

# Characteristics and current direct costs of hospital admissions due to occupational accidents in the southwest of Bahia from 2005 to 2007

*Perfil e custos das internações hospitalares por acidentes de trabalho na região sudoeste da Bahia no período de 2005 a 2007*

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**ABSTRACT:** *Objective:* This study aimed to identify the profile and cost of admissions for occupational accidents, under the Unified Health System (UHS) in municipalities of the southwest of Bahia, in the period of 2005 to 2007. *Methods:* It was conducted a descriptive study using the records of the Hospital Information System (HIS), from which were extracted data about the sociodemographic, occupational and hospitalization profiles. To express the results, indicators were used as absolute frequencies and proportions, the average stay, Total Cost of Hospitalization (TCH), Hospital Mortality (HM), Average Spenditure (AS) and Cost per Day (CD). *Results:* 962 admissions were recorded, of which 94.1% were related to path accidents. Among the admitted subjects 65.7% were male, and the most affected age groups were 5 to 14 and 15 to 24 years. There were forearm fractures on 26 cases of typical accidents. 248 cases of intracranial injuries happened during commuting to work, which accounted for 78.2% of traffic accidents and 28.8% of falls. The average stay was of 2.6 days and the deaths occurred in 0.5% of patients discharges. The total cost of the admissions was of R\$ 243,125.06, being the AS of R\$ 252.73 and CD of R\$ 97.44, lower than the external causes. The frequencies of the variables related to the occupation were not verified due to missing values. *Conclusion:* The data from the HIS Systems were limited for identify the profile of the admitted workers. However, they are important and can be used on occupational health surveillance.

**Keywords:** Accidents, occupational. Hospital costs. Hospitalization. Hospital information systems. Health profile. Occupational health.

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**RESUMO:** *Objetivo:* Este estudo teve por objetivo descrever o perfil e os custos das internações por acidentes de trabalho, no âmbito do Sistema Único de Saúde (SUS), em municípios da região sudoeste da Bahia, no período de 2005 a 2007. *Métodos:* Utilizaram-se registros do Sistema de Informações Hospitalares (SIH), dos quais foram extraídos sociodemográficos, ocupacionais e clínicos relativos à hospitalização. Além de frequências, proporções, o Tempo Médio de Permanência (TMP), Mortalidade Hospitalar (MH), Gasto Médio (GM) e Custo-Dia (CD) foram estimados. *Resultados:* Foram identificadas 962 internações, das quais 94,1% (879) estavam relacionadas a acidentes de trajeto. Entre os indivíduos que permaneceram internados, 65,7% eram do sexo masculino, com maior concentração dos casos nos grupos de 5 a 14 e 15 a 24 anos. Houve 248 casos de traumatismos intracranianos entre os acidentes de trajeto, que representaram 80,8% dos acidentes de transportes e 33,4% das quedas. As fraturas do antebraço foram comuns em 26 casos de acidentes típicos. O TMP no hospital foi de 2,6 dias. Óbitos ocorreram em 0,5% das saídas hospitalares. Essas internações representaram R\$ 243.125,06, sendo o GM de R\$ 252,73 e o CD de R\$ 97,44, inferiores aos das demais causas externas. A ocupação não pode ser analisada devido à qualidade dos dados. *Conclusões:* Os dados do SIH apresentaram certas limitações na identificação do perfil dos trabalhadores internados e, conseqüentemente, dos custos hospitalares; contudo, apresentam potencial de subsidiar as ações de vigilância em saúde do trabalhador.

*Palavras-chave:* Acidentes de trabalho. Custos hospitalares. Hospitalização. Sistemas de informação hospitalar. Perfil de saúde. Saúde do trabalhador.

## INTRODUCTION

Accidents at work are highly or low predictable and preventable events generally associated to inadequately working conditions<sup>1,2</sup>. These events are classified into two types: typical accidents, which happen during work and commuting accidents, which happen while commuting from the worker's house to his or her work place and the other way around<sup>3</sup>.

According to Brazil's Social Welfare Ministry, from 2004 to 2006 1,384,125 work accidents were registered, from which 83,3% were classified as typical and 14,4% as commuting accidents. Their victims mostly being young and male subjects, aged from 20 to 39 years old<sup>4,5</sup>. In this data, accidents with off-the-book workers, freelancers, maids and people in others welfare systems<sup>1,3</sup> were not included<sup>6</sup>.

Work accidents are responsible for huge social impacts and great loss in production and in the economy<sup>2,7</sup>. Also, they represent a significant share within the external causes assistances mainly in the urgent and emergency ones<sup>8-10</sup>. In these services, the occupational injury problems can be solved. However, when being severe, some cases require hospitalization<sup>8,11</sup>.

Around 70% of Brazil's hospitalizations are conducted by hospitals convened or contracted by the Unified Health System (UHS). Each hospitalization data is released in UHS' Hospital

Information System (HIS) which is fed by Hospitalization Authorization (HA), a document which filling is mandatory so each hospitalization money transference is guaranteed. HA is a form with fields to be filled with the assistance's information and description, diagnoses, patient's characteristics, hospital costs and the health care unit which hospitalized the patient<sup>12</sup>. From 1998 on, the Health Ministry installed, through Joint Ordinance no. 142/1997, a criteria to identify the death causative agent in hospitalizations which diagnoses is an external cause – chapters XIX and XX from the 10<sup>th</sup> revision of the International Disease Code (IDC-10). So, work typical accidents or commuting ones, traffic accidents or other casual and violent events should have the HA's<sup>13</sup> Admission Character field filled.

The external cause admissions are generally high-cost and short, being 60% higher than the admissions general average<sup>14</sup>. In 2000, these events were the sixth biggest cause to hospitalization in the public health care system, costing approximately 157 million reais<sup>15</sup>.

The awareness on the health situation's profile and hospital costs of work accidents is important to install more accurate policies and prevention strategies<sup>1,12,15</sup>. In this sense, the studies about Brazil's work accidents have helped to identify risk occupation categories and have evaluated only indirect costs<sup>7,8</sup>.

This study describes profiles and work accidents' hospitalization costs at UHS, in cities in Bahia from 2005 to 2007.

## METHODOLOGY

This is a cross-sectional descriptive study, performed with work accident admission records occurred between 2005 and 2007, in private hospitals and hospital convened to UHS, placed in the southwestern region of Bahia, Brazil. This region is one of the 15 territorial delimitation based on economical areas defined by the Bahia's Social and Economic Studies Office (SEI - Superintendência de Estudos Econômicos e Sociais da Bahia, in Portuguese) which has 39 cities, among them Vitória da Conquista, Jequié e Itapetininga has over 60.000 inhabitants each<sup>16,17</sup>. In 2007, its population was estimated in 1.232.537 inhabitants and its main activities were farming, trading and services<sup>17</sup>.

The main ways to reach the southwestern region of Bahia are the BR-116, BR-330, BA-263 and BA-407 highways, which have a huge vehicle flow to the principal cities of this region or to the other cities in the northeastern, southern and mid-western regions of Brazil<sup>18</sup>.

Concerning UHS' organization, the cities of Vitória da Conquista, Jequié, Belo Campo and Barra do Choça have a municipal health management. However, only Vitória da Conquista and Jequié are macro and micro region reference and have patients coming from other places looking for medium to high complexity attendings<sup>14,19</sup>.

The record choosing criteria was: year of admission (2005 – 2007); admission character (work typical and commuting accidents); cities of admission (the 39 cites included in Bahia's southwestern region); and the single counting of the sequential HAS, to avoid data repletion on the long-staying hospitalization cases.

## DATA SOURCE

Data about admissions were taken from UHS's HIS "reduced", monthly delivered by UHS's TI department (DATASUS)<sup>20</sup>.

The archives referred to the period from January 2005 to June 2008, season in which the records were processed by DATASUS that corresponds to the previous month in which HIS was presented to billing and to the discharge month. Rejected or late HIS and long-staying admission which, in this case, various HIS were issued to the same admission, each for each consecutive month, were considered exceptions. Concerning the non-sequential, it was disregarded for the cost data collection due to its usage would imply in underestimated values.

## DEFINITION OF VARIABLES

The variables interesting to this study belong to two categories:

- Variables related to the patient: gender, age gathered in 9 age ranges ( up to 1 year old, 1 to 4, 5 to 14, 15 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64 and over 65 years old), current city, occupation according to the Brazilian Occupation Classification (CBOR, Classificação Brasileira de Ocupação Resumida in Portuguese), economic activity according to National Economic Activity Classification (CNAE, Classificação Nacional de Atividades Econômicas in Portuguese) and social security bond.
- Variables related to the hospitalization: admission character (work typical and commuting accidents), main diagnoses or nature of the injury and secondary diagnoses or associated external cause, organized, respectively, by CID-10's chapter XIX categories and chapter XX groups; admission city, days the patient stayed in the unit, hospital exit type, discharges/transference and death, and total hospitalization cost.

## DATA ANALYSES

Data analysis was performed using descriptive statistics, calculating the proportion of accidents among all admissions due to external causes. Also the absolute frequencies and/or proportions of these accidents over the variables related to patient hospitalization were recorded, and as city and character of hospitalization and diagnoses.

The duration of hospitalization was estimated with the Average Staying (AS), for work accidents, obtained by dividing the total days in the unit and the number of inpatients. As for mortality, the proportion of deaths among the total number of hospital outputs was calculated.

The cost analysis considered the Total Cost of Hospitalizations (TCH), the Average Expenditure (AE) – per patient, which was the TCH divided by number of hospitalizations, and Daily Cost (DC), TCH divided by the number of days the patient stayed in the hospital. Data analysis was performed with the software TabWin in its version 3.5.

## ETHICAL ASPECTS

This study was approved by the Research Ethic Committee of State University of Bahia's Southwest. It is noteworthy that UHS's HIS, according to Resolution 196/96 of the National Health Council, does not allow access to the data of each individual AIH and thus guarantees the confidentiality of your records.

## RESULTS

We identified 962 hospitalizations for accidents recorded in hospitals in southwestern Bahia region in the years 2005 – 2007. 396 cases were in 2005, 299 in 2006 and 267 in 2007. These cases corresponded, respectively, to 7.8%, 6.1% and 4.7% of hospitalizations for external causes each year and 6.1% of these admissions throughout the period considered. In all years, there was a predominance of commuting accidents, which accounted for 91.4% of these admissions (Table 1).

Most of the records were conducted in the municipalities of Poções (52.3%), Itapetinga (37.5%) and Caatiba (10.1%). Throughout the time series, Itapetinga stood out for having decreased the number of these hospitalizations, verified by the difference of 113 records from 2006, compared to 2005, and lack of notifications in 2007 (Table 1).

It was observed that 752 (78.2%) records were subjects who resided in the town where they were hospitalized. Among the residents of the other cities in the Southwest region, 106 had hospital treatment in Itapetinga and 97 in Poções.

Males accounted for 65.7% of admissions. In this group, there were higher proportions of cases in the age groups 5 – 14 (16.7%), 15 – 24 (12.0%) and 25 – 34 years (9.9%). As for females, the age group with the highest proportions of cases were 5 – 14 (8.0%), over 65 (5.3%) and 1 – 4 years (5.0%) (Table 1).

Concerning the nature of the injury, trauma and the effects of toxic substances (327 cases) corresponded to the primary diagnoses more recorded. The forearm fractures were common in 26 cases of typical accidents (Table 2). In commuting accidents predominated intracranial injury (248 cases), forearm fractures (105 cases) and toxic effects of substances of non-medical sources (246 cases) (Table 3).

The forearm fractures accounted for 42.6% of all injuries from falls in typical accidents (Table 3). In commuting accidents, intracranial injuries were the main outcome of 80.8% of total traffic accidents and 33.4% of falls. Falls also had as outcome forearm fractures

Table 1. Characteristics of hospital admissions due to occupational accidents. Southwest of Bahia, Brazil, 2005 – 2007.

Variables	2005		2006		2007		Total	
	n	%	n	%	n	%	n	%
Type of work accident (n = 962)								
Typical	55	13.9	28	9.4	–	–	83	8.6
Commute	341	86.1	271	90.6	267	100.0	879	91.4
City of hospitalization (n = 962)								
Caatiba	26	6.6	26	8.7	45	16.9	97	10.1
Itapetinga	237	59.8	124	41.5	–	–	361	37.5
Jequié	–	–	–	–	1	0.3	1	0.1
Poçoões	133	33.6	149	49.8	221	82.8	503	52.3
Age group (years) (n = 962)								
Male								
< 1	4	1.0	3	1.0	1	0.4	8	0.8
1 – 4	21	5.3	15	5.0	12	4.5	48	5.0
5 – 14	75	18.9	52	17.4	34	12.7	161	16.7
15 – 24	49	12.4	37	12.4	29	10.9	115	12.0
25 – 34	33	8.3	26	8.7	36	13.5	95	9.9
35 – 44	27	6.8	14	4.7	20	7.5	61	6.3
45 – 54	19	4.8	21	7.0	11	4.1	51	5.3
55 – 64	15	3.8	15	5.0	14	5.2	44	4.6
≥ 65	21	5.3	17	5.7	11	4.1	49	5.1
Female								
< 1	2	0.5	–	–	2	0.7	4	0.4
1 – 4	17	4.3	18	6.0	13	4.9	48	5.0
5 – 14	27	6.8	25	8.4	25	9.4	77	8.0
15 – 24	12	3.1	6	2.0	13	4.9	31	3.2
25 – 34	14	3.5	9	3.0	10	3.7	33	3.4
35 – 44	7	1.8	12	4.0	10	3.7	29	3.1
45 – 54	14	3.5	11	3.7	6	2.3	31	3.2
55 – 64	13	3.3	7	2.3	6	2.3	26	2.7
≥ 65	26	6.6	11	3.7	14	5.2	51	5.3

Source: Ministério da Saúde, DATASUS, Hospital Information System of SUS.

(31.0%). Poisoning by non-medicinal substances resulted 98.6% of contact with venomous creatures and 32.0% of assaults. The use of alcohol and the resulting toxic effects of this substance were responsible for 75.5% of self-harm (Table 3).

The distribution of hospitalizations for secondary diagnosis, sex and period showed that the proportion of records of males was higher than females, in most groups and subgroups associated with external causes, particularly in transport accidents. It was found that motorcycle accidents presented a frequency seven times higher among men (Table 4).

Hospitalizations for accidents caused by falls had a significant reduction in their number, and the value found in 2007 accounted for 18.4% of the records in 2005. The frequency of such admissions increased in self-harm and the resulting contact with poisonous plants and animals, which showed ratios of 2.3% and 14.4% in 2005, reaching, in 2007, 10.1% and 34.8 % of cases (Table 4).

Table 2. Hospital admissions due to typical occupational accidents according type of injuries and external causes. Southwest of Bahia, Brazil, 2005 – 2007

Nature of the lesion/ Primary diagnosis	External Cause/Secondary diagnosis											
	Falls		C. A.		I.		A.		P. A. V. C.		O. E. C.	
	n	%	n	%	n	%	n	%	n	%	n	%
Traumas (n = 66)												
Traumatic brain injury	3	4.9	-	-	-	-	-	-	-	-	-	-
Shoulder and arm fractures	7	11.5	-	-	-	-	-	-	-	-	-	-
Luxations in the scapular waist	4	6.6	-	-	-	-	-	-	-	-	-	-
Forearm fractures	26	42.6	-	-	-	-	-	-	-	-	-	-
Femoral fractures	1	1.6	1	14.3	-	-	-	-	-	-	-	-
Ankle and leg fractures	15	24.6	5	71.4	-	-	1	100.0	-	-	-	-
Other traumas	1	01.6	1	14.3	-	-	-	-	-	-	1	12.5
Effect of toxic substances (n = 4)												
Toxic effects of non-medicinal substances	-	-	-	-	-	-	-	-	4	100.0	-	-
Other lesions (n = 12)	4	6.6	-	-	1	100.0	-	-	-	-	7	87.5

Note: C. A.: Commute Accidents; I.: Intoxications; A.: Aggression; P. A. V. C.: Plants and Animals Venomous Contact; O. E. C.: Other External Causes.

Source: Ministério da Saúde, DATASUS, Hospital Information System of SUS.

In general, admissions for work accidents possessed AS 2.6 days and lethality of 0.5% in the period. All deaths occurred in cases of commuting accidents and, in 2007, the representation of these fatal events among hospital output was 1.1%, the highest in the whole period (Table 5).

Regarding costs, such admissions had AS R\$ 243,125.06, AE of R\$ 252.73 and a R\$ 97.44 DC. It was observed that the values when analyzed by year, were gradually decreasing (Table 5).

The cost analysis according to type of work accident revealed that commuting accidents showed AS higher (R\$ 211,949.07) to that observed in typical (R\$ 31,175.99), however, AE

Table 3. Hospital admissions due to commuting occupational accidents according type of injuries and external causes. Southwest of Bahia, Brazil, 2005–2007

Nature of the lesion/ Primary diagnosis	External Cause/Secondary diagnosis													
	Falls		C. A.		I.		A.		S. I. I.		P. A. V. C.		O. E. C.	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Traumas (n = 500)														
Traumatic brain injury	112	33.4	93	80.8	–	–	38	31.1	1	1.9	–	–	4	10.5
Shoulder and arm fractures	15	4.5	–	–	–	–	–	–	–	–	–	–	1	2.6
Luxations in the scapular waist	15	4.5	–	–	–	–	–	–	–	–	–	–	–	–
Forearm fractures	104	31.0	1	0.9	–	–	–	–	–	–	–	–	–	–
Femoral fractures	15	4.5	1	0.9	–	–	–	–	–	–	–	–	1	2.6
Leg and ankle fractures	8	2.4	7	6.1	–	–	–	–	–	–	–	–	1	2.6
Other traumas	54	16.1	11	9.6	–	–	4	3.3	–	–	–	–	14	36.8
Burns (n = 19)														
	–	–	–	–	1	14.3	12	9.8	–	–	–	–	6	15.8
Effects of toxic substances (n = 323)														
Toxic effects of alcohol	–	–	–	–	1	14.3	09	7.4	40	75.5	–	–	–	–
Toxic effects of non-medicinal substances	–	–	–	–	–	–	39	32.0	–	–	207	98.6	–	–
Other toxic effects	1	0.3	–	–	5	71.4	3	2.5	12	22.6	3	1.4	3	8.0
Other lesions (n = 38)														
	11	3.3	2	1.7	–	–	17	13.9	–	–	–	–	8	21.1

Note: C. A. – Commute Accidents; I. – Intoxications; A. – Aggression; S. I. I. – Self Induced Injuries; P. A. V. C. – Plants and Animals Venomous Contact; O. E. C. – Other External Causes.

Source: Ministério da Saúde, DATASUS, Hospital Information System of SUS.



and DC of typical accidents (R\$ 375.61 and R\$ 143.67) were higher than the commuting one (R\$ 241.13 and R\$ 93.04) (Table 5).

It was not possible to measure the absolute frequencies and proportions of the variables occupation, economic activity and welfare bond, since there was completeness of these fields in the archives of UHS HIS used.

## DISCUSSION

Hospitalizations for accidents in the southwest region of Bahia had a predominance of young male subjects, victims of commuting accidents that resulted in intracranial injuries and forearm fractures. The causes of the accidents were falls, traffic accidents and effects of toxic substances caused by contact with poisonous creatures.

Table 4. Hospital admissions due to occupational accidents by external causes, year and gender. Southwest of Bahia, Brazil, 2005-2007.

External cause	2005				2006				2007				Total			
	Male		Female		Male		Female		Male		Female		Male		Female	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Falls	158	39.9	70	17.7	86	28.8	44	14.7	23	08.6	19	07.1	267	27.8	133	13.8
Commuting accidents																
Cycling accidents	5	1.3	1	0.3	3	1.0	2	0.7	5	1.9	-	-	13	1.4	3	0.3
Motorcycle accidents	16	4.0	3	0.8	17	5.7	1	0.3	16	6.0	3	1.1	49	5.1	7	0.7
Automobile accidents	9	2.3	1	0.3	5	1.7	1	0.3	7	2.6	6	2.2	21	2.2	8	0.8
Other commuting accidents	5	1.3	2	0.5	6	2.0	-	-	5	1.9	-	-	16	1.7	2	0.2
Intoxication																
Exposure to harmful substances	-	-	4	1.0	1	0.3	-	-	2	0.7	-	-	3	0.3	4	0.4
Aggression	23	5.8	15	3.7	29	9.7	8	2.7	32	12.0	17	6.4	84	8.7	40	4.2
Self-harm	6	1.5	3	0.8	10	3.3	7	2.3	18	6.7	9	3.5	34	3.5	19	2.0
Contact with poisonous beings	30	7.6	27	6.6	36	12.0	28	9.5	54	20.2	39	14.6	120	12.5	94	9.8
Other external causes																
Exposure to physical agents	12	3.0	5	1.3	5	1.7	3	1.0	5	1.9	3	1.1	22	2.3	11	1.1
Medical care complications	-	-	1	0.3	-	-	1	0.3	-	-	2	0.7	-	-	4	0.4
Events of undetermined intention	-	-	-	-	2	0.7	4	1.3	1	0.4	1	0.4	3	0.3	5	0.5

Source: Ministério da Saúde, DATASUS, Hospital Information System of SUS.

Hospitalizations occurred more frequently in Poçoões and Itapetinga and lasted on average 2.6 days and total cost of R\$ 243,125.06, AE of R\$ 252.73 and R\$ 97.44 CD.

The data showed the advantage of covering the entire working population without distinction of employment<sup>21</sup>. However, the study had limitations that were inherent in the UHS HIS. The information system was designed with the purpose of securing the payment of hospital services. For this reason, it is error-prone in coding certain data, such as diagnosis. It is noteworthy that the record object of this system is not the patient, but the hospital; thus cannot identify readmissions, which leads to multiple counts of the same patient<sup>12</sup>.

Table 5. Hospitalizations by the average time of residence, Lethality and costs. Southwest of Bahia, Brazil, 2005 – 2007.

Variables	2005	2006	2007	Total in the period
<b>Lethality (%)</b>				
Typical accidents	–	–	–	–
Commuting accidents	0.6	–	1.1	0.6
All work accidents	0.5	–	1.1	0.5
<b>Mean time of permanence (days)</b>				
Typical accidents	2.8	2.3	–	2.6
Commuting accidents	2.8	2.4	2.5	2.6
All work accidents	2.8	2.4	2.5	2.6
<b>Total Cost of Hospitalizations (R\$)</b>				
Typical Accidents	21.809.82	9.366.17	–	31.175.99
Commuting accidents	100.586.73	60.248.55	51.113.79	211.949.07
All work accidents	122.396.55	69.614.72	51.113.79	243.125.06
<b>Mean Income (R\$)</b>				
Typical Accidents	396.54	334.51	–	375.61
Commuting accidents	294.98	222.32	191.44	241.13
All work accidents	309.08	232.83	191.44	252.73
<b>Cost-Day (R\$)</b>				
Typical Accidents	141.62	148.67	–	143.67
Commuting accidents	104.34	93.41	76.40	93.04
All work accidents	109.48	98.33	76.40	97.44

Source: Ministério da Saúde, DATASUS, Hospital Information System of SUS.

Another limitation was the quality of the data and the difficulty in comparing the results with other economic regions of Bahia. It was also found among the records, notification of work accidents among children under four years and not filling the occupation, economic activity and employment fields. It was also noted underreporting of these hospitalizations in counties with greater influence in the region (Vitória da Conquista and Jequié).

In this study, the results showed similar results in terms of sex, age, type of accident and diagnosis, to those observed by Conceição<sup>22</sup>, which described the admissions for accidents in Bahia in the years 1998 – 2000. It should be noted that the author has considered the periods of equivalent powers to the three years analyzed and were not excluded from collecting sequential HAs.

The low representation of work accidents among the external causes and prevalence of commuting accidents were revealed in this study, whose results differ from findings of other publications which had the object of investigation work accidents attended at other levels of health care the example of emergency<sup>8-10,23</sup>. As noted by Conceição et al.<sup>8</sup>, in the main emergency department in Salvador (BA), occupational accidents accounted for 31.6% of external causes, and of these, 77.9% could be classified as typical accidents. This divergence can be explained assuming that these hospitalizations correspond to the most severe cases<sup>23</sup>, and the set of events that causes them cannot be similar to that found in other levels of service delivery.

In relation to victims, young males accounted for most of the work accidents that resulted in hospitalizations. In this group, the age group that stood out was the one composed by children and adolescents (5 – 14 years), which had, in all years, the highest proportion of cases. Factors such as inexperience, immaturity, and other intrinsic to child and pubescent development may be related to the higher incidence of such accidents in the age range considered. In general, the work done by children and adolescents is precarious and low-paid. The tools and personal protective equipment are designed to body size of an adult<sup>26-24</sup>.

Regarding the origin of the patients, the majority resided in the same town where she was admitted or nearby localities. According to Oliveira et al.<sup>27</sup>, the distance between place of residence and hospitalization may be determined by the type of hospital service available, or need assistance with more complex diagnostic and therapeutic resources, and only shows variation in the extent and access to specialized services.

Falls, contact with poisonous creatures, assaults and traffic accidents were the types of causes more frequent in the records. The representation of falls among admissions for accidents at work was shown by Silveira et al.<sup>28</sup> in a study in which medical records of patients construction workers were used. According to these authors, 30.7% of cases of falls resulted in injuries of the upper limbs, which corroborates the findings of this study.

Contact with venomous beings represents the second most frequent cause among the studied hospitalizations. This may be due to the predominant economic activity in the region, agriculture, since rural workers are from the early twentieth century, the usual victims of venomous animals in Brazil<sup>29</sup>.

Together, aggression and self-injury were associated, in large part, to the toxic effects of alcohol consumption. Studies on the intake of this substance in the work place or when

commuting to work are rare, however, their effects may represent a risk factor for certain types of accidents, such as transport<sup>9,30</sup>.

As for traffic accidents predominated the motorcycles ones, which occurred mostly in males. The growing use of motorcycles as a means of transportation or instrument of labor in Brazil has been justified as being economical and fast<sup>11</sup>. A study concerning mototaxi drivers of an urban center in Bahia estimated incidence of work accidents by 10.5% per year in this professional class<sup>31</sup>. Veronese and Oliveira<sup>32</sup> found that situations of quick delivery of goods, corporate pressure and professional competitiveness would be risks to transportation accidents involving couriers.

The nature of the commonly recorded injuries in traffic accidents was head injury. This finding differs from some studies that considered the totality of this type of accident and in which trauma involving the upper and lower limbs showed higher frequencies<sup>30,33</sup>. This difference in results is due probably to the object of research, restricted to transportation accidents due to work. It was felt, too, that different clinical picture, as well as the severity of each health fortuitous event, were likely factors that justify the divergence.

Hospitalized and registered in UHS HIS work accidents presented, in all years, duration of hospitalization and lower mortality to those observed for other external causes reported in the southwestern region of Bahia. It should be noted that lethality does not represent all injuries considered serious, because that culminated in the deaths of the accident site is not directed to hospitals<sup>23</sup>.

Typical accidents had TCH smaller than commuting accidents due to their low representation of hospitalizations for occupational morbid events, yet their AEs were higher than that of commuting accidents and DCs exceeded external causes.

The costs of these hospitalizations, except in unique cases of typical accidents, allowed to suggest that the clinical profiles of the subjects were not as severe in relation to external causes in general, as seen through the AS and lethality indicators, which showed similar or lower than these causes throughout the period.

## CONCLUSION

Based on our findings, we consider the need for exploratory research on the occupational characteristics and use of hospital services by patients hospitalized for work accidents in cities of southwestern Bahia region or elsewhere in the country. Furthermore, it is suggested to conduct similar studies in order to compare the results with other economic regions of the state or other units of the Federation.

Although unable to predict the period studied, the profile and even the true costs of accidents at work, UHS HIS demonstrates ability to subsidize health surveillance of workers to serious occupational accidents. However, strategies must be implemented for the recognition of such accidents and quality assessment of the fulfillment of HAs. Referências

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