



HOSPITALIZATION PROFILE OF ELDERLY WITHIN THE UNIFIED HEALTH SYSTEM*

PERFIL DE INTERNAÇÕES HOSPITALARES DE IDOSOS NO ÂMBITO DO SISTEMA ÚNICO DE SAÚDE

PERFIL DE HOSPITALIZACIONES DE ANCIANOS EN EL ÁMBITO DEL SISTEMA ÚNICO DE SALUD

Vivian Carla de Castro¹, Ana Carla Borghi², Pâmela Patrícia Mariano³, Carlos Alexandre Molena Fernandes⁴, Thais Aidar de Freitas Mathias⁵, Lígia Carreira⁶

This is a descriptive, cross-sectional and retrospective study with focus on secondary data (Hospital Information System/DATASUS), which aimed to characterize the hospitalization profile of elderly from the Health Districts of Paraná, Brazil, from 2008 to 2011. Data were analyzed using percentages, according to age group, sex, year, cause of hospitalization, and Health District. Most admissions occurred in the age group from 60 to 69 years. Males presented higher hospitalization rates in the age groups 60-69 and 70-79. The leading causes of hospitalization were diseases of the circulatory and respiratory systems, neoplasms, digestive diseases, infectious and parasitic diseases, and injuries for poisoning and external causes. The results reinforce the importance of the health information system as a source for plan and monitor health actions aimed at the elderly population of Brazil.

Descriptors: Health of the Elderly; Hospitalization; Epidemiology, Descriptive.

Trata-se de um estudo descritivo, transversal e retrospectivo com foco em dados secundários (Sistema de Informações Hospitalares/DATASUS), com o objetivo de caracterizar o perfil das internações hospitalares de idosos das Regionais de Saúde do Paraná, Brasil, nos anos de 2008 a 2011. Os dados foram analisados por meio de percentuais, segundo faixa etária, sexo, ano e causa de hospitalização e Regional de Saúde. A maioria das internações ocorreu na faixa etária de 60 a 69 anos. O sexo masculino apresentou maior taxa de internação nas faixas etárias de 60 a 69 e 70 a 79. As principais causas de internação foram: doenças dos aparelhos circulatório e respiratório, neoplasias, doenças do aparelho digestivo, doenças infecciosas e parasitárias e lesões por envenenamento e causas externas. Os resultados reforçam a importância do sistema de informação em saúde como fonte para planejar e monitorar as ações em saúde voltadas à população idosa do Brasil.

Descritores: Saúde do Idoso; Hospitalização; Epidemiologia Descritiva.

Estudio descriptivo, transversal y retrospectivo, centrándose en los datos secundarios (Sistema de Información Hospitalario/DATASUS), con objetivo de caracterizar el perfil de hospitalizaciones de ancianos de la Regional de Salud de Paraná, Brasil, de 2008 a 2011. Los datos se analizaron mediante porcentajes por grupos de edad, sexo, año, causa de la hospitalización y Regional de Salud. La mayoría de los ingresos se produjo en el grupo de edad de 60 a 69 años. El sexo masculino presentó mayor tasa de hospitalización en los grupos de edad 60-69 y 70-79. Las principales causas de hospitalización fueron las enfermedades del aparato circulatorio y respiratorio, cáncer, enfermedades digestivas, enfermedades infecciosas y parasitarias e intoxicaciones y traumatismos y causas externas. Los resultados refuerzan la importancia del sistema de información de salud como fuente para planificar y supervisar las acciones de salud dirigidas a la población mayor del Brasil.

Descriptores: Salud del Anciano; Hospitalización; Epidemiología Descriptiva.

*Study developed in the discipline of Introduction to Epidemiology in the Graduate Program in Nursing at the Universidade Estadual de Maringá, PR, Brazil.

¹Nurse. Master's student in the Graduate Program in Nursing, Universidade Estadual de Maringá (UEM). Maringá, PR, Brazil. E-mail: vivian.carla5@hotmail.com

²Nurse. Specialist in Geriatrics and Gerontology from the Faculdade Ingá. Master's student in the Graduate Program in Nursing, UEM. Maringá, PR, Brazil. E-mail: anacarla.borghi@gmail.com

³Nurse. Master's student in the Graduate Program in Nursing, UEM. Maringá, PR, Brazil. E-mail: pamelamariano22@hotmail.com

⁴Physical educator. PhD in Pharmaceutical Sciences from the Universidade Estadual de Maringá (UEM). Associate Professor, Universidade Estadual do Paraná – Paranavaí campus, and the Graduate Program in Nursing at UEM. Maringá, PR, Brazil. E-mail: molena126@hotmail.com

⁵Nurse. PhD in Public Health from the Universidade de São Paulo (USP). Associate Professor, Department of Nursing and the Graduate Program in Nursing at UEM. Maringá, PR, Brazil. E-mail: tafmathias@uem.br

⁶Nurse. PhD in Nursing from the Universidade de São Paulo (USP). Associate Professor, Department of Nursing and the Graduate Program in Nursing at UEM. Maringá, PR, Brazil E-mail: ligiacarreira.uem@gmail.com

INTRODUCTION

Population aging is an indisputable fact worldwide. The fast speed of demographic transition imposes challenges to society for which it was unprepared⁽¹⁾, especially among emerging countries, which have not had enough time for planning and organization of activities in the social area and for the demands that have emerged in the health area. This is worrisome given the estimate that Brazil will be the sixth country with the largest elderly population in the world by the year 2025⁽²⁾.

It is known that aging is characterized by a complex interaction of biopsychosocial factors⁽³⁾ and that the elderly need specific care and attention, given their state of increased vulnerability and risk of adverse clinical outcomes, such as functional decline, falls, hospitalization, institutionalization, and death⁽²⁾, especially by the increasing share of the very elderly population, in which there are more weaknesses and whose care represents a challenge⁽⁴⁾. However, this process does not necessarily mean the presence of diseases, limitations to perform activities of daily living and permanent disabilities⁽³⁾. Not only the demographic transition, but also the changes of the epidemiological profile of the population requires innovative perspectives for the health care of the aging population, in terms of disease prevention and health promotion, assistance and rehabilitation⁽⁵⁾.

With regard to health, aging can consist of the presence of chronic non-communicable diseases (CNCDs), which require continuous care at high costs, both in developed and in developing countries. When it comes to Public Health, the developing countries, including Brazil, also have as an aggravating the high number of communicable diseases from the last epidemiological profile⁽⁶⁾. Furthermore, comorbidities may arise in the elderly, which makes the situation more complicated, thus requiring qualified inter- and multidisciplinary teams and availability of the entire

hospital and outpatient apparatus to meet the demands of admissions, referrals, tests and medications⁽⁵⁾. Given this situation, Brazil currently faces the inadequacy of human resources, and technological and alternative materials in the health sector, regarding the profile of diseases that affect the elderly⁽³⁾.

The elderly tend to consume more health services, since their hospitalization rate is much higher, as well as their bed occupancy rate is longer⁽⁷⁾ than of individuals in other age groups. Despite the heterogeneity of costs in the subgroups of the elderly population and the small number of experts in geriatrics⁽⁸⁾, which sometimes hinder the government initiatives, the interventions directed for the elderly are not responsible for the higher costs of public services. Although there is a positive association between age and health expenses, it is the lack of coordination between health services and the community in providing comprehensive care for the elderly that hinders these initiatives⁽⁹⁾.

The high cost of medical-hospital care for the elderly is not based on the cost of the procedures, rather on the utilization rate; thus, a better care for the elderly is not related to high costs, rather with replacing the amount of hospitalization procedures by the quality of that service, so that the patient returns less often to the hospital⁽⁵⁾. In this sense, the resources available in Public Health, at all levels, must be articulated in order to provide comprehensive care in meeting the demands imposed by population aging. The planning and assessment of health actions rely on the information system of the Ministry of Health, which provides relevant data for statistical proof of the health needs of the elderly clients⁽¹⁰⁾.

Although population-based epidemiological studies are more appropriate to produce information about health conditions, its cost and operational complexity become obstacles to its routine use. In this case, secondary data generated by national health information

systems are a good alternative⁽⁶⁾. Designed for administrative purposes, the databases have been expanded, starting to include clinical information, which enabled its use for the assessment of patient care.

The Hospital Information System of the Unified Health System (SIH/SUS), for example, processes the records contained in the Hospitalization Consent Form (AIH), being more convenient for assessing the quality of healthcare, by allowing the construction of important indicators, besides having large data volume and greatly reduce the assessment costs⁽⁶⁾. Several studies in the field of gerontology used the Datasus data as source, with high level of acceptance by the scientific community, with its results being reversed in subsidies for the SUS itself⁽⁸⁾.

The elderly have the right to fully satisfy their biopsychosocial needs, which reinforces the importance of discussing the "aging" topic by health professionals, in order to seek effective strategies for the care of this population, whether in preventive or assistance levels⁽⁵⁾. We highlight that the nursing staff, as a science and art of care, should be aware of the urgent need of training for specialized and comprehensive care of this population, which obviously has a great impact in the health sector⁽¹¹⁾.

Given this important health issue that requires the involvement of many sectors to adopt preventive strategies and monitoring of this clientele and knowing that the nursing and health staff plays a key role in implementing these actions, seeking to delay at most the hospitalization of the elderly, we sought to understand, in an epidemiological perspective, the weaknesses of prevention measures and provide support for the planning of Public Health actions focused on this population group. Thus, the present study aimed to characterize the profile of hospitalizations of the elderly in the Health Districts of Paraná, Brazil, in the years 2008-2011.

METHOD

This was a descriptive cross-sectional study with quantitative approach. For data collection we used the document consultation technique in the Datasus database, which contains health information systems available online, at the website <http://www.datasus.gov.br>. Data on hospital admissions originated from the Hospital Information System (SIH/SUS), which uses as instrument the Hospitalization Consent Form (AIH).

Data collection occurred in July 2012 by using the Tabnet program, which allowed the tabulation of large volume of data. As inclusion criteria, we adopted: subjects aged 60 years or older, and whose hospitalization occurred in the SUS, in the State of Paraná, between the years 2008 and 2011, a period that included the recent data available. The tabulation of SIH/SUS records on elderly patients treated in 22 Health Districts of the state of Paraná included the following variables: age (60 to 69 years, 70 to 79 years and 80 years or older), sex, year of admission, Health District, and primary diagnosis for hospitalization. The last was identified based on the International Classification of Diseases (ICD-10)⁽¹²⁾.

The data were organized into Microsoft Excel® spreadsheets and submitted to descriptive statistical analysis, calculating the frequencies and percentages of hospitalizations of elderly according to the variables included and presented in tables. For the variable "cause of hospitalization", we performed the analysis from the selection of main diseases that led to hospitalization of the elderly in the period studied, both in its general aspect, as in the analysis by gender. We considered as major diseases those with frequency higher than 4.8% in each age group in general aspects for females, as well as in the analysis, and higher than 5% in each age group in the analysis for males. These cutoff values

were defined based on the calculation of the mean frequency.

Given that the research was based on data available online by the Ministry of Health, which are public domain, and because there is secrecy about the identification information inherent to human beings involved, this study dismissed the assessment and approval by the Research Ethics Committee.

RESULTS

In the period from 2008 to 2011, there were 773,483 hospitalizations of people aged 60 or over in Health Districts of Paraná, Brazil. It was observed that 43% of those admitted were aged from 60 to 69 years (Table 1).

Table 1 - Causes of hospitalization of elderly people, according to the International Classification of Diseases (ICD-10) and age group in the Health Districts of Paraná, Brazil, 2008-2011.

Diseases (ICD-10 Chapter)	60 to 69		70 to 79		80 or older		Total	
	n	f(%)	n	f(%)	n	f(%)	n	f(%)
I. Infectious/parasitic	17,349	39.8	15,755	36.1	10,509	24.1	43,613	5.6
II. Neoplasms	34,819	51.3	24,158	35.6	8,866	13.1	67,843	8.8
III. Blood and blood-forming organs and disorders involving the immune mechanism	2,938	34.7	3,182	37.6	2,335	27.6	8,455	1.1
IV. Endocrine, nutritional and metabolic	13,191	41.4	11,591	36.4	7,094	22.3	31,876	4.1
V. Mental and behavioral disorders	4,943	80.0	1,053	17.0	181	2.9	6,177	0.8
VI. Nervous system	5,923	42.6	5,122	36.9	2,846	20.5	13,891	1.8
VII. Eye and adnexa	3,325	48.8	2,685	39.4	799	11.7	6,809	0.9
VIII. Ear and mastoid process	141	51.3	87	31.6	47	17.1	275	0.0
IX. Circulatory system	94,327	42.5	84,587	38.1	42,976	19.4	221,890	28.7
X. Respiratory system	56,970	34.6	63,475	38.6	44,176	26.8	164,621	21.3
XI. Digestive system	34,091	50.7	22,813	33.9	10,306	15.3	67,210	8.7
XII. Skin and subcutaneous tissue	4,419	50.5	3,050	34.8	1,289	14.7	8,758	1.1
XIII. Musculoskeletal system and connective tissue	7,440	53.7	4,642	33.5	1,763	12.7	13,845	1.8
XIV. Genitourinary system	18,232	46.2	13,857	35.1	7,397	18.7	39,486	5.1
XV. Pregnancy, childbirth and the puerperium	51	68.0	19	25.3	5	6.7	75	0.0
XVI. Conditions originating in the perinatal period	644	36.1	670	37.6	470	26.3	1,784	0.2
XVII. Congenital malformations, deformations and chromosomal abnormalities	611	56.7	321	29.8	145	13.5	1,077	0.1
XVIII. Symptoms, signs and abnormal clinical and laboratory findings	6,338	41.6	5,455	35.8	3,456	22.7	15,249	2.0
XIX. Injury, poisoning	19,370	44.8	14,379	33.3	9,485	21.9	43,234	5.6
XX. External causes	100	42.9	81	34.8	52	22.3	233	0.0
XXI. Contact with health services	7,653	44.8	6,014	35.2	3,415	20.0	17,082	2.2
Total	33,2875	43.0	282,996	36.6	157,612	20.4	773,483	100.0

Source: Ministry of Health – Hospital Information System of the Unified Health System (SIH/SUS)

We verified that 18 (85.7%) of the 21 diseases that led to hospitalization of the elderly were concentrated in the age group 60-69 years. The leading causes of hospitalization of elderly people in the age

groups are presented in Table 2, and correspond to 80% of admissions. Diseases of the circulatory system were the most frequent among the elderly, accounting for 29.9% of admissions of people aged 70-79 years. On

the other hand, the respiratory diseases showed percentages directly proportional to age, being more common among older participants, where they account for 28% of causes of hospitalization. Neoplasms and

diseases of the digestive system presented the highest percentages in the age group 60-69 years, corresponding to 10.5% and 10.2% respectively (Table 2).

Table 2 - Leading causes of hospitalization of elderly people by age group in the Health Districts of Paraná, Brazil, 2008-2011.

Diseases (ICD-10 Chapter)	60 to 69		70 to 79		80 or older		Total	
	n	f(%)	n	f(%)	n	f(%)	n	f(%)
Circulatory system	94,327	28.3	84,587	29.9	42,976	27.3	221,890	28.7
Respiratory system	56,970	17.1	63,475	22.4	44,176	28.0	164,621	21.3
Neoplasms (tumors)	34,819	10.5	24,158	8.5	8,866	5.6	67,843	8.8
Digestive system	34,091	10.2	22,813	8.1	10,306	6.5	67,210	8.7
Infectious/parasitic	17,349	5.2	15,755	5.6	10,509	6.7	43,613	5.6
External causes	19,370	5.8	14,379	5.1	9,485	6.0	43,234	5.6
Other causes	75,949	22.9	57,829	20.4	31,294	19.9	165,072	21.3
Total	332,875	100.0	282,996	100.0	157,612	100.0	773,483	100.0

Source: Ministry of Health – Hospital Information System of the Unified Health System (SIH/SUS)

Men corresponded to 50.3% of hospitalizations of elderly in the period from 2008 to 2011, presenting higher rates than women in the age groups 60-69 years (51.9%) and 70-79 years (50.7%). The leading causes of hospitalizations for males were similar to those for the elderly in general, even with the same characteristics of age distribution, except for the exclusion of injuries resulting from external causes, which did not reach the cutoff value, and the inclusion of genitourinary diseases, accounting for 5.4% of hospitalizations of elderly male, with higher prevalence among those aged 80 years or older (Table 3).

Among females, we also found the same diseases as major causes of hospitalization in the elderly in general, with similar characteristics distribution, except for the inversion between neoplasms (7.9%) and digestive diseases (8.2%), as well as between infectious/parasitic diseases (5.9%) and injuries resulting from external causes (6.1%), these last presented more prevalence among the elderly aged 80 years or older (Table 3).

As well as for the elderly in general, the diseases listed represent almost 80% of all causes of hospitalization for both male and female.

Table 3 - Leading causes of hospitalization of elderly people according to the International Classification of Diseases (ICD-10), sex and age group in the Health Districts of Paraná, Brazil, 2008-2011.

Diseases (ICD-10 Chapter)	Male							
	60 to 69		70 to 79		80 or older		Total	
	n	f(%)	n	f(%)	n	f(%)	n	f(%)
Circulatory system	49,749	28.8	42,480	29.6	19,216	26.5	111,445	28.7
Respiratory system	28,097	16.3	32,196	22.4	21,562	29.7	81,855	21.0
Neoplasms (tumors)	18,766	10.9	13,817	9.6	4,753	6.5	37,336	9.6
Digestive system	18,769	10.9	12,277	8.5	4,798	6.6	35,844	9.2
Genitourinary system	9,019	5.2	7,870	5.5	4,179	5.8	21,068	5.4
Infectious/parasitic	8,812	5.1	7,662	5.3	4,469	6.2	20,943	5.4
Other causes	58,424	33.8	27,402	19.1	13,601	18.7	80,658	20.7
Total	172,867	100.0	143,704	100.0	72,578	100.0	389,149	100.0

Diseases (ICD-10 Chapter)	Female							
	60 to 69		70 to 79		80 or older		Total	
	n	f(%)	n	f(%)	n	f(%)	n	f(%)
Circulatory system	44,578	27.9	42,107	30.2	23,760	27.9	110,445	28.7
Respiratory system	28,873	18.0	31,279	22.5	22,614	26.6	82,766	21.4
Digestive system	15,322	9.6	10,536	7.6	5,508	6.5	31,366	8.2
Neoplasms (tumors)	16,053	10.0	10,341	7.4	4,113	4.8	30,507	7.9
External causes	9,142	5.7	8,194	5.9	6,234	7.3	23,570	6.1
Infectious/parasitic	8,537	5.3	8,093	5.8	6,040	7.1	22,670	5.9
Other causes	37,503	23.4	28,742	20.6	16,765	19.7	83,010	21.6
Total	160,008	100	139,292	100	85,034	100	384,334	100

Source: Ministry of Health – Hospital Information System of the Unified Health System (SIH/SUS)

As regards to the total admissions in the Health Districts of the State of Paraná, as shown in Table 4 below, it was found that, during the study period, the highest and lowest percentage of admissions of elderly were presented respectively by the Districts of Ivaiporã (35.8%, 33.8%, 38.1% and 38.8%) and Foz do Iguacu

(18.7%, 18.3%, 19.5% and 19.5%). It is also noteworthy that the percentages of elderly admissions of the first District were above those reported in the State of Paraná, while the second remained at lower percentages in all the years studied.

Table 4 - Hospitalizations of elderly people by Health Districts of Paraná, Brazil, 2008-2011.

Health District of Paraná	2008 f(%)*	2009 f(%)*	2010 f(%)*	2011 f(%)*
Paranaguá	19.6	20.9	21.2	24.0
Metropolitana	19.2	20.4	20.6	20.5
Ponta Grossa	24.6	23.7	25.4	26.9
Irati	25.7	27.2	29.2	31.9
Guarapuava	25.7	26.5	27.7	27.9
União da Vitória	24.3	24.0	25.7	29.8
Pato Branco	25.5	26.3	27.3	29.6
Francisco Beltrão	28.5	27.6	30.3	30.2
Foz do Iguacu	18.7	18.3	19.5	19.5
Cascavel	27.0	27.9	28.0	30.1
Campo Mourão	30.1	31.2	30.9	32.9
Umuarama	32.3	31.9	33.2	32.7
Cianorte	29.0	28.3	29.5	30.2
Paranavaí	26.5	26.9	27.7	26.7
Maringá	26.5	26.6	27.2	28.2
Apucarana	29.9	30.7	32.1	32.3
Londrina	26.0	25.0	26.4	28.1
Cornélio Procópio	32.9	32.9	34.3	34.9
Jacarezinho	32.5	31.4	32.8	34.6
Toledo	28.4	26.8	28.0	28.2
Telêmaco Borba	31.4	31.5	32.9	33.8
Ivaiporã	35.8	33.8	38.1	38.8
Total	24.7	25.0	25.8	26.4

* Percentage based on the total of hospitalizations per year in each Health District.

Source: Ministry of Health – Hospital Information System of the Unified Health System (SIH/SUS)

DISCUSSION

Most hospitalizations of elderly people in the state of Paraná from 2008 to 2011 were found in the age group 60-69 years, which does not mean that the hospitalization rate of this segment was higher than among those aged 70-79 years or over 80 years, since the calculation was not based on the total population considered, rather consisted only of the percentage of each age group for the total records found. This finding differs from the results found in a public teaching hospital in Petrópolis, where the highest percentage (41.8%) of hospitalization was among the elderly aged 70-79 years⁽⁵⁾.

Regarding the major causes of hospitalization among the elderly, we highlight the chronic conditions, especially because their occurrence and severity can be reduced through the adoption of healthy lifestyle habits – smoking cessation, maintaining a balanced diet, and physical activity –, and health service interventions, with educational activities and home visits for follow-up, among other actions⁽¹³⁾. The multiplicity of chronic diseases is a common characteristic of the elderly⁽⁸⁾, which increases health expenditures, since the cost with the elderly tends to be three to seven times higher than for other age groups⁽⁵⁾.

The leading causes of hospitalization among the elderly from Paraná were also observed in studies on the health situation of the elderly in the São Paulo Metropolitan Region⁽¹⁴⁾ and in a city of Paraná⁽¹⁵⁾, which identified the diseases of the circulatory and respiratory systems as the most frequent, respectively. The findings were also confirmed at the national level, by studies that portrayed the hospitalization profile of the Brazilian population from 1995 to 1997 and compared the years 1994 and 2005⁽⁶⁾.

It is also important mentioning that, though in terms of infectious and parasitic diseases, few changes occurred, which raises the discussion about the effectiveness of programs and campaigns in this aspect

for the elderly. Brazil, despite the transformation of the epidemiological profile of CNCDS, still does not have comprehensive measures that work effectively in reducing infectious and parasitic diseases, proving that this epidemiological profile is as a problem for the whole country⁽⁶⁾. This problem may be related to the lack of sanitation in most Brazilian municipalities⁽⁶⁾.

With regard to gender, men presented a higher frequency of hospitalization, unlike the study in Petrópolis⁽⁵⁾, where women accounted for 60.5% of hospital admissions. The literature indicates a significantly higher demand of women for Primary Health Care⁽¹⁵⁻¹⁶⁾, which can be justified by the masculinity values culturally constructed by aspects related to work and to the operation of health services and their teams⁽¹⁶⁾. Consequently, the entrance into high complexity services ends up being higher for men, who fail to participate in the activities of health promotion and disease prevention offered by the Basic Health Units, thus seeking the hospital only when experiencing major aggravations in their health situation.

The higher hospitalization frequency of elderly males may be related to the practice of negative attitudes by men, such as smoking and drinking habits, lack of exercise and healthy eating, and the late search for medical assistance. These attitudes lead to a shorter life expectancy of men compared to women⁽¹⁷⁾, which explains the higher hospitalization frequency of females aged over 80 years.

Neoplasm hospitalizations were observed mainly among men, which can be attributed to the increasing number of prostate cancer in the past years⁽⁶⁾. The cancer occurrence among the elderly should receive special attention, because in most cases cancer occurs after 60 years of age, given the fact that about 80% of all cancers are related, directly or indirectly, to the exposure time to carcinogens⁽¹⁴⁾.

On the other hand, among women, we highlight

the hospital admissions for poisoning injuries and other consequences of external causes, which were not found among men. Among the external causes, falls are the main factor for the elderly⁽¹⁴⁾. In fact, women are 1.5 times more likely of being treated for falls than for other external causes⁽¹⁸⁾. In this context, it is worth noting that osteoporosis, a pathology associated with females and with age, makes this event occurrence more frequent⁽¹⁹⁾. The chances of falling increase by at least twice as the elderly reaches older ages⁽¹⁸⁾, however, this current study presented similar numbers for this event in the three age groups considered, taking into consideration that no statistical test was applied to prove the hypothesis, only frequencies were used.

It is known that aging involves the natural process of gradual reduction of the individuals' functional capacity, as well as increased susceptibility to pathological conditions that require hospital care⁽²⁰⁾. However, the effects of aging can be minimized by adequate care regarding health promotion and lifestyle habits, focusing on primary care⁽²⁰⁾. Thus, the Health Districts need to analyze if the causes of hospitalization in this age group are primary care-sensitive, in order to avoid the aggravation of the elderly health conditions.

CONCLUSION

The analysis of the hospitalization profile of elderly patients treated in the Health Districts of the State of Paraná from 2008 to 2011 identified the prevalence of hospitalization of elderly males in the age group up to 79 years and of females among those aged over 80 years. The leading causes of hospitalization for the elderly were, respectively, diseases of the circulatory and respiratory systems, followed by neoplasms, digestive diseases, infectious and parasitic diseases, and injuries resulting from external causes.

The databases on hospital admission can be used to describe the hospitalizations among the elderly, which represent subsidies to assess the quality of health

services and the health situation of the population.

We should highlight that secondary data may present restrictions – such as the availability of data regarding only the admissions borne by the SUS, the distribution of funds to hospitals by financial logic rather than epidemiological, services offered that are references in the treatment of certain diseases, and the quality of filling the AIH, which is the base document for inserting data into the system. However, several factors favor the achievement of studies based on data from the SIH-SUS, particularly for the possibility of assuming that the Brazilian hospital morbidity situation shown by this system approaches the reality, since coverage rates of the hospitalizations system in Brazil are high.

It is worth mentioning that this study has some limitations, such as not working with rates, which enable the analysis of variables based on the total numbers of the population, and not using inferential statistical tests, which could show significant findings. Nevertheless, it can also contribute to reflect on the actions promoted to the elderly in the health sector by the Paraná State management, in order to preserve the quality of life of this growing population segment.

The results were consistent with those of other Brazilian studies, reinforcing the need to establish a routine of critical use of data from this health information system as a source for planning and monitoring of health actions addressed at the Brazilian elderly population.

REFERENCES

1. Marques MJF, Teixeira HJC, Souza DCDBN. Cuidadoras informais de Portugal: vivências do cuidar de idosos. *Trab Educ Saúde*. 2012; 10(1):147-59.
2. Ministério da Saúde (BR). Secretaria de Atenção à saúde. Departamento de Atenção Básica. *Envelhecimento e Saúde da Pessoa Idosa*. Brasília: Ministério da Saúde; 2003.
3. Almeida ABA, Aguiar MGG. O cuidado do enfermeiro

ao idoso hospitalizado: uma abordagem bioética. *Bioética*. 2011; 19(1):197-217.

4. Flores GC, Borges ZN, Budó MLD, Silva FM. A dívida do cuidado: estudo qualitativo sobre o cuidado intergeracional com o idoso. *Cienc Cuid Saúde*. 2011; 10(3):533-40.

5. Motta CCR, Hansel CG, Silva J. Perfil de internações de pessoas idosas em um hospital público. *Rev Eletr Enf* [periódico na Internet]. 2010 [citado 2013 abr 15]; 12(3):471-7. Disponível em: www.fen.ufg.br/fen_revista/v12/n3/pdf/v12n3a08.pdf.

6. Góis ALP, Veras RP. Informações sobre a mortalidade hospitalar em idosos nas internações do Sistema Único de Saúde do Brasil. *Ciênc Saúde Coletiva*. 2010; 15(6):2859-69.

7. Campos FG, Barrozo LV, Ruiz T, César CLG, Barros MBA, Carandina L et al. Distribuição espacial dos idosos de um município de médio porte do interior paulista segundo algumas características sócio-demográficas e de morbidade. *Cad Saúde Pública*. 2009; 25(1):77-86.

8. Veras RP. Experiências e tendências internacionais de modelos de cuidado para com o idoso. *Ciênc Saúde Coletiva*. 2012; 17(1):231-8.

9. Veras RP. Estratégias para o enfrentamento das doenças crônicas: um modelo em que todos ganham. *Rev Bras Geriatr Gerontol*. 2011; 14(4):779-86.

10. Ministério da Saúde (BR). DATASUS. Indicadores Demográficos segundo o IBGE e Sistema de Informações Hospitalares do SUS (SIH/SUS) [Internet]. [citado 2012 jul 27]. Disponível em: <http://w3.DATASUS.gov.br/siasih/siasih.php>.

11. Camacho ACLF, Coelho MJ. Políticas públicas para a saúde do idoso: revisão sistemática. *Rev Bras Enferm*. 2010; 63(2):279-84.

12. Classificação Estatística Internacional de Doenças e Problemas Relacionados à Saúde (CID-10). Décima revisão [Internet]. 2008. [citado 2012 jul 19]. Disponível

em:<http://www.DATASUS.gov.br/cid10/v2008/cid10.htm>
13. Mattke S, Bergamo G, Balakrishnan A, Martino S, Vakkur N. Measuring and reporting the performance of disease management programs. California: RAND Health; 2006.

14. Faria AJA, Rosa JRM, Santos MW, Souza MB, Pinto RM, Picoli RP. Caracterização e situação de saúde do idoso na região metropolitana de São Paulo. Programa de Estudos Avançados em Administração Hospitalar em Sistemas de Saúde. Faculdade de Medicina da Universidade de São Paulo (FMUSP). São Paulo; 2011.

15. Souza EA, Scochi MJ, Maraschin MS. Estudo da morbidade em uma população idosa. *Esc Anna Nery*. 2011; 15(2):380-8. 16. Gomes R, Nascimento EF, Araujo FC. Por que os homens buscam menos os serviços de saúde do que as mulheres? As explicações de homens com baixa escolaridade e homens com ensino superior. *Cad Saúde Pública*. 2007; 23(3):565-74.

17. Ministério da Saúde (BR). Política Nacional de Atenção Integral à Saúde do Homem: princípios e diretrizes. Brasília: Ministério da Saúde; 2008.

18. Gawryszewski VP. A importância das quedas no mesmo nível entre idosos no estado de São Paulo. *Rev Assoc Med Bras*. 2010; 56(2):162-7.

19. Cruz DT, Ribeiro LC, Vieira MT, Teixeira MTB, Bastos RR, Leite ICG. Prevalência de quedas e fatores associados em idosos. *Rev Saúde Pública*. 2012; 46(1):138-46.

20. Barros TB, Maia ER, Pagliuca MNF. Facilidades e dificuldades na assistência ao idoso na estratégia saúde da família. *Rev Rene*. 2011; 12(4):732-41.

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