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CLASSIFICATION OF EMERGENCY PATIENTS ACCORDING TO THEIR **DEPENDENCY ON NURSING**

CLASSIFICAÇÃO DOS PACIENTES NA EMERGÊNCIA SEGUNDO A DEPENDÊNCIA DA **ENFERMAGEM**

CLASIFICACIÓN DE LOS PACIENTES EN EMERGENCIA SEGÚN LA DEPENDENCIA DE ENFERMERÍA

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ABSTRACT

Objective: to characterize the degree of dependency of users hospitalized in the emergency unit with respect to nursing care. *Method*: this is a quantitative, cross-sectional and secondary-based study. The sample consisted of patients hospitalized in the stabilization unit in March 2017. An instrument was used to obtain sociodemographic and clinical data, and also the Patient Classification System (PCS) proposed by Fugulin, Gaidzinski and Kurcgant. Statistical analysis was performed using the Epi InfoTM software. *Results*: 62.16% (n=46) of the sample were male, with mean age of 55.29 ± 20.76 years. The main diagnosis of hospitalization was diseases of the circulatory system (39.19%), and the mean permanence was 4.29 \pm 6.59. The PCS was applied 166 times and intensive care was prevalent (69.28%), followed by semi-intensive (13.86%) and high dependency (11.45%). Conclusion: There was a high number of intensive care and semi-intensive care provided and linked to prolonged length of stay in the sector, which mischaracterizes emergency units as patient stabilization sectors. This characterization provides scientific and trustworthy bases for hospital management and nursing personnel. **Descriptors**: Hospital Administration; Patient Care; Emergencies; Emergency Nursing; Nursing; Organization and Administration.

Objetivo: caracterizar o grau de dependência dos cuidados de enfermagem de usuários internados no setor de emergência. Método: trata-se de estudo quantitativo, transversal, de base secundária e a amostra se constituiu dos usuários internados na área de estabilização no mês de marco de 2017. Utilizou-se um instrumento para os dados sociodemográficos e clínicos e o Sistema de Classificação de Pacientes (SCP) de Fugulin, Gaidzinski e Kurcgant. Realizou-se a análise estatística no programa Epi Info. Resultados: verificouse que 62,16% (n=46) da amostra era do sexo masculino, idade média de 55,29 ± 20,76 anos, principal diagnóstico de internação as doenças do aparelho circulatório (39,19%) e média de permanência de 4,29 ± 6,59. O SPC foi aplicado 166 vezes e predominou o cuidado de intensivo (69,28%), seguido por semi-intensivo (13,86%) e de alta dependência (11,45%). *Conclusão*: constatou-se um elevado número de cuidados intensivos e semi-intensivos, atrelados à longa permanência no setor, o que descaracteriza as unidades de emergência como local de estabilização. Fornece-se com essa caracterização bases científicas e fidedignas para o gerenciamento hospitalar é de pessoal de enfermagem. *Descritorés*: Administração Hospitalar: Assistência ao Paciente; Emergências; Enfermagem em Emergência; Enfermagem; Organização e Administração.

Objetivo: caracterizar el grado de dependencia de los usuarios internados en el sector de emergencia en relación a los cuidados de enfermería. Método: se trata de un estudio cuantitativo, transversal y de base secundaria. La muestra se compuso de los usuarios internados en la unidad de estabilización durante el mes de marzo de 2017. Se utilizó un instrumento para obtener los datos sociodemográficos y clínicos y el Sistema de Clasificación de Pacientes (SCP) de Fugulin, Gaidzinski y Kurcgant. Se realizó el análisis estadístico en el programa Epi InfoTM. *Resultados:* se verificó que el 62,16% (n=46) de la muestra era del sexo masculino, con edad media de 55,29 ± 20,76 años. El principal diagnóstico de internación fue las enfermedades del aparato circulatorio (39,19%) y el promedio de permanencia fue de 4,29 ± 6,59. El SCP fue aplicado 166 veces y predominó el cuidado intensivo (69,28%), seguido por el semi-intensivo (13,86%) y el de alta dependencia (11,45%). Conclusión: Se constató un elevado número de cuidados intensivos y semi-intensivos relacionados con la larga permanencia en el sector, lo que descaracteriza las unidades de emergencia como locales de estabilización. Esta caracterización proporciona bases científicas y fidedignas para la gestión hospitalaria y de personal de enfermería. Descriptores: Administración Hospitalaria; Asistencia al Paciente; Emergencias; Enfermería de Emergencia; Enfermería; Organización y Administración.

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INTRODUCTION

The hospital emergency unit is considered a critical sector, given that care should be provided in an agile and systematized manner, aiming at reducing the number of deaths and sequels.¹ Nurses working in emergency units should be fitted into a series of service specificities, such as agility and practicality, because the users under critical conditions require making decisions within a short period of time.²

Nursing deals with several situations that cause work overload, and physical and psychological exhaustion on a daily basis, as well as ambiguity of functions, hospital overcrowding, intense contact with critical patients who are at imminent risk of death, extended shift activities, and lack of hospital physical structure.²⁻³

In this sense, there is a need to know the characteristics of the users served emergency units, in order to provide skilled and specialized human and material resources to promote fast, efficient, and effective care. One of these methodological resources is the Patient Classification System (PCS) proposed by Fugulin, Gaidzinski and Kurcgant⁴ and recommended by Resolution 543/2017 of the Federal Nursing Council.⁵ It is argued that this instrument determines the degree dependency of patients with respect to the nursing team. The aim is to establish the time of direct and indirect care, and provide bases for determining the quality of nursing personnel, in addition to allowing the patients to be classified into five degrees of dependency, namely: intensive care; semiintensive care; high dependency; intermediate care; and minimal care.4

This framework assists in the management of both material and human resources, as well as in the identification of user profiles and promotion of individualized nursing care planning, thus providing safe care on the part of the nursing team. 1 is understood that the professionals of directly healthcare quality. This way, there is a greater risk of adverse events, mainly related medication administration, to withdrawal of probes, drains, and catheters, as well as increased number of care-related The aforementioned infections. negatively affect the length of hospital stay, the morbimortality of patients, and the increase in hospital expenses. 7-8

Therefore, it is necessary to apply appropriate methodologies and criteria to meet the real needs of human resources according to each care level, focusing on a

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nursing staff dimension that leads to quality and safe care.

OBJECTIVE

• To characterize the degree of dependency of patients hospitalized in the emergency unit of a reference hospital with respect to nursing.

METHOD

This is a quantitative, cross-sectional, descriptive, and secondary-based study. It was conducted in a large hospital, located in Boa Vista, State of Roraima, Brazil, and characterized as a teaching hospital, member of the Unified Health System, being managed by the State Government. This institution is a reference for the fifteen municipalities of the state, as well as for the border countries Bolivarian Republic of Venezuela and the Cooperative Republic of Guyana, Indigenous Special Sanitary Districts Yanomami and Ye'Kuana (DSEI-Y), and east of Roraima (DSEI-L).

Data were collected at the emergency unit of the referred hospital, subdivided into three areas, namely: (i) red area, responsible for receiving, evaluating, and stabilizing emergencies; (ii) yellow area, which is a semi-intensive unit, serving critical and semicritical patients who have already started their therapy; and (iii) green area, for noncritical patients who are under observation or awaiting vacancies for being referred to other hospital units. The research was restricted to the red area, aiming to assess the degree of dependency of the users admitted to the emergency unit and their permanence in this unit.

All patients hospitalized in this area for 30 consecutive days in March 2017 were selected as participants, following the methods used by Vandresen et al.¹⁰ and Ohara, Melo and Laus.¹¹ The criterion for inclusion included patients registered upon authorization for hospital admission regardless of diagnosis, type of treatment, or days of hospitalization. Patients younger than 18 years and with readmissions in the sector were excluded.

An instrument was used to compile the sociodemographic and clinical data of the patients. It was specifically prepared for the present study with the following variables: sex; date of birth or age; race, color or ethnicity; origin; date of hospitalization; main diagnosis according to the International Classification of Diseases (ICD-10); date of discharge; and the reasons for discharge from the sector.

A validated instrument was also used, i.e., the PCS proposed by Fugulin, Gaidzinski and Kurcgant.4 This method uses nine critical care state; indicators, namely: mental oxygenation; vital mobility; signs; ambulation; food; body care; bowel and bladder movement; and therapy. Each of these indicators has a gradation of care complexity ranging from one to four points, in order to categorize the increasing intensity of the degree of care dependency with respect to nursing. The patients are classified into one of the following categories: patient under minimum care, 9 to 14 points; patient under intermediate care, 15 to 20 points; patient under high-dependency care, 21 to 26 points; patient under semi-intensive care, 27 to 31 points: and patient under intensive care. above 31 points.4 The nine indicators were and scored according characteristics of the patients recorded in the medical records on the day of data collection.

The data collected were entered into a spreadsheet (Microsoft® Excel 2010 software) and statistically analyzed using the Epi InfoTM software version 7.0. The descriptive analysis was performed using categorical variables (sex, age, length of hospital stay, origin, and medical diagnosis) by checking the means, standard deviations, medians, minimum, and maximum. Relative and absolute frequencies were used for the continuous variables.

The present study was approved by the Human Research Ethics Committee of the Federal University of Roraima (CEP/UFRR), according to the Resolution No. 466/12 of the National Health Council, under Opinion No. 1,571,484 and CAAE No. 56415616.6.0000.5302. An informed consent form was applied for using secondary information, and the authorization for conducted the study was requested from the Hospital Research Center.

RESULTS

There were 74 patients in the sample, of whom 62.16% (n=46) were male and 37.85% (n=28) female (Table 1). There was a mean age of 55.29 ± 20.76 , with a median of 57.2, and a variation between 19 and 92 years. The hospitalization of older adults (48.65%) was prevalent when they were divided according to age groups, and the predominant racial/ethnic group was mestizos (93.24%), followed by indigenous (5.41%).

It was observed that a large part of the patients had come from emergency care (40.54%), the Mobile Emergency Care Service

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(39.19%), self-referral (13.51%); and from another hospital settings due to some complications in the clinical picture (6.76%). It was also confirmed that several diagnoses led to hospital admission, with prevalence of diseases of the circulatory system (39.19%), followed by external causes (28.38%), and diseases of the respiratory system (8.11%) and the digestive system (8.11%).

The length of hospital stay varied from one to thirty-six days, with a mean of 4.29 ± 6.59 . Regarding patient discharge from the sector, mortality accounted for 41.89% (n=31), followed by referral to the green area of the sector (3.78%; n=25), referral to ICU (18.92%; n=14), and referral to other hospital sectors (5.41%; n=4).

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Table 1. Sociodemographic and clinical characterization of patients hospitalized in the emergency unit. Boa Vista (RR), Brazil, 2017.

Variables	No.	%
Sex		_
Male	46	62.16
Female	28	37.84
AGE		
≤20 years	7	9.46
21 to 59 years	31	41.89
>60 years	36	48.65
Race/Ethnicity		
Mestizo	69	93.24
Indigenous	4	5.41
White	1	1.35
Origin		
Emergency unit	30	40.54
Mobile Emergency Care Service	29	39.19
Self-referral	10	13.51
Hospital settings	5	6.76
International Classification of		
Diseases - 10		
Circulatory system	29	39.19
External cause	21	28.38
Respiratory system	6	8.11
Digestive system	6	8.11
Infectious and parasitic diseases	5	6.76
Genitourinary system	4	5.41
Endocrine diseases	2	2.70
Neoplasms	1	1.35
Discharge from the sector		
Death	31	41.89
Referral to non-critical care setting	25	33.78
Referral to ICU	14	18.92
Referral to the hospital settings	4	5.41
Days of stay (±SD)	4.29 ± 6.5	-
M: Mean; SD: Standard deviation		

A total of 166 PCS measurements (Fugulin, Gaidzinski & Kurcgant, 2005) were performed for 30 consecutive days, determining the degree of user dependency with respect to the nursing team. It should be noted that the number of observations did not correspond to the total number of patients, given that the same user may have been assessed more than

once, depending on the length of stay in that unit.

Table 2 shows that 69.28% (n=115) of the observations the patients were categorized as intensive care (69.28%), followed by semi-intensive care (13.86%) and high dependency (11.45%).

Table 2. Categorization of the Patient Classification System (Fugulin, Gaidzinski & Kurcgant, 2005) in patients admitted to the emergency unit. Boa Vista (RR), Brazil, 2017.

Patient Classification System	n	%
Intensive care	115	69.28
Semi-intensive care	23	13.86
High-dependency care	19	11.45
Intermediary care	6	3.61
Minimal care	3	1.81
Total	166	100

The most prevalent indicators in the PCS are illustrated in Table 3 according to the care sectors.

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Table 3. Distribution of the most frequent indicators according to the care sector of the Patient Classification System (Fugulin, Gaidzinski & Kurcgant, 2005). Boa Vista (RR), Brazil, 2017.

Care sector	Grading of the most frequent care complexity		%	
		No.		
Urination/	Urination/defecation in bed and use of indwelling	154	92.77	
defecation	bladder catheter			
Body care	Bed bath	152	91.57	
Ambulation	Restricted to bed	146	87.95	
Food	Through nasogastric tube	132	79.52	
Vital signs	Control every six hours	129	78.31	
Oxygenation	Mechanical ventilation	122	73.49	
Motility	Unable to move any segment of the body	117	70.48	
Mental state	Unconscious	116	69.88	
Therapy	Continuous intravenous administration or through nasogastric tube	86	51.81	

With respect to mental state, 69.88% (n=116) of the patients were characterized as unconscious, 12.05% (n=20) were oriented in space and time, 11.45% (n=19) exhibited periods of consciousness, and 6.63% (n=11) exhibited periods of disorientation. Regarding oxygenation, 73.49% (n=122) were under mechanical ventilation, 13.86% (n=23) used continuous nasal oxygen catheter, and 3.01% (n=5) used nasal oxygen catheter from time to time, evidencing that, in 90.36% of the assessments, the patients required some type of oxygen therapy, and only 9.64% (n=16) did not depend on supplemental oxygen.

With respect to the control of vital signs, it was observed that 78.31% (n=130) of the patients had been checked every six hours, and 21.69% (n=36) were assessed every four hours. Regarding patient motility, it was observed that 70.48% (n=117) were unable to move any segment of the body, 17.47% (n=29) exhibited difficulty in performing body movements, 6.63% (n=11)had mobility, and only 5.42% (n=9) moved all body segments.

There was a higher frequency of patients restricted to bed (87.95%) and, similarly, there was a high number of bed baths (91.57%; n=152), followed by 4.22% (n=7) with shower bath and/or oral hygiene performed by the nursing team. Regarding the form of bowel and bladder movement, 92.77% (n=154) urinated/defecated in bed and used indwelling bladder catheter, and 3.61% (n=6) used bedpans or urinated/defecated in bed.

With respect to the diets, 79.52% (n=132) of the observations the patients received food through a nasogastric tube, 17.47% (n=29) fed orally with nursing assistance, 3.01% (n=5) were self-sufficient, and no diet was administered by a central catheter.

Regarding the therapy used, it was observed that 51.81% (n=86) of the patients had been administered intravenous medications continuously or through nasogastric tubes, 38.55% (n=64) were using vasoactive drugs, and 9.64% (n=16) were

undergoing intravenous therapy from time to time. There were no records of patients taking medicines only through the oral route.

In the present study, it was found that the sectors with the greatest severity and, consequently, requiring greater dependency on nursing were related to urination/defecation (92.77%), body care (91.57%), and ambulation (87.95%).

DISCUSSION

There was prevalence of male patients in the emergency unit, corresponding to 62.16% (n=46) and confirming a cultural tendency established in society, given that men characterize diseases as a sign of fragility. They believe they are not susceptible to the occurrence of diseases. Therefore, this behavior implies non-adherence to forms of prevention and self-care, in addition to reduced demand for low-complexity health services. 12-13

Regarding age groups, there prevalence of older adults' hospitalizations, converging with the population change in Brazil, through the demographic transition, in which a younger age group and an increased older adult population can be observed. 14 On other hand, with respect race/ethnicity, there was prevalence of mestizos, followed by indigenous individuals. This result reflects a regional specificity, given that the State of Roraima has the highest percentage of indigenous individuals (11.0%) in comparison to other states of the Federation.¹⁵

With regard to the diagnoses that led to hospitalization, the diseases of the circulatory system were prevalent. These diseases are one of the biggest causes of death in the world and, according to estimates of the World Health Organization, about 24 million people will die from these diseases by the year 2030, 16 causing a number of deaths six times higher than the number of deaths caused by infectious diseases, with acquired immunodeficiency syndrome (AIDS)

occurring twice as much as cancer, and causing 2.5 times more deaths than external causes.¹⁷

External causes have also been responsible for high hospitalization rates, and, often, causing temporary or permanent complications that prevent individuals of productive age from working, which becomes costly for the productive sector, social security, and the health system. 18 Furthermore, external causes are responsible social damage due to physical, psychological, and emotional exhaustion of patients and families.

Regarding discharge from the sector, it was observed that mortality represented 41.89% (n=31) of the cases. Studies conducted in southeastern and northeastern Brazil showed much lower results with respect to the death rate when compared to the local percentage, with only 11.47% in the first study and 2% in the second. 19-20

It is believed that this local discrepancy occurs due to several factors, but, mainly, due to the profile of the public served in emergency units. It was observed that the majority of the population served was composed of older adults with chronic noncommunicable diseases, whose complications often had negative prognoses. In addition, age is a factor related to poor prognosis, given that, statistically, the greater the age the greater the probability of dying. ²¹⁻²²

Another factor correlated to negative outcomes is the length of hospital stay. This variable is often used as an indicator of the quality of hospital care, which can be influenced by several factors, such as the severity of patients and the occurrence of complications during hospitalization.²³

According to the Resolution No. 2,077/14 **Federal** Medicine Council,²⁴ of regulates the functioning of hospital emergency services, establishes that the maximum length of stay in these services should be up to 24 hours. The patients should be discharged, hospitalized, or referred. The hospitalization of these users in emergency services should not be performed.

However, it is accepted that this is not the reality found in these emergency services. The length of stay in the emergency sector observed in the present study ranged from one to thirty-six days, with a mean of 4.29 ± 6.59 . This fact indicates a long stay when compared to the results of a study conducted in Curitiba, State of Paraná, Brazil, which found a mean stay of two days.²⁵

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According to the PCS application, patients under intensive care were prevalent, followed by patients under semi-intensive care and high dependency, evidencing that the majority of the users served in the emergency unit required complex nursing care, so that their basic human needs could be met. Patients are considered under intensive care when they are in serious conditions and need specialized nursing and medical care in a permanent manner, given that the physiological and vital functions are unstable, though recoverable.⁵

The emergency service is responsible for short-term care intended providing stabilize or resolve an emergency situations.²⁶ In addition, it is considered that, after being stabilized, severe patients should be kept in emergency observation only until the beds in other hospital units are available. However, in practice, there is a difficulty in obtaining beds in these units and the users are treated in the emergency unit for a long period of time. This situation interferes with the quality of care, since emergency units do not have the enough physical and human resources to perform this type of care, thus leading to the de-characterization emergency work.27

The occurrence of adverse events is intensified with the presence of critical patients in an emergency unit due to the intrinsic conditions of the service, given that this unit is the gateway to various emergency conditions, such as clinical, surgical or traumatic. In addition, they are factors that facilitate the occurrence of adverse events in work emergency unit, overload, overcrowding of units. and lack communication between the multidisciplinary team.2

It was observed that the high number of unconscious patients, undergoing invasive mechanical ventilation, with continuous use of intravenous and vasoactive drugs, restricted to bed, urinating/defecating in bed, using an indwelling bladder catheter, and receiving diet mainly by tubes, reflects the severity of patients hospitalized in the sector. This way, there is high degree of user dependency on the nursing team so that their basic human needs can be met.

The aforementioned characteristics reveal that these patients were under intensive care. The hospital units dedicated to provide care to critically ill patients is the intensive care unit, since it has trained human resources and appropriate technological resources.²⁸ The Resolution No. 543/17 of the Nursing Federal Council (COFEN)⁵ points out

that patients classified for intensive care should be cared for in intensive care units. However, the lack of beds makes these patients remain in other non-specific units to be cared as critical patients. It is also possible that the emergency unit is a gateway to the hospital environment, in which there is a continuous demand from new patients, causing a work overload for the professionals that work there.²⁹

CONCLUSION

The present study made it possible to determine the degree of dependency of hospitalized patients in emergency units with respect to nursing. Most of the users were classified as undergoing intensive, semiintensive and high-dependency care. This fact evidenced high dependency on emergency especially regarding nursing care, urination/defecation, body care, and ambulation. This situation was characterized by the exposure of nursing workers to risk factors related to their work activities, mainly ergonomic and biological risks.

It should be emphasized that the high degree of dependency linked to the long stay of the users in the sector mischaracterizes the emergency sectors as units for patient stabilization. These factors can lead to a high rate of bed occupancy, poor care quality, high rates of care-related adverse events, and a high work overload for nursing professionals.

Finally, it is believed that the characterization of users served in the emergency unit provides a basis for hospital management and the nursing personnel, as well as for material resources and equipment, given that the provision adjusted to the needs is of paramount importance to ensure safe care for users and professionals, minimizing iatrogenies and improving the quality of life at work.

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