

## Validation of parameters to fill in the Perroca's patient classification system



*Validação de parâmetros para preenchimento do sistema de classificação de pacientes de Perroca*

*Validación de parámetros para completar el sistema clasificación de pacientes de Perroca*

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### ABSTRACT

**Objective:** To propose parameters to qualify the filling of the Patient Classification System proposed by Perroca.

**Method:** Validation study by consensus held in 2014, in a university hospital. The sample included 10 specialist nurses, four teachers and a computer science professional, all knowledgeable in the Classification System. The information was collected and analyzed through meetings registration, where strategies were discussed to enable the systematic application of the instrument in the institution. For the construction, it was considered a consensus of 100% among the experts.

**Results:** The computerized parameter guide was elaborated with a description of what to evaluate in each item of the Perroca's instrument, standardizing the filling by the nurses.

**Conclusions:** The parameter guide made it possible to minimize the subjectivity of the evaluators when applying the classification instrument, provided guiding elements to fill it in and qualified the nursing care benchmarking.

**Keywords:** Nursing assessment. Resource guides. Validation studies.

### RESUMO

**Objetivo:** Propor parâmetros para qualificar o preenchimento do Sistema de Classificação de Pacientes proposto por Perroca

**Método:** Estudo de validação por consenso realizado em 2014, em hospital universitário. Amostra incluiu 10 enfermeiros especialistas, quatro professores e um profissional da informática, todos com conhecimento no Sistema de Classificação. As informações foram coletadas e analisadas por meio de registro de reuniões, onde foram discutidas estratégias para viabilizar a aplicação sistemática do instrumento na instituição. Para a construção foi considerado consenso de 100% entre experts.

**Resultados:** Elaborou-se o guia de parâmetros informatizado com descrição do que avaliar em cada item do instrumento de Perroca, padronizando o preenchimento pelos enfermeiros.

**Conclusões:** O guia de parâmetros possibilitou minimizar a subjetividade dos avaliadores ao aplicar o instrumento de classificação, forneceu elementos norteadores para preenchimento e qualificou a aferição dos cuidados de enfermagem.

**Palavras-chave:** Avaliação em enfermagem. Guias informativos. Estudos de validação.

### RESUMEN

**Objetivo:** Proponer parámetros para calificar el llenado del Sistema de Clasificación de Pacientes propuesto por Perroca.

**Método:** Estudio de validación por consenso realizado en 2014, en un hospital universitario. La muestra incluyó 10 enfermeros especialistas, cuatro profesores y un profesional de la informática, todos con conocimiento en el Sistema de Clasificación. Las informaciones fueron recolectadas y analizadas por medio de registro de reuniones, donde se discutieron estrategias para viabilizar la aplicación sistemática del instrumento en la institución. Para la construcción se consideró consenso del 100% entre los expertos.

**Resultados:** Se elaboró el guía de parámetros informatizado con descripción de lo que evaluó en cada ítem del instrumento de Perroca, estandarizando el llenado por los enfermeros.

**Conclusiones:** La guía de parámetros permitió minimizar la subjetividad de los evaluadores al aplicar el instrumento de clasificación, proporcionó elementos orientadores para relleno y calificó la evaluación de los cuidados de enfermería.

**Palabras clave:** Evaluación en enfermería. Guías de recursos. Estudios de validación.

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## ■ INTRODUCTION

The changes in the care demand of hospitalized patients and the increase in the complexity in the processes of care production have been requiring some restructuring in health organizations and management models<sup>(1)</sup>. Thus, nursing leaders need to commit to the use of instruments that assist in the management of human, material, technological and financial resources, in order to guarantee the achievement of a safe and comprehensive care based on the best care practices<sup>(2-3)</sup>.

One of the instruments that allows to evaluate the degree of dependence of the patients in relation to the nursing care is the one elaborated by Perroca, which consists in a scale composed by nine care indicators: planning and coordination of the care process; investigation and monitoring; body care and eliminations; skin and mucous care; nutrition and hydration; locomotion and activity; therapeutics; emotional support and health education. Each indicator has increasing levels of care complexity ranging from 1 (lowest grade) to 4 (highest grade), classifying the care as minimal, intermediate, semi-intensive and intensive<sup>(4-5)</sup>.

Studies have evidenced the need to standardize the evaluation criteria in order to minimize the subjectivity of each evaluator when performing the classification of critical care indicators<sup>(2,6-7)</sup>. The use of a set of instructions with the application of instruments for data collection clarifies the respondents, improving the rates and the quality of the responses<sup>(8)</sup>.

The confirmation that the nurses of a university hospital had different ways of interpreting the level of complexity of each care indicator has motivated the construction and validation of a parameter guide. It is observed that the Brazilian productions regarding the use of Patient Classification Instruments are still focused on the quantitative-qualitative dimensioning of personnel in the units, indicating the need to perform new studies that can contribute to the qualified evaluation of the nursing work<sup>(9)</sup>.

Thus, this study is justified, focusing on the use of parameters to standardize the application of the Perroca's Patient Classification System. It is understood that the elaboration of a guide of parameters can help to fill in the Perroca's scale by the nurse, facilitating its application, based on a more objective interpretation. Thus, the present article aims at proposing parameters to qualify the filling of the classification of patients proposed by Perroca.

## ■ METHOD

It is a consensus validation study among experts, which describes the development of a computerized parameter

guide to standardize the application of the Perroca's Patient Classification System. This method allows to reach a collective opinion or agreement between specialists regarding a specific phenomenon and has been used in nursing aiming to define practice standards<sup>(10-11)</sup>.

The research was conducted in 2014, in a public university hospital in the south of Brazil, which has 842 beds and a modern structure for diagnosis and treatment of several pathologies in 60 specialties, with 6400 employees. Twelve clinical and surgical hospitalization units serving adult patients participated in the study.

The author of the Perroca's instrument<sup>(4-5)</sup> has endorsed the importance of elaborating parameters to standardize the application of its instrument and has formalized the consent, with the commitment that the original version has remained unchanged.

Ten nurses from the institution, with more than five years of experience in clinical practice; four professors from a federal university, with care and management experience in nursing; and a computer science professional were selected intentionally. All of them had knowledge in Patient Classification Systems and had publications in the area.

For the construction of the parameter guide, the following steps were followed: literature review, care mapping, survey about the frequency of the care provision, and creation of the parameter guide. Initially, the mapping of the activities and care provided to the patients was carried out, which was based on the care experience, the particularities of the areas and the care model of the institution. During the survey about the frequency of the care provided, the periodicity of the activities and the care provided was observed, according to the profile of patients attended at these units. To create the parameter guide, the researchers described the activities and the care performed in each corresponding indicator and adapted the levels of complexity according to the frequency of their accomplishment in the practice of care.

The construction of the material occurred through discussions about each indicator of the scale, seeking to clarify doubts in the light of examples of everyday care and evidence from the literature, seeking consensus among experts. Subsequently, its use required the sensitization and training of the nurses of the clinical and surgical units for its proper use.

The Directives and Norms Regulating Research Involving Human Beings, provided for by the Resolution No. 466/2012 of the National Health Council were respected, and the project was approved by the Research Ethics Committee under No. 15-0561. The authors signed the Term of Commitment for the Use of Data to have access to the minutes of the work

meetings between experts, committing themselves to preserve the privacy and anonymity of those involved.

## ■ RESULTS

The result of this study was the elaboration of a parameter guide to help and qualify the filling of the Perroca's

Patient Classification System. The online version in a computerized institutional platform allowed the systematic use of scale in clinical practice<sup>(1,2)</sup>, since January 2015, effectively.

Figure 1 presents the Perroca's Classification System with the nine care indicators and the four classification levels of the original instrument (in bold). Below each classification level are the parameters validated by this study.

### Planning and Coordination of the Care Process

1 **Maintenance of the nursing care planning.**

Daily, the nurse evaluates and evolves, maintaining the Nursing Diagnostics, without changing the Nursing Prescription.

2 **Review, in part, of the nursing care planning.**

Daily, the nurse evaluates and evolves, with changes in the Nursing Diagnostics and in the Nursing Prescription.

3 **The elaboration of the nursing care planning involves the participation of professionals of the nursing team or requires the allocation of intra-institutional resources.**

Nurses perform the admission of the patient, anamnesis and the elaboration of the Nursing Diagnoses and the Nursing Prescription; or the patient care involves the nursing technician and other professionals of the institution, demanding nursing care and telephone contacts by the nursing team;

Examples: death, transfer of care, request for professional advice from the institution, request for assessment by the medical team in addition to the usual visit, medical checkup or Rapid Response Team, case discussion among professionals or participation in meetings to discuss cases.

4 **The elaboration of the nursing care planning involves the participation of the multiprofessional team or requires the allocation of extra-institutional resources.**

The care plan requires the participation of professionals or extra-hospital services.

Examples: teachers, pedagogues, community health teams at the time of discharge (counter-referral), examinations and procedures in other hospitals.

### Investigation and Monitoring

1 **Vital signs (3 times a day); simple diagnostic exams (up to 15 minutes); clinical assessment; verification of other anthropometric measures; measuring scales (once a day).**

Up to 3 times a day: monitoring of blood pressure, heart rate, respiratory rate and pattern, axillary temperature, oximetry, pain, blood glucose, uroanalysis with tape, signs of chvostek and trousseau, central venous pressure; Once a day: application of scales such as Braden, Morse, Patient Classification System, Glasgow, weight and height verification with conventional scale.

2 **Vital signs, O2 saturation (3 times a day), airway clearance (up to 3 times a day); aid in diagnostic and therapeutic examinations of medium complexity (15-30 minutes); measuring scales (2-3 times a day).**

Up to 3 times a day: monitoring of blood pressure, heart rate, respiratory rate and pattern, axillary temperature, oximetry, pain, blood glucose, uroanalysis with tape, signs of chvostek trousseau, central venous pressure; oximetry and aspiration of upper airways; application of scales such as Braden, Morse, Patient Classification System, Glasgow.

3 **Vital signs, saturation, Mean Arterial Pressure (4-6 times a day); airway clearance (4-6 times a day); aid in diagnostic and therapeutic examinations of medium complexity (30-50 minutes); emergency care, measurement scales (4-6 times a day).**

4-6 times a day: monitoring of blood pressure, heart rate, respiratory rate and pattern, axillary temperature, oximetry, pain, blood glucose; application of scales such as Braden, Morse, Patient Classification System, Glasgow; Procedures in the unit lasting between 30-50 minutes as dressings, emergency care such as hypotension, hypoglycemia, saturation fall, respiratory or cardiac pattern changes, with or without symptoms, with or without parameters and/or assistance of the Rapid Response Team.

- 4 **Vital signs, saturation, Intracranial Pressure and others (more than 6 times a day); endotracheal tube care and mechanical ventilation equipment; aid in diagnostic and therapeutic exams such as swan-ganz hemodialysis, etc. (more than 50 min); cardiorespiratory arrest care, measurement scales (more than 6 times a day).**

More than 6 times a day: monitoring of blood pressure, heart rate, respiratory rate and pattern, axillary temperature, pain, glycemia, oximetry, application of scales such as Braden, Morse, Patient Classification System, Glasgow;

More than 50 minutes of duration in procedures in the unit such as: exchange of the tracheostomy set, noninvasive ventilation; monitoring by telemetry.

## Body Care and Eliminations

- 1 **Self-sufficient.**

Independent patient for body self-care and control of eliminations.

- 2 **Requires guidance and/or supervision and/or nursing assistance to dress or move to the toilet, shower, oral hygiene, elimination control, tricotomy and post-operative hygiene.**

Patient performs body care and elimination control, but needs assistance in changing the bedding; performs partial body care; has control of eliminations; requires collection of urine, feces and/or sputum for examination; vesical self-examination with supervision; preoperative trichotomy without assistance.

- 3 **Requires nursing care (doing) for personal hygiene activities and comfort measures (up to 6 times a day): placement of a jordan, diaper change, tampon, emptying and/or exchange of collection bag, control of catheters, drains, devices for urinary incontinence and estimates.**

Up to 6 times a day: nursing performs bathing on the bed and/or applies cutaneous degermant; care for the colostomy, ileostomy, nephrostomy, urostomy, delayed (or relieve) bladder catheter, fistulas, uripen with diuresis measurement, manual cleaning of the bladder catheter and/or continuous irrigation.

- 4 **Requires nursing care (doing) for personal hygiene activities and comfort measures (more than 6 times a day): placement of jordans, diaper change, tampon, emptying of collection bag, control of catheters, drains, devices for urinary incontinence and stomata.**

More than 6 times a day: nursing takes care of colostomy, ileostomy, nephrostomy, urostomy, delayed bladder catheter (or for relief) and fistulas, uripen with diuresis measurement, as in cases of high output, abundant drainage or extravasation; manual cleaning of the bladder catheter and/or continuous irrigation.

## Skin and Mucous Care

- 1 **Guidance and supervision of preventive measures of skin lesions.**

Patients with intact skin and no therapeutic devices on the skin.

- 2 **Preventive measures of skin lesions (massage, application of lotions) up to 3 times a day; exchange of dressings of small technical complexity in one or more areas of the body (once a day).**

Patients with Braden higher than or equal to 13 points, with therapeutic devices on the skin, such as peripheral venous access, subcutaneous catheter, drains, arteriovenous fistula;

Up to 3 times a day it requires change of position, massage, application of lotions;

Once a day it requires dressings of little technical complexity in catheters, tubes, drains, small skin abrasion, surgical wound with first intention healing, lesions without drainage.

- 3 **Preventive measures of pressure ulcer (4-6 times a day); change of small dressings or medium technical complexity in one or more areas of the body (2-3 times a day); change of position (up to 6 times a day).**

Between 4-6 times a day it requires change of position, massage, application of lotions;

2 to 3 times a day it requires dressing of small or medium technical complexity such as pressure lesion from grade II or any other skin lesion with subcutaneous impairment, or even a patient with multiple small dressings.

- 4 **Preventive measures of pressure ulcer (more than 6 times a day); chance of dressings of medium technical complexity in one or more areas of the body (more than 3 times a day) or of high technical complexity (once a day); change of position (more than 6 times a day).**

More than 6 times a day, it requires change of position;

More than 3 times a day, performance of a medium complexity dressing on pressure injury or another skin lesion with abundant drainage;

Once a day the nurse performs a dressing of high technical complexity in cavitory lesions, with tissue impairment and/or bone exposure.

### Nutrition and Hydration

- 1 **Self-sufficient.**

Patient feeds without aid and encouragement.

- 2 **Requires guidance and/or supervision and/or nursing aid to feed and/or ingest liquids, water control.**

Patient with preparation for exams, surgeries or therapeutic fasting;

With little intake that needs guidance/stimulation.

- 3 **Requires nursing care (doing) to feed and ingest liquids and/or nasogastric or nasoenteric tube feeding or stoma (up to 6 times a day).**

Up to six times a day, the nurse administers the diet via oral, through tubes, gastrostomy or jejunostomy; open nasogastric tube care (emptying and/or measuring).

- 4 **Requires nursing care (doing) to feed and ingest liquids and/or and/or nasogastric or nasoenteric tube feeding or stoma more than 6 times a day; nursing performance for the manipulation of peripheral or central catheters for nutrition and hydration.**

More than 6 times a day the nurse administers the diet via oral, through tubes, gastrostomy or jejunostomy, as for example patients with diet plus water in the intervals, total parenteral nutrition and lipids; open nasogastric tube care (emptying and/or measuring).

### Locomotion and Activity

- 1 **Self-sufficient.**

Patients with Morse inferior to 45 points.

- 2 **Requires assistance for ambulation (support) and/or encouragement, guidance and supervision to move body segments, ambulation or use of artifacts (orthoses, prostheses, crutches, walking sticks, wheelchairs, walkers).**

Patients with Morse higher than or equal to 45 points.

- 3 **Requires nursing care (doing) for ambulation up to 2 times a day; moving from bed to chair and vice versa with the help of 2 employees, training for ambulation and activities of daily living; transportation within the unit with accompanying nursing staff.**

Up to 2 times a day it requires any type of mobilization performed by up to 2 employees; internal transfers within the unit, such as room/bed change; weight check in dependent patients.

- 4 **Requires nursing care (doing) for ambulation more than 2 times a day: moving from bed to chair and vice versa with the help of more than 2 employees, transport to out of the unit with accompanying nursing staff.**

More than 2 times a day it requires any type of mobilization performed by more than 2 employees, as in the case of obese, confused or agitated patients; transportation carried out by the unit team to other sectors of the institution.

### Therapeutics

- 1 **Requires medication (1-3 times a day); placement and exchange of infusions (1-2 times a day).**

1-3 times a day it requires administration of oral, intravenous, subcutaneous and/or nebulization medications;

1-2 times a day exchange of infusions like serum therapy and others.

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2 **Requires medication (4 times a day); placement and exchange of infusions (3-4 times a day); care for SNG, SNE or stoma; oxygen therapy.**

Continuous care with oxygen therapy by catheter/nasal glasses, Venturi or Hudson mask;  
4 times a day it requires administration of oral, intravenous, subcutaneous and/or nebulization medications;  
3-4 times a day it requires placement or exchange of infusions, dietary and/or medications administration by tube or stoma.

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3 **Requires medication 6 times a day; placement and exchange of infusions 5-6 times a day; specific medications for diagnostic exams and/or surgeries; peripheral catheter care; use of blood and derivatives, cytostatic agents or plasma expanders; peritoneal dialysis.**

Patients in preparation for exams, using laxatives, enema, mannitol, packed red blood cells, platelets or chemotherapy; in dialysis performed by the unit nurse or in equipment monitored by the nurse of the sector; respiratory, cutaneous, enteric and/or contact precaution;  
6 times a day it requires the administration of oral, intravenous, subcutaneous and/or nebulization medications;  
5-6 times a day it requires the placement or exchange of infusions, diet and/or catheter or stoma medications administration.

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4 **Requires medication every 2 hours or hourly; placement and exchange of infusions (more than 6 times a day) use of vasoactive or other drugs requiring greater care in the administration; epidural and central catheter care; hemodialysis.**

Up to 2 hours it requires the administration of oral, intravenous, subcutaneous and/or nebulization medications; care for patients in mechanical containment;  
More than 6 times a day it requires the placement or exchange of infusions, use of vasoactive drugs that require the presence of the nurse to control the administration; care with monolumen, double lumen or portocath catheters.

### Emotional Support

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1 **Patient/family requires support through conversation due to daily concerns or regarding the illness, treatment and hospitalization.**

A daily intervention for patient/companion about the care provided or the routine of the institution.

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2 **Patient/family requires support through conversation due to the presence of anxiety, distress or complaints and ongoing requests.**

More than one daily intervention for patient and companion who are anxious, confused, petitioners, with difficulty to wait for care.

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3 **Patient/family requires conversation and psychological support due to the presence of apathy, hopelessness, decreased interest in activities, or increased frequency of anxiety symptoms.**

Patient or companions who are extremely anxious that request care from any professional, with great difficulty in waiting for care, understanding or discharge, or who do not accept or do not collaborate with the care provided; patients with sensory impairment, with little or no family present.

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4 **Patient/family requires repeated conversations and psychological support, denial of health care, psychosocial problems.**

Patient and companion who do not accept care and/or interfere with the treatment; situation of abandonment of the family; difficulties due to family or social problems.

### Health Education

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1 **Guidance to patient/family at the admission.**

Patients from admission and/or first hospitalization.

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2 **Patient/family guidance in the pre/postoperative period, procedures, test results, discharge orientation.**

Daily guidelines on self-care, treatment specificities, examinations; guidelines for patient discharge with low complexity care.

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3 **Guidance to the patient/family with communication (blind, deaf, mental problems, language disorders) socio-cultural problems; or from other cultures; with difficulty of understanding and/or resistance to the information received; guidelines on handling equipment and/or special materials at home.**

When there is a need to guide more than once or more of a relative: on medium complexity care such as the use of equipment and/or materials/special care at home, use of non-invasive ventilation, extensive dressings performance, nasogastric feeding tube, tracheostomy care, self-application of injectable medications, glycemic control.

4 **Guidance to patient/family on self-care, orientation and training to handle equipment and/or special materials at home and perform specific procedures (dressings, peritoneal dialysis, etc.).**

Repeated guidance on high complexity care (handling of equipment and/or special home care materials such as oxygen therapy, glycemic control with insulin supplementation). Repeated guidelines, regardless of complexity, for hospital discharge; necessity to manage difficult situations with patients and their families.

**Figure 1** - Guide of parameters constructed for the nine critical care indicators of the Perroca's Patient Classification System of a university hospital

Source: Research Data, 2014.

## ■ DISCUSSION

An evaluation of the instrument performed by the author demonstrated the nurses' satisfaction with the use of the Classification System. However, it also pointed to a tendency to underestimate the clinical assessment to the detriment of the category of care complexity. Thus, the author raised the hypothesis that the users recognized the validity of the instrument in the categorization of patients according to the complexity of care, but sometimes they did not agree with the results regarding the categorization obtained, indicating that complementary studies to identify factors that interfere in determining the classification would be a challenge and a necessity<sup>(13)</sup>.

The construction of the parameter guide allowed the nurses detailed knowledge on how to evaluate each care indicator in the Perroca's Patient Classification System. The literature points out that the use of guides and manuals in nursing can both add benefits and serve as an objective, clear and accessible reference source for the interpretation of the guidelines. It is also capable of optimizing meetings and training, as well as harmonizes and professionalizes the work environment. On the other hand, an educational guide does not eliminate the need for verbal guidance<sup>(14)</sup>. Thus, researchers have been concerned with offering the guide and systematic face-to-face training in order to ensure a better use of this tool in clinical practice.

Manuals, folders and educational guides, in addition to standardizing languages, can be considered as enabling educational technologies that can be used in several scenarios for knowledge transfer, complementing or clarifying

the instructions provided by experts. One of the goals is to facilitate communication. The increasing technological evolution expresses new possibilities of use of these materials in the practices of care and education<sup>(15)</sup>. In this sense, the parameter guide has been used as support material in the training of new nurses for the application of the Patient Classification System in a qualified manner. It is understood that the use of parameters standardizes the language, optimizes the instrument filling time, minimizes subjectivities and provides nurses with a reflection on the (re)planning of nursing care and quality of care.

In the experience of the authors, it is reiterated that the collective construction of parameters led to the formulation of a material that reflects the daily practice of the institution's professionals, making it possible to be widely used in other realities. The application of the scale requires the nurse to evaluate the patient in a comprehensive way.

The fact that the institution, the field of study, already uses the nursing process in a consolidated way in all its stages was a facilitator for the implantation of the Perroca's Patient Classification System and the parameter guide. The nursing process in the clinical practice has favored the communication based on information about the patient and their care, which provides visibility of the nurses' work<sup>(16)</sup>.

The information on the degree of complexity of care may favor the understanding of the behavior of institutional quality indicators and patient safety. However, scientific knowledge is constantly being renewed and, thus, there is a need for constant updating of the parameters so that it follows the evolution of nursing.

## ■ CONCLUSIONS

The parameter guide was built and validated through a rigorous process of consensus among experts. This material optimizes, qualifies and standardizes the filling of the Perroca's Patient Classification System. With the implementation of the parameter guide, the tool started to be applied in a less subjective way and presented a good receptivity from the nurses, who understood better each indicator and started to demonstrate mastery in its filling.

Studies on the theme contribute to the management of care, since the results obtained from the classification of the degree of dependence of the patients provide the analysis and assessment of the planning of the nursing staff. Consequently, the qualification of the care occurs, increasing the safety of hospitalized patients from the clinical reasoning performed by the nurses to fill in the classification instrument.

The study had as limitation the reduced sample size. However, the group of researchers has been promoting systematic training and case studies in order to discuss the application of the Patient Classification System, aiming to reduce nurses' doubts. These activities have also contributed to qualify the parameter guide presented here.

It should be highlighted the relevance of the use of this instrument to guide nurses' daily routine, being a tool capable of answering the main doubts that may arise during the use of the Perroca's Patient Classification System. It also provides subsidies for research that will use the Patient Classification System and for hospital institutions that are in the phase of implanting the Patient Classification System.

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