

## Hospitalizations work-related reported in the state of Bahia

### Internações hospitalares por acidentes relacionadas ao trabalho notificadas na Bahia

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**RESUMO | INTRODUÇÃO:** Os acidentes e as doenças relacionadas ao trabalho são evitáveis na maioria das vezes e compreendidos como fatos imprevistos e não propositais causadores de lesões e traumas com diferentes magnitudes e repercussões para o trabalhador. **OBJETIVO:** Descrever as características das internações hospitalares por acidentes relacionadas ao trabalho na Bahia. **MATERIAL E MÉTODOS:** Estudo quantitativo, descritivo e de vigilância baseado nas notificações de internações hospitalares por acidentes de trabalho na Bahia, no período de 2014. Foram utilizados dados do Departamento de Informática do Sistema Único de Saúde (DATASUS), com base no Sistema de Informação Hospitalar (SIH). As variáveis foram às características sócio-demográficas, listas das causas (Classificação Internacional de Doença – CID 10) da internação, tempo de permanência e óbitos. **RESULTADOS:** Verificou-se no estudo que os homens tiveram a maior frequência de internações relacionadas a acidentes de trabalho com 67,5%. Iniciativas de vigilância são necessárias devido ao perfil de internação, o qual destacou trabalhadores em faixa etária produtiva no mercado de trabalho entre 18 a 35 anos e adultos entre 36 a 59 anos, os quais apresentaram ambos, índices equivalentes a 39,6% cada. Foi observado que o perfil predominante foi devido a trauma na cabeça (30,9%). As notificações apontam a média de permanência entre 1 a 7 dias (93,8%). Do total de 1097 internados, 1,1% foram a óbito no ano de 2014. **CONCLUSÕES:** Apesar das subnotificações, os achados revelaram um expressivo número de internações hospitalares por acidentes de trabalho graves comparado aos acidentes de trabalho fatais.

**PALAVRAS-CHAVE:** Acidentes de trabalho. Hospitalização. Trabalhadores.

**ABSTRACT | INTRODUCTION:** The occupational injuries (OI) and work related diseases known as unforeseen and unintentional facts are often avoidable. The OI and work related diseases can cause injuries and traumas with different magnitudes and repercussions for the worker. **OBJECTIVE:** to describe the characteristics of hospitalization due accidents workers-related in Bahia. **MATERIALS AND METHODS:** Quantitative, descriptive and vigilance study based on the notifications of hospitalization for occupational accidents in Bahia, during 2014. Data from the Information Technology Department of the Public Health Care System (DATASUS) were used, based on the Hospital Information System (SIH). The variables of interest used were: sociodemographic characteristics, list of causes (International Classification of Diseases - ICD-10) of hospitalization, length of stay and deaths. **RESULTS:** It was found in the study that male workers had the highest internment index by 67.5% due to occupational injuries. Surveillance initiatives are necessary due to the hospitalization profile, which highlighted workers in production phase in the labor market between 18 to 35 years old and also adults between 36 to 59 years old presented both, indices equivalent to 39.6% each. The predominant profile of the victims was due to head trauma (30.9%). The notifications indicate the hospital length of stay was around 1 to 7 days (93.8%). Only 1.1% of the total of 1097 admitted died in 2014. **CONCLUSION:** Despite the data are underreported, the findings revealed an impressive number of hospitalizations due to serious OI compared to fatal OI.

**KEYWORDS:** Occupational injuries. Hospitalization. Workers.

## Introduction

It is known that around 500,000 workdays are wasted annually in the world due to work-related accidents and diseases acquired at work. Despite laws and preventive measures, fatal accidents and work-related diseases result in financial, family expense and obvious losses in production. It is noted that the early departure of work because of accidents also generates high expenses for the public coffers due to the retirement paid by the National Social Security Institute (INSS), costs with assistance and loss of the work force occurring mainly in financially active men.

Work-related illnesses and work-related accidents are often avoidable and understood as unforeseen, non-intentional, injury-causing, and trauma-related events of varying magnitude and repercussions for the worker. These include ground transportation accidents, burns, piercing and sharp materials, intoxication, drownings, antigen invasion, falls, asphyxia, choking and injury caused by firearm fire.

The precarious working conditions are the main factors of the typical work accidents, which can be serious or fatal. Severe work accidents are considered to be those that have a negative impact on the health of the worker. In addition, severe sequelae and injury can occur, especially in youngsters of a productive age on the market, most of whom work in inadequate places without standards and social protection. Already fatal work accidents in turn, because death after the event and expenses to society.

Brazil stands out among countries with an excess of accidents at work. It presents three deaths each two hours, related to fatal work accident and three occurrences of non-fatal accidents each minute. The prevalence of typical and road accidents affects young males in the productive age group between 20 and 29 years of age.

Despite data underreporting, it is estimated that an estimated 40 million fatal work-related injuries have already occurred in the country. As a result of this, a significant indicator is verified, as occupational accidents require hospitalization in relevant cases, due to the damage to the health of the worker.

Recent estimates of hospital admissions are necessary for the purpose of interventions and elaboration of policy strategies for the alleviation of diseases and accidents at work. It is evident that these occurrences are possible to be prevented before governmental actions with better conducts of control of the public expenses and social protection, as well as the awareness of the society on the labor rights. The objective of this study was to describe the characteristics of hospital admissions due to work-related accidents in Bahia in the year 2014.

## Methods

A secondary source study of a quantitative, descriptive and surveillance nature was carried out based on reports of hospital admissions due to work accidents in Bahia in the period of 2014. Secondary data from a public research source from the Department of Informatics of the Unified Health System (DATASUS), based on the Hospital Information System (SIH / DATASUS) made available by the Collaborating Center for Occupational Accidents Surveillance (CCVISAT) at [www.ccvisat.ufba.br](http://www.ccvisat.ufba.br).

Although it was a research with public data of secondary source, the study was submitted to the Committee of Ethics in Research of the Health Sciences Institute of the Federal University of Bahia and has complied with the current principles of Resolution 466 of the National Health Council of 2012, according to the number of the Certificate of Presentation for Ethical Assessment (CAAE): 48247015.0.0000.5662 and ruling number 1,247,497. It is reiterated that the data do not have personal identifiers of the cases. This work is part of a larger project entitled: Surveillance of Hospitalizations of Specific Population Groups.

The information was collected based on the Hospital Inpatient Authorization form (HAC), provided through the Hospital Information System of SUS (HIS / SUS). This instrument presents information about hospitalizations, external causes and all hospitalization procedures for various causes, including work accidents. This instrument is also capable of generating indicators of hospital morbidity, besides being responsible for the financial

transfer for each hospitalization. Banks were accessed and absolute and relative frequencies were calculated, the information was organized into tables and graphs, for better visualization.

The variables of interest used in this study were: socio-demographic characteristics such as gender (male and female), the age group (18 to 35 years, 36 to 59 years, 60 years or more), race / color (Hypoglycemic Shock, Vascular Disorders, Respiratory Insufficiency and Respiratory System Complications, Liver Cirrhosis, Instant Death, Complications from Head and Chest Trauma, Toxic Effects of (less than 1 day, 1 to 7 days, 8 to 14 days, 15 to 21 days, 22 to 30 days) and deaths (yes, no)

## Results

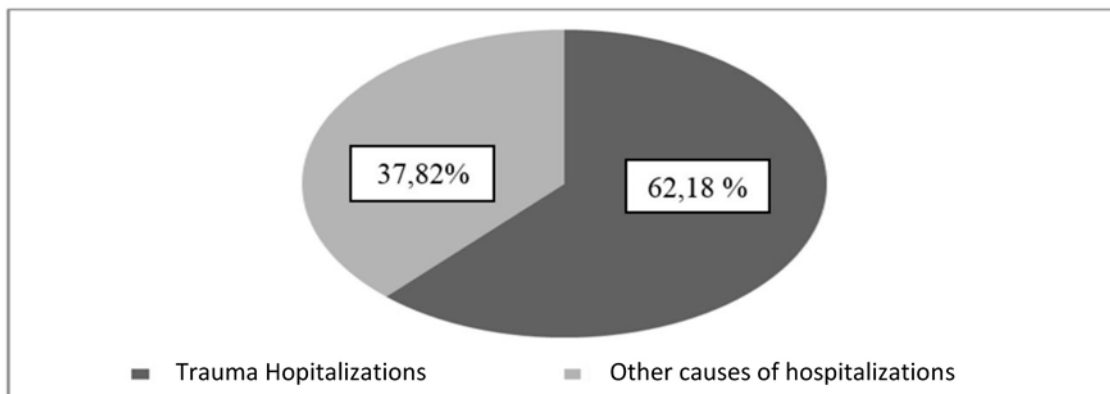
It was verified that the highest frequency of hospital stay related to work was among men with 67.5% of the total of 1097 hospitalized workers. The age group of the victims that presented the highest frequency of hospital admissions was referred to youngsters in the productivity phase between 18 and 35 years of age and adults between 36 and 59 years, both with 39.6%. Among the 1095 cases, most reports (93,1%) refer skin color black, others Table 1.

**Table 1.** Main sociodemographic characteristics of hospital admissions due to occupational accidents, registered in Bahia, in the year 2014.

| Sociodemographic Characteristics | n    | %    |
|----------------------------------|------|------|
| <b>Sex (1097)</b>                |      |      |
| Male                             | 741  | 67.5 |
| Female                           | 356  | 32.5 |
| <b>Age group* (803)</b>          |      |      |
| 18 a 35 years                    | 318  | 39.6 |
| 36 a 59 years                    | 318  | 39.6 |
| 60 year or more                  | 167  | 20.8 |
| <b>Skin color* (1095)</b>        |      |      |
| White                            | 76   | 6.9  |
| Black, others                    | 1019 | 93.1 |

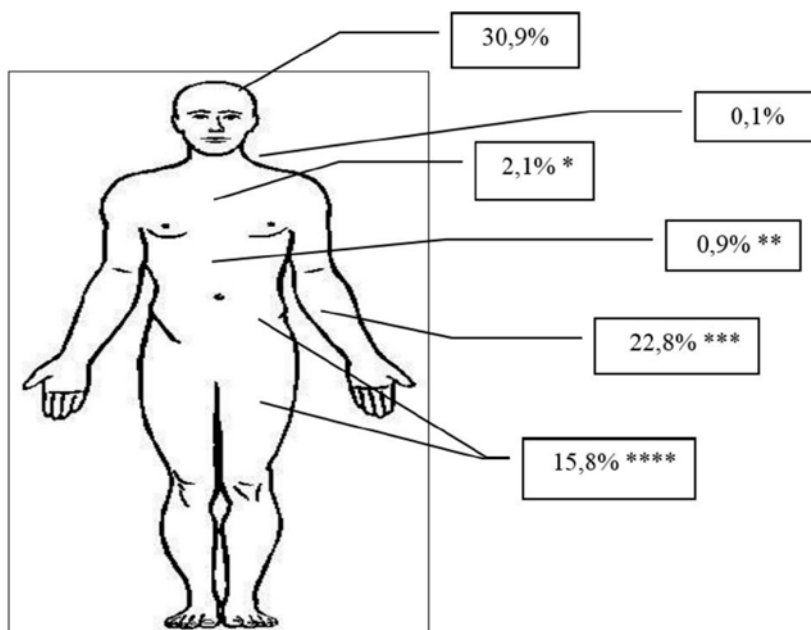
When evaluating the external causes related to hospitalizations due to work accidents registered in the SIH / SUS, it was verified that 62.18% were due to trauma, Figure 1.

**Figure 1.** Distribution of the cause of hospital-related hospital admissions registered in Bahia in the year 2014



Among the cases of hospital admissions due to trauma, it was verified that head injuries presented the highest proportion of occurrences with 30.9%, followed by multiple lesions (27.4%). On the other hand, the lowest index was 0.1% due to neck trauma, Figure 2.

**Figure 2.** Topographic distribution of trauma injuries from hospital admissions related to the work registered in Bahia in the year 2014.  
 Source: <http://www.aikido-nantes.net/docLexique.html>  
 (\* trauma to the chest, \*\* trauma to the abdomen, back and spine, \*\*\* upper limb trauma, \*\*\*\* trauma to the hip and lower limbs).



Among work-related hospitalizations, only 12 of the workers (1.1%) died. The main causes of mortality were head and chest trauma complications (33.34%), followed by hypovolemic shock and vascular disorders (16.67%). The highest frequency of hospital stay was between 1 and 7 days (93.8%) and the lowest frequency was between 22 and 30 days (0.2%). Of the 1097 hospitalized patients, only 22 remained less than 1 day in the hospital (2.0%), Table 2.

**Table 2.** Deaths, causes of death and length of hospital stay in hospital admissions due to accidents related to work in Bahia in the year 2014.

|                                       | n     | %     |
|---------------------------------------|-------|-------|
| <b>Deaths (1097)</b>                  |       |       |
| No                                    | 1085  | 98.90 |
| Yes                                   | 12    | 1.10  |
| <b>ICD (12)</b>                       |       |       |
| Vascular disorders                    | 2     | 16.67 |
| Respiratory disorders                 | 3     | 25.00 |
| Hepatical cirrhosis                   | 1     | 8.33  |
| Instant death                         | 1     | 8.33  |
| Head and chest trauma                 | 4     | 33.34 |
| Toxic effect of unspecified substance | 1     | 8.33  |
| <b>Length of hospital stay (1097)</b> |       |       |
| Less 1 day                            | 22    | 2.00  |
| 1 a 7 days                            | 1,029 | 93.80 |
| 8 a 14 days                           | 36    | 3.30  |
| 15 a 21 days                          | 8     | 0.70  |
| 22 a 30 days                          | 2     | 0.20  |

## Discussion

The study made it possible to describe the profile of work-related hospitalizations in the state of Bahia. Injuries were the cause of hospitalization in the study year. And the location of the affected lesion / area points to the possibility of a transport / travel accident occurring. Currently, external causes, especially accidents and violence, are responsible for more than 5 million annual deaths and thousands of hospitalizations worldwide. In 2011, 973,015 hospital admissions (IH) occurred in Brazil, and the majority were verified in men between 20 and 39 years of age who contributed to the National Institute of Social Security (INSS)

The Violence and Accident Surveillance System, which produces inquiries, recorded in 2011 29,463 individuals from the age of 18 who were seen through the emergency room due to accidents. It was verified that a third of these occurrences are associated with work and among these assists occurred 33.4% in the country<sup>2,6</sup>. It is noted that black workers in the production of goods and services for industry with low educational level, in the range of 30 to 39 years and residents of the North and Northeast had the lowest rates of these services. Although there was an increase in the rate of hospitalizations due to these workers, the search for health services is higher in workers insured by Social Security<sup>2,13</sup>. A similar hospitalization profile was found in the present study, black men in the productive age group on the market also had a low hospitalization rate (2.9%) compared to brown and white male workers.

Accidents can be considered typical, occurring in the workplace or traveling time that happens in the trajectory of the house to the scope of work and vice versa. In 2013, there were 718 thousand accidents, in which traffic was a reason for road accidents, particularly with regard to young men between the ages of 20 and 39, as these are the main victims, with the exception of informal, self-employed, domestic workers and to members of other social insurances whose population reveals the majority of those who work<sup>9,10,12,15,16</sup>.

The World Health Organization (WHO) reported in 2007 that among dozens of hospital admissions, 9% of fatalities were accidents and violence (external causes). In 2008, there were 317 million AT in the world, which resulted in an average of 4 days of absenteeism. This fact indicates that more than 8,000 accidents occur every day in the world, with a predominance of severe accidents in adult males during the period of productivity (20 to 40 years), mainly<sup>6</sup>.

The Ministry of Health indicated a 19% increase mortality rate due to ground transportation accidents in the period from 2000 to 2010. In 2011, ATT was the second highest cause of hospitalization among young people. Road accidents are responsible for the high death toll in traffic and are due to precarious road conditions, the critical condition of automobiles and the lack of strict supervision. It is estimated that in 2030, the Northeast, North and Central-West will need support for safety in public roads, as these regions will obtain the first death certificates by accidents<sup>7,14,16-18</sup>. In the present study, a low number of deaths were reported in Bahia in the year 2014, among the hospitalizations recorded. Although infrequent, the accidents were due to trauma to the head and chest region, which can demonstrate work with transportation, road accident and mainly motorcycle use to perform work.

The findings of the study revealed that OTs affect the worker's life both directly and indirectly; in addition, society and the family suffer from physical, financial and emotional harm. It is worth mentioning a critique of the quality of the registry which contains an underreported data system that does not present fields such as the Brazilian Classification of Occupations, the National Classification of Economic

Activities and condition of social security bond, which are variables that would help in the analysis of this study profile and in the identification of target groups for strategy of prevention and compensation of damages caused by accidents.

The social security plan pointed out in 2013, 717.9 thousand AT, which corresponds to an increase around 0.55% compared to 2012. It is verified that all the accidents pointed out by the Communication of Accident of Work (CAT) increased in 2,3 % in the year 2012 to 2013 and among these, the typical ones were equivalent to 77.32%, those of the route corresponded to 19.96% and the work diseases were 2.72%. Men with 20 to 29 age group with high work force had a higher occurrence in fatal TA<sup>3,11</sup>.

In 2004, general expenses in the SUS with support for workers killed by external causes were R \$ 2.2 billion, equivalent to 4% of the total SUS costs in that period. About the total burden related to TA is estimated at approximately R \$ 28 billion reais per year in Brazil. External causes and disabilities caused by ATT result in high social expenses for rehabilitation and SUS<sup>4,17,19,20</sup>.

It is estimated that INSS costs with absenteeism due to diseases and injuries caused by work correspond to 62.8%, that is, an amount higher than half of social security contributions. In addition, accidents also generate costs for companies. Due to the unfavorable economic conditions of the worker, these do not contribute to the INSS. It is noted that informal workers are subject to risks and poor working conditions due to the difficult insertion or reintegration of the worker into the labor market, the difficulty of employment and the insecurity of effective stay at work<sup>1,2,5</sup>.

The study found operational limits. Despite representing official data, the SIH / SUS, as a secondary source of data collection, underreported and underreported, mainly related to occupational variables, which compromises the analysis of the scope of the occupational context. However, the limited number of research on hospital admissions among workers in Brazil expresses the need for training to correct information, to monitor health problems, and to monitor early retirement expenses.

## Conclusion

Despite the underreporting and considering the avoidable nature of work-related accidents, the findings revealed a significant number of hospital admissions for serious work-related accidents in Bahia state in the year 2014 compared to fatal work-related accidents. Young men and adults in the labor market were the most affected, mainly due to head trauma with a low average stay in hospital, which shows a possible occurrence of a car accident using a motor vehicle as one of the main reasons for these accidents. job. Thus, prevention with the use of personal protective equipment, surveillance and notifications of hospital admissions should be prioritized.

### Author contributions

Andrade W participated in the study design, data analysis and discussion. Bernardes K supervised the analysis, participated in the corrections of the article for submission

### Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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