

ORIGINAL ARTICLE

PATIENT CLASSIFICATION AND NURSING STAFF DIMENSIONING IN A PEDIATRIC INPATIENT UNIT

HIGHLIGHTS

1. Implementation of the Patient Classification System
2. Dimensioning the nursing staff in a pediatric inpatient unit
3. Labor management tools
4. Workload measurement

Rúbia Marcela Rodrigues Moraes¹ 

Ana Caroline de Lara¹ 

Eduardo Cardoso Remedio¹ 

Maria Aparecida Munhoz Gaiva² 

Mozara Mota Gentilini³ 

João Lucas Campos de Oliveira⁴ 

Ana Maria Muller e Magalhaes⁴ 

ABSTRACT

Objective: to describe the implementation of the Patient Classification System and the dimensioning of the nursing staff in a pediatric inpatient unit. **Method:** a descriptive, cross-sectional, and retrospective study, carried out at a university hospital in the Midwest of Brazil. After the implementation of the Pediatric Patient Classification System, we compiled data from the classifications of the level of care complexity (N=4,639) among patients (n=608) admitted from January to December 2019. Descriptive statistical analysis was employed, including proprietary methodology for staff sizing. **Results:** there was a prevalence of intermediate care patients. According to the staff dimensioning, there was a surplus (+10) of mid-level workers, and the projected number of nurses (six) was compatible with the available number. **Conclusion:** the strategic implementation/employment of the Patient Classification System was indispensable for the pediatric nursing staffing forecast, considering that the staffing surplus found should be appreciated with caution.

DESCRIPTORS: Staffing Adjustment; Pediatric Nursing; Workload; Inpatient Care Units; Staff, Hospital.

HOW TO REFERENCE THIS ARTICLE:

Moraes RMR, Lara AC, Remedio EC, Gaiva MAM, Gentilini MM, Oliveira JLC de, et al. Patient Classification and nursing staff dimensioning in a pediatric inpatient unit. *Cogitare Enferm.* [Internet]. 2023 [cited "insert year, month, day"]; 28. Available from: <https://dx.doi.org/10.1590/ce.v28i0.89190>

¹Hospital Universitario Julio Muller/ Universidade Federal de Mato Grosso, Cuiaba, MT, Brasil.

²Universidade Federal de Mato Grosso, Cuiaba, MT, Brasil.

³Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brasil.

⁴Universidade Federal do Rio Grande do Sul, Escola de Enfermagem, Porto Alegre, RS, Brasil.

INTRODUCTION

In hospital pediatric care, the nursing team acts from care planning to its individualized and continuous execution, taking into consideration the specificities of the family nucleus and of everyone. Thus, the nurse, responsible for managing care and the nursing team, uses a wide range of skills, such as relational, ethical-legal, clinical, research and knowledge production, health education and management, as well as leadership and teamwork¹.

In the deployment of management competencies, the use of tools that rationalize the work process is elementary. Among the various management tools, the dimensioning of nursing staff aims to ensure the quality of patient care and the well-being of workers based on the forecast of human resources to meet the care needs of the clientele according to the degree of dependence and the service organization².

The workload in pediatric nursing, or non-pediatric nursing, is a central variable in staff dimensioning. One of the possibilities of measuring nursing workload is based on the average daily number of patients assisted, adjusted by the degree of dependence and average time of assistance spent with each patient according to the classification stratum²⁻³. For this, the use of a Patient Classification System (PCS) defines the degree of dependence of the clientele in relation to the nursing team and identifies the time spent in (in)direct care, enabling quantitative-qualitative planning of nursing personnel²⁻⁴.

The high workload and the inadequate number of professionals have already been observed in research with Brazilian pediatric nursing teams⁵⁻⁶. In the United States of America, a study⁷ measured the workload in pediatric nursing using two instruments: Subjective Workload Assessment Technique (SWAT) and the Aeronautics Space Administration - Task Load Index (NASA-TLX), which assess, respectively, cognitive, temporal, and psychological stress dimensions and the general perception of task-related workload. It was evident that 65% of the nurses surveyed evaluated time overload as the most important variable in their daily work, and, as for the performance factor, it was the one that most contributed to the workload⁷. This can mean that the pediatric nursing team has a high level of demand on their performance, which reflects a greater load of activities versus an inadequate quantity to meet the demands of the work⁵.

A study⁴ carried out in a pediatric surgical inpatient unit analyzed the times related to nursing activities and the effectiveness of two instruments, namely: Nursing Activities Score (NAS), which generates a score of up to 178.6 points and reflects the nursing workload; and the Pediatric Patient Classification Instrument (PPCI), which identifies the degree of dependence on care and the hours of assistance demanded. The study concluded that there was a mismatch between the nursing time required to care for pediatric surgical patients and the number of available personnel⁴.

It is based on the solid and standardized premise³ that the use of valid and reliable pediatric PCS is fundamental for the care management of this clientele, as well as to guide the staff dimensioning of the nursing team in this segment of care production^{4,6,8-10}. However, the strategic and standardized use of patient classification and nursing staff dimensioning in pediatric units is not yet fully consolidated, which indicates the need for further studies on this issue. Moreover, it is believed that the implementation of a PCS or any other means of measuring the nursing workload deserves due organizational adaptation.

In view of the above, this study aimed to answer the following questions: how was the process of implementing a Pediatric Patient Classification System? After being properly implanted, what is the dimensioning of nursing staff in a pediatric inpatient unit? In this sense, the objective was to describe the implementation of the Patient Classification System and the dimensioning of the nursing staff in a pediatric inpatient unit.

METHOD

A retrospective cross-sectional descriptive study was carried out in the pediatric inpatient unit of a public university hospital in Cuiabá, Mato Grosso, Brazil. The studied unit is a reference in the state for treatment of chronic, rare, and infectious diseases. It has 14 beds for patients aged 28 days to 16 years. The study was carried out in four stages, as described below:

1st Step: implementation of the PPCI⁹ for classification of pediatric patients on the unit nurses' own initiative in mid-2015. On this occasion, it was defined that a validated PCS⁸ would be the reference for pediatric classifications. Training was carried out by the unit's own nurses and standardization regarding the collective understanding of the classifications and regarding the daily entries of the digital documentation of the classifications, which became effective in 2018. This process is described in the results by means of an illustrative flowchart and was the basis for the acquisition of the empirical data of the research.

2nd Step: documentary survey in digital media, using Microsoft Office Excel® spreadsheet of the classification data of all patients admitted to the unit (n=608) in 2019 who were evaluated based on the pediatric PCS at least once during hospitalization. These data were obtained through the daily application of PPCI⁹ validated in Brazil, which was previously and properly implemented in the studied hospital according to the first step.

The PPCI⁹ is composed of three domains (family, patient, and therapeutic procedures) that unfold into 11 evaluative indicators, as follows: Family Domain: companion participation; support network and family support; Patient Domain: activity; oxygenation; mobility and ambulation; feeding and hydration; eliminations; hygiene and body care; Therapeutic Procedures Domain: controls measurement interval; drug therapy; and cutaneomucosal integrity. Each indicator is scaled in four levels/points. With the assessment, the pediatric patient receives a score ranging from 11 to 44 points, defining the degree of care dependence in: Minimal Care patients (score between 11 and 17 points); Intermediate Care patients (score between 18 and 23 points); High Dependency patients (score between 24 and 30 points); Semi-Intensive Care patients (score between 31 and 36 points); and Intensive Care patients (score between 37 and 44 points)⁹. It is prudent to emphasize that in the daily dynamics of classification of pediatric patients under six years of age, at least the classification of intermediate care is assigned, regardless of the presence of a companion³.

3rd Step: dimensioning of the nursing professionals of the unit. This step was performed after compiling the patient classification data from the second step and the quarterly average (taking as calculation basis 90 to 92 days) of each patient complexity level verified using the pediatric PPCI over the base year. In addition, the daily average of each PPCI category was calculated, based on 365 days.

The calculation of the nursing staff workload was represented, in this study, both by the level of dependence on care of the pediatric clientele as measured by the ICPP⁹ and, mainly, by the volume of time (in hours) required to meet this demand. Thus, according to the parameters provided in the Resolution of the Federal Council of Nursing (COFEN) No. 543/2017, the Calculation of Nursing Staffing (QP- in Portuguese) dimensioned in the unit was obtained based on an equation, namely: $QP = THE \times KM^3$, where THE = Total Nursing Hours and KM = Marine Constant.

The weekly workload of the predominant nursing team in the unit studied was 36 hours per week. Since there was no systematized measurement of nursing absenteeism in the study hospital, the minimum Technical Safety Index (IST-in Portuguese) was used (15%). Thus, considering these values and the seven days of uninterrupted work in the week, the reference KM value of 0.2236³ was used. The qualitative adjustment (percentage of nurses and nursing technicians/assistants) of the dimensioned staffing was defined considering the care dependency level category that demanded the highest volume of nursing hours in

the annual compilation, considering the Brazilian parameters in force³.

The data from the second and third stages were analyzed by descriptive statistics. To compare the dimensioned chart with the available/actual chart in the pediatric unit, the work schedules referring to the same PPCI collection period were consulted. The option of not analyzing complete data from 2020, but rather from 2019 was intentional due to the context of the pandemic of COVID-19, which greatly altered the work dynamics in the hospital, including relocation of nursing staff.

4th Step: with the pediatric nursing staff dimensioned, an example of allocation/distribution of workers by professional category in work shifts was schematized, considering the dynamics of the researched sector: two-day shifts (morning and afternoon) and three-night shifts. For this, we exemplified the distribution of the ratio of patients per nursing worker in each shift, to verify the (in)compatibility of this ratio with the regulations in force³. In this exercise, we considered a 100% occupation in the unit and the removal of 15% (Technical Safety Index) of the total professionals distributed by category, foreseeing that these workers (properly rotated) would not be computed in the scale, because they would have the role of covering absences in the sector. In other words, they represent workers on vacation, time off, or even absenteeism.

The study followed the appropriate ethical requirements and was approved by the Research Ethics Committee (CAEE 07626019,5,0000,5541) under opinion number 3,603,794.

RESULTS

Figure 1 describes the process of implementing the Pediatric Patient Classification Instrument (PPCI) from the initial processes to the possibility of obtaining dependency level data from the pediatric clientele.

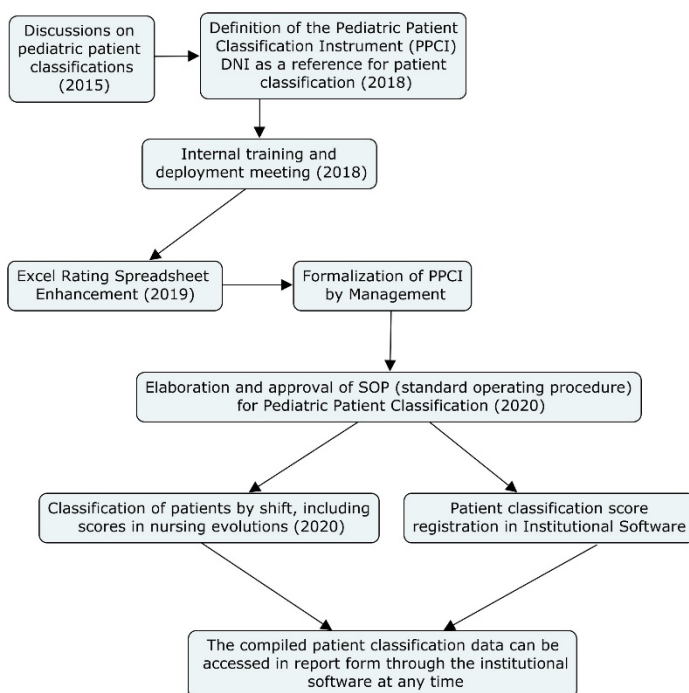


Figure 1 - Flow of activities for the implementation of the Daily Patient Classification System in a pediatric inpatient unit from 2015 to 2020. Cuiabá, MT, Brazil, 2020

Source: authors (2021).

We analyzed 4,639 daily classifications of patients (n=608) admitted in 2019. Table 1 shows the frequency of nursing care complexity level by quarter with emphasis on the demand for intermediate care in all periods.

Table 1 - Distribution of patient classifications according to the level of complexity of nursing care in the pediatric inpatient unit, by quarter. Cuiabá, MT, Brazil, 2019

Period	*MC n(%)	*IC n(%)	*HDC n(%)	*SIC n(%)	*ITC n(%)	Total n(%)
1st Quarter	283(24.1)	799(68.05)	69(5.9)	18(1.5)	5(0.42)	1174(100)
2nd Quarter	315(25.5)	689(55.74)	212(17.15)	18(1.4)	2(0.16)	1236(100)
3rd Quarter	129(10.3)	639(51.44)	444(35.76)	27(2.1)	3(0.24)	1242(100)
4th Quarter	131(13.2)	514(52.07)	324(32.83)	18(1.8)	-	987(100)
Full Year	858(18.49)	2641(56.94)	1049(22.61)	81(1.75)	10(0.21)	4,639

(N= 4.639)

*MC: Minimal Care; *IC: Intermediate Care; *HDC: High Dependency Care; *SIC: Semi-Intensive Care; *ITC: Intensive Care.

Source: author (2019).

Table 2 illustrates the average daily number of patients and the respective nursing hours demanded for each level of care complexity, as well as the annual average and total nursing hours (TNH).

Table 2 - Distribution of the daily averages of inpatients and the required nursing hours by level of care complexity in the pediatric unit per quarter. Cuiabá, MT, Brazil, 2019

Period	Average Patients (Nursing Hours Required)					TNH
	MC	IC	HAD	SIC	ICT	
1st Quarter	3.14(12.56)	8.87(53.22)	0.76(7.6)	0.2(2)	0.05(0.9)	76.28
2nd Quarter	3.46(13.84)	7.57(45.42)	2.32(23.2)	0.19(1.9)	0.02(0.36)	84.72
3rd Quarter	1.40(5.6)	6.94(41.64)	4.82(48.2)	0.29(2.9)	0.03(0.54)	98.88
4th Quarter	1.42(5.68)	5.58(33.48)	3.52(35.2)	0.19(1.9)	-	76.26
Full Year	2.35 (9.4)	7.23 (43.38)	2.87 (28.7)	0.22 (2.2)	0.02 (0.36)	84.04

MC: Minimum Care; IC: Intermediate Care; HAD: High Dependency Care; SIC: Semi-Intensive Care; ICT: Intensive Care; TNH: Total Nursing Hours.

Source: author (2019).

Chart 1 shows the comparison between the actual (available) and the dimensioned staff. The study showed a surplus of mid-level personnel and an adequate number of

nurses for the pediatric unit. It also exemplifies the dimensioned staff allocation in a "full scale" period (no absences), in shifts, accounting in this quantity the subtraction of 15% of nurses and technicians/nursing assistants. Based on this, it is possible to predict how many patients each worker would assist in his/her shift, for example, 100% occupation of the 14 beds.

Chart 1 - Dimensioning and allocation of the nursing staff in the pediatric inpatient unit. Cuiabá, MT, Brazil, 2019

Dimensioning of nursing staff	Real Board			Dimensioned Board			Déficit / Superávit		
	*N	*NT/NA	TOTAL	N	*NT/NA	TOTAL	N	NT/NA	Total
Pediatric Clinic	6	23	29	6	13	19	-	+10	+10
Example of staffing allocation in the pediatric inpatient unit by shifts on a full scale based on staff dimensioning and the removal of the Technical Safety Index in the distribution of professionals									
Shift	*N	*NT/NA	Proportion of patients/ mid-level professional		Proportion of patients/nursing staff				
Morning	1	3	4.6		3.5				
Afternoon	1	2	7		4.6				
Night 1	1	2	7		4.6				
Night 2	1	2	7		4.6				
Night 3	1	2	7		4.6				
Índice de Segurança Técnica (Cobertura de ausências previstas e não previstas)	1	2	-		-				

*N: Nurse *NT: Nursing Technician and *NA: Nursing Assistant.

Source: author (2019).

DISCUSSION

The process of PPCI implementation in the pediatric inpatient unit had as a starting point the nurses' common interest in implementing a management tool, to meet the demands and specificities of this clientele. This is commendable, since the PCS enables the measurement of workload and the dimensioning of the nursing team, as reported in a study conducted in a university hospital's medical clinic¹¹ and, furthermore, the collective interest of the pediatric unit nurses on the subject gives them commitment to quality care.

The option for the PCS using the PPCI was because this is the most appropriate for the clientele in question, among the instruments recommended by Resolution No. 543/2017 of COFEN³, besides the issue of including the family in its classification⁹. A study conducted in a General Hospital in the South Zone of the city of São Paulo identified that 93% of participating nurses agree with the need to classify and evaluate the pediatric

patient⁴. However, it is known that stating the importance of a work process or instrument does not guarantee its adherence.

The process of PPCI implementation in the pediatric unit was somewhat long, perhaps because it is a public institution, which is often associated with managerial sluggishness. However, it is believed that the shared and systemic nature of the implementation is more important than the time itself for its incorporation into the work routine.

The appropriateness, pertinence, and accuracy of PCS are extremely important, since it is known that institutions serve patients with peculiar characteristics that may sometimes differ from those commonly expected for the clientele in terms of age, socioeconomic profile, severity, and/or diagnostic and therapeutic procedures. This reinforces the need for strict compliance with the validation processes recommended for the construction and/or adaptation of new PCS, which has recently occurred in the context of the PPCI, which was adapted for use with neonatal patients⁸, who are known to have differences compared to pediatric patients.

A recent study validated the PPCI for more complex pediatric patients admitted to semi-intensive care units, which is consistent with the need for strategic implementation of this instrument to measure the pediatric nursing workload and to support the staffing of spaces beyond the non-critical care units¹². In turn, the Greek study validated NAS and Therapeutic Intervention Scoring System For Critically Children (TISS-C) for the pediatric intensive care setting¹³. Thus, based on the reported implementation experience and related literature, we infer that the process of appropriation of PCS and other means of measuring workload in pediatric nursing is considerably positive and of widespread interest, but it deserves caution regarding the most appropriate, standardized, and shared means to be employed in the work dynamics.

After one year of implementation and systematic application of PPCI in the pediatric unit, it was found that 84.04 hours of nursing care were required in the year, with a large amplitude between the maximum (98.88) and minimum (76.26) hours in the survey quarters. This amplitude reinforces the need to obtain a reliable historical series of patient classification for the process of staff dimensioning². Therefore, if the unit had been sized based on the maximum workload found, which was in the third quarter, the staff would have been 22 workers, not 19, as found. In counterpoint to this issue, if the nursing staff had been sized based on the minimum workload verified in the fourth quarter, the staff would be composed of only 17 nursing professionals.

The pediatric unit presented a concentrated profile of intermediate care patients added to the current regulation, Resolution No. 543/2017 of COFEN³, which classifies under six years of age as intermediate care patients, even if classified as minimal care, given the qualitative-quantitative competencies of nursing care. This finding converges with results from studies conducted in other Brazilian teaching hospitals located in the states of São Paulo⁴ and Paraná⁶. It is known that patients defined in this level of complexity are those stable from the clinical and nursing point of view with partial dependence on these professionals to meet basic human needs³. Despite this definition, it is prudent to rethink the type of patients seen in pediatric units, who naturally have care demands that go beyond those of organic-functional order. A fact that reinforces this allusion is the new adaptation of the PPCI for the neonatal area, which no longer includes the category of minimal or intermediate care in its stratification⁸.

It is noteworthy that the hospital studied does not have a pediatric ICU, but eventually children evolve to intensive and/or semi-intensive care due to clinical worsening, being under the care of the nursing team until their transfer to intensive care in another institution. This assertion is anchored in the fact that, despite the low frequency, we found patients classified in these levels of complexity in the sector, which lacks human resources, materials and technological density appropriate for critical care.

The pediatric unit had the quantity of six nurses, which was in accordance with the

predicted staff dimensioning. According to the example of allocation made with data from the dimensioned staff chart, it would be possible to foresee one nurse per work shift in the sector, and to count on another nurse to cover foreseen and unforeseen absences. In clinical practice, it is agreed that considering the number of beds in the unit (14) and the prevalent profile of intermediate care patients, one nurse per shift seems reasonable for the feasibility of care management, illustrated, for example, by the Nursing Care Systematization and/or management of safety and quality of care protocols. This is because the number of patients could be divided among the shifts, for example, four patients for daytime nurses and six for nighttime nurses, or six patients in the morning, four in the afternoon and four in the evening, etc.

In contrast to the above, relying on “only” one senior professional to cover absences may not be ideal, since absenteeism among nurses is cited in the literature as a serious problem to be addressed by leadership⁵. In this context, if we consider the nursing team, a study carried out in a public hospital in the South region of Brazil showed that the absenteeism rate is three times higher in nursing when compared to other professional categories in the health area¹⁴.

Another problem that eludes the expressed data and interpretations is the fact that in the hospital work dynamics, nurses often have their activities bureaucratized, even assuming demands that could be performed by workers from other areas, besides being frequently interrupted during the work day¹⁵, which exceeds the workload measured by the PPCI and, consequently, the planned staffing. This reinforces the need not only to provide staff in terms of quantity and category, but also to rationalize, qualify, and streamline work processes to add improvements without, however, demanding rework and/or bureaucratization.

Despite the surplus of mid-level workers (+10), it is prudent to point out that in periods with an occupancy rate of 100%, the professional/patient ratio can vary in levels of overload, depending on the number of staff present, with reflections in overwork, accumulation of functions, and lack of professionals in hospitals¹⁶.

It was possible to predict that, based on the dimensioned framework, it would be feasible to allocate one mid-level nursing professional (responsible for most of the demand of direct care of patients with lower severity) for seven patients with predominantly intermediate care, as well as one nursing worker for every 4.66 patients, considering the total team. This, in turn, disagrees with the Brazilian regulations in force, which recommend one nursing worker for every four patients in the different work shifts in case of clients with a prevalence of intermediate care³.

Despite the above, it is reasonable to deduce that, considering only one nurse for each work shift, their participation in the execution of direct care would be unrepresentative in comparison with the mid-level team. Based on the proportion recommended by the current nursing staff dimensioning parameters in Brazil³, we can see that the surplus of nursing technicians must be seen with caution, and possibly deserves revision in its interpretation. Therefore, to meet the ratio of one worker for every four patients, it would be necessary to add at least one more nursing technician/auxiliary in each work shift, which would still result in a surplus of mid-level personnel, however, lower than the observed.

A study carried out in a hospital in the interior of the state of São Paulo estimated the TSI to be around 42% for nurses and 38% for nursing technicians¹⁷, in other words, much higher than the minimum 15% recommended by the Resolution in effect, which is perhaps another perspective to interpret the observed surplus with caution and reasonableness.

In view of the above, it is believed that the major limitation of the study is because minimal IST was used for the pediatric nursing staff dimensioning process, but that it was a product of the conditions or lack of absenteeism monitoring in the survey hospital. However, it is considered that the research brings concrete contributions to pediatric nursing management for having collected data over a long period; presenting the sizing in a procedural manner, focused not only on the equations and parameters needed, but also on

the very incorporation of the PPCI in the unit routine; and, mainly, for clearly demonstrating that the results of the sizing need careful and well contextualized appreciation by decision makers. In this scope, the study evidences its social contribution under the perspective that the forecast and provision of adequate nursing staff is an emblem of qualified and safe care.

CONCLUSION

The process of implementing a PCS in the pediatric inpatient unit was long and included activities of standardization of conducts among nurses, strategic definition of an instrument for patient classification and data computerization. In all stages, teamwork, and managerial support, including technological support, were fundamental.

With the standardized application of the pediatric clientele classification instrument, the predominance of patients dependent on intermediate care was verified. Thus, it was observed, by the staff dimensioning, a surplus of mid-level workers and an adequate number of nurses in the unit in comparison to the available staff. However, this surplus deserves to be evaluated with caution as a conclusive finding because, considering the profile of mostly intermediate care patients and the recommendations in force, the ratios of patients to workers allocated in shifts may not be adequate.

REFERENCES

1. Sociedade Brasileira dos Enfermeiros Pediatras (SBEP). Posição da Sociedade Brasileira de Enfermeiros Pediatras sobre as competências essenciais do enfermeiro neonatologista e pediatra. *Rev Soc Bras Enferm Ped.* [Internet]. 2020 [cited 2021 May 20]; (2):116-33. Available from: <http://dx.doi.org/10.31508/1676-3793202000016>.
2. Fugulin FMT, Gaidzinski RR, Lima AFC. Dimensionamento de pessoal de enfermagem em Instituições de Saúde: Gerenciamento em enfermagem. 3. ed. Rio de Janeiro: Guanabara Koogan; 2016. p. 116-27.
3. Conselho Federal de Enfermagem (COFEN). Resolução nº 543/2017. Atualiza e estabelece parâmetros para o dimensionamento do quadro de profissionais de enfermagem nos serviços locais em que são realizadas atividades de enfermagem. [Internet]. Brasília; 2017. [cited 2021 May 20] Available from: http://www.cofen.gov.br/resolucao-cofen-5432017_51440.html.
4. Pontes JAR, Bohomol E. Estudo de dois sistemas de classificação de pacientes cirúrgicos pediátricos. *Enferm. Foco* [Internet]. 2020 [cited 2021 May 21]; 10(4). Available from: <https://doi.org/10.21675/2357-707X.2019.v10.n4.2174>.
5. Trettene A dos S, Fontes CMB, Razera APR, Prado PC, Bom GC, von Kostrisch LM. Sizing of nursing staff associated with self-care promotion in a pediatric semi-intensive care unit. *Rev. bras. ter. intensiva* [Internet]. 2017 [cited 2021 June 9]; 29(2): 171-9. Available from: <https://doi.org/10.5935/0103-507X.20170027>.
6. Pedro DRC, Silva GKT da, Schran L da S, Faller TT, Oliveira JLC de, Tonini NS. Sizing of nursing staff of a pediatric clinic at a university hospital. *Rev. enferm. UFPI.* [Internet]. 2017 [cited 2021 June 9]; 6(3) :4-10. Available from: <https://doi.org/10.26694/reufpi.v6i3.5997>.
7. Lebet RN, Hasbani NR, Sisko MT, Agus MSD, Nadkarni VM, Wypij D, et al. Nurses' perceptions of workload burden in pediatric critical care. *Am j. crit. care.* [Internet]. 2021 [cited 2021 May 07]; 30(1):27-35. Available from: <https://doi.org/10.4037/ajcc2021725>.
8. Dini AP, Oliveira A de CV de, Almeida-Hamasaki BP de, Quinteiro NM, Carmona EV. Adaptation of an instrument to classify neonatal patients into care categories. *Rev. Esc. Enferm. USP* [Internet]. 2021 [cited 2021 May 17]; 55:e03674. Available from: <https://doi.org/10.1590/S1980-220X2019033603674>.

9. Dini AP, Guirardello E de B. Pediatric patient classification system: improvement of an instrument. Rev. Esc. Enferm. USP [Internet]. 2014 [cited 2021 June]; 48(5) :786-92. Available from: <https://doi.org/10.1590/S0080-6234201400005000003>.
10. Duarte TCR, Oliveira EM de, Júnior SLA de M. Protocolo de avaliação e classificação de pacientes pediátricos conforme o grau de demanda da equipe de enfermagem. Rev. Enferm. Atual [Internet]. 2019 [cited 2021 June 10]; 87(25). Available from: <https://doi.org/10.31011/reaid-2019-v.87-n.especial-art.174>.
11. Siqueira LDC, Santos MC dos, Calmon IT de S, Junior PCS. Dimensionamento de profissionais de enfermagem da clínica médica de um hospital universitário. Enferm. Foco. [Internet]. 2019 [cited 2021 May 20]; 10(4). Available from: <http://revista.cofen.gov.br/index.php/enfermagem/article/view/2179/602>.
12. Castro V del RA, Almeida AP. Classificação de pacientes pediátricos para o cuidado de enfermagem: validação de instrumento reestruturado. Enferm. Foco. [Internet]. 2021 [cited 2021 May 17]; 11(4). Available from: <https://doi.org/10.21675/2357-707X.2020.v11.n3.3106>.
13. Nieri A-S, Manousaki K, Kalafati M, Padilha KG, Stafseth SK, Katsoulas T, et al. Validation of the nursing workload scoring systems "Nursing Activities Score" (NAS), and "Therapeutic Intervention Scoring System for Critically Ill Children" (TISS-C) in a Greek Pediatric Intensive Care Unit. Intensive crit. care nurs. [Internet]. 2018 [cited 2021 May 17]; 48:3-9. Available from: <https://doi.org/10.1016/j.iccn.2018.03.005>.
14. Brey C, Miranda FMD, Haeffner R, Castro IR dos S de, Sarquis LMM, Felli VE. The absenteeism among health workers in a public hospital at south region of brazil. Rev.enferm.Cent.-Oeste Min. [Internet]. 2017 [cited 2021 May 17]; 7:e1135. Available from: <https://doi.org/10.19175/recom.v7i0.1135>.
15. Sasaki RL, Perroca MG. Interruptions and their effects on the dynamics of the nursing work. Rev. Gaúch. Enferm. [Internet]. 2017 [cited 2021 May 17]; 38(2):e67284. Available from: <https://doi.org/10.1590/1983-1447.2017.02.67284>.
16. Barbaquim VA, Dias EG, Darli R de C de MB, Robazzi ML do CC. Reflection on nursing working conditions: subsidy at 30 hours of work. Rev Enferm Contemp.[Internet]. 2019 [cited 2021 May 11]; 8(2):171-181. Available from: <https://doi.org/10.17267/2317-3378rec.v8i2.2466>.
17. Trettene A dos S, Razera APR, Beluci ML, Prado PC, Mondini CC da SD, Spiri WC. Absenteeism and the technical safety index of a tertiary hospital nursing team. Rev. Esc. Enferm. USP. [Internet]. 2020 [cited 2021 May 13]; 54:e03585. Available from: <https://doi.org/10.1590/S1980-220X2018036003585>.

*Article extracted from the master's/PhD thesis "CARGA DE TRABALHO DA EQUIPE DE ENFERMAGEM E RASTREADORES DE EVENTOS ADVERSOS NA ENFERMAGEM PEDIATRICA", HOSPITAL UNIVERSITARIO JULIO MULLER, UNIVERSIDADE FEDERAL DE MATO GROSSO, CUIABA, MT, BRASIL, 2021.

Received: 29/11/2021

Approved: 26/09/2022

Associate editor: Dra. Tatiane Trigueiro

Corresponding author:

RUBIA MARCELA RODRIGUES MORAES

HOSPITAL UNIVERSITARIO JULIO MULLER, UNIVERSIDADE FEDERAL DE MATO GROSSO

RUA PROF. LUIS PHILIPPE PEREIRA LEITE S/N ALVORADA CUIABA MT

E-mail: rubia_mc@yahoo.com.br

Role of Authors:

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Moraes RMR, Lara AC, Remedio EC, Gaiva MAM, Gentilini MM, Oliveira JLC de**; Drafting the work or revising it critically for important intellectual content - **Moraes RMR, Gaiva MAM, Oliveira JLC de**; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Moraes RMR, Oliveira JLC de**. All authors approved the final version of the text.

ISSN 2176-9133



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