

Expenses with hospitalizations by sensitive conditions to the primary care: an ecological study

Gastos com internações por condições sensíveis à atenção primária: estudo ecológico
Gastos con internaciones por condiciones sensibles en la atención primaria: estudio ecológico

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Abstract

Objective: To analyse the expenses with hospitalizations by Sensitive Conditions to the Primary Care at the Minas Gerais State.

Methods: Ecological and retrospective study of the hospitalizations from 2014 to 2019, with data from the Hospital Information System, analysed through descriptive statistics and Wilcoxon paired test.

Results: We observed a decrease in the expense values (-9.88%), in electives hospitalizations (-1.77%) and urgency hospitalizations (-10.54%), in male and female sexes, and all group ages; with significant expense values difference in the age groups from 5 to 14 years old ($p=0.005$), and from 15 to 49 ($p<0.001$). We found the absolute higher values in the Angina, Cardiac insufficiency, and Cerebrovascular diseases groups; the main decreases occurred in Pelvic organs inflammatory diseases, Infectious gastroenteritis, and Asthma.

Conclusion: The analysis by groups and hospitalization character of the sensitive conditions allows the identification of frequency and elevated and/or disproportionate expenses, highlighting conditions of greater risk and action of the primary care services in health in the appropriate moment to the population demand.

Resumo

Objetivo: Analisar os gastos com Internações por Condições Sensíveis à Atenção Primária no Estado de Minas Gerais.

Métodos: Estudo ecológico e retrospectivo das internações dos anos de 2014 e 2019, com dados do Sistema de Informação Hospitalar analisados por meio de estatística descritiva e teste pareado de Wilcoxon.

Resultados: Observou-se redução de valores gastos (-9,88%), em internações eletivas (-1,77%) e de urgência (-10,54%), nos sexos masculino e feminino e em todas as faixas etárias; com diferença significativa de valores gastos nas faixas etárias de 5 a 14 anos ($p=0,005$) e de 15 a 49 anos ($p<0,001$). Os maiores valores absolutos se deram nos grupos Angina, Insuficiência Cardíaca e Doenças Cerebrovasculares; as principais reduções ocorreram nas Doenças inflamatórias de órgãos pélvicos, Gastroenterites infecciosas e Asma.

Conclusão: A análise por grupos e caráter de internação das condições sensíveis possibilita a identificação de frequência e custos elevados e/ou desproporcionais, mostrando condições de maior risco e atuação dos serviços de cuidados primários em saúde no momento oportuno à demanda da população.

Resumen

Objetivo: Analizar los gastos con Internaciones por Condiciones Sensibles en la Atención Primaria en el Estado de Minas Gerais.

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Conflicting interests: none.

Métodos: Estudio ecológico y retrospectivo de las internaciones en los años de 2014 y de 2019, con datos del Sistema de Información Hospitalaria analizados por medio de estadística descriptiva y pruebas pareadas de Wilcoxon.

Resultados: Se observó una reducción en los montos gastados (-9,88 %), en internaciones electivas (-1,77 %) y de urgencia (-10,54 %), en los sexos masculino y femenino y en todos los grupos de edad; con una diferencia significativa en los montos gastados en los grupos de edad de los 5 a los 14 años ($p=0,005$) y de los 15 a los 49 años ($p<0,001$). Los mayores valores absolutos se dieron en los grupos Angina, Insuficiencia Cardíaca y Enfermedades Cerebrovasculares; las principales reducciones se dieron en las Enfermedades inflamatorias de órganos pélvicos, Gastroenteritis infecciosas y Asma.

Conclusión: El análisis por grupos y tipo de internación de las condiciones sensibles posibilita la identificación de frecuencia y elevados costos o desproporcionales, mostrando condiciones de mayor riesgo y actuación de los servicios de cuidados primarios en salud en el momento oportuno a la demanda de la población.

Introduction

The Hospitalizations by Sensitive Conditions to Primary Care (HSCPC) represent a set of conditions for which the access and effectiveness of the primary care may reduce the probability of hospital admission⁽¹⁾, being considered an indicator of the performance of the Primary Health Care (PHC) services.

The utilization of the indicator is reported on various continents, in countries such as Israel,⁽²⁾ Ireland,⁽³⁾ Portugal,⁽⁴⁾ Canada,⁽⁵⁾ Australia, Germany, Spain, United Kingdom, United States of America, among others,⁽⁶⁾ although under different terms, as sensitive conditions to the outpatient attention or evitable hospitalizations.⁽⁶⁾ We must highlight that, in these countries, there is some differentiation in the relation of adopted diagnosis, once that the health conditions understood as sensitive to the primary care are oriented to each country's health system specificities, which may be pointed out as a difficulty factor of international comparisons.⁽⁶⁾

Since 2008, the Brazilian list of HSCPC was established, which gathers 19 groups of diagnosis guided in the country's morbimortality profile and its installed capacity, as a proposal of indirect indicator of Primary Attention and or of hospital attention utilization.⁽⁸⁾ Regarding the PHC evaluation, the indicator has been related with structural aspects and attention and management processes of the health condition so that the opportune, accessible, and qualified assistance of the PHC services are related to the decrease of HSCPC.⁽⁹⁾

With the possibility of indicating effective access and adequate time, the HSCPC has been widely used in researches and by health administrators as a possibility of evaluation of the health system.⁽⁴⁾ We under-

stand that the knowledge of the magnitude and the standard of these hospitalizations allows the analysis, the planning, and the execution of actions directed to the improvement of the quality and access to the health services.⁽⁵⁾

In the national context, the indicator becomes relevant with the adoption of the PHC as a guiding principle of the Unified Health System (SUS).⁽⁸⁾ For this study, we will utilize the term PHC as a synonym of Health attention because we understand that both share three essential elements: universal access and users' first contact in SUS; inseparability of health to the social-economic development; and social participation.⁽¹⁰⁾

Hence, the adoption and the monitoring of indicators allow a better understanding of PHC and Health Care Networks working dynamics.

We also consider that the analysis of the performance indicators, aligned to the expenses verification, allows the identification of priority areas and services for the development of health and resources allocation policies, which is more relevant in contexts of underfinancing of the health system.

Based on the above considerations, the objective of this study was to analyse the expenses with Hospitalizations by Sensitive Conditions to the Primary Care in the Minas Gerais State.

Methods

Ecological and retrospective study, guided by the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) tool, with analysis of the hospital admissions according to the group of diagnosis from the Brazilian list of sensitive conditions to the primary care. We considered

eligible all HSCPC carried out from 2014 to 2019 in the Minas Gerais State.

Secondary data, derived from the Hospital Information System (HIS) of SUS Department of Information Technology (DATASUS), originated from reduced archives (RD format) of microdata of hospitalizations, available for public access. We carried out the extraction during the period from May to June 2020, with the Data Tabulation for Windows (Tabwin) version 4.1.5, developed and available by DATASUS.

We selected the variables: sex, age group, hospitalization character, exit condition, stay, and expense value. We exported the obtained registers to the Microsoft Excel® software, arranging the data bank in an electronic spreadsheet. For the calculation of the HSCPC rate, we considered the proportion between HSCPC and the general hospitalizations.

We based the expenses verification in a macro costing method in the perspective of a services provider public department. The expenses measurement considers the total value of the Authorization for Hospital Admission (AIH), corresponding to productions' approved value in the period. The amounts spent in the year 2014, aiming temporal adjustment, were adjusted by the inflation in the period, according to the National Wide Consumer Price Index (IPCA), with measures expressed in the real coin (R\$).

We carried out the analysis through descriptive statistics and, for comparisons between the years from 2014 to 2019, we utilized the Wilcoxon paired test, with a significance level of 5%, utilizing IBM SPSS Statistics software, version 19.

Results

The proportions between HSCPC and general hospitalizations were 20.26 for the year 2014, and 19.48 for the year 2019, with a variation of -0.20% in the study period. The HSCPC represented 15.72% of the amounts spent with general hospitalizations in the year 2014 and 16.31% in the year 2019.

The HSCPC frequency decreased for the age groups between 1 to 49 years old and the female

sex, while in the age groups under one year old and older than 50 years old and in the male sex, there was an increase of the HSCPC occurrence, as presented in table 1.

Table 1. Hospitalization's frequency and values by Sensitive Conditions to the Primary Care, according to age group and sex

Variables	Year		Variation	p-value**	
	2014 *	2019			
Age group					
Minor 1	Frequency	12946	13495	4.24	0.778
	Value (R\$)	10585299.80	1112670.04	5.11	0.841
1 to 4	Frequency	18930	15575	-17.72	0.888
	Value (R\$)	11833728.70	8386087.29	-29.13	0.171
5 to 14	Frequency	12729	10742	-15.61	0.717
	Value (R\$)	7916720.27	5867265.53	-25.89	0.005
15 to 49	Frequency	56157	50659	-9.79	0.064
	Value (R\$)	57579183.69	45905829.24	-20.27	<0.001
Higher 50	Frequency	151397	161186	6.47	0.573
	Value (R\$)	25838891.47	25382185.99	-1.77	0.469
Sex					
Male	Frequency	119708	122377	2.23	0.372
	Value (R\$)	18271162.54	166609578.80	-8.81	0.286
Female	Frequency	132451	129280	-2.39	0.936
	Value (R\$)	159065923.36	141399884.50	-11.11	0.064

* Value from 2014 adjusted by the inflation on the period. ** Wilcoxon paired test, considered statistical significance to p-values inferior to 0.05

There was a decrease in values for male and female sex users, although there was not a significant difference between the observed years.

The amounts spent suffered a decrease in all age groups, except for the group under one year old. In the age groups between 5 to 14 and 15 to 49, there was a statistically significant decrease, with a p-value of 0.005 and <0.001, respectively.

For the 5 to 14 years old age group, we highlight the amounts spent decrease in the group of Hypertension (-65.33%), Infectious gastroenteritis and complications (-59.09%), and Diseases related to prenatal and childbirth group in the period.

For the 15 to 49 years old age group, the groups with a higher decrease of amounts spent were: Inflammatory Disease of female pelvic organs (-49.52%), Pulmonary Diseases (-42.89%), Nutritional deficiencies (-42.70%), and Infectious gastroenteritis and complications (-42.51%). In absolute terms, we emphasize the amounts spent decrease in the groups: Angina (R\$ -3.039.586,32), Cardiac insufficiency (R\$ -1.496.406,85), Infectious gastroenteritis and complications

(R\$ -1.063.722,62), Diabetes Mellitus (R\$ -1.037.114,30), and Inflammatory Disease of female pelvic organs (R\$ -1.023.555,15).

In the analysis by Diagnostic Groups, we verified the decrease of frequency (-0.20%) and amount spent (-9,88%). We did not observe a significant difference in frequency and values for the period. According to diagnostic groups, we presented the frequencies and the total HSCPC values and by the character of hospital admission, respectively, in tables 2 e 3.

The groups with higher proportions of value decrease were Inflammatory Disease of female pelvic organs, Infectious gastroenteritis and complications, Asthma, Nutritional deficiencies, Angina, and Hypertension, for these groups, the value decrease occurred concomitantly to the decrease of the hospitalizations.

In absolute terms, the higher values were related to the Angina, Cardiac insufficiency, Cerebrovascular diseases groups, although the total value of these two groups had been reduced in the period.

The hospitalizations occurrence reduced in the elective (-1.19%) and urgency character (-0.17%), the amount spent followed this decrease pattern, with a decrease of 1.77% in the amount spent with

elective hospitalizations, and 10.54% in the amount spent with urgency hospital admissions. There was not a significant difference between the years 2014 and 2019 to the frequency and amount spent in the elective and urgency hospitalizations.

We determined that the elective hospitalizations were less frequent, representing 3.16% of the HSCPC in the year 2014, and 3.13% in the year 2019.

The responsible group for the highest frequency and elective HSCPC values was Angina. The hospitalization variation was elevated in the proportion of 23.53%, while the amount spent decreased by 5.00%. This group presented a value and frequency decrease in the hospitalizations of urgency character.

The Hypertension and Cardiac Insufficiency groups had higher value variations of elective hospitalizations, with increases of 94.82% and 206.75%, respectively. The total value of these groups reduced by 32.75% and 10.03%, respectively.

The Cerebrovascular Diseases group had an increase of urgency hospitalizations values and frequency and decrease for elective hospitalizations.

In the Diabetes Mellitus group, although there was an increase in elective hospitalizations values and frequency, there was a decrease in urgency hospitalizations values and total values.

Table 2. Hospitalization's frequency by Sensitive Conditions to the Primary Care

Diagnostic Groups	Total				Elective				Urgency			
	2014	2019	Variation	p-value*	2014	2019	Variation	p-value*	2014	2019	Variation	p-value*
Preventable diseases by immunization	2093	2186	4.44	0.658	21	31	47.62	0.811	2072	2155	4.01	0.546
Infectious gastroenteritis and complications	30002	19553	-34.83		290	233	-19.66		29712	19320	-34.98	
Anemia	1261	1245	-1.27		7	6	-14.29		1254	1239	-1.20	
Nutritional deficiencies	8930	7581	-15.11		216	155	-28.24		8714	7426	-14.78	
Ear, nose and throat infections	2754	3066	11.33		102	112	9.80		2652	2954	11.39	
Bacterial pneumonia	20242	25362	25.29		283	227	-19.79		19959	25135	25.93	
Asthma	9196	8474	-7.85		34	45	32.35		9162	8429	-8.00	
Pulmonary diseases	21686	22355	3.08		312	372	19.23		21374	21983	2.85	
Hypertension	5819	3913	-32.75		106	138	30.19		5713	3775	-33.92	
Angina	18547	17072	-7.95		1853	2.289	23.53		16694	14783	-11.45	
Cardiac insufficiency	35481	31921	-10.03		364	348	-4.40		35117	31573	-10.09	
Cerebrovascular diseases	24600	28092	14.20		1731	1.690	-2.37		22869	26402	15.45	
Diabetes mellitus	16054	16474	2.62		242	259	7.02		15812	16215	2.55	
Epilepsies	6347	6536	2.98		180	232	28.89		6167	6304	2.22	
Kidney Infection and urinary tract	29438	34437	16.98		333	355	6.61		29105	34082	17.10	
Skin Infection and subcutaneous tissue	9392	11431	21.71		138	232	68.12		9254	11199	21.02	
Inflammatory Disease of female pelvic organs	3057	2646	-13.44		1669	1.075	-35.59		1388	1571	13.18	
Gastrointestinal ulcer	4152	5648	36.03		61	48	-21.31		4091	5600	36.89	
Diseases related to prenatal and childbirth	3108	3665	17.92		22	22	0.00		3086	3643	18.05	
Total	252159	251657	-0.20		7964	7.869	-1.19		244195	243788	-0.17	

* Wilcoxon paired test, considered statistical significance to p-values inferior to 0.05

Table 3. Hospitalization's values by Sensitive Conditions to the Primary Care

Diagnostic Groups	Total				Elective				Urgency			
	2014 *	2019	Variation	p-value**	2014 *	2019	Variation	p-value**	2014 *	2019	Variation	p-value**
Preventable diseases by immunization	3659431.44	3129333.97	-14.49	0.091	33131.39	53126.83	60.35	0.968	3626300.05	3076207.14	-15.17	0.147
Infectious gastroenteritis and complications	12989973.13	7257866.33	-44.13		117591.33	95118.73	-19.11		12872381.80	7162747.60	-44.36	
Anemia	607405.14	510934.85	-15.88		2704.26	2350.79	-13.07		604700.88	508584.06	-15.89	
Nutritional deficiencies	6838712.48	5377658.90	-21.36		144026.48	88065.93	-38.85		6694686.00	5289592.97	-20.99	
Ear, nose and throat infections	1138007.89	979890.74	-13.89		115336.69	85212.01	-26.12		1022671.20	894678.73	-12.52	
Bacterial pneumonia	29440949.72	31419697.70	6.72		261207.30	270504.84	3.56		29179742.42	31149192.86	6.75	
Asthma	7550038.26	5530416.76	-26.75		22389.13	25071.13	11.98		7527649.13	5505345.63	-26.87	
Pulmonary diseases	23656236.71	21630649.35	-8.56		42595.11	442861.68	3.97		23230285.60	21187787.67	-8.79	
Hypertension	2387042.74	1916483.89	-19.71		76306.35	148660.45	94.82		2310736.39	1767823.44	-23.50	
Angina	88619631.98	70456679.70	-20.50		16791442.72	15951084.17	-5.00		71828189.27	54505595.53	-24.12	
Cardiac insufficiency	67297796.42	60608549.96	-9.94		968138.35	2969764.95	206.75		66329658.07	57638785.01	-13.10	
Cerebrovascular diseases	48373704.60	50454289.76	4.30		4375092.62	3707111.89	-15.27		43998611.98	46747177.87	6.25	
Diabetes mellitus	14955848.11	13765543.48	-7.96		200978.48	208832.21	3.91		14754869.63	13556711.27	-8.12	
Epilepsies	4422260.05	4756776.05	7.56		413384.29	455599.91	10.21		4008875.76	4301176.14	7.29	
Kidney Infection and urinary tract	13242625.62	13974152.47	5.52		138060.30	175048.78	26.79		13104565.32	13799103.69	5.30	
Skin Infection and subcutaneous tissue	7957989.83	7765900.89	-2.41		122986.02	141851.18	15.34		7835003.81	7624049.71	-2.69	
Inflammatory Disease female of pelvic organs	2292262.00	1277874.21	-44.25		1518923.57	472519.07	-68.89		773338.44	805355.14	4.14	
Gastrointestinal ulcer	5168247.85	5878952.61	13.75		106200.38	75721.98	-28.70		5062047.47	5803230.63	14.64	
Diseases related to prenatal and childbirth	1179383.98	1317811.72	11.74		5040.69	13679.46	171.38		1174343.29	1304132.26	11.05	
Total	341777547.90	308009463.34	-9.88		25838891.47	25382185.99	-1.77		315938656.55	282627277.35	-10.54	

* Value from 2014 adjusted by the inflation on the period. ** Wilcoxon paired test, considered statistical significance to p-values inferior to 0.05

The Inflammatory Disease of female pelvic organs, although it suffered an increase of frequency and urgency hospitalization value, presented a decrease of frequency and elective hospitalization value and total hospital admissions.

For the Infectious gastroenteritis and complications, Anaemia, and Nutritional Deficiency groups, we observed a decrease of occurrence and amount spent in elective and urgency hospitalizations.

While for the Diseases related to prenatal and childbirth and Epilepsy, we emphasize the increase of frequency and values in the elective and urgency hospitalizations.

The Preventable diseases by immunization group, although it is one of the groups with least frequency, presented an increase of frequency of elective and urgency hospitalizations, with increase of expenses with elective character hospitalizations and decrease of total values and urgency hospitalizations.

Discussion

The proportion between HSCPC and the general hospitalizations observed in this study is superior to the data presented by the country and a few capitals in the year 2018, in which it was registered the following proportions: Brazil – 12.2%, Capitals: 10.8% Distrito Federal – 12,6%, São Paulo (SP) – 10,7%, Rio de Janeiro (RJ) – 9,5%, Belo Horizonte (MG) – 12,9%, Porto Alegre (RS) – 8,5%, Curitiba (PR) - 8,5% e Florianópolis (SC) - 11,1%.⁽¹¹⁾

When compared to other studies, the identified values are inferior to the proportion of 25.3% in the period of 2009 to 2012, in 78 cities of Mato Grosso do Sul,⁽¹²⁾ 26.0% in São Leopoldo (RS), in the year 2012,⁽¹³⁾ and 21.4% in Ceará in 2014.⁽¹⁴⁾

Although there is a difference between the adopted lists, we must mention the HSCPC proportions observed in other countries, such as 7.10% in Canada, from 2006 to 2009,⁽⁵⁾ 9.94% in Portugal,

in the year 2015,⁽⁴⁾ 16,4% in Israel, from 2009 to 2014,⁽²⁾ and Ireland in 2016.v

The occurrence of hospitalizations decrease behaviour conforms with a study carried out in Ceará, from 2010 to 2014 that identified a decrease of 18.4% in the HSCPC coefficient,⁽¹⁴⁾ as well as in another research carried out in Brazil, from 2001 to 2016 that revealed a decrease of 45% in the HSCPC standard rate.⁽¹⁵⁾

The HSCPC decrease is related to factors such as the coverage of health services, health services minimum opening hours, medicine and vaccines availability, and matrix support,⁽⁹⁾ besides these factors, another study showed a relationship between the expansion and coverage of Family Health Teams (FHT) and the decrease of HSCPC.⁽¹⁶⁾

In Minas Gerais State, the coverage of FHT was amplified from 71.64% in 2014, with 4.658 teams, to 80.75% in 2019, totalling 5.609 teams. Such data aligns with the established relationship between the HSCPC rate tendency inferior to 20% and the coverage of FHT superior to 60%.⁽¹⁷⁾

It is also important to highlight the association between the low socioeconomic level and the HSCPC high risk,⁽⁷⁾ reinforcing the relevant role of PHC in the confrontation of the vulnerabilities of the population.

Regarding the amount spent, the HSCPC decrease in Brazil from 2014 to 2017, which was responsible for the economy of 27.88 million reais, pointing out the important impact of the *Programa Mais Médicos* (More Doctors Program) in the decrease of HSCPC rate and amount spent.⁽¹⁾

In an HSCPC survey of Brazil, from 2000 to 2013, we observed the gradual decrease of the proportion of the expenses with HSCPC concerning the total expenses with hospitalizations, with a decrease of 23.6% in 2000, to 17.4% in 2013.⁽¹⁸⁾

Such findings, as well as the results in this study, refute previous data regarding the study carried out from 2003 to 2012 in São Leopoldo (RS), in which it was verified an increase of 16.30% of expenses with HSCPC.⁽¹⁹⁾

In the group analysis, the conditions related to Angina, Cerebrovascular Diseases, and Cardiac Insufficiency were the ones with the highest ab-

solute value, independently of the hospitalization character, as reported to the elderly and adult population of Brazil, from 2000 to 2013, in which it was described a variation of 237.5% of the expenses with hospitalizations by Angina, and -43.4% in the hospitalization expenses by Cardiac Insufficiency.⁽¹⁸⁾

In a study carried out in São Paulo state, from 1998 to 2013, specifically with Cerebrovascular Diseases and Cardiac Insufficiency, it pointed out the significant hospitalization decrease by these conditions with the FHT expansion, being indicated as contributing factors to the reduction of hospitalizations: clinical protocols, and therapeutic guidelines of the Pharmaceutical Assistance in SUS, Health Ministry actions for the decrease of the prevalence of tobacco use, besides the access and qualification of FHT for prevention actions and health promotion.⁽²⁰⁾

The association between the expansion of the FHT coverage and the decrease of hospitalizations by cardiovascular diseases was evidenced in Mato Grosso do Sul from 2009 to 2012.⁽¹²⁾ The health system organization and the central role of APS in SUS in the studied locations must be taken into account when analyzing this relation between FHT coverage and HSCPC.⁽¹⁷⁾

Still, regarding the related conditions to the chronic non-communicable diseases (CNCD), we highlight the behavior of expenses increase with elective character hospitalizations by Hypertension and Diabetes Mellitus, even though the amount spent with urgency hospitalizations and the total values of these conditions had reduced in the period of the analysis.

Besides representing expressive values of hospitalizations, the CNCD deserves a highlight by the impact on the population's health condition. We estimate that 24,2% of the population is multimorbid, that is, has two or more chronic conditions being important to emphasize the significant prevalence of multimorbidity in women, the elderly, and people with a lower educational level.⁽²¹⁾

Hence, the CNDC confrontation must be understood as a political priority, aiming at the implementation of coordinated and integrated actions

with intersectoral partnerships and adequate financial planning.⁽²²⁾

Regarding the related groups to the respiratory conditions, the Pneumonia group increased the total, urgency, and elective values; Asthma and Pulmonary diseases had an increase of values with elective hospitalization, although they had reduced total and urgency hospitalization values. Given the influence of the environmental factors in the development of pulmonary conditions, we highlight that there are differences in the hospitalization rate in different regions of Brazil, in which the south and southeast are responsible for the highest rates and expenses.⁽²³⁾

A study carried out in the Brazilian elderly population also verified a decrease in the rate of hospitalizations by chronic obstructive pulmonary disease (COPD) - one of the pulmonary conditions of greater significance, from 2008 to 2015, nationwide.⁽²³⁾ The hospitalizations by asthma in Santa Catarina State decreased, in general, from 2008 to 2015.⁽²⁴⁾ Regarding the cases of pneumonia, acute lung affections, an investigation carried out in Salvador revealed an increase in the frequency and hospitalization costs, mainly in the elderly population.⁽²⁴⁾

The Diseases related to prenatal and childbirth presented an increase of frequency and amount spent with urgency and elective hospitalizations. The frequency increase of this group was also reported in the States of Ceará, from 2010 to 2014,⁽¹⁴⁾ and São Paulo, from 2008 to 2014 (10.14%), in which congenital syphilis was the main reason for the hospitalization of this group in São Paulo.⁽²⁶⁾

When analyzing the literature data about the reasons for the hospitalizations related to prenatal and childbirth, the occurrence of hospitalizations is related to the incomplete register of the pregnant women card, late start to the prenatal assistance, the insufficient number of medical appointments, and inadequate clinical conduct during the appointment.⁽²⁷⁾

On the other hand, the group related to the Inflammatory Disease of female pelvic organs presented a decrease of occurrence and amounts spent, such as reported in Brazil from 2008 to 2017, with an emphasis on the actions of the *Programa Mais*

Médicos (More Doctors Program) in the decrease of the frequency and amount spent with the inflammatory pelvic diseases.⁽¹⁾ Another relevant aspect involves the organization of the actions through the National Program for Integrated Healthcare for women (PNAISM), constituted in 2004 and reviewed in 2011. The PNAISM represents the progress in the field once that it commits itself directly with the “decrease of morbimortality by preventive and avoidable causes.”^(28,29) As the actions related to Women’s Health have been prioritized in many health services, systematic evaluations regarding its effectiveness are imperative.

Given the reduction of the occurrence of hospitalizations and amounts spent pattern, other groups that deserve an emphasis are Infectious gastroenteritis and complications and Anemia. This data supports the finding of a survey in Ceará, from 2010 to 2014, that presented, for these groups, the HSCPC most significant decreases.⁽¹⁴⁾

Specifically for the infectious gastroenteritis, it was reported a decrease of 2.87% of hospitalizations in under one year old groups in São Paulo, from 2008 to 2014,⁽²⁶⁾ and a decrease of 10.5% of mortality in children under five years old, in the same state, from 2010 to 2012.⁽³⁰⁾ In Brazil, from 2008 to 2017, it was also observed a decrease in the frequency and amounts spent with hospitalizations by infectious gastroenteritis.⁽¹⁾ This behavior may be justified by the improvement of the population’s living conditions and sanitation, besides the actions of health promotion and appropriate and qualified access to the APS services.⁽³¹⁾

Although it is the group with lower frequency, the preventive diseases by immunization deserve an emphasis given the increase of the frequency and decrease of amounts spent. The data hospitalization frequency refutes the data from São Paulo, from 2008 to 2014, in which they observed, in this group, an increase of hospitalizations in groups under one year old (13.12%) and the late neonatal rate (12.27%) and post-natal (14.13%).⁽²⁶⁾

For such groups, we highlight the important impact of the vaccination coverage increase resulting from the National Program of Immunization, in which the availability of at least 75% of im-

munobiological in the municipalities is related to lower HSCPC rates.⁽⁹⁾ However, the conservation of the high and homogeneous coverage is essential to the maintenance of these advances. A study carried out with national data regarding the vaccination with BCG against poliomyelitis and triple viral (measles, mumps, and rubella) pointed out a decrease in the coverage nationwide between 2006 and 2016, demonstrating the risk of resurgence of already controlled diseases in the national scenario.⁽³²⁾ The threat tends to represent an even higher risk due to the pandemic of the new coronavirus.

Finally, in front of the findings of this study, we reinforce the benefits of the appropriate and qualified access to the APS actions. However, it is important to signal the threats that this model of care resulting from recent changes taken in the field of Public Policies in Brazil, marked by the role of the State and movements of deconstruction that danger the FHT and even SUS.⁽³³⁾

In this context, we highlight the changes that occurred in the National Policy of Primary Care in 2017 that carried out the universal access through segmentation and predict the recomposition and reorganization of the work process in the teams, especially regarding the decrease of the Community Health Agent role.⁽³⁴⁾ We understand these aspects as responsible for changing the FHT structure and financing, to not guarantee the APS attributes.⁽¹⁵⁾

These changes gained substance with APS financial alterations; a context in which we highlight the financial transference by costing, centered in productive goals; the individual focus of registration and assistance; the non-distinction between FHT and traditional Basic Care teams; besides ending the federal finance to the Expanded Family Health and Primary Care Centers⁽³⁵⁾ – main responsible for the matrix support in the FHTs.

Therefore, we believe that these austerity measures may compromise the advance that had been constructed in the field of Brazilian health over the 30 years of existence of SUS. Thus, impacting a less resolute APS and with even bigger difficulties in the conduction of complex health conditions that may generate hospitalization and, in the medium

and long term, result in more expenses to the health system and the society.

Elevated HSCPC rates in a population may indicate difficulties in access to the health system or its performance. It constitutes, consequently, an important indicator for vigilance and evaluation of problems in the APS quality, aiming to include multiple demographic and regional scenarios. Hence, the observed increase in the HSCPC between groups under one year old, older than 50 years old, vaccine-preventable diseases, prenatal and childbirth-related diseases, diabetes, angina, and cerebrovascular diseases allow to comprehend the dimension of APS quality effectiveness since that the pertaining characteristics to the organization and the process influenced in the results of the health services.

We point out as a limitation of this study the utilization of SIH data that preclude the identification of people covered or not by FHT, aside from the fact that the system is based on the Authorization for Hospital Admission (*AIH*) coding and filling, in which requires clinical knowledge and adequate processes. In the verification of the costs, we highlight that the DATASUS provides information of paid values to the providers and not the real values utilized by the health services, and, although they do not present a precise characterization of the expenses, they are widely used information by researchers and decision-makers.

Conclusion

The analysis by groups and hospitalization character of sensitive conditions, carried out in this study, allows the identification of groups with frequency and high costs and/or disproportional, which is possible to unravel the conditions of higher risk and performance of the health primary care services in the appropriate moment to the population demand. We observed, in the period considered by this research, a decrease in the occurrence and amount spent with HSCPC in both elective and urgency character, with a highlight to the significant difference of amount spent in the age groups from

5 to 14 years old and 15 to 49 years old. We also find necessary additional studies that may analyze these aspects nationally and over a higher period. Although the PHC increased its outreach, given the adoption of FHT as a main strategy in the country, there are still challenges for its full realization, such as adequate financing, coverage, and access increase, health care networks structuring, health professionals working conditions improvement, political and social recognition, among others. We understand that the overcoming of these challenges has a direct impact on the decrease of HSCPC and in the life quality of SUS users.

Collaborations

Dias BM, Ballestero JGA, Zanetti ACB, Machado GAB, Bernardes A e Gabriel CS contributed to the conception of this project, analysis and data interpretation, writing of the article, relevant critical review of the intellectual content, and final approval for the version to be published.

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