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Unsuccessful search for pediatric intensive bed in Rio de Janeiro: descriptive analysis of factors

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Insucesso na busca por leito intensivo pediátrico no Rio de Janeiro: análise descritiva dos fatores

Búsqueda fallida de cama intensivo pediátrico en Río de Janeiro: análisis descriptivo de factores

RESUMO

Objetivo: Identificar o perfil das solicitações de leitos de Unidade de Terapia Intensiva Pediátrica com desfechos não reguláveis no município do Rio de Janeiro. Método: Estudo transversal com dados das solicitações encaminhadas à central de regulação em 2018. Utilizou-se testes estatísticos para identificar os fatores relacionados com a ocorrência de desfechos não reguláveis. Resultados: Dentre as solicitações, 103 com alta, 73 melhora do quadro, 32 óbitos. Dos dados clínicos, a pressão arterial (p=0.023), exame físico (p=0.012), gasometria (p=0.003), uso de oxigênio (p<0.001) e cronicidade do quadro (p=0.002) estão associadas a não captação do leito. A justificativa da solicitação (p<0.001) quando motivada por questões clínicas apresentou uma maior frequência de Alta, enquanto todas as demais categorias tiveram a Melhora como principal desfecho. Conclusão: O prognóstico quando solicitado e não captado um leito intensivo pediátrico junto a central de regulação do município do Rio de Janeiro é positivo.

DESCRITORES: Sistema Único de Saúde; Acesso aos Serviços de Saúde; Unidade de Terapia Intensiva Pediátrica

ABSTRACT

Objective: To identify the profile of requests for beds in the Pediatric Intensive Care Unit with unregulated outcomes in the city of Rio de Janeiro. Method: Cross-sectional study with data from requests sent to the regulatory center in 2018. Statistical tests were used to identify factors related to the occurrence of non-regulable outcomes. Results: Among the requests, 103 discharged, 73 improved, 32 died. From clinical data, blood pressure (p=0.023), physical examination (p=0.012), blood gas analysis (p=0.003), use of oxygen (p<0.001) and chronicity of the condition (p=0.002) are associated with no bed capture. The justification for the request (p<0.001) when motivated by clinical issues had a higher frequency of discharge, while all other categories had improvement as the main outcome. Conclusion: The prognosis when requested and not captured a pediatric intensive bed at the regulation center in the city of Rio de Janeiro is positive.

DESCRIPTORS: Unified Health System; Health Services Accessibility; Intensive Care Units, Pediatric

RESUMEN

Objetivo: Identificar el perfil de solicitudes de camas en la Unidad de Cuidados Intensivos Pediátricos con desenlace no regulado en la ciudad de Río de Janeiro. Método: Estudio transversal con datos de solicitudes enviadas al centro regulador en 2018. Se utilizaron pruebas estadísticas para identificar factores relacionados con la ocurrencia de resultados no regulables. Resultados: Entre las solicitudes, 103 alta, 73 mejoraron, 103 fallecieron. A partir de los datos clínicos, se asocian la presión arterial (p=0,023), el examen físico (p=0,012), el análisis de gases en sangre (p=0,003), el uso de oxígeno (p<0,001) y la cronicidad de la enfermedad (p=0,002), sin captura de cama. La justificación de la solicitud (p<0,001) cuando fue motivada por problemas clínicos tuvo una mayor frecuencia de Alta, mientras que todas las demás categorías tuvieron Mejoría como resultado principal. Conclusión: El pronóstico cuando se solicita y no se captura una cama pediátrica intensiva en el centro de regulación de la ciudad de Río de Janeiro es positivo.

DESCRIPTORES: Sistema Único de Salud; Accesibilidad a los Servicios de Salud; Unidades de Cuidado Intensivo Pediátrico

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INTRODUCTION

The access to the Brazilian Public Health System (SUS) services happens through the regulation centers, who administer the demands, searching for offering the best response in the appropriate time.[1,2] The non-solved demands, by unexpected outcomes, characterize failures at its conduction, but not a complete failure of the process, since it can happen in cause of inherent functions, as bed's absence.[3]

Pediatric Intensive Therapy Units (UTIP) provide the needed care in a continue and specialized way.[4] The regulatory process for this complexity is conducted through platforms, where the patients data are, as well as the units who has support demand with the concerned characteristics and the bed disponibility units that can potentially receive those demands.[5]

The need of data updates occurs until an outcome happens, being the bed 's acquisition or not, when it is a medical discharge, death or UTIP needs reversion. At knowing that this process may not always end with the expected outcome (bed' s acquisition), it is hoped that those cases comprehension would support the possible causes elimination and, consequently would promote a best system performance.[6]

Updates are necessary until an outcome occurs, being that a bed' s acquisition or not (medical discharge, death or improvement). The non-occurrence may be beneficial at the patient's perspective, for its request may be interrupted by his recovery. In that way, the objective was identifying the non-regulated outcomes of UTIP bed's requiring profile at Rio de Janeiro's munícipe.

METHOD

Transversal study of descriptive character with sended data at the Rio de Janeiro' s municipe regulation center at the year of 2018' s, through UTIP hospitalization demands. There was included all the UTIP demands sended from january 2018 to december 2018. All the demands of patients with: age beyond 30 days or above 18 years, without informed outcome or with bed acquisition were excluded.

The stored data at the collection of the Rio de Janeiro 's municipal regulation center are found in free text and non-structured form. By its virtue, a record was made for data extraction and was presented to expert doctors in UTIP beds regulation, who have supplemented it.

Pediatric Intensive Therapy Units (UTIP) provide the needed care in a continue and specialized way

The initial record was tested with 20 random demands at the collection and, at this collection, was possible to verify the need to improve the variation group. The new prototype was, then, presented again to the professionals until having a full agreement.

Was considered the data concerning: Soliciting Unit: Managing, public or private; Actuation sector, if teaching unit/maternity/emergency; types of bed, if with or without UTIP, Types I, II or II. All the data was taken from the unit 's Health Institution Nacional Register (CNES); Re-

gulatory Process: typeof demanded bed; Number and hospitalization kind; Time till the outcome. Number of hospitalizations according to the messaging from the initial demand to the outcome and the corresponding kind, if it was a Demand or Supplementation. The time is the difference in hours between the Initial Demand and its closure; Clinic and Patient's demographie: Race, age; sex; initial diagnosis; risck classification; vital signs, physical exam, O2 use; clinical chronicity; gasometry and demand's justifying.

The initial diagnosis was classified by CID-10 's chapter. The risk classification was categorized in Priority 0 and Priority 1 according to the information given by the requester.

The demand's justification was categorized in 'Clinical', when associated with an exam, clinical findings or diagnose hypothesis; 'Structural', when there's a missing or an absence of bed; 'Missing Speciality' and 'Administrative', when through a judicial order, missing resources, problems with the health insurance or non-informed.

It is listed as 'Obit', 'Medical Discharge' or 'Recovery' while waiting for a bed.

The database created in Excel and variations analysed in JASP®. A descriptive analysis of the categorical variations from the occurrence frequencies, relative or absolute, was made. The Chi-square test was used for the statistically significant relation evaluation between the outcome and the variations. All of the analyses were made considering a 5% significance level.

The project had the Rio de Janeiro's Local Government Ethical Committee in Human Being' s Research and the IFF/FIOCRUZ approval, and by guidance of respectively n.º 3.470.297 e n.º 3.381.094 had being submit by the Resolution 466/12 ethical norms contemplation.

RESULTS

From the 819 demands, 36 were excluded in cause of the age, 387 had success at bed 's acquisition and in 188 the non-information of the outcome has happened. Tha amostrage composed of 208 demands,

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being 103 (49,5%) with medical discharge, 73 (35,1%) recovery and 32 (15,4%) death.

Between the required units, 96,2% were public and the 8 demands from private units had medical discharge. The most part of it has occured in units without emergency or maternity hospitals; when came from UPA/CER they had higher medical discharge quantity (77,7%), being those three varieties a statistical association with the outcome (Table 1).

In what concerns the demographic characteristics, all the outcomes had a bigger frequency at masculin sex, variating from 52,4% (medical discharge) to 61,6% (recovery). Regarding to: age, most frequent in nursing mothers (53,4-67,1%); race, most frequent in non-white (50-59,2%). Both last varieties from this group had statistical and significant relation with the outcome (p=0,013 and 0,050 respectively).

Between the demands, priority 0 was the most present risk classification (52,9%) and when observed exclusively "medical discharge", the demands with priority 1 was bigger (p=0,263). The diagnosis in 64,0% were respiratory diseases, followed by infectious and parasitic (10,0%).

From the data known as wishable at the initial relate (Table 2), it was observed that only arterial pressure (p=0,023), physical exam (p=0,012), gasometry (p=0,003), O2 use (p<0,001), chronicity (p=0,002) and demand justificative (p<0,001) had association with bed 's non-acquisition. When motivated by clinical issues, the medical discharge was most frequent, while all of the other categories had recovery as a major outcome.

On average, the solicitation had 4 interactions, with relevance (p=0.024). Although, their content hasn't any association (p=0.756 and p=0.122), despite its frequency higher that 72% when without complementation and 40% when with and actualization.

DISCUSSION

The waiting for a UTPI bed is full of uncertainty, for much before the bed is acquired the patients surviving chances increase. Despite of that, the provided assistance is not interrupted during the permanece at the waiting line, in that way it is possible to obtain clinical positive responses, or even a medical discharge, with the lined conducting, as well as not obtaining the expected response and it evalue to death.[7]

A study made in a similar period at the city of Pernambuco has identified that during the waiting for the bed, 10,3% of

Table 1. Description of the unit's characteristics who have demanded UTIP beds related to the outcome. Rio de Janeiro, RJ, Brazil, 2018

Category (% total)			Outcome			p-value
			High n(%)	Recovery n(%)	Death n(%)	
Kind	Public	(96,2)	95(47,5)	73(36,5)	32(16,0)	0,014
	Private	(03,8)	08 (100)	00(00,0)	00(00,0)	
Teaching	Yes	(02,9)	01(16,7)	05(83,3)	00(00,0)	0,041
	No	(97,1)	102(50,5)	68(33,7)	32(15,8)	
Emergency	Yes	(26,9)	09(16,1)	34(60,7)	13(23,2)	<0,001
	No	(73,1)	94(61,8)	39(25,7)	19(12,5)	
Maternity	Yes	(15,9)	10(30,3)	12(36,4)	11(33,3)	0,004
	No	(84,1)	93(53,1)	61(34,9)	21(12,0)	
Type of unity	Hospital	(41,3)	23(26,8)	45(52,3)	18(20,9)	<0,001
	UPA/CER	(58,7)	80(65,6)	28(38,4)	14(11,5)	
Type of bed demand	UTIP I	(28,8)	37(61,7)	15(25,0)	08(13,3)	0,075
	UTIP II or III	(71,2)	66(44,6)	58(39,2)	24(16,2)	

Subtitle: UPA – Emergency Care Unit; CER – Emergency Regional Coordination; UTIP I – Pediatric Intensive Therapy Unit type I; UTIP II or III – Pediatric Intensive Therapy Unit type II or III.

Table 2. Description of the clinical characteristics of the patients of the bed 's demand at UTIP related to the outcome. Rio de Janeiro, RJ, Brazil, 2018

Variety (% total)		Outcome			p-value
		Medical discharge n(%)	Recovery n(%)	Death(%)	
Heart rate	(35,6)	38(51,4)	23(31,1)	13(17,5)	0,618
Respiratory rate	(39,0)	46(56,8)	26(32,1)	09(11,1)	0,189
Blood pressure	(09,6)	12(60,0)	02(10,0)	06(30,0)	0,023
Temperature	(13,0)	18(66,7)	08(29,6)	01(03,7)	0,088
Saturation	(48,1)	53(53,0)	29(29,0)	18(18,0)	0,186
Physical exam	(86,5)	96(53,4)	60(33,3)	24(13,3)	0,012
Use of oxygen	(49,5)	44(42,7)	33(32,0)	26(25,3)	<0,001
Gasometry	(16,8)	14(40,0)	09(25,7)	12(34,3)	0,003
Cronicity	(14,4)	11(36,7)	08(26,6)	11(36,7)	0,002

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Clinical justification						
	Clinic	(68,7)	87(60,9)	37(25,9)	19(13,2)	
	Estrutural	(11,1)	05(21,7)	12(52,2)	06(29,1)	
	Especialist	(03,4)	02(28,6)	03(42,8)	02(28,6)	<0,001
	Administrative	(04,3)	01(11,1)	07(77,8)	01(11,1)	
	Non-informed	(12,5)	08(30,8)	14(53,8)	04(15,4)	

Source: author.

the demands has evaluated to the clinical recovery, while 18,9% have died without access to a high complexity care service[8], unfortunate reality when compared to Rio de Janeiro, for having all demands as reference, there was 8,9% of recovery, although 3,9% of deaths. At observing the kind of hospital relation (if public, private, maternity, teaching or with emergency) with the occurrence of non-wishable regulatory outcomes, it is observed a low frequency at privates health systems and, of those, 100% with a positive outcome, medical discharge. That characteristic happens because of the imposed resolution to those units, namely, excellence[9]. Having as reference owning a emergency or maternity service, when absent, it was possible to observe a higher frequency of failures in virtue of low infrastructure present in this type of unit, making it difficult to conduct the cases.[5]

When the age is observed, we have that all the outcomes show a bigger incidence in patients youngers than 1 year. The available technologie at the actual times, viabilize a bigger survival of the newborn clients, then, the demands for these groups is significantly bigger. Although, many times, the institutions are already with the maximum capacity, making this patient's absorption impossible, inducting the unit to a medical discharge for domiciliary care or, unfortu-nately, leading them to death for changing at clinical needs, leaving them unattended.[11,12]

The immaturity of the respiratory system is the literature's argumentation for this CID group prevalence at the child population[10] and this sort of epidemiological discovery is confirmed by the SUS's assistance causes profile[13]. However, what brings the weirdness at observing the hospitalization causes is its association with the patient's race, for it is found a high number of diseases without occurrence exclusively at white population, as known: from blood, blood-forming organs and some disorders of the immune-system; from osteomuscular system and the connective tissue; congenital malformations, deformations and chromosomal abnormality; mental and behavioral disorders.

According to Datasus[13] the hospitalization frequency of white people for those questions is not null. In that way, the absence of cases would be motivated by the access, for the white population has characteristics that provide determinate privileges regarding to the health care access, not demanding the public services.[14]

In regards to the clinical data, there was a statistical relation of some of those outcomes. The clinical datas act as subsidies for decision making about the type of urgency and treatment. Those are of extreme relevance at patients monitoring and evaluation[15], for the presence of vital signs would be an enabler at bed's acquisition, which corroborates with this research discovery that had only the blood pressure associated with the non-acquisition outcome. Another data also shows an statistical relation, of those, the physical exam acts as a data source to the correct classification and forwarding to its resolution, although it can works in a antagonic way, for according to the informed teor, it would difficult the maintaining of the hoped process, putting the patient further from the hospital bed[16]

Regarding the solicitation justification, despite the statistical association with the outcomes, they do not necessarily correspond to a non-favourable result (death) for it is 15,4% from the sample. Although the elevate tax when compared to the 8,2% at Paraná, it is obtained considering only the sample. Having the population as reference, this tax falls to 3,9%, value 7 times lower than the found at Pernambuco.[17]

CONCLUSION

The present study has led to a better understanding of the request profiles, identifying the high frequency of non-adjustable positive outcomes for the patients and low occurrence of deaths when compared to other regions of Brazil. What allows concluding that despite all the operational adversities, the prognostic, when demanded and not obtained a UTIP bed along with the City of Rio de Janeiro's Regulation Center are positive.

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