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RESEARCH

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## INFANT HOSPITALIZATION BY PRIMARY CARE'S SENSITIVE CONDITIONS IN A SOUTHERN BRAZILIAN STATE

Internações infantis por condições sensíveis à atenção primária em um estado do sul brasileiro

Internaciones infantiles por condiciones sensibles a la atención primaria em un estado del sur brasileño

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#### ABSTRACT

**Objective:** The objective of this study was to analyze hospital admissions in children under five years of age in the state of *Paraná*, from 2008 to 2012. **Methods:** This is an ecological, descriptive study with a quantitative approach. the selection of hospitalizations was based on the *lista de condições sensíveis à atenção primária*, the data were collected in a public domain bank and analyzed descriptively. **Results:** The findings show that respiratory diseases are the major cause of hospitalization in the study population. another causal group with relevant hospitalizations. **Conclusion:** There is a consonance between what is empirically perceived in the pediatric care reality and the findings of the study. The question arises as to how prevention and health education actions have been developed by primary care.

Descriptors: Child health; Primary health care; Hospitalization.

#### RESUMO

**Objetivo:** O objetivo desta pesquisa foi analisar as internações hospitalares em menores de cinco anos residentes no estado do Paraná, no período de 2008 a 2012. **Métodos:** Trata-se de estudo ecológico, descritivo, de abordagem quantitativa. A seleção das internações foi baseada na lista de condições sensíveis à atenção primária, os dados foram coletados em banco de domínio público e analisados descritivamente. **Resultados:** Os achados demonstram que as afecções respiratórias são as grandes causadoras de internações no público estudado. Outro grupo causal com taxas relevantes de internaçõe ó o de doenças infecciosas e parasitárias. As doenças perinatais também se destacaram como causadoras de internações. **Conclusão:** Nota-se uma consonância entre o que se percebe empiricamente na realidade assistencial pediátrica e os achados do estudo. Levanta-se a questão de como as ações de prevenção e educação em saúde têm sido desenvolvidas pela atenção primária.

Descritores: Saúde da criança; Atenção primária à saúde; Hospitalização.

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#### RESUMEN

Objetivo: el objetivo de esta investigación fue analizar las internaciones hospitalarias en menores de cinco años residentes en el estado de paraná, en el período de 2008 a 2012. Métodos: se trata de un estudio ecológico, descriptivo, de abordaje cuantitativo. las internaciones fueron seleccionadas basadas en la lista de condições sensíveis à atenção primária, los datos fueron recolectados en banco de dominio público y analizados descriptivamente. **Resultados:** los hallazgos demuestran que las afecciones respiratorias son las grandes causantes de internaciones en el público estudiado. otro grupo causal con tasas relevantes es el de enfermedades infecciosas y parasitarias. las enfermedades perinatales también se destacaron como causantes de internaciones. **Conclusión:** se nota una consonancia entre lo que se percibe empíricamente en la realidad asistencial pediátrica y los hallazgos del estudio. se plantea la cuestión de cómo las acciones de prevención y educación en salud han sido desarrolladas por la atención primaria.

Descriptores: Salud del niño; Atención primaria de salud; Hospitalización.

### INTRODUCTION

Primary health care has been widely encouraged as a way of decentralizing care and ensuring full and equal access to health. Through the World Health Report, the World Health Organization (WHO) underlines the importance of primary care as sustaining health systems around the globe, calling on professionals and managers to strengthen the performance of primary health care, ensuring reaching the potential for resolution and quality that it offers. In the same publication, WHO emphasizes how much lower cost of primary care when compared to hospital care, contributing as another stimulus for the effective practice of primary health care.<sup>1</sup>

In Brazil, the National Primary Care Policy approved by Ordinance No. 648/GM of 2006, presents as one of its foundations that primary health care should be the user's gateway to the *Sistema Único de Saúde* (*SUS*) [Brazilian Unified Health System].<sup>2</sup> Nevertheless, the *SUS* health care networks have been the subject of intense discussion as to how they are organized.

The discussions' main point is that primary health care expands the concept of the user's gateway to health care, assuming a more centralized role, coordinating the provision of services and care within the *SUS*. For primary care to effectively take the position of care coordinator, its service offer must be expanded and, above all, that there is an improvement towards the quality of these services, since primary care will start to receive a demand for care that before were assisted in other spheres of the system.<sup>3,4</sup>

High rates of hospitalizations due to primary care healthsensitive conditions, can be considered indicators of the low quality of care offered to the user and/or weakness in their access to the health system.<sup>5</sup> Hospitalizations for sensitive conditions can be considered, then, as a tool for analyzing the performance of the health service, especially primary care. In general, the adult population indicates an increase in the number of hospitalizations as the age rises. On the other hand, children have a higher occurrence of hospitalizations in the early stages of childhood.<sup>6,7</sup> Hospitalization represents a considerable impact on the life of any person, being able to take even greater proportions when dealing with a child. The impossibility of carrying out their routine, such as playing and going to school, makes children's hospitalization take on a remarkable context in the child's life.<sup>8</sup>

Given the importance of hospitalizations due to sensitive conditions for the analysis of the performance of primary health care and, considering the recognized fragility of the chosen population, especially in the early childhood phase, it was asked: "What is the situation of hospitalizations for children under five years old in the *Paraná* State?". The study of these hospitalizations may promote the understanding of the local child health framework, constituting the subject of this research, which intends to analyze hospital admissions of children under five years old in the *Paraná* State, over the period from 2008 to 2012.

### **METHODS**

It is a descriptive and ecological study with a quantitative approach, which assessed the hospitalizations due to primary care health-sensitive conditions in the population of children under 5 years old, living in the *Paraná* State, f over the period from 2008 to 2012.

Population information was collected in the Demographic and Socioeconomic database from the *SUS*, while information concerning hospital admissions was collected in the Hospital Information System from the *SUS*. Both databases used are open for access through the electronic address of the Information Technology Department (*www.datasus.gov.br*) from the *SUS*. The data obtained were transcribed in spreadsheet format in Microsoft Excel 2016, to perform descriptive analysis and calculate hospitalization rates, which were calculated per 1,000 inhabitants in the age group at the period. The results were presented in a table format for better visualization.

Hospitalization data were collected by place of residence, health macro-region, age group and Chapter of the 10<sup>th</sup> Review of the International Classification of Diseases (ICD-10). This research assumed the classification available in the Hospital Information System databank for the health macroregions, specifically: East, North, West, and Northwest.

The selection of hospitalizations was based on the *Lista Brasileira de Condições Sensíveis à Atenção Primária* (*LBCSAP*) [Brazilian List for Primary Care Health-Sensitive Conditions] (**Figure 1**), provided by Ordinance no. 221, of April 17, 2008.<sup>9</sup> The *LBCSAP* published by the Brazilian Ministry of Health is composed of 19 groups of causes and 74 diagnoses according to the ICD-10.

**Figure 1 -** Table addressing the Lista Brasileira de Condições Sensíveis à Atenção Primária (LBCSAP) [Brazilian List for Primary Care Health-Sensitive Conditions].

Causal Group	Diagnoses (ICD-10)								
1 - Diseases preventable by immunization and sensitive conditions	Whooping cough (A37); Diphtheria (A36); Tetanus (A33 to A35); Mumps (B26); Rubella (B06); Measles (B05); Yellow Fever (A95); Hepatitis B (B16); Meningitis by <i>Haemophilus</i> (G00.0); Tuberculous meningitis (A17.0); Miliary tuberculosis (A19); Pulmonary tuberculosis (A15.0 to A15.3, A16.0 to A16.2, A15.4 to A15.9, A16.3 to A16.9, A17.1 to A17.9); Other Tuberculosis (A18); Rheumatic fever (I00 to I02); Syphilis (A51 to A53); Malaria (B50 to B54); Ascariasis (B77)								
2 - Infectious gastroenteritis and complications	Dehydration (E86); Gastroenteritis (A00 to A09)								
3 - Anemias	Iron deficiency anemia (D50)								
4 - Nutritional deficiencies	Kwarshiorkor and other forms of caloric protein undernourishment (E40 to E46); Other nutritional deficiencies (E50 to E64)								
5 - Ear, nose and throat infections	Suppurative otitis media (H66); Acute nasopharyngitis (J00); Acute sinusitis (J01); Acute pharyngitis (J02); Acute tonsillitis (J03); Acute infection of the upper airways (J06); Chronic rhinitis, nasopharyngitis and pharyngitis (J31)								
6 - Bacterial pneumonia	Pneumococcal pneumonia (J13); Pneumonia by <i>Haemophilus influenzae</i> (J14); Pneumonia by <i>Streptococus</i> (J15.3, J15.4); Bacterial pneumonia NE (J18.1)								
7 – Asthma	Asthma (J45, J46)								
8 - Lung diseases	Acute bronchitis (J20, J21); Bronchitis not specified as acute or chronic (J40); Simple and mucopurulent chronic bronchitis (J41); Chronic bronchitis NE (J42); Emphysema (J43); Bronchectasis (J47); Other chronic obstructive pulmonary diseases (J44)								
9 - Hypertension	Essential hypertension (I10); Hypertensive heart disease (I11)								
10 – Angina	Angina pectoris (I20)								
11 - Heart failure	Heart failure (I50); Acute lung edema (J81)								
12 - Cerebrovascular diseases	Cerebrovascular diseases (163 to 167, 169, G45 to G46)								
13 - Diabetes Mellitus	With coma or ketoacidosis (E10.0, E10.1, E11.0, E11.1, E12.0, E12.1, E13.0, E13.1; E14.0, E14.1); With complications (E10.2 to E10.8, E11.2 to E11.8; E12.2 to E12.8, E13.2 to E13.8, E14.2 to E14.8); No specific complications (E10.9, E11.9, E12.9, E13.9, E14.9)								
14 - Epilepsies	Epilepsies (G40, G41)								
15 - Kidney and urinary tract infection	Acute tubulointerstitial nephritis (N10); Chronic tubulointerstitial nephritis (N11); Tubulo- interstitial nephritis, not specified as acute or chronic (N12); Cystitis (N30); Urethritis (N34); urinary tract infection of not specified location (N39.0)								
16 - Infection of the skin and subcutaneous tissue	Erysipelas (A46); Impetigo (L01); Furuncle and carbuncle cutaneous abscess (L02); Cellulite (L03); Acute lymphadenitis (L04); Other infections located on the skin and subcutaneous tissue (L08)								
17 - Inflammatory disease of female pelvic organs	Salpingitis and oophoritis (N70); Inflammatory disease of the uterus except the cervix (N71); Inflammatory cervical disease (N72); Other female pelvic inflammatory diseases (N73); Bartholin gland diseases (N75); Other inflammatory conditions of the vagina and vulva (N76)								
18 - Gastrointestinal ulcer	Gastrointestinal ulcer (K25 to K28, K92.0 to K92.2)								
19 - Diseases related to prenatal and childbirth	Urinary tract infection during pregnancy (O23); Congenital syphilis (A50); Congenital rubella syndrome (P35.0)								
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Source: Brazilian Ministry of Health, 2008.

Recognizing the ethical and legal aspects in research, an exemption from ethical appraisal was requested to the *Comitê Permanente de Ética em Pesquisa Envolvendo Seres Humanos (COPEP)* [Permanent Research Ethics Committee for Studies Involving Human Beings], under the justification that the data used in carrying out this research come from secondary databases available in the public domain. The aforementioned committee agreed to approve this study on July 11<sup>th</sup>, 2016, under the Official Letter No. 14/2016-COPEP.

## RESULTS

**Table 1** shows hospitalizations due to primary care health-sensitive conditions for children under five years old, living in the *Paraná* State in 2012. This table shows the frequency and rate of hospitalizations, by Chapter of the ICD-10, by age group subdivided into "under 01-year-old" and "from 01 to 04 years old".

Respiratory tract disorders were the main causes of hospitalizations of children aged one to four years in the *Paraná* State in 2012, with a hospitalization rate of 30.9, followed by infectious and parasitic diseases, with a hospitalization rate

of 9.4. With regard to the age group of children under one year, the main cause of hospitalizations was perinatal disorders, with a hospitalization rate of 79.5, followed closely by respiratory tract diseases, with a rate of 78.2.

Respiratory system diseases appear as the major cause of hospitalizations due to primary care health-sensitive conditions in 2012, considering the entire age group of children under five years old. In total, 29,504 children were hospitalized for this causal group, representing 41.9% of all hospitalizations due to sensitive conditions in this population.

Chapter of the ICD-10	Und	er 01-year	-old	From C	01 to 04 ye	ars old	Total		
	N	%	R*	n	%	R*	n	%	R*
X. Respiratory system diseases	11,849	35.2	78.2	17,655	48.1	30.9	29,504	41.9	40.8
XVI. Perinatal diseases	12,057	35.8	79.5	39	0.1	0.1	12,096	17.2	16.7
I. Infectious and parasitic diseases	2,814	8.4	18.6	5,396	14.7	9.4	8,210	11.7	11.4
XI. Digestive system diseases	1,423	4.2	9.4	2,239	6.1	3.9	3,662	5.2	5.1
XIV. Genitourinary system diseases	710	2.1	4.7	2,528	6.9	4.4	3,238	4.6	4.5
XIX. Poisoning and consequences of external causes	447	1.3	3.0	2,415	6.6	4.2	2,862	4.1	4.0
XVII. Congenital malformations and chromosomal abnormalities	1,132	3.4	7.5	1,080	2.9	1.9	2,212	3.1	3.1
VI. Nervous system diseases	707	2.1	4.7	965	2.6	1.7	1,672	2.4	2.3
XII. Diseases of the skin and subcutaneous tissue	407	1.2	2.7	947	2.6	1.7	1,354	1.9	1.9
IV. Endocrine, nutritional and metabolic diseases	534	1.6	3.5	605	1.7	1.1	1,139	1.6	1.6
II. Neoplasms	133	0.4	0.9	886	2.4	1.6	1,019	1.5	1.4
Other Chapters of the ICD-10	1,446	4.3	9.5	1,928	5.3	3.4	3,374	4.8	4.7
Total	33,659	100.0	222.1	36,683	100.0	64.2	70,342	100.0	97.2

Table 1 - Hospitalizations of children under five years old by Chapter of the ICD-10 and age group. Paraná State, 2012.

\*Hospitalization rate/1,000 inhabitants within the age group, which was according to the Instituto Brasileiro de Geografia e Estatística (IBGE) [Brazilian Institute of Geography and Statistics].

Source: Brazilian Ministry of Health - Hospital Information System from the SUS.

**Table 2** addresses the causes of hospital admissions for children under five years old living in the *Paraná* State, from 2008 to 2012, by cause group. Monitoring the evolution of hospitalizations over five years makes it possible to observe how groups of diseases behave over the years. It should be noted that the *LBCSAP* was created in 2008, where such year was included in the analysis.

Respiratory system diseases were the major causes of hospitalizations due to sensitive conditions of children under five years old in all years studied. From 2008 to 2012, a total of 157,313 children under the age of five were hospitalized for respiratory disorders in the *Paraná* State. In 2010, the highest rate of hospitalizations was obtained for this cause group, 45.9, while the following year show the lowest rate of 38.5.

Perinatal diseases are the second leading causes of hospitalizations due to sensitive conditions in the age group of children under five years old in all years studied, except for 2008, in which the second largest causal group was that of infectious and parasitic conditions, with a 16.7 hospitalization rate. Diseases related to the perinatal period had increasing rates over the years, 13.7 in 2009, 15.3 in 2010, 16.8 in 2011 and 16.7 in 2012. 
 Table 2 - Hospitalizations of children under five years old by Chapter of the ICD-10. Paraná State, 2008-2012.

Chapter of the ICD-10	2008 2009			20	10	20	2011		2012		
	N	R*	n	R*	n	R*	N	R*	n	R*	- Total
X. Respiratory system diseases	33046	42,2	34410	45,6	32779	45,9	27667	38,5	29411	40,7	157313
XVI. Perinatal diseases	10438	13,3	10360	13,7	10896	15,3	12081	16,8	12046	16,7	55821
l. Infectious and parasitic diseases	13069	16,7	9430	12,5	10881	15,2	7250	10,1	8125	11,2	48755
XI. Digestive system diseases	3757	4,8	3359	4,5	3750	5,3	3556	5,0	3666	5,1	18088
XIV. Genitourinary system diseases	2652	3,4	2890	3,8	3054	4,3	3036	4,2	3280	4,5	14912
XIX. Poisoning and consequences of external causes	2333	3,0	2835	3,8	2732	3,8	2718	3,8	2866	4,0	13484
XVII. Congenital malformations and chromosomal abnormalities	2142	2,7	2045	2,7	2301	3,2	2329	3,2	2209	3,1	11026
VI. Nervous system diseases	1532	2,0	1488	2,0	1636	2,3	1708	2,4	1701	2,4	8065
XII. Diseases of the skin and subcutaneous tissue	1484	1,9	1406	1,9	1464	2,1	1437	2,0	1364	1,9	7155
IV. Endocrine, nutritional and metabolic diseases	1233	1,6	954	1,3	1093	1,5	942	1,3	1147	1,6	5369
XVIII. Abnormal findings in clinical and laboratory exams	732	0,9	836	1,1	1011	1,4	1022	1,4	1009	1,4	4610
XXI. Communications with health services	1758	2,3	1450	1,9	892	1,3	754	1,1	618	0,9	5472
II. Neoplasms	870	1,1	774	1,0	981	1,4	962	1,3	1024	1,4	4611
Other Chapters of the ICD-10	2131	2,7	1996	2,7	1946	2,7	1944	2,7	1762	2,4	9779
Total	77177	98,6	74233	98,4	75416	105,6	67406	93,8	70228	97,1	364856,4

\*Hospitalization rate/1,000 inhabitants within the age group, which was according to the Instituto Brasileiro de Geografia e Estatística (IBGE) [Brazilian Institute of Geography and Statistics].

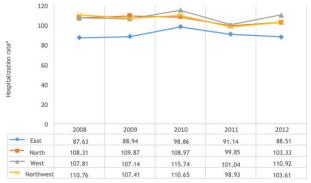
Source: Brazilian Ministry of Health - Hospital Information System from the SUS.

**Figure 2** shows the course of hospitalizations over the five years studied (2008-2012), by macro-region, which helps to understand how hospitalizations due to primary care health-sensitive conditions are distributed in time and space.

The East health macro-region had the lowest rates of hospitalizations in all years, with its highest rate in 2010, 98.86, and the lowest in 2008, 87.63. The West macro-region recorded the highest rate of hospitalizations due to sensitive conditions of all years and all macro-regions in 2010, 115.74.

The highest rates of hospitalizations due to primary care health-sensitive conditions over the years were presented as follows: the Northwest macro-region had the highest rate in 2008, 110.76; North macro-region had the highest rate in 2009, 109.87; West macro-region had the highest rate in 2010, 115.74; further, West macro-region had the highest rate in the years 2011 and 2012, 101.04 and 110.92 respectively.

**Figure 2 -** Graph showing the hospitalizations due to primary care health-sensitive conditions of children under five years old according to year and health macro-region. Paraná State, 2008-2012.



\*Hospitalization rate/1,000 inhabitants within the age group, which was according to the In*stituto Brasileiro de Geografia e Estatística (IBGE)* [Brazilian Institute of Geography and Statistics].

Source: Brazilian Ministry of Health - Hospital Information System from the SUS.

## DISCUSSION

It is known that children represent a population of greater vulnerability for certain diseases. Many of these illnesses that affect childhood are preventable through actions in the sphere of primary care skills. It should be noted that, although prevention is not effective, early detection of certain comorbidities is essential for better prognosis and management.

The hospitalization rate of children under five years old due to primary care health-sensitive conditions in the Paraná State in 2012 was 97.2 per 1,000 children, where the main Chapter of diagnoses being found was the Respiratory tract diseases with a 40.8, followed by the Chapter on Perinatal diseases with a rate of 16.7, data similar to those found in the literature. In a performed in the Minas Gerais State, with an analysis of child hospitalization from 1999 to 2007, it was found that the major cause of child hospitalization of children under four years old was Respiratory tract diseases, with a rate of 47.3, followed by Gastroenteritis, with a rate of 40.5.10 On the other hand, a study carried out in the Pernambuco State focusing on primary care health-sensitive conditions of children under five years old over the period from 1999 to 2009, it was found that the reason for hospitalization with the highest rate was represented by Gastroenteritis, with 51.2, followed by "Respiratory tract diseases", with 36.8.11

Analyzing the age group of children under one-yearold, there is an inversion in the order of the first two total causes, with Perinatal diseases being the most frequent, with a hospitalization rate of 79.5, which corresponds to 35.8% of the total of admissions due to primary care health-sensitive conditions in the year and in the age group. The second major cause of hospitalizations due to primary care healthsensitive conditions in the age group of children under oneyear-old was Respiratory system diseases, with a rate of 78.2 and a proportion of 35.2%. It is possible to understand the higher incidence of perinatal diseases in the age group of children under one year old, since childhood comorbidities related to pregnancy and childbirth tend to occur in the first year of life. In a study performed in the Piauí State, diseases related to the perinatal period represented 25.2% of the total hospitalizations of children under one-year-old, in 2010, being the third largest causal group of hospitalizations in the age group over the period.<sup>12</sup>

The causal group of hospital admissions for children aged one to four years with the highest incidence is Chapter X of the ICD-10, Respiratory tract diseases, with a hospitalization rate of 30, representing 48.1% of admissions in the age group. Within this causal group are pneumonia, asthma, acute infections of the upper airways, flu and other respiratory tract infections considered sensitive to primary care. Conditions such as these can denote precariousness in terms of physical space and/or the lack of knowledge of the health team about respiratory diseases, as already pointed out in another study in the national territory.<sup>13</sup> In any case, it is necessary to emphasize the importance of professionals are qualified and trained to manage this group, providing guidance and ensuring that this population has access to the health service. The decline of hospitalization rates for such causes was indicated in the study as something that can be achieved through a more intense performance in the area of health education.

The second causal group with the highest incidence of hospitalizations of children aged one to four years is composed of Infectious and parasitic diseases, with a rate of 9.4 per 1,000 children in the age group. In this Chapter of the ICD-10, there are preventable diseases such as tuberculosis and gastroenteritis. These are preventive diseases by relatively simple means, such as immunization and hygiene; which highlights the importance of effective health education, to be carried out mainly by primary care, due to its insertion in the community, thus seeking to ensure the continuity of these actions. It is necessary for the health team to be sensitized when welcoming this public, organizing their entry into the health service, so that the precautionary and isolation measures are carried out in an appropriate manner whenever necessary, reducing the possibility of transmission between patients. patients.14

Respiratory tract diseases are the main causes of hospitalizations of children under five years old living in the *Paraná* State in all the years studied. From 2008 to 2012, this causal group appears as the most incident, with the highest rate of hospitalization in 2010 (45.9) and in 2009 (45.6). The Chapters represented by Perinatal diseases and Infectious and parasitic diseases remain the second and third largest groups of causes of hospitalizations in the age group.

It should be noted that in 2008, the second leading cause of hospital admissions was the group of Infectious and parasitic diseases with a rate of 16.7. Nonetheless, in subsequent years, the Chapter falls to the third-largest cause, giving rise to diseases related to the perinatal period, the highest rate of hospitalizations in 2011 (16.8). The perinatal period needs a careful look because it is at this stage that the highest mortality rate occurs in children under one year of age, which makes it necessary to strictly monitor this population, as well as the adoption of health education measures to avoid unfavorable outcomes.<sup>15</sup>

When analyzed according to behavior by macroregions, the rates of hospitalizations due to primary care health-sensitive conditions demonstrate the progress of hospitalizations over time in each macro-region of the State. From this analysis, it is possible to observe that, with the exception of the North macro-region, all macro-regions had higher rates of hospitalizations due to health-sensitive conditions in 2010. In the case of macro-regions, it is also noteworthy that the East macro-region was the one that presented the lowest rates of hospitalizations for children under five years old for causes sensitive to primary care throughout the study period, with the highest rate recorded in 2010 (98.86) and the lowest in 2008 (87.63).

It is noted that the rates of hospitalizations due to higher primary care health-sensitive conditions varied over the years across the macro-regions, with the highest rate in 2008 in the Northwest macro-region (110.76), in 2009 the highest rate it belonged to the North macro-region (109.87), while in the years that followed the West macro-region presented the highest rates of hospitalizations due to health-sensitive conditions, being 115.74 in 2010, 101.04 in 2011 and 110.92 in 2012.

Given these results, and in view of the gap in terms of a more in-depth and systematized knowledge about this specific reality, one wonders what factors could be related to the low rates presented by the East macro-region when comparing it with the others. The characteristics of each macro-region should be studied so that it is possible to understand the disparity in children's hospitalizations due to primary care health-sensitive conditions.

The study of these hospitalizations might promote the understanding of the local child health context, constituting the subject of this research, which meant to analyze hospital admissions of children under five years old living in the *Paraná* State, over the period from 2008 to 2012.

## FINAL CONSIDERATIONS

Bearing in mind the aforesaid, it was possible to understand the health framework of children under five years old living in the *Paraná* State. Hence, creating an overview of the health conditions of these individuals, analyzing the situation of hospitalizations due to primary care health-sensitive conditions in this population. Furthermore, in line with the empirical findings of care and professional practice, respiratory disorders appear as the major cause of hospitalizations for this public. Another causal group with relevant rates is that of infectious and parasitic diseases, which raises the question of how actions of health prevention and education have been developed by primary care.

#### REFERENCES

- 1. World Health Organization. The world health report 2008: primary health care: now more than ever. Geneva, 2008.
- 2. Ministério da Saúde (BR). Política Nacional de Atenção Básica. Brasília: Ministério da Saúde, 2012.
- Rehem TCMSB, Oliveira MRF, Amaral TCL, Ciosak SI, Egry EY. Internações por Condições Sensíveis à Atenção Primária em uma metrópole brasileira. Rev Esc Enferm USP. 2013; 47(4):884-90.
- Rehem TCMSB, Ciosak SI, Egry EE. Internações por condições sensíveis à atenção primária no hospital geral de uma microrregião de saúde do município de São Paulo. Texto Contexto Enferm. 2012; 21(3):535-42
- Alfradique ME, Bonolo PF, Dourado I, Lima-Costa MF, Macinko J, Mendonça CS, et al. Internações por condições sensíveis à atenção primária: a construção da lista brasileira como ferramenta para medir o desempenho do sistema de saúde (Projeto ICSAP – Brasil). Cad Saúde Pública. 2009; 25(6):1337-49.
- Caldeira AP, Fernandes VBL, Fonseca WP, Faria AA. Internações pediátricas por condições sensíveis à atenção primária em Montes Claros, Minas Gerais, Brasil. Rev Bras Saúde Matern Infant. 2011; 11(1):61-71.
- Pazó RG, Frauches DO, Galvêas DP, Stefenoni AV, Cavalcante ELB, Silva FHP. Internações por condições sensíveis à atenção primária no Espírito Santo: estudo ecológico descritivo no período 2005-2009. Epidemiol. Serv. Saúde. 2012; 21(2):275-82.
- Oliveira LDB, Gabarra LM, Marcon C, Silva JLC, Macchiaverni J. A brinquedoteca hospitalar como fator de promoção no desenvolvimento infantil: relato de experiência. Rev Bras Cresc e Desenv Humano. 2009; 19(2):306-12.

- 9. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Portaria nº 221 de 17 de abril de 2008 que disõe sobre a Lista Brasileira de Internações por Condições Sensíveis à Atenção Primária.
- 10. Santos Lílian Amaral, Oliveira Veneza Berenice de, Caldeira Antônio Prates. Hospitalizations for conditions susceptible to primary care among children and adolescents in Minas Gerais, Brazil, 1999-2007. Rev. Bras. Saude Mater. Infant. 2016; 16(2):169-78.
- 11. Carvalho Suzana Costa, Mota Eduardo, Dourado Inês, Aquino Rosana, Teles Carlos, Medina Maria Guadalupe. Hospitalizations of children due to primary health care sensitive conditions in Pernambuco State, Northeast Brazil. Cad. Saúde Pública. 2015; 31(4):744-54.
- 12. Barreto JOM, Nery IS, Costa MSC. Estratégia Saúde da Família e internações hospitalares em menores de 5 anos no Piauí, Brasil. Cad Saúde Pública. 2012; 28(3):515-26.
- Rodrigues BRM, Campos EMS, Ribeiro LC, Firmino RUR, Bustamante TMT. Internações por condições sensíveis à atenção primária em município do sudeste do Brasil. Rev. Assoc. Med. Bras. 2013; 59(2):120-7.
- 14. Virgino PRMC, Oliveira ICS, Cuidados Prestados Às Crianças Com Doenças Infecciosas E Parasitárias: Estratégias Da Equipe De Enfermagem. Rev. Rene. 2010; 11(1):133-43.
- Pedraza DF, Araujo EMN. Internações das crianças brasileiras menores de cinco anos: revisão sistemática da literatura. Epidemiol. Serv. Saúde. 2017; 26(1):169-182.

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