







Prescription of potentially inappropriate medication for the elderly: comparing health service providers

Suelaine Druzian Silvestre¹ 
Flávia Cristina Goulart² 
Maria José Sanches Marin³ 
Carlos Alberto Lazarini² 

Abstract

Objective: to compare the prescription of medications to elderly users of the SUS with users of a Supplementary Health Plan in the context of the Beers criteria. **Method:** a quantitative documental analysis using two databases, obtained from surveys conducted in the same municipal region, was performed. In the first database, the sample included 532 people aged 60 years or older, of both genders, who were users of the SUS. In the second, the sample was 239 people aged 60 years or older, irrespective of gender, who were users of the principal supplementary health plan. Statistical analyses to compare the data of the two databases were performed using Pearson's Chi-squared Test and the extension of Fisher's Exact test, with a significance level α equal to 5%. **Results:** The results showed significant differences in the use of medications and polypharmacy among the users of the two service providers. Moreover, there were statistically significant differences between the service providers, with SUS users using more non-steroidal anti-inflammatory drugs ($p=0.01$), long-lasting sulfonylureas ($p=0.02$) and Nifedipine ($p=0.01$), and the users of the Supplementary Health Care plan using more musculoskeletal relaxants ($p=0.01$), estrogen ($p=0.01$), amiodarone ($p=0.01$) and Doxazosin ($p=0.01$), which are potentially inappropriate for the elderly. **Conclusion:** there are differences between having health insurance or not in terms of the profile of drug use, including in medications which are potentially inappropriate for use among the elderly. The use of information technology that centralizes the data of the elderly, both in the SUS and in Supplementary Health, could reduce inappropriate or unnecessary prescriptions.

Keywords: Supplemental Health. Unified Health System. Health of the Elderly. Drug Utilization. Polypharmacy.

¹ Maternidade e Gota de Leite, Departamento de Enfermagem. Marília, São Paulo, Brasil.

² Faculdade de Medicina de Marília (Famema), Disciplina de Farmacologia. Marília, São Paulo, Brasil.

³ Faculdade de Medicina de Marília (Famema), Disciplina de Fundamentos de Enfermagem. Marília, São Paulo, Brasil.

Correspondence
Carlos Alberto Lazarini
carlos.lazarini@gmail.com

Received: October 4, 2018
Accepted: April 27, 2019

INTRODUCTION

Health policy in Brazil has been established in a segmented manner since the outset. Even though the 1988 Brazilian Constitution made access to health services universal for Brazilian citizens, difficulties in the implementation of this policy have resulted in the development of a market for private health services¹. Between 2012 and 2018 in Brazil there was an 18.8% growth of people aged 60 years or over whose health care needs were met both by the public network, free of charge and of universal access, and private health plans, with access limited to the coverage subscribed to and also by the income of the client². Data from the Brazilian Agency for Supplementary Health Services show that the age pyramid of the population that benefit from health plans has a slightly older profile than that of the population without any private health plans, with elderly people accounting for 12.0% of the population with health plans and 10.0% of those without such plans³.

Elderly people make up a segment of the population with a high occurrence of morbidities and, as a result, are subject to the use of polymedication⁴. As homeostatic responses are nearly always important components of the overall response to a certain type of medication, the physiological changes which occur among the elderly may indeed alter the standard or the intensity of the response to this medication, which may even play a part in its toxicity⁵. The problems most commonly found when applying medication to elderly people are the use of the incorrect medication, the wrong dose, taking medication at incorrect intervals; taking medication for too long or for not long enough; and also inappropriate combinations with other pharmaceuticals, causing undesired interactions⁶.

As part of health care for the elderly, primary health care is the main gateway to health care services in the Unified Health System (or SUS). Its actions are aimed at interdisciplinarity and also the sharing of medical services to the user, through e-SUS, a national electronic database of medical files, a resource which is still being implemented by municipal regions⁷.

Another way of providing care to the elderly is through private health plans that essentially

provide fragmented services which, in most cases, do not include specificities, basing themselves on hyper-specialization and lack of integral treatment, without a computerized system for the annotation and registration of health care. This situation may also lead the elderly person to the irrational use of medication, not always paying attention to the distinctive characteristics of the pharmacotherapy used by this population or their pharmacological history.⁸

Thus, for the rational use of medication to occur, a series of complex requirements should be followed, with the participation of social players such as patients, health professionals, legislators, public policy planners, and also industrial companies, commercial firms, and the government.

Seeking a better understanding of the reality of the prescription of medication for elderly people in the Brazilian private and public health systems, the main purpose of this study was to compare the medical prescriptions of elderly people who use the public health system (or SUS) with users of Supplementary Health Plans, based on the updated Beers criteria⁹. These criteria are the most commonly used in the Americas to evaluate potentially inappropriate medication, and can be divided into three categories: those which are potentially inappropriate and which should not be given to elderly patients; those which are potentially inappropriate and which should not be used for elderly people with certain illnesses; and those which should be used with care in elderly patients.

METHOD

The present study was based on documental analysis, and adopted a quantitative approach, in which associations between social and demographic data and data regarding the consumption of prescribed medication were analyzed, focusing on elderly people using the SUS medical system¹⁰ and on those using Supplementary Health plans¹¹, in a municipal region in the midwest of the state of São Paulo, Brazil.

According to the Brazilian Institute of Geography and Statistics (or IBGE), in 2018, the municipal region had an estimated population of 237,000 people, of whom around 13.0% were elderly. Elderly

people with supplementary health plans account for 34.7% of the total population, and 15.4% of these are 60 years old or over³.

Data from two studies previously performed in the same municipal region was used^{10,11}. The DIMAM 1.0 program was used to establish the sample size of both studies, which bases its findings on the population and the prevalence of the use of medication (80.0%), considering a margin of error of 5% and a confidence level of 95%, thus ensuring representativity. The first study was based on a population of 29,124 elderly people, resulting in a group of 532 people, aged 60 and over, regardless of gender, who were neither hospitalized nor in care facilities, who were users of the SUS services and who lived in areas within the catchment areas of the Family Health Strategy (or ESF) and Basic Traditional Health Units (or UBST)¹⁰. The second study was based on a universe of 8,474 elderly people, users of supplementary health plans, and produced a subgroup of 239 people, regardless of gender, who neither hospitalized nor in care facilities¹¹.

Data for both these studies was collected through home interviews, performed directly with the elderly people who were capable of communicating, using the same standardized and semi-structured questionnaire. The first study took place between August and November 2012, and the second between May 2014 and January 2015.

The two studies evaluated social, economic, and demographic variables and also health indicators: gender, age (grouped in age groups of 60 to 69, 70 to 79, 80 or over years), level of schooling (up to four years of schooling; five years or more of schooling), income, household status and self-assessment of health, obtained from responses to the question: "How would you rate your current state of health?" The self-assessment of health situation was evaluated on a scale including the variables: excellent, good, fair, poor, or very poor. For statistical purposes, the answers of fair, good and excellent were considered a positive self-assessment. Similarly, the answers 'poor' and 'very poor' were considered as negative self-assessment¹².

With regard to consumption of medication, the interviewer asked the elderly people to bring

all the medication that they had used in the 15 days immediately preceding the collection of data, allowing the verification of quantities and also the establishing, in both databases, of those that were potentially inappropriate, through a review of the Beers criteria⁹, which identified 53 medications, or classes of medications, as unsuitable for use with elderly patients, regardless of diagnosis and general conditions⁹. This review was used for the analysis of both databases.

The statistical analyses relative to the comparison between the data of both these databases were performed by using the Statistical Package for the Social Sciences (SPSS) software program, version 17.0 for Windows. All variables were shown as absolute and relative frequencies. For comparative analysis, the independent variable was the type of service provider, and the dependent variables were data on the consumption of medication. The Chi-Squared (χ^2) and Fisher's Exact tests were used to check the existence of important differences between the variables. Relations between variables where $p \leq 0.05$ were considered statistically significant.

This study was approved by the Ethics Committee for Research Involving Human Subjects, of the Faculdade de Medicina de Marília (Marília, São Paulo, Brazil) under opinion statement No. 1.557.759. As this study is based on documentary analysis, the need for a Free and Informed Consent Form (FICF) was waived. The obtaining of data from the databases used was approved by the same Ethics Committee, based on Opinion Statements N°. 799/10 dated November 29, 2010¹⁰ and N°. 607,824 dated 31/03/2014¹¹, and the acquiescence of the respective participants of both was obtained through the signing of the respective FICFs.

RESULTS

The social and demographic data reveal a greater number of women than men, for both service providers; the predominance of elderly SUS users in the age bracket between 60 and 69 years old and of elderly users of supplementary health schemes in the 70-79 age bracket; most of the SUS users had up to four years of schooling, while in the case of supplementary health plans most users had five years

of schooling or more. The other variables show, for both service providers, the predominance of incomes of between one and three minimum wages (MWs), people who live with others, and positive self-evaluations of health (Table 1).

Table 2 shows that there is a difference in the use of medication between SUS and Supplementary Health users, with a greater prevalence in Supplementary Health Care ($p < 0.01$). There was also a difference between the two providers in terms of quantities used: the use of five or more types of medication was more common among Supplementary Health users. ($p < 0.01$).

Table 3 shows that there was a statistically significant difference between the use of PIM among SUS and Supplementary Health users, for

medications of the Musculoskeletal, Endocrine and Cardiovascular systems, as defined by the Beers Criteria. With regard to the Musculoskeletal System, there was a prevalence of non-steroidal anti-inflammatory drugs (NSAIDs) in the case of SUS users, and muscle relaxation drugs for people with supplementary health plans. For the endocrine system, the two groups used insulin the most. However, there was a predominance of long-duration Sulfonylureas use in the SUS, and Estrogen in supplementary health care. With regards to the cardiovascular system, there was a prevalence of Nifedipine among SUS users, and of Amiodarone and Doxazosin among supplementary health care users. Antimicrobial and Antithrombotic drugs were only used by supplementary health care users, while Antispasmodics and Analgesics were used by SUS users.

Table 1. Social, demographic and economic data for elderly users of SUS and supplementary health plans. Marília, São Paulo, 2017.

Variables	SUS n(%)	Supplementary Health Care n(%)	p^*
Gender			
Male	202(38.0)	50(20.9)	0.01
Female	330(62.0)	189(79.1)	
Age			
60-69	249(46.8)	90(37.7)	0.02
70-79	202(37.9)	91(38.1)	0.98
80 +	81(15.3)	58(24.3)	0.01
Schooling			
Up to four years of study	446(83.8)	59(24.7)	0.01
Five or more years of study	86(16.2)	180(75.3)	
Income in minimum wages			
<1	15(2.8)	23(9.6)	0.01
1 to < 3	386(72.6)	117(48.9)	0.01
3 to < 5	79(14.8)	64(26.7)	0.01
5 to 10	39(7.3)	28(11.7)	0.04
Don't know / Declined to answer	13(2.4)	7(2.9)	0.69
Household Status			
Live alone	60(1.3)	58(24.3)	0.01
With others	472(88.7)	181(75.7)	
Self-assessment of health			
Negative	45(8.4)	6(2.5)	0.01
Positive	433(81.4)	233(9.5)	0.01
Declined to answer	54(10.2)	0(0)	0.01

* $p \leq 0.05$ – Chi-Squared test

Table 2. Use of medication in the 15 days prior to the collection of data from elderly SUS and Supplementary Health users. Marília, São Paulo, Brazil, 2017.

Variables	SUS	Supplementary Health Care	<i>p</i> *
	n(%)	n(%)	
Use of Medication			
Yes	475(89.3)	232(97.1)	0.01
No	57(1.7)	7(2.9)	
Number of types			
1 to 4	262(55.2)	82(35.3)	0.01
5 or more	213(44.8)	150(64.7)	

* $p \leq 0.05$ – Chi-Squared test**Table 3.** Potentially inappropriate medication for the elderly, regardless of pathology of SUS and Supplementary Health users, according to the Beers criteria, 2015. Marília, São Paulo, Brazil, 2017.

Group/Medications	SUS n(%)	Supplementary Health Care n(%)	<i>p</i> *
Musculoskeletal System			
Musculoskeletal relaxation drugs	8(23.6)	43(79.6)	0.01
Non-steroidal Anti-inflammatory drugs	26(76.4)	11(20.4)	
Total	34(100)	54(100)	
Gastrointestinal			
Protein Pump Inhibitors	68(95.8)	35(97.2)	0.59
Metoclopramide	3(4.2)	1(2.8)	
Total	71(100)	36(100)	
Central Nervous System - CNS			
Benzodiazepines	36(41.9)	17(47.2)	0.58
Amitriptyline	25(29.1)	8(22.2)	0.44
Paroxetine	2(2.3)	4(11.1)	0.07
Phenobarbital	2(2.3)	3(8.3)	0.15
Non-benzodiazepine hypnotic agents	0(0)	1(2.8)	0.29
Imipramine	4(4.6)	0(0)	0.24
Nortriptyline	2(2.3)	2(5.6)	0.34
Haloperidol	3(3.5)	0(0)	0.35
Chlorpromazine	1(1.1)	1(2.8)	0.51
Cimetidine	5(5.8)	0(0)	0.17
Ranitidine	6(6.9)	0(0)	0.12
Total	86(100)	36(100)	
Endocrine			
Insulin	23(50.0)	9(56.2)	0.67
Estrogen	2(4.4)	5(31.2)	0.01
Long-duration sulfonylureas	21(45.6)	2(12.5)	0.02
Total	46(100)	16(100)	

to be continued

Continuation of Table 3

Group/Medications	SUS n(%)	Supplementary Health Care n(%)	<i>p</i> *
Cardiovascular			
Amiodarone	0(0)	9(12.9)	0.01
Nifedipine	38(32.8)	2(2.9)	0.01
Digoxin	8(6.9)	2(2.9)	0.20
Methyldopa	2(1.7)	1(1.4)	0.68
Clonidine	1(0.9)	0(0)	0.62
Doxazosin	6(5.2)	14(20.0)	0.01
Diltiazem	1(0.9)	1(1.4)	0.61
Cilostazol	6(5.2)	0(0)	0.06
Acetyl salicylic acid	54(46.6)	41(58.6)	0.12
Total	116(100)	70(100)	
Antimicrobial			
Nitrofurantoin	0(0)	3(100)	
Antithrombotics			
Ticlopidine	0(0)	2(100)	
Anticholinergics			
Hydroxyzine	2(20.0)	1(100)	0.27
Dexchlorpheniramine	4(40.0)	0(0)	0.64
Promethazine	4(40.0)	0(0)	0.64
Total	10(100)	1(100)	
Antispasmodics			
Scopolamine	8(100)	0(0)	
Painkillers			
Meloxicam	7(100)	0(0)	
Insomnia			
Caffeine	7(100)	25(100)	
Overall Total	385	243	

**p*≤0.05 – Chi-Squared Test

DISCUSSION

The female gender prevailed in both groups. These data are similar to those found in another study carried out with SUS users in the city of Petropolis, near Rio de Janeiro, where most of those interviewed were women¹³, and also the results obtained by a study with elderly people with supplementary health plans, where 65% of the sample were women⁸. In Brazil, women tend to live longer than men, meaning that old age has become more of a feminine phenomenon¹⁴. This is an aspect to be considered for health care services, as women have more complex health problems than men of the same age.

With regard to age, it should be remembered that, the more advanced an individual's age, the greater the possibility of developing illnesses and the use of multiple types of medication, while social and economic conditions and lifestyle also warrant investigation, to evaluate the deterioration in health suffered by people of more advanced age¹⁵.

Schooling and income have a major impact on the health situation of the population. Elderly people with more schooling and greater income are more independent in self-care, including the correct use of medication, means of transport and communication, while elderly people with lower spending power and/

or intellectual capabilities, are more susceptible to diseases and, as a result, require more health care¹⁶, especially from public institutions, making this population highly dependent on the SUS.

There was a prevalence of incomes of between one and three minimum wages (MWs) among users of both health service providers, characterizing a low income population faced with increasing health costs arising from the ageing process and the increased occurrence of chronic diseases, as is the case in Brazil. For SUS users, this data is similar to that found in specialized literature¹⁷.

Regarding family coexistence, most SUS users live with other people, while most users of supplementary health plans live alone. This result is the opposite of the results of a study based in Florianópolis, Santa Catarina, which found that 99.4% of elderly people, users of supplementary health care, lived with others (children, wives, other family members or caregivers)¹⁸. This variable is most likely linked to the culture and quality of regional life, with regard to security and crime rates, as well as other factors such as access to public transport, health services, pharmacies, food, and other such factors.

It is emphasized that family plays an important role in the provision of social and affective support for aging individuals, especially with regard to meeting the needs of the elderly person. Elderly people living alone are more prone to risks, and make less use of health services for preventative purposes, when compared to elderly people who live with their spouses and/or other family members¹⁹.

When asked about their self-evaluation of health, there was a prevalence of individuals who gave a positive evaluation of their health among both SUS and Supplementary Health users. When the two groups were compared, however, SUS users were found to have a more negative self-evaluation. Elderly people with higher levels of positive affect tend to use constructive coping strategies when they are faced with challenges inherent to advanced age²⁰.

With regard to medication used in the last 15 days, the present study found results similar to those of specialized literature, both in relation to SUS users²¹ as also to those who used supplemental health care. A

study carried out in the southeast of Brazil found that 97.1% of elderly people with a health plan had taken some medication in the last 15 days²², irrespective of the number taken. Even though polymedication is not limited to any particular age bracket, the elderly population is among the age groups that uses most medication and, therefore, generates higher costs for health systems, whether public or supplemental.

Use of medication is a reality among the elderly, and can be linked to several factors, such as the fact that ageing brings a higher possibility of prevalence of Non-Transmittable Chronic Disease (NTCD), especially among those who lead a sedentary lifestyle; the high medicalization of health, as observed in recent years and driven by the power of the pharmaceutical industry; the encouragement of the prescription of medication observed in the training and practice of health professionals; among others. Daily life becomes medicalized, as the individual gains familiarity with medical issues, and then considers health as a key asset and, as a result, does everything they can to preserve their health or quickly restore it, with low personal energy costs. This has resulted in the trivialization of the use of medication, both in Brazil and in other parts of the world²³.

In the present study, 64.7% of Supplementary Health users said they used five or more medications a day, which can be considered polymedication²⁴. It should be considered that in many cases, such use is recommended for treating the many chronic diseases present among the elderly, aimed at survival and/or the improvement of quality of life. The use of five or more types of medication by most supplementary health users could be linked to the fact that they have more access to prescribers, usually from different medical specialities, which leads to an increase in prescription and the intake of medication. However, one must also qualify polymedication, so that the health of elderly people does not deteriorate²⁵, as a result of any undesirable effects or interactions.

With regard to SUS users, the work of an interdisciplinary team, often available on the Family Health Program, could play an important role in the assessment process, verifying whether the complaints have resulted from illness or whether they are simply adverse reactions to the use of medication. If they are adverse reactions, then the prescription and the

care given to the elderly patient can be changed, with the aim of observing the outcomes²⁶.

The prescription of potentially inappropriate medications for elderly patients (PIMs), according to Beers⁹, is strongly linked to the triggering of adverse reactions to medication and hospitalizations and, when associated with the presence of comorbidities and poly medication, exposes elderly patients to a high risk of death. The presence of at least one inappropriate medication in a prescription doubles the risk of adverse reactions, which are responsible for some 24% of hospitalizations within this age group and which represent the fifth most common cause of death among elderly people²⁷⁻²⁹.

In the present study, the presence of PIMs for use by the elderly was found in the following pharmacological groups: the musculoskeletal and gastrointestinal systems, the central nervous system (CNS), and the endocrine and cardiovascular systems, as well as antithrombotics, antimicrobials, anticholinergics, antispasmodics, painkillers, and medication to treat insomnia. Statistical analysis showed a significant difference between the variables and the type of service provider, for medication within the musculoskeletal, endocrine, and cardiovascular groups.

Regarding the use of PIMs, for the Musculoskeletal System, there was a predominance of NSAIDs (76.4%) among users of the SUS system, and of musculoskeletal relaxation drugs (79.6%) among people using supplementary health plans. The use of anti-inflammatory drugs among SUS users could be linked to the fact that this medication category is available at municipal pharmacies, unlike muscle relaxants, which are usually available at commercial pharmacies, and are often sold without prescription³.

In the case of the endocrine system, the use of long-duration Sulfonylureas predominated among SUS users (45.6%), which are the only hypoglycemic drug on the list of standardized medications in the municipal region. This may also show that those who prescribe drugs within the SUS may not be familiar with the PIM criteria. Among users of supplementary health plans, there was prevalence of the use of Estrogen (31.2%), which could be linked to the fact that people using supplementary health services have

greater access to specialists, and also because there are a few medications on the market that provide the effects of estradiol.

For the Cardiovascular System, the use of Amiodarone was only observed among users of supplementary health services. This medication, classified as an anti-arrhythmic drug, was the most prescribed within the group of cardiovascular drugs for elderly patients with national coverage supplementary health plans⁸, and ranks among the main PIMs for cardiovascular use, in the Health, Well-Being and Ageing study (or SABE)²⁹. Amiodarone is linked to many toxicities, including thyroid problems, prolonged QT interval, and lung disorders⁹. The risk-benefit relationship in dealing with arrhythmias must be evaluated and, when such drugs are recommended, they should be monitored with a view to preventing adverse effects or the early identification thereof³⁰. It is also worth mentioning that, even though amiodarone is on the National List of Medications (or RENAME)³¹, no elderly SUS user has ever been prescribed this drug.

Also within the cardiovascular system, SUS users used Nifedipine in greater proportions than patients using supplementary health services ($p=0.01$). The 'rapid action' formulation of nifedipine is considered inappropriate because, according to the Beers criteria, due to the potential risk of low blood pressure and constipation, these being the possible consequences of use considered most serious. Even though this drug is still commonly prescribed through the SUS, in the RENAME review³¹, nifedipine was replaced by amlodipine as a dihydropyridine type calcium channel blocker, being recommended for angina of the chest, heart spasms, and high blood pressure²⁰. Unfortunately, this medication is still not available at pharmacies at municipal health units.

Doxazosin, an alpha-blocker recommended for the treatment of systemic high blood pressure and benign prostatic hyperplasia, illnesses that often afflict the elderly, is used more often by the users of supplementary health services ($p=0.01$). Its main effects are vascular smooth muscle tone relaxation (vasodilation), which reduces peripheral vascular resistance, lowering blood pressure and also relaxing the bladder and prostate, making urination easier. Its use in elderly patients should be avoided, as

one of its side effects is a high potential for low blood pressure, dry mouth, and urinary alterations. However, as this is a frequently used medication and as it is recommended for cases of benign prostatic hyperplasia, it can be used with care, with monitoring and accompaniment as appropriate^{32,33}.

Many of the inappropriate medications for elderly patients are included in the RENAME, with the further concern that for certain therapeutic categories, the only standardized medication is considered inappropriate, according to Beers⁹. The criteria proposed by Beers and other research studies in scientific literature recommend that the risk-benefit ratio must be duly assessed before any medication is prescribed for elderly patients³⁴. As this is a basic condition of Pharmacology, any prescribed medicine should be analyzed in this context before it is classified as incorrect or a medical error.

The publicizing of the concept of inappropriate use through continuous education; the inclusion of warnings on computerized prescription systems, the presence of a professional pharmacist for the dispensation of drugs and for guidance regarding their use, and clarifying the implementation of restrictive regulatory measures are all factors that would significantly facilitate the adoption of criteria that are not fully known to the entire medical community. These suggestions are considered essential for the prevention of potentially inappropriate medication³⁴.

Furthermore, the problem should be focused on the inappropriate prescription of these drugs; in other words, prescriptions made without due evaluation of the risks and benefits, which should guide anyone who prescribes drugs. For prescriptions to be correctly made, the prescriber must have appropriate knowledge of the risks associated with the medication, and he or she should make use of medications considered inappropriate only when there are no other options available, considering the health needs of the patient.

The link between the consumption of these drugs and disorders often ascribed to the aging process, with regard to pharmacokinetics and pharmacodynamics, results in conditions that bring a high risk of adverse effects and interaction between medications as observed in the elderly³⁴. This means

that a regular review of the medication used by the elderly should be an inherent part of clinical practice.

While the present study contributes data which indicates important necessities for the use of medication by elderly patients in both groups, a limitation is the fact that the reasons for the prescriptions have not been studied, which would provide a deeper analysis of the suitability of the medication used by the elderly. New studies that investigate other variables or even enhance the analysis of studies already performed are also recommended, when prescribing medication considered inappropriate for use by the elderly.

CONCLUSION

The consumption of medication in the 15 days leading up to the interview was confirmed in most cases, for the two groups analyzed. With regard to the quantity of medication used, there was a predominance of the use of between one and four types of medication for SUS users, and five or more types of medication for those using Supplementary Health, which amounts to polymedication in this group. These characteristics of Supplementary Health users could be associated with greater access to medical specialists.

Regarding the use of potentially inappropriate medication for elderly patients, according to the Beers criteria⁹, regardless of the disease and the risk-benefit appraisal of this medication, there were statistically significant differences between service providers, with users of the Brazilian Unified Health System (or SUS) making greater use of NSAIDs, long-duration sulfonylureas and nifedipine, and users of supplementary health plans making greater use of muscular relaxants, estrogen, amiodarone and doxazosin. There are differences in medication use profile depending on whether one has a health plan or not, and the results of the present study confirm similar data from other scientific studies carried out in different regions of Brazil. As a result, the adoption of continuous training policies regarding the pharmacotherapy of elderly patients can avoid harm caused by polymedication, drug interactions, adverse side effects, and the unsuitability of prescriptions for this age group.

The reduction in the number of unsuitable prescriptions and use of medication which is inappropriate for the elderly can occur with both service providers. The availability of new information technologies in the basic health network, as well as the constant updating and pharmacological monitoring of the drugs on the National List of Medications would

help professionals of the Brazilian Unified Health System (or SUS) to gain quick access to information about medication. With regard to health plans, investments, both multidisciplinary and within the health team, and investments in shared information systems to provide better care to the elderly would allow a review of the medication prescribed and used.

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