

# Population aging and Hospitalization for Sensitive Causes to Primary Care

Sirlei Favero Cetolin<sup>1</sup>, Sofie Bohrz<sup>2</sup>, Ana Maria Martins Moser<sup>3</sup>, Pedro Henrique Favero Cetolin<sup>4</sup>, Vilma Beltrame<sup>5</sup>, Luana Patrícia Marmitt<sup>6</sup>

<sup>1</sup>PhD in Social Work. Graduation in Psychology and Social Work. Teacher in the Master's Course in Biosciences and Health at the University of the West of Santa Catarina - Unoesc. São Miguel do Oeste / SC - Brazil.

<sup>2</sup>Nutritionist. Specialist in Gerontology from the University of the West of Santa Catarina - Unoesc - São Miguel do Oeste / SC - Brazil.

<sup>3</sup>Master in Public Health. Graduated in Nursing. Teacher at the University of the West of Santa Catarina - Unoesc. São Miguel do Oeste / SC - Brazil.

<sup>4</sup>Master's student in Biosciences and Health at the University of the West of Santa Catarina - Unoesc. Neurologist. São Miguel do Oeste / SC - Brazil.

<sup>5</sup>PhD in Biomedical Gerontology. Graduation in Nursing. Teacher in the Master's Course in Biosciences and Health at the University of the West of Santa Catarina-Unoesc - Joaçaba / SC - Brazil.

<sup>6</sup>PhD in Health Sciences. Graduation in Nutrition. Teacher in the Master's Course in Biosciences and Health at the University of the West of Santa Catarina-Unoesc - Joaçaba / SC - Brazil.

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**Keywords**— *Access to Health Information,  
Primary Health Care, Health Promotion.*

**Abstract**— *The study aimed to analyze the main Hospitalizations for Causes Sensitive to Primary Care in elderly people in a small city in the state of Santa Catarina. The data were obtained by consulting a secondary database in the Information System of the Ministry of Health - Department of Informatics of the Unified Health System (DATASUS). For the research, the age group from 60 to 74 years old was considered, the frequency of hospitalizations by sex and main causes of Hospitalization Sensitive to Primary Care, in the period from 2012 to 2018. Population aging is a reality in Brazil and in the world and studies are fundamental for understanding the health needs of the elderly population. The results showed that, of the total number of hospitalizations in the studied period, 39% were for Causes Sensitive to Primary Care (ICSAP), and more frequently in males. There was a decrease in the number of hospitalizations for these causes in 2018 compared to previous years. Among the most frequent causes of hospitalizations, bacterial pneumonia stood out, followed by lung diseases, heart failure, cerebrovascular diseases, diabetes mellitus and kidney and urinary tract infections. It is concluded that there is a need to strengthen Primary Health Care, concentrating greater efforts on health promotion and education and prevention of diseases through strategies to encourage active aging, avoiding the need for hospitalization for causes that can be managed in Primary Care.*

## I. INTRODUCTION

The scenario of an aging population in large extent in Brazil implies challenges to the public health system, in view of the greater susceptibility of the elderly population

to diseases. Thus, if access is not efficient at the first levels of health care, hospitalizations will be more frequent, which in addition to representing a burden on the State, represents a loss of quality of life for the elderly (Rodrigues, Alvarez, & Rauch, 2019).

Hospital indicators have been analyzed in the international scenario to assess the effectiveness of Primary Health Care actions, considering that primary care is the level of service that represents the entry into the system, based on a set of actions that is characteristic of it. That is, it receives new health situations and problems while offering longitudinal attention to the person's health, coordinating care, providing care in all conditions, except rare or complex ones, and even in these, it integrates the care network (Starfield, 2004).

Among the indicators of public health effectiveness are Hospitalizations for Causes Sensitive to Primary Care (ICSAP), initially proposed as ambulatory care sensitive conditions, by Billings in the 1990s, in the United States of America (USA) and later disseminated worldwide, this indicator represents a list of diagnoses of diseases that, when there is primary resolution care, should not be the cause of hospital admissions (Billings *et al.*, 1993).

In Brazil, in order to regulate the diagnoses to be used to assess the effectiveness of Primary Care and the performance of the health system, Ordinance № 221/2008 was enacted by the Ministry of Health. The list consists of 125 diagnoses, divided into 19 categories, classified according to the Tenth Revision of the International Classification of Disease ICD-10 (Ministério da Saúde [MS], 2008).

With a view to strengthening Primary Health Care, from 1994 onwards, the first Family Health Strategy (ESF) teams emerged, initially as the Family Health Program (PSF) and later as ESF (Santana & Carmagnani, 2001). The FHS emerged to redefine the model of care, which is now focused on knowledge and mastery over the needs of the territory, no longer the pre-existing biomedical model. In view of the role of the ESF in primary care, what is sought is that, with greater population coverage by these teams, the lower the rates of ICSAP are. According to the Primary Care Indicators of Santa Catarina, in 2018 the population coverage of São Miguel do Oeste by EFS was 86.7%, while in the State of Santa Catarina the coverage was 79.88% in the same year (Departamento de Informática do Sistema Único de Saúde [DATASUS], 2019).

The population aging estimate for Brazil is exponential<sup>1</sup>. In 2020, we will approach 13 million elderly people (12.4%) and, in the year 2060, the estimate is that more than a third of the population will be made up of people aged 60 or over (33.7%). The expectation with this scenario is that the Unified Health System (SUS) will be overburdened, an expected condition since the elderly are, proportionally, the greatest demand for services. Thus, it is essential to analyze the causes of Hospitalization for

Conditions Sensitive to Primary Care (ICSAP) in the elderly population.

## II. METHODS

This research is characterized by a descriptive, exploratory and ecological study. Information was collected on hospitalizations in the Hospital Information System of the Unified Health System (SIH/SUS), available on the public domain website of the State of Santa Catarina <http://200.19.222.8/cgi/@GEABS/tabcgi.exe?@GEABS\DEF\03-ICSAP.def>.

The TABNET application was used, which is a generic public domain tab, which allows you to organize data quickly according to the query you want to tabulate. This application was developed by DATASUS to generate information from the databases of the Unified Health System.

For the main diagnosis of hospitalizations registered at SIH/SUS, related causes were considered according to the International Disease Code (ICD-10) in the item "List of Morbidity". Data on the Diagnostic Groups with the greatest representativeness were analyzed.

Hospitalizations were classified as Causes Sensitive to Primary Care (CSAP), based on the List of Conditions Sensitive to Primary Care contained in Ordinance № 221, of April 17, 2008.

The classification of ages by age group (60 to 74 years), gender (Male and Female), municipality of residence in São Miguel do Oeste, Santa Catarina, registered in the Information System by municipality of residence, was observed as indicators. The analyzed data were limited to the period from 2012 to 2018.

The analyzes of the collected data were carried out with the aid of the "LibreOffice Calc" Program and the data were presented using tables and graphs. The analysis of the results was supported by national and international literature on the researched subject.

As it is a study in secondary and public domain databases, the project did not involve human beings in the research. Thus, it was not necessary to send it for approval by the Research Ethics Committee. However, the guidelines of the CNS Resolution № 266/2012 were observed.

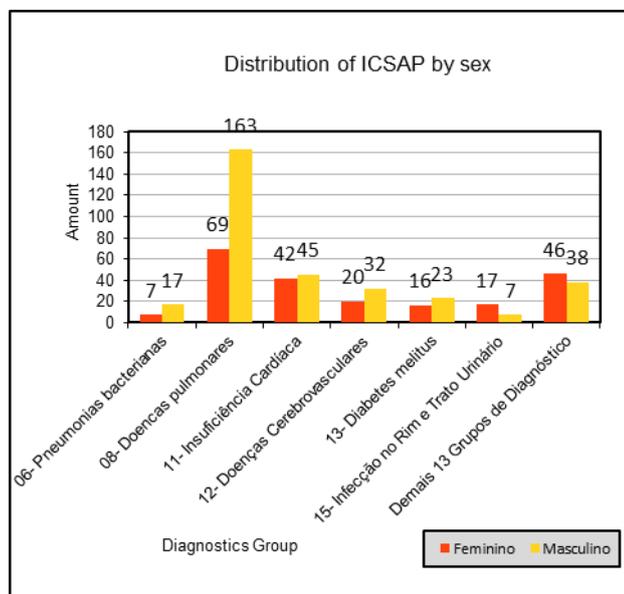
## III. RESULTS AND DISCUSSION

According to data, the population estimate for São Miguel do Oeste in 2018 was 40,090 people. In 2010 the population of the municipality was 36,306 people, and the elderly population aged 60 - 74 years was 3,230 people

(8.9%), of these, 1501 (46.5%) men and 1729 (53.5%) women (Instituto Brasileiro de Geografia e Estatística [IBGE], 2013).

Graph 01 shows the proportion of ICSAP by sex, between 60 and 74 years old, between 2012 and 2018. Of the total number of female hospitalizations in this age group in the period (583), ICSAP totaled 218 (37 , 39%), while there were 807 male hospitalizations', and of these, 325 (40.27%) were due to ICSAP.

Among the Causes Sensitive to Primary Care (CSAP) that represented the most hospitalizations in the period, women had more frequent hospitalizations in relation to the male sex only by the Diagnostics Group 15 - Kidney and Urinary Tract Infection, where of the 24 hospitalizations 17 were of the sex female and 7 male. For all other most frequent causes, the proportion of hospitalizations in males exceeded those in females. In the Diagnostics Group 06 - Bacterial Pneumonias, of the 24 hospitalizations, 17 were male and 7 female, in the Diagnostics Group 08 - Lung Diseases, of the 232 hospitalizations in the period, 163 were male while 69 were female . Regarding the Diagnostics Group 11 - Heart Failure, the number of male hospitalizations was 45 and female was 20, totaling 87 hospitalizations. Of the 52 admissions by the Diagnostics Group 12 - Cerebrovascular Diseases, 32 were male and 20 female. Still, of the 39 hospitalizations by the Diagnostics Group 13 - Diabetes Mellitus, 23 were male, while 16 were female (Graph 1).



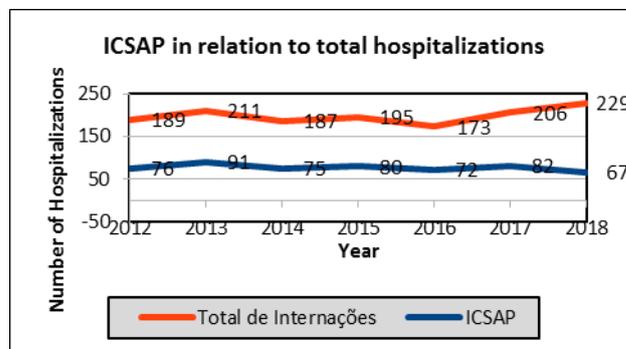
Graph 1: Distribution of ICSAP in the municipality of São Miguel do Oeste, SC, by Sex, in the period from 2012 to 2018

Source: Datasus (2019).

Regarding the proportion of ICSAP in relation to the total number of hospitalizations (Graph 02), there is little

variation between the years 2012 and 2017, with a greater drop in ICSAP in hospitalizations in 2018, from more than 39% of hospitalizations (in 2017 ) for about 29% of hospitalizations of elderly people for these causes in 2018.

In 2012, the municipality registered 189 hospitalizations, of these 76 (40.21%) were due to CSAP. In 2013, of the 211 admissions, the ICSAP represented 43.13% (91). In 2014, there were 187 hospitalizations, of which 75 (40.11%) were due to ICSAP. In 2015, 195 hospitalizations were registered and of these 80 (41.03%) were due to CSAP. Of the total hospitalizations in 2016 (173), 72 (41.62%) were CSAP. In 2017, 82 (39.81%) of 206 admissions were due to CSAP. In 2018, of the 229 hospitalizations registered in the 60 - 74 age group, 67 (29.26%) had CSAP as the cause of hospitalization (Graph 2).



Graph 2: ICSAP in the municipality of São Miguel do Oeste, SC, in relation to the total number of hospitalizations, in the period from 2012 to 2018

Source: Datasus (2019).

Data provided by the Health Department of the Government of the State of Santa Catarina, between the years 2008 to 2014, indicate an increase in the proportion of ICSAP according to the age group, strengthening the influence of functional decline on health impairment. In this time interval, the ICSAPs in the age group from 60 to 74 years old were, on average, 30% of the total hospital admissions. In a general picture, it is observed that both the proportion of ICSAP and the expenses with these hospitalizations had a gradual decline over the years, although although they are decreasing, one in 3 hospitalizations of the elderly in Santa Catarina in this age range are due to CSAP (DATASUS, 2019).

The number of ICSAP between the years 2012 and 2018 in the municipality of São Miguel do Oeste was 542 (Table 1), which corresponds to 39% of the total hospitalizations in the period, which was 1388. Of the ICSAP, 458 (84 , 5%) were for 06 groups of diagnoses, while the remaining 13 groups represent 15.5% (84) of

ICSAP. Of the 06 main diagnostic groups, 232 (42.8%) of hospitalizations were in Group 08 - Lung Diseases, among which 226 for Chronic Obstructive Pulmonary Diseases. Among the most frequent reasons are, still, the diagnoses of Group 11 - Heart Failure, which represent 16% of hospitalizations. Cerebrovascular diseases (Group 12) are the third cause (9.6%), followed by Diabetes Mellitus (Group 13 - 7.2%), Bacterial Pneumonias (Group 06 - 4.4%) and Kidney and Urinary Tract Infections ( Group 15 - 4.4%).

Table 1: Distribution of ICSAP by Diagnostic Group, in the municipality of São Miguel do Oeste, SC, from 2012 to 2018

Diagnosics Group	ICSAP number	Percentage (%) in relation to ICSAP	Percentage (%) in relation to the total number of hospitalizations in the period
06 - Bacterial Pneumonia	24	4,4%	1,7%
08 - Lung Diseases	232	42,9%	16,7%
11 - Cardiac insufficiency	87	16%	6,3%
12 - Cerebrovascular Diseases	52	9,6%	3,7%
13 - Diabetes Mellitus	39	7,2%	2,8%
15 - Kidney and Urinary Tract Infection	24	4,4%	1,7%
Other 13 Groups of Diagnostics	84	15,5%	6,1%
<b>TOTAL</b>	<b>542</b>	<b>100%</b>	<b>39%</b>

Source: Datasus (2019).

A study carried out in the city of Florianópolis analyzed 50 individuals (66% of them elderly) hospitalized for chronic obstructive pulmonary disease (DPOC) and concluded that most of them had a severe condition, that 33% were smokers and only 28% received the pneumococcal vaccine. Inadequate treatment led to hospitalization, coupled with factors such as lack of support for oxygen therapy, low income and decreased rate

of immunization against influenza (Giacomelli *et al.*, 2014).

They carried out a study where they analyzed the ICSAP in elderly people in the state of Santa Catarina in the years 2008 to 2015 and identified a significant decrease in the rates of hospitalizations of the elderly between 60 and 79 years old until the year 2012, decreasing at a lower speed since then (Rodrigues *et al.*, 2019). The most significant health problems were: heart failure, chronic obstructive pulmonary diseases (DPOCs) and cerebrovascular diseases.

A study in 13 European countries showed that patients with chronic obstructive pulmonary disease (DPOC) had an increase in hospitalization time due to the worsening of the condition at hospitalization, which could be avoided with adequate and effective assistance at primary levels (Ruparel *et al.*, 2016).

A study conducted in the United States, Canada and the United Kingdom associated the geographical impact with the increase in hospitalizations, reinforcing that the ease of access to secondary care and the inadequacy of primary care influences the increase in hospitalizations (Vitolo, 2015).

Population aging is a reality in the world and also in Brazil. The Brazilian Institute of Geography and Statistics (IBGE) predicts that in the year 2025 Brazil will be the country with the sixth oldest population in the world. Population aging requires adjustments to the care needed by the elderly (Ministério da Saúde [MS], 2007).

Public health policies must contribute so that longevity is accompanied by quality of life and good health, providing healthy and active aging. For this to be possible, it is necessary to offer a social and cultural environment with a focus on population aging, and the work of the Family Health Teams is fundamental in this process, through collective actions in the community, group activities and attention to the social support of women old people (Ministério da Saúde [MS], 2007).

The absence of an easy access gateway compromises the quality of care offered, due to the individual's lack of clarity as to the degree of care that his condition requires. Quality primary access should provide the user with the necessary medical guidance to understand whether they need to seek another source of care (Starfield, 2004).

#### IV. FINAL CONSIDERATIONS

Hospitalizations for Causes Sensitive to Primary Care reflect the quality of Primary Health Care in the territory. The high percentage of ICSAP compared to the total number of hospitalizations, it is necessary to make Primary

Care more resolute. In the context under study, health promotion and disease prevention actions are paramount and must be geared to the needs of the territory. The integration between existing health services in Primary Care must focus on the matrix support of the elderly population. For this, it is important to highlight the use of SUS databases available for consultation. They are sources of information that are easily accessible, free of charge, and that enable the planning of activities to be developed based on the existing context. Observation of the data allows the educational activities developed to be focused on the real needs of the population. It is important to invest in Permanent Education in Health, aimed at professionals who serve the elderly population. The elderly public deserves special attention from the health area and other public policies due to the specific needs they have. The results found in the study should attract the attention of public managers and the need to rethink actions aimed at improving the health of the elderly through the services offered in Primary Care.

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