão em pacientes na posição prona. **Método:** estudo metodológico de validação de conteúdo e de face com 26 enfermeiros com especialização. Os profissionais avaliaram o *checklist* e o *banner* em relação à clareza, pertinência teórica, relevância prática, relação das figuras com o texto e tamanho da fonte. O Índice de Validade de Conteúdo foi calculado para cada item, considerando válido aquele com valor igual ou superior a 0,8. **Resultados:** todas as ações descritas no *checklist* e no *banner* apresentaram Índice de Validade de Conteúdo superior a 0,80, com uniformização do tempo verbal e adequações estéticas na diagramação do banner, conforme sugestões. **Conclusões:** o *checklist* e o *banner* foram validados, podendo ser utilizados na prática clínica para facilitar a prevenção de lesões por pressão em pacientes na posição prona.

Descritores: Lesão por Pressão; Estudo de Validação; Decúbito Ventral; Coronavirus; Cuidados Críticos.

RESUMEN

Objetivo: realizar la validación de contenido y rostro de un *checklist* y un *banner* sobre la prevención de úlceras por presión en pacientes en decúbito prono. **Método:** estudio metodológico de contenido y validación facial con 26 enfermeros con especialización. Los profesionales evaluaron el *checklist* y el *banner* en relación a la claridad, relevancia teórica, relevancia práctica, relación de las figuras con el texto y tamaño de fuente. Para cada ítem se calculó el Índice de Validez de Contenido, considerando válido aquel con valor igual o superior a 0,8. **Resultados:** todas las acciones descritas en el *checklist* y en el *banner* tuvieron un Índice de Validez de Contenido mayor a 0,80, con estandarización del tiempo verbal y ajustes estéticos en la maquetación del banner, como se sugirió. **Conclusiones:** el *checklist* y el *banner* fueron validados y pueden ser utilizados en la práctica clínica para facilitar la prevención de úlceras por presión en pacientes en decúbito prono.

Descriptorios: Úlcera por Presión; Estudio de Validación; Posición Prona; Coronavirus; Cuidados Críticos.

INTRODUCTION

The most recent pandemic in history, "Coronavirus Disease 2019" (COVID-19), had its first cases registered in December 2019 in Wuhan province, China. The disease is caused by the SARS-CoV-2 virus, the seventh member of the family of coronaviruses that infect humans⁽¹⁻³⁾. SARS-CoV-2 is transmitted by infected people, even asymptomatic, through direct contact with respiratory droplets resulting from coughing, sneezing or speech, at a distance of up to 1 meter⁽⁴⁻⁶⁾. Once infected, a person with COVID-19 may have several clinical forms of the disease, with varying symptoms. In some cases, it evolves with pulmonary edema, multiple organ failure and, in 17% of critical cases, with ARDS⁽⁷⁻⁸⁾.

ARDS is characterized by rapid onset, clinical signs of respiratory failure unrelated to states of hypervolemia or ventricular failure, with bilateral pulmonary opacity on X-ray and a significant drop in the PaO₂/FiO₂ ratio (less than 300). Some interventions are recommended for patients who develop ARDS, such as protective mechanical ventilation (with pulmonary protection strategies, low volume and inspiratory pressure), increase in the level of final expiratory airway pressure according to the required fraction of inspired oxygen, alveolar recruitment maneuvers when indicated and, in cases of refractoriness, patient prone positioning⁽⁹⁾.

Prone positioning patients with ARDS is associated with reduced mortality. A study published in 2013 identified this reduction in mortality with duration of positioning for up to 16 hours⁽¹⁰⁾; however, recent publications corroborate these results when the positioning duration exceeds 20 hours⁽⁹⁻¹⁰⁾. As for the effects of early prone position in critically ill patients with COVID-19, a Chinese study with 60 patients demonstrated an improvement in hypoxemic level assessed by oxygen saturation and a reduction in mortality⁽¹¹⁾.

However, this intervention implies possible complications, which must be prevented and monitored by the multidisciplinary team. Among the main complications associated with prone position, there are facial, airway and chest edema, conjunctival hemorrhage, externalization of devices (tubes, drains and catheters), endotracheal obstruction, hemodynamic instability, brachial plexus injury, joint complications, malfunction of vascular catheters, intolerance to administration of enteral diet and skin lesions⁽¹²⁻¹³⁾.

A systematic review of literature including 1,109 patients indicates that patients in prone position are at 22 times greater risk of developing pressure injuries (PI)⁽¹¹⁾. A retrospective study found that 14% of 170 prone position patients developed PI⁽¹⁴⁾. PIs represent a major challenge in health care, since they lead to an increase in hospital expenses, in addition to the physical and emotional impacts for both patients and their families. They represent adverse events considered preventable, which justifies the need for preventive measures implemented in a systematic and evidence-based manner, aiming at reductions in their rates and improving the quality of care provided and patients' quality of life⁽¹⁵⁻¹⁶⁾.

However, it is known that scientific knowledge produced and disseminated through publications is often not quickly incorporated into clinical practice. Thus, the construction and implementation of evidence-based checklists and easily visible instructional materials can bridge the gap between the production and use of knowledge, assisting the nursing team in taking safe action⁽¹⁷⁾. Using checklists in the health field is associated with

improved communication between team members, reduction of adverse events, serving as a barrier to error, better adherence to current procedures and reduction of morbidity and mortality⁽¹⁸⁾. Strategies or tools for implementing these checklists should be adopted to effectively modify health professionals' behavior⁽¹⁹⁾, contributing to reducing adverse events⁽²⁰⁻²¹⁾.

In the national literature, materials were not identified that contemplate all care for PI prevention in patients in prone position and that have been assessed for content and face validation. Such materials can be safely incorporated into clinical practice in the format of standard operating procedures or as component materials of educational activities for the nursing staff in relation to the implementation of actions for PI prevention in patients with COVID-19 in prone position, ensuring that care is based on evidence.

OBJECTIVE

To perform the content and face validation of a checklist and a banner on pressure injury prevention in patients in prone position.

METHODS

Ethical aspects

This project was submitted and approved by the Research Ethics Committee with Human Beings (REC) of an Educational Institution, meeting the scientific requirements in the treatment of subjects participating in the research. Judges were guaranteed confidentiality and anonymity.

Study design, period, and place

This is a methodological study of content and face validation of a checklist and a banner, carried out from July to September 2020⁽²²⁾.

Study population

In order to validate material content and face, assessments of nurse judges who were selected according to the following criteria were requested: being an expert in intensive care, dermatology or stomatherapy, working in care, management or research area for at least five years in critical units or skin lesion management or have published scientific articles in the field of intensive care or PI prevention.

Establishing the sample size of judges was based on a formula that aims to estimate the Content Validity Index (CVI) of the assessments of each indicator, in which the sample size was defined by $n_0 = (Z_{1-\alpha/2} \cdot S / e)^2$. $Z_{1-\alpha/2}$ represents the confidence level, at which a 95% confidence level will be adopted; S is standard deviation (standard deviation adopted of 0.17) and sampling error (considered a sampling error of 0.07% of the real value). Based on a calculation, a minimum value of 23 judges was obtained for content validation⁽²³⁾.

Study protocol

A checklist was prepared by a group of teachers with expertise in fundamental nursing and/or stomatherapy, containing a set of nursing care for PI prevention in prone position⁽²²⁾. The total content

of the checklist was summarized in six steps for viewing on a banner, containing the main cares, in order to facilitate the visualization and memorization by the nursing team in relation to the actions to be performed. The checklist and the banner were named "6 Steps to Prevent Pressure Injury in Patients with COVID-19 in Prone Position".

The steps contained in the banner are related to the actions that must be taken before a patient is positioned in prone position and actions for each body segment during positioning, namely: head, upper limbs, thoracic region, abdomen/hip region and lower limbs, focusing on PI prevention. The banner was developed with the help of a graphic design professional using Adobe Photoshop® software (version 21.2.3).

The checklist developed had patient preparation activities for prone position as an initial step⁽²⁴⁾. As it was aimed at patients with COVID-19, the first action described was the complete dressing with relevant personal protective equipment (PPE)⁽³⁻⁴⁾, followed by the assessment of the entire ventral region of the body, correct skin protection with multilayer silicone foam devices, removal of electrodes from the anterior region of the chest and positioning on the upper limbs, adequacy of cushions in the anterior region of the scapular line and pubic symphysis⁽²⁵⁻²⁷⁾.

Adopting patient preparation activities for prone position as an initial step is an option of the authors justified by the fact that failure in this preparation may require emergency procedures, such as returning to the supine position and increasing the risk of skin injury⁽²⁵⁾. Moreover, failure to complete and adequate PPE dressing can provide viral transmission to healthcare professionals⁽³⁻⁴⁾. The possibility of viral transmission is one of the concerns that represents a barrier to the widespread implementation of positioning in prone position, since there is limited availability of PPE in some locations⁽²⁸⁾.

Assessing the ventral region of the body allows identifying hyperemias and changes in the skin in critical areas, while the immediate positioning of the electrodes in the upper limbs prevents patients from being left without monitoring. The adequacy of cushions in the anterior region of the scapular line focuses on reducing chest and breast pressure, while cushions in the region of the pubic symphysis reduce abdomen pressure, preventing impairment of lung expansion⁽²⁵⁻²⁷⁾.

From the second to the sixth step of the checklist, actions were included that must be performed immediately after positioning in prone position and at each rotation of the upper limb positioning. The second step, related to head care, begins with the bed positioning in reverse Trendelenburg at 30°⁽²⁶⁾, in addition to lateralization, rotation of the head position on a cushion to the side of the upper limb that is elevated^(24,29-30). Other procedures present in this step are eye care⁽³⁰⁾, in addition to the precautions for fixing the orotracheal cannula and enteric tubes, which must be centralized in the oral cavity^(27,30-33).

Positioning the bed in reverse Trendelenburg at 30° reduces the risk of facial edema and bronchoaspiration⁽²⁶⁾, while lateralization and rotation of the head position avoids injuries in the auricular pavilion and in the lateral region of the face^(24,29-30). Eye care is necessary due to the potential increase in orbital pressure secondary to gravitational effects on prone position⁽³⁰⁾. The centralized positioning of the fixation of the orotracheal cannula and enteric tube prevents lesions in the labial or nasal mucosa, while the upper limb positioning in the swimmer position, with rotation of the limb positioning and rotation of the shoulders, prevents PI and even dislocations^(27,30-33).

The third step involves taking care with the upper limb positioning in the swimmer position, so that one of the limbs is elevated, with the palm facing downwards, and the other member extended along the body, with the palm facing up. Furthermore, a cushion must be positioned and professionals must be aware of the rotation of the limbs and the rotation of the shoulders^(27,30-33). Since, in many critically ill patients, invasive blood pressure is monitored by inserting a catheter into the radial artery, an item was included to assess the safe positioning of devices and extensions^(27,33).

In the fourth step, related to chest care, the need to reassess the cushion positioning in the region of the scapular height was highlighted, in addition to the care included in assessing the adhesiveness of cardiac monitoring electrodes, vascular devices and drainage systems and also in relation to the functionality and possible pressures of these devices on the structures of that region^(27,30-33).

Assessing the secure positioning of devices and extensions aims to reinforce the analysis of their functionality, avoid excessive pressure and, consequently, reduce the risk of PI development^(27,33). The reassessment of the cushion positioning in the region of the scapular height, in turn, aims to reduce chest pressure and improve lung expansion^(27,30-33).

The fifth step described the actions related to care with the cushion positioning at the height of the pelvic girdle with a focus on reducing abdomen pressure in the diaphragm and, therefore, maintaining lung expansion, in addition to decreasing the excessive pressure on the iliac crest. In addition to this care, care with ostomy devices and pouches and the male genitalia positioning were also highlighted, which must be allocated between the lower limbs. The last step focuses on the cushion positioning along the tibial region, which prevents the pressure from increasing in both the patellar and dorsal regions of the foot^(27,30-33).

The checklist and the banner was submitted to content assessment by experts. Potential eligible experts were selected using snowball sampling, with the first chain intentionally generated from the researchers who prepared the checklist. An invitation to participate in the study was sent by email, with the link to Google Forms containing an Informed Consent Form (ICF), expert characterization sheet and the instrument for assessing the checklist and the banner. In this form, a judge was asked to assess the suitability of each action regarding the pertinence, clarity and theoretical relevance both in the checklist and in the banner, according to definitions proposed by Pasquali⁽³⁴⁾.

Additionally, in relation to the banner, they were asked to assess the type of font used, the sharpness of the figure and the relationship between the figure and the text. Assessments were performed using a four-point Likert scale: 1=totally inadequate, 2=partially inadequate, 3=partially adequate and 4=totally adequate. They were asked to add suggestions that they considered relevant if the grades were different from 3 or 4. The time allocated for returning the answered questionnaires was 15 days.

Data analysis

The sample characterization data were described in relative and absolute frequencies, and median and interquartile range for quantitative data, as they did not follow the assumptions of normality assessed by the Shapiro Wilk test. To analyze the content

validity, the CVI calculation was performed, dividing the number of responses “3” and “4” by the number of participants, with CVI values above 0.80 being considered acceptable. If values were not acceptable, the items would be reformulated and sent for a new assessment, according to the Delphi technique assumptions, until the values were acceptable.

RESULTS

Fifty-nine nurses were invited to participate, among whom 26 accepted and answered the questionnaire within the given period. Most judges were female, with a median age of 36.5 years, worked in the assistance area, had a master’s degree and were experts in Intensive Care. A judge was from Rio Grande do Sul, a judge from the State of Rio de Janeiro, one from the state of Goiás and 23 from the state of São Paulo (Table 1).

Table 1 - Characterization of judges according to training for current evidence on pressure injury prevention in patients positioned on the head with COVID-19, São Paulo, São Paulo, Brazil, 2020 (N=26)

	Variável
Sex n(%)	
Male	4 (15.4)
Female	22 (84.6)
Age, Med (IQR)	36.5 (10.3)
Current professional activity n(%)	
Assistance	13 (50)
Teaching	10 (38)
Research	3 (11)
Management	6 (22)
Highest degree n(%)	
Specialization	8 (30.8)
Master’s degree	10 (38.5)
Doctoral degree	7 (26.9)
Postdoctoral student	1 (3.8)
Area of expertise n(%)	
Cardiology	4 (15.4)
Stomatherapy/dermatology	7 (26.9)
Intensive care	14 (53.8)
Time of experience (years), Med (IQR)	
Care, Med (IQR)	12.00 (9.8)
Research, Med (IQR)	6 (13)
Teaching, Med (IQR)	5.0 (12.8)
Institution n(%)	
Public	21 (80.76)
Private	5 (19.2)

Note: Med: median; IQR: interquartile range

Chart 1 presents the steps described in the checklist and the respective judges’ suggestions regarding their suitability.

In the analysis of the evidence of content validity, a CVI higher than 0.80 was obtained in all actions with regard to pertinence, clarity and theoretical relevance.

Based on experts’ analysis, an average CVI of 0.98 (SD 0.02) was obtained with regard to pertinence and 0.98 (SD 0.01) in relation to clarity and theoretical relevance; therefore, it was not necessary to resend the checklist to the judges.

In addition to the modifications in each step of the checklist, as suggested by the judges, it was indicated to maintain the same verbal time for all actions. Thus, the shares were maintained in the infinitive. Chart 2 shows the final version of the checklist after all the changes made.

Chart 1 - Judges’ suggestions regarding the checklist steps, São Paulo, São Paulo, Brazil, 2020

Step described in checklist	Judges’ suggestions
Step 1. Four actions before positioning patients in prone position: adequate dressing, supervision, protection of critical areas for the development of PI in the anterior region of the body and removal of electrodes in the anterior region of the chest.	Include other critical areas such as shoulders, back of foot and nose, and other materials used for protection.
Step 2. Nine actions related to the body segment of the head, positioning of the bed in reverse Trendelenburg at 30°, importance of lateralization of the head and its rotation, care with the auricular pavilion and eyes and adequate positioning of probes and catheters.	Changes in the description of the actions and the inclusion of other protection devices.
Step 3. Five actions referring to the upper limb positioning (UULL) in “swimmer position” and their rotation, protection of critical areas, such as shoulders, elbows and hands, and attention to vascular devices.	Removal of the word “swimmer”, more detailed description of the UULL positioning, changes in the frequency of rotation of the limbs and better description in relation to the neutral position of the hands.
Step 4. Four actions to prevent PI in the thoracic region: positioning of the electrodes, pad at the height of the scapular region and attention of the catheters and drains.	Greater detail on the electrode positioning and care for drains and catheters regarding traction and inclusion of breast care.
Step 5. Six actions in relation to the abdomen/hip region: positioning the cushion in the pelvic girdle region, care to avoid drainage traction, care for the genitalia and bladder catheters and extensions.	Changes in the description of the actions, inclusion of other devices that may increase the risk of pressure injury in this region and in terms of the location of the indwelling bladder catheter.
Step 6. Care of the lower limbs (LLLL): positioning the cushion in the patellar region and keeping the feet in a free position.	Improve the description of the location of the cushion, protection of the knees with polyurethane foam and assessment of the dorsum of the foot

Note: PI: pressure injury; UULL: upper limbs; LLLL: lower limbs

Table 2 - Initial checklist and Content Validity Index in relation to content pertinence, clarity and theoretical relevance, São Paulo, São Paulo, Brazil, 2020

PI prevention actions	Pert	Cla	Rel
1a. The entire team was dressed in cap, goggles, N95 mask, disposable apron and procedure gloves.	1	1	1
1b. The pressure points in the anterior region of the body (frontal region of the face, zygomatic, mentonian, thoracic, iliac crest, genital, patellar and pre-tibial) were assessed for the presence of hyperemia and/or injuries.	1	1	1
1c. Critical areas were protected with silicone devices or hydrocolloid plates: frontal region of the face, zygomatic, mentonian, iliac crest, patellar and pre-tibial.	1	1	1
1d. The monitoring electrodes were removed from the anterior region of the chest.	1	1	1

To be continued

PI prevention actions	Pert	Cla	Rel
2a. The bed was positioned in reverse Trendelenburg at 30°.	0.92	0.96	0.96
2b. Head lateralized to the same side of the elevated upper limb.	0.96	0.96	0.96
2c. The head was lateralized and positioned under a cushion.	0.96	0.96	0.96
2d. Head rotation was prescribed every 2 hours.	0.96	1	1
2e. The eyes were lubricated and the eyelids closed with microporous tape in the horizontal direction). (ATTENTION: eye lubrication must be performed according to institutional protocol).	1	1	1
2f. The pinna is not folded.	1	1	1
2g. The orotracheal cannula is not pressing on the labial mucosa and is not pulled.	1	1	1
2h. The tongue is positioned inside the mouth.	0.96	0.96	0.96
2i. The gastric/enteric (oro/naso) catheter is not pressing on the nasal/labial mucosa and is not pulled.	1	1	1
3a. The upper limbs were positioned in the swimmer position (one upper limb elevated and the other extended along the body).	1	0.96	1
3b. Rotation of the upper limb positioning was prescribed every 2 hours.	0.96	0.96	0.96
3c. The shoulders are not rotated and the elbows are free of pressure.	1	1	1
3d. The hands are in a neutral position and free from pressure.	0.96	0.96	1
3e. No vascular devices (peripheral or arterial venous) or extensions are under the upper limbs.	0.96	0.96	0.96
4a. The monitoring electrodes are positioned in the posterior region of the chest.	1	1	1
4b. A cushion was positioned at the height of the shoulder girdle.	1	1	1
4c. The central venous catheter is not pressing on any region of the chest and is not pulled.	1	1	1
4d. The chest drain(s) is(are) not pressing on any region of the chest and is not being pulled.	1	1	1
5a. A cushion was placed at the height of the pelvic girdle.	1	1	1
5b. Ostomy pouches kept empty.	1	1	1
5c. The abdomen drain (s) is not pressing on any region of the abdomen and is not pulled.	0.96	0.92	0.96
5d. The male genitalia is positioned between the lower limbs.	1	1	1
5e. The closed urine collector extension is not pressing on the thigh region.	0.96	1	1
6a. A pad was positioned below the patellar region.	0.96	0.96	0.96
6b. The cushion positioned below the knees keeps the feet free of pressure.	1	1	1

Note: PI: pressure injury; Pert: pertinence; Cla: clarity; Rel: theoretical relevance.

Judges suggested improving the layout, in order to make the actions clearer and more visual, in addition to modifying the angulation of the figure. Once a CVI of 1.0 was obtained for clarity, relevance, and pertinence, it was not necessary to reassess judges. Figure 1 shows the final version of the banner.

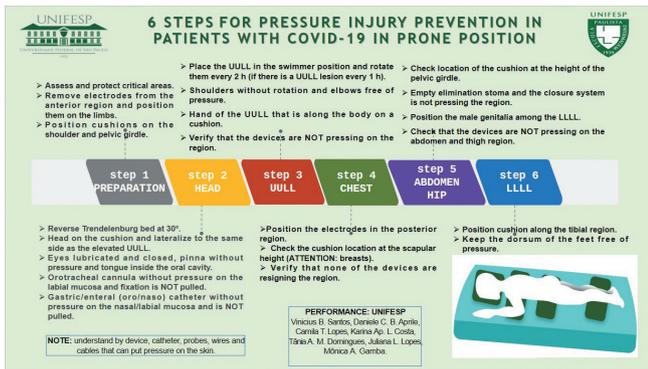
Chart 2 - Final version of the checklist "6 Steps to Prevent Pressure Injury in Patients with COVID-19 in Prone Position", São Paulo, São Paulo, Brazil, 2020

CARE BEFORE PRONE POSITIONING	
Step 1. Preparation	() 1a. Perform hand hygiene and dressing with disposable apron, N95 mask, goggles, hat and procedure gloves.
	() 1b. Assess the presence of hyperemia and/or lesions at the following pressure points: frontal face, zygomatic, mentonian, shoulders, elbows, chest, iliac crest, genitalia, patella, pre-tibial and dorsum of the foot.
	() 1c. Apply silicone device or extra thin hydrocolloid plates in the following regions: frontal face, zygomatic, mentonian, nose, shoulders, iliac crest, patella, pre tibial and instep.
	() 1d. Remove the monitoring electrodes from the anterior chest area and place them on the limbs.
	() 1e. Position the cushions at the height of the shoulder girdle and the other at the pelvic girdle.
	CARE AFTER PRONE POSITIONING
Step 2. Head	() 2a. Position the bed in reverse Trendelenburg at 30° if there is no contraindication.
	() 2b. Position the head to the same side where the upper limb was raised.
	() 2c. Lateralize the head and place on a cushion.
	() 2d. Rotate the lateralization of the head every 2 hours.
	() 2e. Lubricate the eyes and keep the eyelids closed with microporous tape horizontally.
	() 2f. Check that the pin is not folded.
	() 2g. Check that the orotracheal cannula does not press on the labial mucosa and the fixation is not pulled.
	() 2h. Position the tongue inside the oral cavity.
	() 2i. Check that the gastric/enteric (oro/naso) catheter is not pressing on the nasal/labial mucosa and is not pulled.
	Step 3. Upper limbs
() 3b. Rotate the upper limb positioning every 2 hours OR every 1 hour in case of skin lesions in the upper limbs.	
() 3c. Check that the shoulders are not rotated and the elbows are free of pressure.	
() 3d. Place the hand of the upper limb that is positioned along the body on a cushion.	
() 3e. Check that the devices are not pressing on the upper limbs and are not pulled or bent.	
Step 4. Chest	() 4a. Position the monitoring electrodes on the posterior chest.
	() 4b. Check the location of the cushion at the height of the shoulder girdle, paying attention to the accommodation of the breasts.
	() 4c. Check that the devices are not pressing on the thoracic region and are not pulled or bent.
Step 5. Hip and Abdomen	() 5a. Check the location of the cushion at the height of the pelvic girdle.

To be continued

Chart 2 (concluded)

Step 5. Hip and Abdomen	()	5b. Check that the ostomy pouch (s) for elimination are being kept relatively empty and their closure system is not pressing on the abdomen, pelvis, and limbs.
	()	5c. Position the male genitalia between the lower limbs.
	()	5d. Check that the extension of the closed urine collector and any other device is not pressing on the thigh region.
Step 6. Lower limbs	()	6a. Position a cushion along the tibial region allowing the instep to be free of pressure.



Note: This banner was freely translated as it has not been validated yet into English.

Figure 1 - Banner “6 Steps to Prevent Pressure Injury in Patients with COVID-19 in Prone Position”, São Paulo, São Paulo, Brazil, 2020

DISCUSSION

The prevalence of PI in health units has been considered one of the indicators of health quality. Thus, using technologies aimed at reducing these occurrences is recommended to guide nursing care practice⁽²⁶⁾. The COVID-19 pandemic restored the scientific community's attention to the in prone position of ARDS patients, which may increase the risk of PI^(11,28). Given the variability in the training of health professionals regarding this position, there is a need to optimize interprofessional communication and in-service education⁽²⁸⁾.

Using checklists with evidence-based protocol steps has been shown to help prevent errors or failures in care, improving patient safety and the communication of nursing professionals. However, for these technologies to ensure an improvement in the quality of care, their content must be considered relevant and representative of the main construct; in the case of this study, PI prevention and its presentation must be attractive, i.e., there must be content and face validation⁽³⁴⁻³⁶⁾.

The evidence used to construct the checklist and the banner in the present study was based on clinical studies, observational studies, systematic reviews and guidelines on PI prevention in patients positioned in prone position published until the end of July 2020^(24-27,29-33); however, few studies have been identified in patients exclusively with COVID-19^(24,33). This set of checklist and the banner activities was submitted to a content and face validation process by an appropriate number of judges, exceeding the number recommended in literature of (3 to 20) judges⁽³⁵⁾ with relevant clinical and academic expertise, ensuring quality in the assessment of each proposed action. This type of validation is recommended before its clinical applicability, in order to be safe in relation to the proposed actions⁽³⁵⁻³⁷⁾.

The checklist and the banner were developed including only actions that must be performed and, if omitted or mistakenly performed, could cause harm to patients. The inclusion of a series of unnecessary items could cause tiredness to professionals at the time of application⁽²⁵⁾. Both the checklist and the banner obtained a high CVI in relation to all the indicators assessed, which confirms its content and face validation, allowing the actions contained in these materials to be implemented in clinical practice, as they are supported by available national and international evidence, in addition to being confirmed by a group of experts in the field of skin injuries and critical patient care.

Experts' suggestions were related to the inclusion of other critical areas for the development of PIs that nurses should be aware of, such as shoulders, instep and nose, in addition to the inclusion of other protective materials, such as silicone foam. Such suggestions were accepted, as they were supported by evidence from literature^(24,27,37). Other suggestions were made regarding the clarity of the actions, such as improving the description of the swimmer position, improving the description of pad and electrode positioning in LLLL. In addition to the modifications in relation to the content of the materials, the banner was modified in terms of its appearance, allowing the actions and the figure to be clearer, facilitating the reading and understanding.

To implement this technology in clinical practice, in-service training should be carried out with a focus on improving the knowledge of nursing professionals in caring for these patients⁽²⁸⁾, besides being able to serve as a bedside reminder for patients with COVID-19 positioned in prone position, mainly because it is not a routine action in ICU environments. It is recognized, however, that new evidence regarding the care provided to patients with COVID-19 is constantly available. Thus, the permanent updating and revalidation of this material is necessary for its systematic use to produce the desired preventive results. The instrument can overcome this pandemic moment and become a guide applied to clinical practice, serving as a model and being adapted to the institutional needs of each service.

Study limitations

Although a significant number of experts were reached for content and face validation of the checklist and the banner, most of these experts were from public southern institutions.

Contributions to nursing, health, and public policy

The checklist and the banner can serve as an educational technology, being fixed at the bedside of patients with COVID-19 in prone position, or even function as an illustrative and explanatory image for health professionals, in order to facilitate memorization and access to actions to be taken. Moreover, they can be objects or instruments of new clinical studies.

CONCLUSION

The checklist and the banner called “6 Steps to Prevent Pressure Injury in Patients with COVID-19 in Prone Position” were considered valid by a group of expert judges.

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