



## PROFILE OF CHILDHOOD ACCIDENTS IN A PUBLIC HOSPITAL

### PERFIL DE ACIDENTES NA INFÂNCIA EM UM HOSPITAL PÚBLICO

### PERFIL DE LOS ACCIDENTES EN LA INFANCIA EN UN HOSPITAL PÚBLICO

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#### ABSTRACT

**Objective:** to identify the profile of child accident victims. **Method:** prospective and cross-sectional descriptive study, with a quantitative approach, whose target population was children from 0 to 12 years of age, accident victims, seen from September to October of 2010, at public hospital in the city of Aracaju/SE, Brazil. Data were collected on a form from the medical records. The Committee for Ethics in Research with Human Beings from the Federal University of Sergipe approved the research project under protocol No. CAAE-0112.0.107.000-10. **Results:** there was a predominance of male victims (63.0 %), ranging from 7 to 12 years of age; as to their origin, Greater Aracaju (Aracaju, Nossa Senhora do Socorro e São Cristóvão) accounted for 69.1% of the cases. **Conclusion:** the most important aspect for the reduction of accident rates in childhood is prevention, which includes the education of parents, guardians and children, and the involvement of health professionals in developing these actions. **Descriptors:** Proneness to Accidents, Child, Wounds and Injuries; Accident Prevention.

#### RESUMO

**Objetivo:** identificar o perfil das crianças vítimas de acidentes. **Método:** estudo prospectivo, descritivo e transversal, com abordagem quantitativa, cuja população alvo foi de crianças de 0 a 12 anos de idade, vítimas de acidentes, atendidas de setembro a outubro de 2010, em hospital público do município de Aracaju/SE, Brasil. Os dados foram coletados em formulário a partir dos prontuários. O Comitê de Ética em Pesquisa com Seres Humanos da Universidade Federal de Sergipe aprovou o projeto de pesquisa com o nº CAAE-0112.0.107.000-10. **Resultados:** observou-se predomínio de vítimas do sexo masculino (63,0%), com faixa etária dos 7 aos 12 anos; quanto à procedência, a Grande Aracaju (Aracaju, Nossa Senhora do Socorro e São Cristóvão) representaram 69,1% dos casos. **Conclusão:** o aspecto mais relevante para a redução dos índices de acidentes na infância é a prevenção, que inclui a educação de pais, responsáveis e crianças, e o comprometimento dos profissionais de saúde no desenvolvimento destas ações. **Descritores:** Propensão a Acidentes; Criança; Ferimentos e Lesões; Prevenção de Acidentes.

#### RESUMEN

**Objetivo:** identificar el perfil de los niños víctimas de los accidentes. **Método:** Estudio prospectivo, descriptivo, transversal enfoque cuantitativo, cuya población objetiva eran los niños de 0-12 años de edad, las víctimas de accidentes, se reunió septiembre-octubre de 2010, el hospital público de la ciudad de Aracaju/SE/Brasil. Los datos fueron recogidos de formularios de registros médicos. El Comité de Ética en Investigación Humana de la Universidad Federal de Sergipe aprobó el proyecto de investigación con el protocolo no. CAAE-0112.0.107.000-10. **Resultados:** Se observó un predominio de víctimas de sexo masculino (63,0%), en el grupo de edad de 7 y 12 años, en cuanto la procedencia, el Grande Aracaju (Aracaju, Nossa Senhora do Socorro e São Cristóvão) representó el 69,1% de los casos. **Conclusión:** el aspecto más importante para reducir los índices de accidentes en la infancia es la prevención, que incluye la educación para los padres, los responsables y los niños, y la participación de profesionales de la salud en el desarrollo de estas acciones. **Descriptor:** Propensión a los Accidentes; Niño; Herimientos y Lesiones, Prevención de Accidentes.

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## INTRODUCTION

The childhood period consists of incorporating skills through interaction with the environment, aiming to meet the needs of the child. It is exactly at this stage that their vulnerability to accidents is greater, due to the adaptation and exploitation processes with their environment, as well as the lack of knowledge on the risks from their actions.<sup>1-4</sup>

Considered as major public health problems, accidents in childhood occupy a prominent place in the statistics for morbid-mortality worldwide. In developed countries, they present one of the main causes of childhood deaths; in the underdeveloped countries, the situation is worrying because of their progressive increase, moreover, because the understatements, unknown to the total amplitude of problem.<sup>1</sup> In Brazil, accidents are the leading cause of death in the age group of 1-39 years and the fifth in children under one year.<sup>5</sup>

Even though there are accident variations in accordance with the age of the child, the most common types are: falls, burns, perforations, poisoning, suffocation, drowning, traffic accidents, shocks and animal bites. Regardless of the age group in which they occur, they can reduce the potential years of life, causing irreparable damage and even death.<sup>2,6</sup>

In addition to all the aspects that involve the child development process, such as the infant's perceptual and cognitive capabilities, the distribution of accidents in childhood may be tied to a series of factors combined among themselves, such as gender, age, individual behavior, family income, poverty, overpopulation, schooling, and maternal age, family structure, inadequate supervision and the abuse of alcohol/drugs by the parents.<sup>2</sup>

In spite of the accidents being associated with various causes, they should be avoidable, thereby displaying their risk factors and prevention.<sup>7,8</sup>

Preventive actions involve the three levels of action: primary, characterized by educational programs and security measures; secondary, effectively treating and minimizing physical, emotional and social sequelae; and thirdly, rehabilitating and reintegrating the child and their physical and sociocultural components into family and society contexts.<sup>1,2</sup>

This way, it becomes necessary for the organization of governmental programs that

guide the multi-professional team in the development of prevention actions and health education, on the risk factors for injuries and traumas involving children, taking into consideration the development of the characteristics of each age group and the social reality in which they are inserted.<sup>9,10</sup>

This, coupled with the lack of research in the chosen institution about childhood accidents and perceived classroom practices of pediatrics in cases of preventable accidents, it was decided to develop a study on the subject in question, aiming to identify the child accident victim profile.

Thus, it becomes relevant for data found in the hospital, researched with the objective of providing a base for improving action planning for promoting child health and the prevention of accidents.

## METHOD

Documental, retrospective, cross-sectional descriptive study, with a quantitative approach on childhood accident cases. Used as a data collection source were; records of children from 0 to 12 years of age, accident victims, treated in a public hospital pediatric emergency room, located in the municipality of Aracaju, SE, Brazil, September and October of 2010.

The research sample was probabilistic, random and intentional. Children older than 12 years of age and those with illegible and damaged records or without a definite diagnosis were excluded from the medical records.

The data were collected by means of a validated form by Filocomo and colleagues.<sup>11</sup> The instrument consists of variables that distinguish three aspects: the first is characterized by the identification of children such as: age, sex, housing; the second refers to the data of accidents: type, place and time of occurrence, who was present at the time; and the third, the routing of the cases for: discharge, need for hospitalization or death.

The data were cataloged and submitted to the descriptive statistical analysis for relative and absolute values assessment, and later being prepared in graphs and tables.

This study was the research project evaluated and approved by the Ethics Committee of the Federal University of Sergipe under protocol No. CAAE 0112.0.107.000-0 and met all ethical aspects, respecting the dignity and the integrity of the human being, according to the precepts of the

Resolution CNS No. 196/96.

RESULTS

There were 508 (five hundred and eight) records of infant accident victims identified treated in the study’s environment. In relation to gender, 320 (63.0%) cases were male and 188 (37.0%) females, showing a relationship of approximately 1.7 boys / 1 girl.

The age group with the largest proportion was from 7 to 12 years, with 192 (37.79%) victims, followed by 1 to 3 years, 164 (32.28%) victims, 3 to 6 years, 122 (24.01%) victims and children younger than 1 year, 30 (5.9%) cases.

Analysis of the origins of victims allowed us

to observe higher frequencies in the municipalities of Aracaju with 187 (36.8%) cases, Nossa Senhora do Socorro with 120 (23.6%) and São Cristóvão with 44 (8.7%). In addition, 157 (30.9%) were recorded in the other municipalities in the State of Sergipe.

The type of most frequent accident was, fall with 320 (63%) cases. Of these, 204 (40.2%) occurred in boys and 116 (22.8%) in girls. The age group with a greater fall frequency was 7 to 12 years, with 117 (23%) occurrences (Tab. 1 and 2).

Table 1. Accident Victims treated in public hospital, according to accident type and age. Aracaju/SE, Brazil, 2010.

Types of accidents	Age (years) (n= 508)							
	< 1		1 a 3		4 a 6		7 a 12	
	n	%	n	%	n	%	n	%
Fall	28	5,5	95	18,8	80	15,7	117	23,0
Foreign Object	-	-	41	8,0	22	4,4	17	3,3
Wound	-	-	3	0,6	4	0,8	21	4,1
Dog Bite	-	-	6	1,2	6	1,2	11	2,1
Run Over	-	-	4	0,8	6	1,2	12	2,4
Poisoning	1	0,2	9	1,7	2	0,4	7	1,4
Burn	1	0,2	5	1,0	2	0,4	3	0,6
Bicycle Accident	-	-	1	0,2	-	-	2	0,4
Automobile Accident	-	-	-	-	-	-	2	0,4
Collision	-	-	-	-	-	-	-	-
Total	30	5,9	164	32,3	122	24,1	192	37,7

The presence of foreign objects corresponded to 80 (15.7%) cases, of which 41 (8.0%) occurred in males and 41 (8.0%) in the age group of 1 to 3 years. The boys, between 7 and 12 years of age, were the most affected by wounds, dog bites and run over. However, poisoning was more frequent in girls and in the age group between 1 and 3 years of age (Tab. 1 and 2).

Accidents with a lower occurrence in the study period were burns, cycling and automobile accidents, totaling 11 (2.2%), 3 (0.6%) and 2 (0.4%), respectively. During the thirty days of the development of this

research were not verified cases related to collision (Tab. 1 and 2).

Only 68 (13.4%) medical records had registers with reference to the accident’s place of occurrence: 41 (60.3%) of cases in public roadways and 27 (39.7%) in residences. It was also noted the lack of records on the part of the multi professional team regarding the data on the responsible adult for the victim at the time of the event. Only 2 (0.4%) documents contained annotations, highlighting the mother’s presence at the time of the accident.

Table 2. Accident victims treated at the public hospital, according to the type of accident and gender. Aracaju/SE, Brazil, 2010.

Types of accidents	Gender (n= 508)					
	Male		Female		Total	
	n	%	n	%	n	%
Fall	204	40,2	116	22,8	320	63,0
Foreign Object	41	8,0	39	7,6	80	15,7
Wound	26	5,1	2	0,4	28	5,5
Dog Bite	15	2,9	8	1,6	23	4,5
Run Over	12	2,4	10	2,0	22	4,4
Intoxication	9	1,7	10	2,0	19	3,7
Burn	8	1,6	3	0,6	11	2,2
Bicycle Accident	3	0,6	-	-	3	0,6
Automobile Accident	2	0,4	-	-	2	0,4
Collision	-	-	-	-	-	-
Total	320	63,0	188	37,0	508	100,0

It was found that for the provision of assistance, 478 (94.0%) victims were discharged after the first treatment and 30 (6.0%) were submitted to pediatric hospitalization.

## DISCUSSION

Accidents in childhood are a major public health problem and represent one of the urgent hospital needs, more common in the age range from zero to twelve years. Some factors such as gender, child's age, schooling, and maternal age, family structure and inadequate monitoring by parents can be related to its occurrence.<sup>4</sup>

In addition, the inability to evaluate or predict the consequences of their attitudes, fragility, need for care and intense development and growth are some of the aspects that contribute to making children an important risk group, presenting a greater susceptibility to accidents.<sup>12</sup>

The results of this study demonstrated a higher incidence of accidents in males. These data are similar to those found in a study conducted in Singapore in the year 2005.<sup>13</sup> Similar information were observed in other literature.<sup>9,14-16</sup>

The factors that have led to the male gender predominance are complex and difficult to unravel. They are probably due to innate differences in the behavior of each gender and a differentiated education between the genders which results in boys with greater freedom. They are more energetic, enjoy games more dynamic and more physical contact, usually done with little parental supervision. This fact provides a greater exposure time to factors that predispose them to accidents.<sup>3,11</sup>

Age is one of the main factors that determine the child's accident patterns. In this investigation, the age range with a higher number of occurrences was from 7 to 12 years (37.8%), a finding similar to other studies.<sup>10,15,17</sup>

In this age group the children establish a greater interaction with society; they have great physical independence, acquire pleasure by sports activities and recreation in group. Interested mainly by games that involve running, jumping, chasing, or running away, making this group more vulnerable to accidents.<sup>1-3</sup>

Divergent results of current research were obtained in a study conducted in 65 emergency services accredited by SUS

(*Unified Healthcare System*), which noted that the age group of highest occurrence was 2 to 5 years,<sup>18</sup> findings similar to those of Florianópolis, SC.<sup>19</sup>

The child, in this period, has good motor skills, but their motor coordination is still underdeveloped. The children run, climb and descend stairs and are also capable of pedaling a tricycle, walk backwards, jump from a high place; but they are not able to discern what is dangerous, such particularities expose this group to the risk of accidents.<sup>1-3</sup>

In the age group of less than 2 years, it has been observed less frequently during the period studied, in agreement with research developed in Ceará, Brazil, where 42.1% of the children were between zero to two incomplete years.<sup>20</sup> This is the phase in which the child acquires motor ability to walk and pick up objects. By not have experience nor adequate knowledge of the environment, people and things around them, they need to discover them through the action.<sup>21</sup> Soon, everything that they find, they tend to put in their mouth being common the ingestion of foreign objects, requiring active monitoring.

In relation to the origin of patients treated at the hospital in a study, it was found that of 75 municipalities in the state of Sergipe, 61.3% had records of accidents in their registers. The main records came from the capital, Aracaju, Brazil and cities that make up the metropolitan region, Nossa Senhora do Socorro and São Cristóvão, totaling 69.1% of the cases. The rest are from the interior of the State.

This fact can be explained by the proximity between the cities mentioned above called zone of "Grande Aracaju", but also because they are included among the most populous cities of Sergipe, Brazil, according to data from the 2009 IBGE (census)<sup>22</sup>, therefore, presenting the largest demographic densities of the State.

In a Children's Hospital of Florianópolis/SC, there was a balance with respect to the origin between Grande Florianópolis and the interior of the state that encompassed a total of 34.55% each,<sup>23</sup> different result than found in the Grande Aracaju.<sup>24</sup>

Regarding the types of accidents, the most recurrent was the fall from their own height. It is important to point out that there was no notification of the types of falls in all medical records, making it difficult to further analyze on this approach.

Research performed in Londrina/PR, also revealed the predominance of falls at the



same level in child accidents.<sup>3</sup> On the other hand, in Curitiba/PR, the falls of another level gained greater connotation.<sup>25</sup>

The highest falling risk age group was found between 7 and 12 years. A study in the state of São Paulo observed a greater occurrence between 7 and 11 years of age, and was associated with recreational activities and sports developed by schools.<sup>11</sup>

The accidents by foreign object penetration appeared in this study as the second largest cause of accidents in childhood and are more likely in children between 1 and 3 years of age. Martins and Andrade show similar results, the exposure the inanimate mechanical forces in its greater part caused by foreign object penetration succeeds falls and affects victims of the same age group.<sup>26</sup>

The study showed that the pre-school children were the group most treated for foreign object penetration, in the Pediatric Emergency Unit.<sup>10</sup> Moreover, it was noted that among the natural orifices most affected, the nasal cavities and the auditory canal accounted for 54.8% of the cases, the results were also predominant in Nigeria.<sup>27</sup>

Corroborating with the results of this research, similar studies also found the wounds as the third type of most frequent accidents.<sup>10</sup> In addition a study developed in the municipal hospital of a town in the interior of São Paulo, Brazil, the wounds were in second place with 17.44% mainly related with a blunt cut by pointed objects.<sup>15</sup>

Among other hazards encountered, the dog bite was more frequent in male children between 7 and 12 years and no cases were observed in children less than 1 year of age. In New York, similarly, the students were the main dog victims.<sup>28</sup> In a study developed in the city of Londrina the increased risk was observed among children 4 to 6 years.<sup>3</sup>

The exploration of public environments, such as: parks/squares and streets, contact with animals and the desire for independence in the previously mentioned age group, justify the results. Thus, preventive measures in relation to animals are necessary such as: keep them in a safe place, avoid the breeding of considered dangerous breeds, in addition to educating the child to the potential dangers to which they expose themselves when playing or provoke the animal.<sup>29</sup>

Poisoning, different from other types of accidents, are more noted in female children of 1 to 3 years of age. These results confirm the analysis on the factors related to injury hospitalizations in children and adolescents.<sup>9</sup>

However, in Rio Grande do Sul and in Recife, Brazil, the data differ as for the gender variable.<sup>30,31</sup>

It becomes clear that part of the poisonings are accidental, resulting from at the time of the discovery phase of the environment around them and the negligence of the responsible adult that leaves chemicals, medications in places with easy access to the children. However, they can also be result of an excess dosage of medications or allergic reaction to certain foods.<sup>1-3</sup>

In this study, the analysis on the location of occurrence, as well as the responsible adult present at the time of the accident, was impaired due to the lack of notes in the medical records. Only 0.4 % of the medical records contained information on the responsible adult that was present, and, in all of the cases it was the mother of the child.

The lack of complete registration in the urgent care/emergency forms was also observed in this study.<sup>3</sup> This finding reinforces the need to invest in improving the quality of records, to contribute to a better epidemiological knowledge of the accidents.

Already with respect to the site of occurrence only 13% of the medical records had registered, of which 60.3 % of the accidents occurred on public roadways. A Study carried out in Minas Gerais, Brazil has shown that the childhood accidents that occur outside of the residence are more common, among these the first place was the public roadway.<sup>9</sup> In counterpoint, In contrast, it was found that residence was the main accident site, and secondly, the public roadway. This fact explained by the great time spent of the children in the home environment.<sup>18</sup>

It was noted that a large part of the accidents recorded were low complexity, since among the events analyzed, hospital discharge, soon after the first care accounted for almost the entirety the most common outcome (94%). Research corroborate with the same results.<sup>11,15</sup> This observation is reinforced by the lack of notification for death in the study period.

Despite the evolution of cases for discharge is important to note that children's exposure to dangerous situations and neglect by the responsible adult favor the risk of accidents and bearing that it becomes necessary to rethink educational practices in schools, families and community environments for the need of prevention, promoting the improvement of the quality of life for children.

## CONCLUSION

The study identified 508 accidents in childhood, of these 63% were male. The most affected age group was 7 to 12 years. The greatest referral frequency of cases was recorded in Grande Aracaju (Aracaju, Nossa Senhora do Socorro and São Cristóvão) that corresponded to 69.1% of the cases.

The type of most frequent accident was fall (63%), followed by the foreign object penetration (15.7%) and wounds (5.5%). The dog bites, running over, poisoning, burns, bicycling and automobile accidents totaled 15.8% of the other cases. There were no reports during the study of accidents related to collision.

Because of underreporting in the medical records concerning the place of occurrence of the accidents and responsible adult present at the time of the analysis of these variables was impaired. As for the fate of the children after the treatment provided, 94% were discharged after the first treatment.

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