# RESEARCH

## EMERGENCE ROOM ASSISTANCE: PROFILE OF PATIENTS WITH SEQUELAE AFTER HOSPITAL DISCHARGE

ATENDIMENTO EM PRONTO-SOCORRO: PERFIL DOS PACIENTES COM SEQUELAS APÓS ALTA HOSPITALAR LA ATENCIÓN EN PRIMEROS AUXILIOS: PERFIL DE LOS PACIENTES CON SECUELAS TRAS EL ALTA HOSPITALARIA

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#### **ABSTRACT**

This study aimed to assess the prevalence of patients discharged from the hospital into the community with sequelae or special needs requiring follow-up care after the discharge. This was a retrospective prevalence study conducted in an emergency hospital focused on the records of 1,794 hospital discharges occurred between January and March of 2014. The sample consisted of 19 discharge records of patients who presented sequelae or disability, representing 1.6% of the 1,180 discharges that took place in the community. Results showed 84.2% of male patients; mean age of 37.6 years and with diverse sequelae such as: motor 68.3% (n = 13); motor and neurological 5.3% (n = 1); neurological 15.8% (n = 8); pulmonary 5.3% (n = 1); and metabolic 5.3% (n = 1). Although the identified prevalence of patients with sequelae or special needs in the sample was low, this number is significant when it is verified that 73.9% of patients were aged between 10 and 49 years representing young people at their potential productive ages.

Keywords: Patients; Hospital Discharge; Statistics on Sequelae and Disability; Prevalence.

#### RESUMO

Esta pesquisa teve como objetivo conhecer a prevalência dos pacientes que recebem alta hospitalar para a comunidade com sequelas ou necessidades especiais, necessitando de acompanhamento à saúde após alta. Trata-se de estudo retrospectivo de prevalência realizado em um hospital de prontosocorro, direcionado para os registros de 1.794 altas hospitalares ocorridas entre janeiro e março de 2014. A amostra constitui-se de 19 registros de altas dos pacientes que ficaram com sequelas ou deficiências, representando 1,6% das 1.180 altas que ocorreram para a comunidade. Resultados evidenciaram 84,2% de pacientes do sexo masculino; média de faixa etária 37,6 anos, com sequelas diversificadas, tais como: motora 68,3% (n=13); motora e neurológica 5,3% 9 (n=1); neurológica 15,8% (n=8); pulmonar 5,3% (n=1); e metabólica 5,3% (n=1). Embora a prevalência de pacientes com sequelas ou necessidades especiais identificados na amostra tenha sido baixa, esse número é significativo quando se verifica que 73,9% dos pacientes tinham idade entre 10 anos e 49 anos, ou seja, jovens com todo o potencial produtivo.

Palavras-chave: Pacientes; Alta Hospitalar; Estatísticas de Seguelas e Incapacidade; Prevalência.

#### RESUMEN

Esta investigación tuvo como objetivo conocer la prevalencia de los pacientes que reciben el alta hospitalaria con secuelas o necesidades especiales y que precisan seguimiento de salud tras el alta. Se trata de un estudio retrospectivo de prevalencia, realizado en un hospital de primeros auxilios que evalúa los registros de 1.794 altas hospitalarias ocurridas entre enero y marzo de 2014. La muestra consistió de 19 registros de altas de pacientes que quedaron con secuelas o deficiencias, representando el 1,6% de las 1.180 altas en la comunidad. Los resultados evidenciaron 84,2% pacientes del sexo masculino, con edad promedio de 37,6 años, con secuelas diversas como: motora 68,3% (n=13); motora y neurológica 5,3% 9 (n=1); neurológica 15,8% (n=8); pulmonar 5,3% (n=1); y metabólica 5,3% (n=1). Aunque la prevalencia de pacientes con secuelas o necesidades especiales identificados en la muestra fue baja, este número es significativo cuando se verifica que 73,9% de los pacientes tenían edades entre 10 y 49 años, o sea, jóvenes con todo el potencial productivo.

Palabras clave: Pacientes; Alta Hospitalaria; Estadísticas de Secuelas y Discapacidad; Prevalencia.

### INTRODUCTION

The Unified Health System (SUS) is formed by a set of actions and health services provided by agencies and public federal, state, and local institutions, from the direct and indirect administration, maintained by the government. The SUS can be considered one of the greatest social achievements enshrined in the Constitution of 1988 because its principles identify democratization in the actions and health services becoming of universal access, and the administrative and financial management as no longer centralized and guided by decentralization.<sup>1</sup>

Because SUS advocates principles of the universality and comprehensiveness of care, it is necessary to preview and endeavor efforts to ensure the proper and articulate functioning of units providing health services to meet the health needs of populations at their local level.<sup>1</sup> However, although the reference and counter-reference system is recommended, it is still little developed.<sup>2</sup>

The Ministry of Health<sup>3</sup> understands the hospital as the reference for more complex services, and basic health units as the counter-reference for less complex services. The reference and counter-reference system are the managerial, administrative mechanism that aims to adapt the SUS operation. Prioritizing the units that make up the system is necessary for its implementation and structuring, i.e., to classify by type of services, equipment and professional experts, and the ability for resoluteness.<sup>4</sup>

This scenario requires a commitment to the multidisciplinary practice and health education actions as producing elements of a collective knowledge providing autonomy and empowerment to the individual to care for themselves, their families, and acquaintances.<sup>5</sup>

Because of the importance of the reference and counterreference system, its effective implementation offering patients a complete care within the health services is necessary.

The interest in verifying the need to create a reference and counter-reference system for patients with sequelae or special needs at the time of hospital discharge came up from empirical observation through the identification that many patients with previous normal life were hospitalized in the Emergency Hospital in the city of Canoas/RS as a result of a traumatic event or disease process and were discharged with health problems. Faced with this problem, the following guiding research question was defined: what is the prevalence of patients with sequelae or special needs at the time of hospital discharge requiring health follow-up after this discharge?

## **OBJECTIVE**

To determine the prevalence of patients discharged from hospital into the community with sequelae or special needs and requiring health follow-up after this discharge.

#### **METHODOLOGY**

This was a prevalence retrospective study conducted in a hospital that performs urgent and emergency care. The studied site was the Canoas Emergency Room Hospital (HPSC) established in 2005 and located in the municipality of Canoas, Rio Grande do Sul (RS). Since September of 2010, this hospital is administered by a private health system, delivering services exclusively to SUS patients, mostly of low-income, presenting acute cases of urgencies or emergencies and coming from the same municipality or the metropolitan area of Porto Alegre-RS. It provides care in the specialties of neurosurgery, traumatology, orthopedics, general medicine (adult and pediatric), trauma, and bucofacial and plastic surgery performing consultations, exams, surgeries, and hospitalizations.

Table 1 shows the number of hospital discharges occurred during the study period and patients selected for the sample.

Table 1 - Sample selection

Months in 2014	Number of Hospital Discharges	Sample	Percentual (%)
January	562	5	0.89
February	569	6	1.05
March	663	8	1.20
Total	1.794	19	1.06

Source: research data, 2014.

The population of this study consisted of patients who had been admitted to HPSC and were discharged. The inclusion criteria were:

- patients with more than 72 hours of admission;
- with sequelae or disability at the time of hospital discharge;
- requiring counter-reference follow-up;
- not being patients with chronic or psychiatric illness.

The exclusion criteria were:

- administrative hospital discharge;
- deaths;
- transference to another hospital.

Initially, a spreadsheet with hospital discharges between January and March of 2014 were built totaling 1,794 patients. After performing the analysis using the exclusion criteria, 1,180 discharges into the community (65.8%) were identified. Of these, based on the inclusion criteria, 19 (1.6%) were selected for the study; the electronic medical records, reading of discharge summaries and social profiles consisting of identification data were accessed, and discharge conditions were detected. Sample losses might have occurred in cases where sequelae at discharge were not registered. The data of interest were analyzed and organized for the research tool.

Data collection took place from the analysis of documents by accessing the Magnus Vieira system (MV), Health Management System, which is a developed software that standardizes and integrates all patients' processes and information data. The variables investigated in the developed instrument were surveyed in the electronic patient record. The Google Drive storage service and synchronizing files service were used to collect data through the elaboration of a spreadsheet with the following variables:

- patient's name;
- contact telephone number;
- date of birth:
- age
- address, street;
- neighborhood;
- city;
- reason for hospitalization;
- admission to ICU (yes or no);
- surgery performed (yes or no);
- type of surgery performed;
- medical diagnosis;
- history of problems;
- sequelae;
- residence time;
- hospital discharge date.

This tool allows archiving responses and editing documents, spreadsheets, and presentations.

Data were analyzed by simple percentage, with average calculation, and presented in tables.

Because this was a retrospective study with data collection from medical records in the system, without identification of patients, there was no need for authorization from participants. The research project was approved by both the Research Ethics Committee (CEP) from the Mother of God Hospital System under number 558b/2012 and CEP from the Lutheran University of Brazil (ULBRA) in Canoas under number 86 967/2012. This research is part of a larger project initiated in 2012.

### RESULTS

The results of this study highlight the profile of 19 patients with sequelae at the time of hospital discharge into the community, needing continuous health monitoring as shown in Table 2.

Table 2 shows a sample of 84.2% (n = 16) male patients, with ages varying between 18 and 69 years, an average of 37.6 years and variation of 14.4 years. It is striking that most - 52.6% (n = 10) - are in the age group between 20 and 39 years old.

The patients' cities of origin showed diversity: Canoas with six cases 31.5% (n = 6), Candelaria with two cases 10.2% (n = 2), and other locations with 5.3% (n = 11).

Table 2 - Distribution of sex, age, and hometown for patients identified with sequelae at the time of hospital discharge. Canoas HPS, January-March of 2014

Variables	Number of cases	%		
Sex				
Feminine	3	15.8		
Masculine	16	84.2		
Age				
10-19	1	5.3		
20-29	6	31.5		
30-39	4	21.1		
40-49	3	15.8		
50-59	4	21.0		
60-69	1	5.3		
City				
Campo Novo	1	5.3		
Candelária	2	10.2		
Canoas	6	31.5		
Encantado	1	5.3		
Feliz	1	5.3		
Igrejinha	1	5.3		
Ilópolis	1	5.3		
Porto Alegre	1	5.3		
Rolante	1	5.3		
Santa Maria do Herval	1	5.3		
Sapiranga	1	5.3		
Sapucaia do Sul	1	5.3		
Três Coroas	1	5.3		

Source: research data, 2014.

Table 3 shows the variables: reasons for hospitalizations, diagnoses, specialties of surgeries conducted, and types of sequelae presented by patients at the time of hospital discharge.

As for reasons for admission, the results showed that the profile of patients treated at the emergency care hospital where 89.60% (n = 17) were hospitalized due to accidents whether related to transit, work, electrical shock, injury with knives (FAB), injury by firearms (FAF), burns or other accidents.

At the time of hospital discharge, the 19 studied patients presented sequelae requiring follow-up care by health professionals. The sequelae identified were: motor 68.3% (n = 13); motor and neurological 5.3% (n = 1); neurological 15.8% (n = 8); pulmonary 5.3% (n = 1); and metabolic and 5.3% (n = 1).

Only 26.3% (n = 5) of the studied sample needed admission in the Intensive Care Unit (ICU) and 94.7% (n = 18) underwent surgery at some point in the hospitalization as shown in Table 4.

Table 3 - Distribution of reasons for admissions, diagnostics, specialty, and identified sequelae in patients at the time of hospital discharge. Canoas HPS, Jan to March of 2014

Variables	Number of cases	%			
Reasons for admission					
Traffic accident	4	21,1			
Injury by firearm	3	15,6			
Work accident	2	10,5			
Aphasia, dysarthria, facial paralysis, and hemiplegia	1	5,3			
Electric shock	1	5,3			
Coma	1	5,3			
Stab wound	1	5,3			
Second degree burn	1	5,3			
Other accidents	5	26,3			
Patient's medical diagnosis					
Trauma	10	52,6			
Intracranial hemorrhage	3	15,8			
Burns	2	10,5			
Diffuse brain injury	2	10,5			
Vascular trauma	2	10,5			
Specialty surgeries					
Trauma surgery	5	26,3			
Reconstructive surgery	4	21,1			
Amputation surgery	2	10,5			
Neurological surgery	2	10,5			
Thoracic surgery	2	10,5			
Vascular surgery	1	5,3			
Neurological surgery: tracheotomy; debridement of devitalized tissue.	1	5,3			
NR	2	10,5			
Sequelae					
Motor	13	68,3			
Neurological	3	15,8			
Motor and neurological	1	5,3			
Metabolic	1	5,3			
Pulmonary	1	5,3			

Source: research data, 2014.

Importantly, in the occurrence of 1,794 hospital discharges between January and March of 2014 identified in the study, 524 were transferred to other hospitals, mostly to the Canoas University Hospital, which is administrated by the same HPSC health system and to other hospitals close to the patient's place of residency.

In addition, 69 hospital discharges were related to deaths, 14 to flight, 6 to voluntary discharge, and one to administrative dis-

charge. The remaining were due to: patients with psychiatric and chronic problems, admission for less than three days, and discharge without sequelae. Therefore, considering only the 1,180 hospital discharges into the community, 19 were from patients with sequelae or special needs representing 1.6% of the sample.

Table 4 - Distribution of ICU admissions and surgeries conducted in patients hospitalized in the Canoas HPS, Jan to March of 2014

Variables	Number of cases	%			
ICU admissions					
No	14	73,7			
Yes	5	26,3			
Surgeries					
No	1	5,3			
Yes	18	94,7			

Source: research data, 2014.

## **DISCUSSION**

The profile of our sample (n = 19), consisting of 84.2% (n = 16) of male patients, 52.6% (n = 10) aged between 20 and 39 years, confirms the data in the literature revealing a higher frequency of young men and their greater vulnerability in relation to urban violence. In Brazil, over 80% of acts considered violent strike males, of which, young people are the main victims and agents.<sup>6</sup>

Concerning age, epidemiological studies show that trauma is most frequent in the age group between 15 and 44 years<sup>4</sup>; 71% of patients with lower limb trauma in this study were aged between 20 and 45 years, most of them males. The involvement of young men may be influenced by their tendency to be more aggressive in traffic and characteristics of age such as impulsiveness, immaturity, search for intense sensations, little driving experience, motivation, peer influence, and delinquent behavior.<sup>6</sup>

The Canoas Emergency Room Hospital, originally planned to assist only the most serious cases occurred in the city, however, it began to receive patients from neighboring municipalities. It assists 400 patients daily, and it is the reference for 36 municipalities in the metropolitan region of Porto Alegre and the Mobile Emergency Care Service (SAMU) directing patients from anywhere in the state to Canoas.<sup>7</sup>

The decentralization process has increased the SUS contact with the reality of the population's needs, organizing a regionalized and hierarchical network of health actions and services meeting local demands.<sup>8</sup> What characterizes the city of Canoas is the fact that it is divided longitudinally by a BR, the largest paved country road where accidents occur frequently. Many of those injured are taken to the hospital in study because of its good infrastructure of care. A study evaluating 10 emergency room/hospital emergency services in the network of macro and

micro-regional reference in Pernambuco ranked the process of routine activities of reference/counter-reference services in most hospitals as deficient, being among these, all micro-regional and one macro-regional reference units. It is inferred that this reality observed in northeastern Brazil is no different from that in the Southern region; therefore, it is believed that many injured patients are driven to this hospital because it is relatively new and well equipped for urgent and emergency care.

The term "accident" has been defined as an unexpected and unplanned event that occurs from a combination of causes and may result in physical or mental damage. In this sample, 89.5% (n = 17) of 19 hospitalizations resulted from the most diverse accidents. Accidents and violence constitute a set of health problems that may or may not lead to death. More than 1.2 million people die each year on roads worldwide, and between 20 and 50 million suffer non-fatal injuries.

Trauma rank first among illnesses that affect the population becoming a serious public health problem because of the magnitude of sequelae that they produce mainly in young individuals who are potentially productive.<sup>12</sup>

A study based on the Hospital Information System (SIH)/ SUS from the Ministry of Health explored the data, and within its capabilities, estimated the number of sequelae; the study consisted of SUS hospital admissions, in their hospitals and insured hospitals, in 2008, resulting from injuries caused by traffic accidents. Out of all SUS admissions (11,031,870), those corresponding to hospitalizations by injuries in the variable "main diagnosis"; and cases whose injuries had been caused by road accidents in the variable "secondary diagnosis" were selected. The number of admissions that met these requirements was 94,390, allowing the finding of the following results: 2,729 cases of sequelae – sure sequelae, 18 497 cases of TCE (likely sequelae), and 984 cases of burns. Hospitalizations due to injuries to likely lead to sequelae totaled 22,210. It was emphasized that this value refer to the minimum number of cases because only lesions most likely to generate sequelae were classified; others may also ocur.<sup>13</sup>

Most of the time, moderate to severe trauma results in fracture, being among the leading causes of death in the age group between five and 40 years, accounting for the loss of more years of life than any other disease, and resulting in expenses that, directly or indirectly, reach astronomical figures. This study revealed 14 admissions with a medical diagnosis of trauma, classified in the discharge note as: trauma (10), diffuse brain trauma (2), and vascular trauma (2).

Trauma can be consider as a complex public health problem in Brazil for the following reasons: 400 000 victims will suffer from final sequelae; trauma consumes more years of life than the two major health problems related to mortality rates in the country, cardiovascular diseases, and cancer; it generates high direct and indirect costs with assistance, amounting to a value that is higher than the country's external debt; and it it is a health problem that leads to social, economic, and political consequences such as unemployment, marginalization, and automobilistic development.<sup>4</sup>

As for the most frequently performed surgeries related to reasons for admission, the specialty with the highest demand was trauma with 26.3% (n = 5), followed by reconstructive plastic surgery with 21.1% (n = 4). A research conducted in a hospital in the interior of São Paulo with the objective of knowing the quality of patient admission data due to external causes found in transportation accidents and falls, respectively, the first and second leading cause of admission. Accidents cause fractures especially those involving young people in traffic, and falls among the elderly, and can lead patients to undergo surgery, both in traumatology of reconstructive plastic surgery.

Table 3 shows motor sequelae with 68.3% (n = 13), neurological patients with 15.8% (n = 3), motor and neurological with 5.3% (n = 1), and metabolic and pulmonary sequelae with one case in each. Motor sequelae are the most notable resulting disabilities and affect about 80% of patients, impairing movement on at least one side of the body and causing limitation in both performances of daily activities and interpersonal interactions. Motor sequelae are extremely costly to patients, families, and society due to the resulting physical and cognitive limitations and costs involved with rehabilitation.<sup>16</sup> Patients with neurological sequelae present a number of organic and psychological disorders as a result of the non-acceptance of the disease and hence rejection of the body viewed as representative of their condition.<sup>17</sup>

Because of the disabilities resulting from the disease, to share sequelae and quality of life has been a challenge for both health professionals and people who experience the disease and their families. In recent years, the growing recognition of consequences determined by trauma in mid- and long-term, an increase of special needs, and a decrease in the quality of life of victims has occurred. This impact is not only related to initial anatomical and physiological alterations, but also the psychological and social aspects of acute care and rehabilitation. Health education is essential for performing care to provide better quality of life for patients with degrees of disability, usually played by family caregivers and sequelae/or healthcare professionals, and thus, making it necessary to discuss the assistance provided under the public health policy. Is

Polytrauma patients are especially young people, most productive members of society, which creats a devastating, destructive, and costly health problem considering hospital treatments and the rehabilitation period, which in some cases, extends over months or throughout life. Featuring a poor prognosis, such patients usually need the reference system for emergency care, and the counter-reference system for follow-

up treatment, however, the results from a recent study show weaknesses and deficiencies in the reference and counter-reference system in local places for healthcare with fragmented and disconnected care practices.<sup>20</sup> According to the *Prehospital Trauma Life Support Trauma First Response Committee* (PHTLS) from the *National Association of Emergency Medical Technicians* (NAEMT) in the United States, there were about 60 million injuries in each year, 30 million determining health professional care and 9 million resulting in sequelae; from these victims, 8.7 million will be temporary with sequelae and 300,000 with irreversible sequelae.<sup>21</sup>

The reference system is highly complex in which the user is routed to receive care in more complex specialization practice in hospitals and specialized clinics. The counter-reference system directs patients to care at lower level of complexity to more modest health services where the patient is "counter referenced for primary care" 22:67 and this location should be a health center closest to the patient's residence. In the tertiary level, there is a logic in service priorities and specialties that are dissociated from other health care levels, identifying deficiencies in the assistance network. <sup>23</sup>

To gather high and low complexity health systems, "as a mutual referral mechanism for patients between the different levels of service complexity, "24: 89 it is essential to offer continuity in care to patients. For this to happen, it is essential that "a reference and counter-reference system occur within the health system in which a service informs another about the state of health, disease, and treatment for the individual."22:29 However, we are still far from this integration between healthcare networks with an effective reference and counter-reference system. A study conducted in a developed municipality in Rio Grande do Sul, which aimed to identify and analyze the reference system for the referral of patients diagnosed with tuberculosis, found that "157 (65.7%) had no reference document or any type of referral, 53 (22.2%) had medical prescription as the means of referral, and 29 (12.1%) contained the official document for referral and counter-referral in 239 assessed clinical histories. [...] No records related to counter-reference was found". 24:89

There is a need for a care network consisting of hierarchical services and levels of care that support the actions of teams.<sup>25</sup> The Family Health Strategy (ESF) emerged as a way to reorient the health system from the primary care, however, this does not mean that the ESF should take all responsibility and efforts in the three levels of care. Professionals interviewed in a study<sup>25</sup> mentioned the lack of services with different objectives such as rehabilitation, nursing care, palliative care, care for people with physical and/or mentally fragmented disability and the difficulties providing a longitudinal and caring assistance.<sup>25</sup> Therefore, as in hospital services in the primary care,

the reference and counter-reference system is also essential to other levels of care to achieve comprehensive care, which is a SUS principle. This sought integrity will only be fully effective from the monitoring, following-up, and evaluation of reference and counter-reference systems.<sup>2</sup>

#### FINAL CONSIDER ATIONS

The main limitation of this study was related to the institution's structure, with a sector accommodating a reduced number of people, without immediate access to the institution's file, the need to request medical charts in advance the for a collaborator to select the desired ones and still provide a location. As for the records, they were not always adequate and sufficient.

This research allowed identifying the characteristics of patients who were discharged from the Canoas Emergency Room Hospital with sequelae or special needs after the discharge, requiring continued treatment in the community. Nineteen patients were identified between January and March of 2014 with sequelae or special needs at the time of hospital discharge. The age of the studied sample was between 18 and 69 years. The following reasons led to hospitalization: accident by firearms and knives, work accident, coma, electric shock, traffic accident, second-degree burn, and stroke among other accidents (amputation, fall, sudden illness).

During this study, we realized the importance of the multidisciplinary team in patient care in the physical and emotional aspects. Given the lack of proper care after hospital discharge with patients returning to the hospital due to the lack of follow-up assistance, it is believed that the counter-reference system could facilitate access to health care, preventing the complications arising from the discontinuation of treatment.

Although the prevalence of patients with sequelae or special needs in the studied sample was low, representing 1.6% of 1,180 discharges occurred into the community, this figure is significant considering that 73.7% of patients were aged between 10 years and 49 years, i.e., young people with strong, productive potential.

Because this study is a fragment of a larger research, the analysis of data corresponding to a longer period will be necessary.

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