

HOSPITALIZATIONS FOR PRIMARY CARE SENSITIVE CONDITIONS IN THE STATE OF SÃO PAULO, BRAZIL, 2016-2022

INTERNAÇÕES POR CONDIÇÕES SENSÍVEIS À ATENÇÃO PRIMÁRIA NO ESTADO DE SÃO PAULO, BRASIL, 2016-2022

INTERNACIONES POR CONDICIONES SENSIBLES A LA ATENCIÓN PRIMARIA EN EL ESTADO DE SÃO PAULO, BRASIL, 2016-2022

¹Helena Nayara Santos Pereira

²Gustavo Diego Magno

³Isabella Regina Pedroso Dal Ri

⁴Marielle Aparecida Damacena

⁵Silvia Carla da Silva Andre Uehara

¹Universidade Federal de São Carlos (UFSCar), São Carlos, Brazil. ORCID: 0000-0002-6766-4907

²Universidade Federal de São Carlos (UFSCar), São Carlos, Brazil. ORCID: 0000-0003-3656-9170

³Universidade Federal de São Carlos (UFSCar), São Carlos, Brazil. ORCID: 0000-0002-1090-8923

⁴Universidade Federal de São Carlos (UFSCar), São Carlos, Brazil. ORCID: 0009-0006-7759 3766

⁵Universidade Federal de São Carlos (UFSCar), São Carlos, Brazil. ORCID: 0000-0002-0236-5025

Corresponding Author

Gustavo Diego Magno

Rodovia Washington Luís s/n, km 235, São Carlos – SP, Brazil. CEP: 13565-905, Phone: +55(16) 3351-8334, e-mail: gusmagno@gmail.com.

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ABSTRACT

Introduction: Ambulatory Care Sensitive Conditions are considered avoidable hospitalizations caused by health conditions that could have been resolved by Primary Health Care services. **Objective:** To analyze the trend of Ambulatory Care Sensitive Conditions related to non-communicable diseases in the state of São Paulo between 2016 and 2022. **Method:** This is a time series study using secondary data on Ambulatory Care Sensitive Conditions collected from the Hospital Information System (SIH/SUS) authorizations, available on DATASUS. **Results:** A reduction in the hospitalization trend of 5.1% per month was observed from August 2017 to February 2018; and a reduction of 0.3% per month between June 2020 and December 2022. **Conclusion:** The trend changes highlight the importance of an integrated approach to understand the determinants of Ambulatory Care Sensitive Conditions rates related to non-communicable diseases. **Keywords:** Noncommunicable Diseases; Ambulatory Care Sensitive Conditions; Primary Health Care; Hospitalization.

RESUMO

Introdução: As Internações por Condições Sensíveis à Atenção Primária são consideradas hospitalizações evitáveis causadas por condições de saúde que poderiam ter sido solucionadas pelos serviços da Atenção Primária à Saúde. **Objetivo:** Analisar a tendência das Internações por Condições Sensíveis à Atenção Primária relacionadas a doenças crônicas não transmissíveis no estado de São Paulo entre 2016 e 2022. **Método:** Trata-se de uma série temporal utilizando dados secundários de Internações por Condições Sensíveis à Atenção Primária coletados nas autorizações de internação hospitalar do Sistema de Informações Hospitalares (SIH/SUS), disponível no DATASUS. **Resultados:** Destaca-se uma redução na tendência das internações de 5,1% ao mês de agosto de 2017 a fevereiro de 2018; e uma redução de 0,3% ao mês entre junho de 2020 e dezembro de 2022. **Conclusão:** As mudanças de tendência evidenciam a importância de uma abordagem integrada para compreensão dos determinantes das taxas de Internações por Condições Sensíveis à Atenção Primária relacionadas a doenças crônicas não transmissíveis. **Palavras-chave:** Doenças não Transmissíveis; Condições Sensíveis à Atenção Primária; Atenção Primária à Saúde; Hospitalização.

RESUMEN

Introducción: Las Internaciones por Condiciones Sensibles a la Atención Ambulatoria son consideradas hospitalizaciones evitables causadas por condiciones de salud que podrían haberse solucionado por los servicios de Atención Primaria de Salud. **Objetivo:** Analizar la tendencia de las Internaciones por Condiciones Sensibles a la Atención Ambulatoria relacionadas con enfermedades crónicas no transmisibles en el estado de São Paulo entre 2016 y 2022. **Método:** Se trata de una serie temporal que utiliza datos secundarios de Internaciones por Condiciones Sensibles a la Atención Ambulatoria recolectados de las Autorizaciones de Internación Hospitalaria del Sistema de Informaciones Hospitalarias (SIH/SUS), disponible en el DATASUS. **Resultados:** Se destaca una reducción en la tendencia de internaciones del 5,1% por mes de agosto de 2017 a febrero de 2018; y una reducción del 0,3% por mes entre junio de 2020 y diciembre de 2022. **Conclusión:** Los cambios de tendencia evidencian la importancia de un abordaje integrado para comprender los determinantes de las tasas de Internaciones por Condiciones Sensibles a la Atención Ambulatoria relacionadas con enfermedades crónicas no transmisibles. **Palabras-clave:** Enfermedades no Transmisibles; Condiciones Sensibles a la Atención Ambulatoria; Atención Primaria de Salud; Hospitalización.

INTRODUCTION

Hospitalizations for Primary Care Sensitive Conditions (HCPCs) are considered avoidable hospitalizations caused by health conditions that could have been resolved by Primary Health Care (PHC) services, preventing their worsening and referral to tertiary care ⁽¹⁾.

The high number of these types of hospitalizations may indicate that PHC has difficulties in ensuring the effectiveness of the care offered to users, as well as being related to a lack of greater coverage at this level of care ⁽²⁾ or a lack of integration between the services of the Health Care Network (HCN) ⁽¹⁾.

Among HCPCs, Non-Communicable Chronic Diseases (NCDs) stand out. These are long-term diseases whose management is affected by social and individual factors related to lifestyle habits such as smoking, alcohol use, sedentary lifestyle, and unhealthy eating. Furthermore, NCDs can persist throughout life and result in disabilities, reduced productivity, and the need for hospitalizations ^(1,2).

Primary Health Care (PHC) develops actions aimed at addressing NCDs, such as longitudinal follow-up and educational campaigns focused on promoting healthy lifestyles. NCDs are responsible for the death of more than 41 million people each year worldwide, with cardiovascular diseases being the most significant cause of NCD deaths (3). Thus, given the significant number of deaths caused by NCDs, the institutionalization of the use of indicators such as ICSAP is part of a

strategy to improve the planning and management of health services by national, state, and local authorities ⁽⁴⁾.

In the literature, studies are found that have as their object of analysis a general approach to ICSAP, frequently using aggregated data that do not allow identifying the contribution of NCDs to the total number of avoidable hospitalizations analyzed by the indicator ^(4,5).

Thus, the lack of specific segmentation by diagnosis limits the understanding of the real contribution of NCDs in the context of avoidable hospitalizations, presenting a gap in the literature, as well as highlighting a need for frequent updating of the list of hospitalizations sensitive to primary care (HSPC), adapting it to the Brazilian epidemiological context. In this context, this study seeks to analyze the trend of hospitalizations for conditions sensitive to primary care (HSPC) related to non-communicable chronic diseases (NCDs) in the state of São Paulo between 2016 and 2022.

METHODS

This is a time-series study based on secondary data from ICSAP-related NCDs in the State of São Paulo, from 2016 to 2022.

The study population consisted of hospitalizations whose underlying cause was ICSAP-related NCDs in patients residing in the state of São Paulo. Inclusion criteria defined hospitalization data from 2016 to 2022 with ICD-10 codes for ICSAP included in the

Brazilian List of Conditions Sensitive to Primary Care ⁽⁶⁾. Hospitalizations registered for patients from other states and those with incomplete data were excluded from the study.

Data on the cause of hospitalization and the postal code of the municipality of residence, present in the Hospital Admission Authorizations (AIH), were collected from the official website of the Hospital Information System (SIH), available in DATASUS as microdata. Subsequently, they were exported to Excel software (version 2202, 2022, Microsoft Corporation, United States of America).

Descriptive analyses were performed, followed by analyses of changes in monthly rates between 2016 and 2022 using a joinpoint regression model. Based on a Poisson regression, the positions of the change points and regression coefficients were estimated, while the ideal

number of joinpoints was selected using a Monte Carlo permutation test, considering a maximum of 5 points due to excessive convergence time. To facilitate interpretation, the monthly percentage change and the average monthly percentage change for each line segment and the corresponding 95% confidence interval were estimated. The data were analyzed using the Joinpoint Regression Program (version 4.9.1.0, 2022, National Cancer Institute, United States of America)⁽⁷⁾. A significance level of 5% was adopted for all analyses.

RESULTS

In cases of ambulatory care-sensitive conditions (ACSCs) accounted for 7.6% of total hospitalizations during the study period in the state of São Paulo. It is noteworthy that 2016 saw the highest number of ACSCs among general hospitalizations (Chart 1).

Chart1 - Analysis of the comparison between total hospitalizations and ACSCs in the state of São Paulo from 2016 to 2022.

Period	Total Hospitalizations	ICSAP* (%)
2016	2381799	196403 (8,24)
2017	2423728	172626 (7,12)
2018	2464481	196500 (7,97)
2019	2527777	201038 (7,95)
2020	2206746	160622 (7,27)
2021	2324225	158967 (6,83)
2022	2376816	187682 (7,89)

Note: *ICSAP: Hospitalizations for Conditions Sensitive to Primary Care.

Two trend shift points were identified in hospitalizations for ambulatory care-sensitive conditions (ACSCs) related to non-communicable diseases (NCDs) in the state of São Paulo. The first occurred between August 2017 and February 2018, with a significant reduction of 5.1% per month, and the second

between June 2020 and December 2022, with a significant reduction of 0.3% per month. In the overall period, from January 2016 to December 2022, the general trend was one of stability, with a variation of 0.2% per month, without statistical significance (Chart 2).

Chart 2 - Analysis of temporal trends in ACSCs related to NCDs in the state of São Paulo from 2016 to 2022.

Region	Trend inflection over time			Entire period	
	Period	MPC* (IC95%)	P-value	Period	AMPC [§] (IC95%)
São Paulo State	jan/16 - may/17	0,3 (-0,1 ; 0,8)	0,13	jan/16 - dec/22	0,2 (-0,4 ; 0,7)
	may/17 - aug/17	10,8 (-0,8 ; 23,7)	0,07		
	aug/17 - feb18	-5,1* (-7,4 ; -2,7)	<0,01		
	feb/18 - feb 20	-0,1 (-0,4 ; 0,1)	0,36		
	feb/20 - jun/20	5,0 (-1 ; 11,3)	0,10		
	jun/20 - dec/22	-0,3* (-0,5 ; -0,1)	<0,01		

Note: *MPC: monthly percentage change; §AMPC: average monthly percentage change.

DISCUSSION

The results show that the participation of ICSAP-related NCDs in general hospitalizations remained stable during the period, oscillating between decreasing and increasing trends. Regional characteristics may influence the incidence and fluctuation of this type of hospitalization due to differences in the population's living conditions. Factors such as low education levels, low income, and dependence on state assistance are associated with an increase in these hospitalizations ⁽²⁾.

To improve these indicators, the need to strengthen primary health care services is highlighted, especially greater coverage of the Family Health Strategy (FHS), since municipalities with lower coverage have higher numbers of ICSAP. Thus, FHS units provide improved access to health and contribute to reducing the burden of hospital demand for avoidable hospitalizations ⁽⁵⁾.

The rates of ICSAP-related NCDs may also be associated with the effectiveness of interventions for the prevention and control of chronic diseases, such as prevention campaigns

or improvements in management processes in primary health care. These actions can trigger a positive impact on reducing avoidable hospitalizations, reflecting the effectiveness of policies aimed at promoting health and controlling NCDs⁽⁸⁾.

It is worth highlighting that the results of this study show that between 2020 and 2022, there was a reduction in hospitalizations for ambulatory care-sensitive conditions (ACSCs) related to NCDs in the state of São Paulo, a period that coincides with the COVID-19 pandemic, which may have influenced this indicator. The overload of the health system, the prioritization of care for COVID-19 cases, and possible changes in practices for seeking medical care may have affected the dynamics of hospitalizations for ACSCs. However, although during this period there was a decrease in users attending health units, either due to overcrowding caused by attending to people with respiratory symptoms or fear of contamination, the gradual reduction in these hospitalizations indicates a positive trend in the control of avoidable hospitalizations, possibly related to measures to strengthen primary health care, which, although it showed a reduction in care, did not discontinue care for patients with chronic diseases during the pandemic period⁽⁹⁾.

Thus, observing the general trend of stability in the period from January 2016 to December 2022, it is possible to suggest that, although there are punctual variations, the health policy in the state of São Paulo showed a relative

maintenance in the reduction of avoidable hospitalizations over time. This may indicate that, although there are advances in some phases, the implementation of strategies in primary health care services is not yet sufficiently comprehensive or effective to promote a substantial reduction in hospitalizations for conditions sensitive to primary care related to non-communicable chronic diseases^(1,9,10).

This study has some limitations, such as incomplete records and/or underreporting of causes related to hospitalizations for conditions sensitive to primary care and related to chronic non-communicable diseases. However, this study strongly contributes to understanding the impact of chronic non-communicable diseases on hospitalizations for conditions sensitive to primary care and the importance of monitoring conditions that could be avoided with the proper implementation of strategies in health services.

CONCLUSIONS

The trends observed in hospitalizations sensitive to non-communicable diseases (NCDs) in the state of São Paulo indicate significant temporal variations, in addition to the complexity of trend changes over time. These results highlight the need for a more focused and continuous approach in primary health care, with efforts to identify the underlying causes of avoidable hospitalizations and ensure the implementation of more specific and sustainable interventions. The stability observed during the period also points to the importance of

strengthening public health policies and regularly updating prevention and care strategies, adjusting them to changes in the epidemiological profile of the population.

The complexity of trend changes over time highlights the importance of an integrated approach to understanding the determinants of hospitalizations sensitive to NCDs. Therefore, it is suggested that future studies include regional variables and those related to socioeconomic, demographic, and behavioral factors that may influence hospitalizations for conditions sensitive to primary care related to non-communicable chronic diseases.

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Gustavo Diego Magno: drafting and/or critical review and final approval of the published version.

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Conflict of Interest Statement

Nothing to declare.

Data Availability Statement

No databases were generated in this study. The information presented is described in the body of the article.

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Orcid: <https://orcid.org/0000-0003-0778-1447>