ORIGINAL ARTICLE *DOI: 10.4025/ cienccuidsaude.v%vi%i.34558*

RUN OVER: EPIDEMIOLOGICAL ANALYSIS OF THE LAST FOUR YEARS[1]

Nilvana Teixeira da Silva Moreno*
Jose Carlos Dalmas**
Eleine Aparecida Penha Martins***

ABSTRACT
The objective of the study was to characterize the motor vehicle accidents attended by pre-hospital emergency mobile services in a municipality in the North of Paraná. Retrospective, cross-sectional study with a quantitative approach, obtained through the medical record data of the victims attended by the pre-hospital mobile service in the last four years. The analysis of the data was through descriptive and exploratory statistics. A total of 1,663 occurrences were analyzed: 469 in 2011, 431 in 2012, 408 in 2013 and 355 in 2014. Of the occurrences attended, the median age was 39 years, however, children and adolescents were more affected. Also the most frequent episode in streets in the central region of the city, on Fridays and Wednesdays, in the months of March and may, being women in the morning and afternoon, and men mainly in the night period, caused by automobile, followed by motorcycle. Of these accidents, 3% of the drivers left without providing assistance to the victim. It was identified a decrease in motor vehicle accidents in the last four years. It is suggested to intensify the monitoring in the described points and to elaborate preventive measures, using other methods and other sources of information.

Keywords: External Causes. Accidents, Traffic. Transients. Emergency Service, Hospital. Health Profile.

INTRODUCTION

In day-to-day life of the major cities, vehicular traffic and pedestrian circulation became a common scenery. High numbers of traffic accidents show the lack of safety in this sector, together with the carelessness and lack of attention of both the driver and the pedestrian, standing out in this conflict, the running over.

Every year, 1.3 million people die and millions survive with sequelae, especially in low- and middle-income countries[(1)]. In addition, traffic accidents carry high social costs for individuals, families and society, being a major challenge for health services and for the economy of a country.

In Brazil, external causes account for 12.5% of mortality and ranks the third place in Brazilian mortality. It is the first cause of death in the age group from one to 39 years of age, mainly due to homicides and traffic accidents. In the deaths due to land transport accidents, the largest share occurred among the most vulnerable users of the road system: 24.2% were pedestrians and 23.4% were motorcyclists[(2)].

It is noticed that car accidents represent an important cause of morbidity and mortality in the country. Although car run over occurrence rates are lower than collisions between vehicles, their lethality is much higher given the vulnerability of the pedestrian to a vehicle. The death rate due to trampling, especially in the elderly, in our country, just about doubled between 2000 and 2014, revealing the need for new public policies[(3)].

In addition to this reality, the National Council of Health Departments (CONASS 2015) reports the need for integration between emergency and urgency services, emergency care units and hospitals, as well as emphasizing all health directives, including the "National Emergency Care Policy", through Administrative Ordinance GM No. 2,048/2002, which describes the implementation of the pre-hospital care service and Mobile Emergency Care Service (SAMU), linked to a Regulation Center[(4)].

Recognizing the challenge of the whole situation, especially due to the lack of

[1]Extracted from the dissertation entitled "Epidemiological analysis of motor vehicle accidents attended by pre-hospital emergency services, presented to the Graduate Nursing Program, in the year 2016.

*Nurse of the Regional Emergency Mobile Service of Londrina, Master in Nursing. Email: nilvana_enf@hotmail.com.
**Mathematician. Doctor in Production Engineering. Associate Professor, Department of Statistics, State University of Londrina. E-mail: jcdalmas@gmail.com.
***Nurse, Doctor in Fundamental Nursing. Associate Professor, Department of Nursing, State University of Londrina.E-mail: eleinemartins@gmail.com

scientific research on the subject, and to better understand the traffic accidents with victims of run over and its strong impact on Urgency and Emergency services, it is proposed, in this study, to characterize the motor vehicle accidents attended by pre-hospital emergency services in a municipality in the north of Paraná.

METHODOLOGY

This research is an epidemiological, cross-sectional study with a quantitative analysis of the records of victims of run over in Londrina, state of Paraná, along four years.

In this way, the research focused on all the victims of run over, assisted by the pre-hospital service: Integrated Service of Attention to Trauma and Emergency (SIATE), which occurred in the metropolitan area of the city under study, from January 1st, 2011 toDecember 31st, 2014.

The source of the data collected was the Rescue Attendance Record (RAS), which consists of the individual files, filled by the first responders after the victim assistance at the scene of the accident.

The variables studied included five areas: 1) characteristic of the occurrence: early morning period: from 00h00 to 05h59, morning: from 06h00 to 11h59, afternoon: from 12h00 to 17h59, and night: from 18h00 to 23h59; day of the week and subdivision with business days (Monday to Friday) and weekends (Saturday and Sunday); and year 2) characteristics of the victim: gender, age, presence of alcoholic breath; 3) trauma severity: Glasgow Coma Scale (ECG): and Revised Trauma Scale (RTS), need for medical care, procedures performed in the APH, death at the site and referral to the primary, secondary or tertiary hospital; 4) trauma mechanism: presented injuries its regions (according to ICD 10), type of vehicle: (automobile, motorcycle, bicycle, bus, truck, train, tractor and others); 5) location: region of accident and type of road: street, avenue, highway, lane and road.

The database was entered into the Excel program four times concomitantly, after the typing conference, retrieving the instruments with divergent information between the databases and correcting them in the database of the researcher, and later transferred to SPSS 20.0 software, using the exploratory data analysis, Descriptive Statistics technique. Pearson's Chi-square test was used to compare the day of the week with the period of the day of the accident; a level of statistical significance of 5% was accepted.

This research followed the norms related to Resolution 196/96 of the National Health Council, and was approved in the Ethics and Research Committee (CEP) of the State University of Londrina (UEL) under the number 666/503 (CAAE): 05931612.8.005231.

RESULTS AND DISCUSSION

In the last four years, SIATEattended 1,663 victims of run over in the city of Londrina, with 469 occurrences registered in 2011, 431 in 2012, 408 in 2013 and 355 in 2014. The data show that there was a subtle reduction of and this fact was also consistent in other studies[3,5-7].

Of the 1,663 visits, the median age was 39 years, presenting a minimum age of one year old victim and the maximum age of 92 years old, the mean was 39.2, with a standard deviation of 23.4. Of these, 939 victims (56.5%) were male, 718 (43.2%) female and six (0.4%) did not identify the gender. The profile of the victims of nun over in this investigation is similar to that found in other studies, since most of the accidents also occurred with men[5,8-13].

The results show that there are no discrepant values in regarding to age, thus, age presented the same characterization in the four years studied, and there is no need to discard any element. However, a significant number of run over occurred with people below the median age, similar to other studies[6,13,14].

Table 1 shows the distribution of the age group that suffered a run over in the four years of study.

When the age range was categorized by age group, in the four years, the most representative of the run over was adults, considering the age group between 20 and 59 years old, standing out with 817 (49.1%) of the cases in that period. It should be noted that in three (0.2%) RAS there was no data on the age of the victim. However, children and adolescents were the most affected,

and the age between five and nine years had 136 (8.2%) of the occurrences, in the age groups between 10 and 14 years and between 15 and 19 years old, each one of them corresponded to 126 (7.6%) of the cases. In 2014 alone, there was a higher frequency of adults run over in the age group between 30 and 34 years, with 31 (8.7%) cases run over.

Table 1. Distribution of the victims of run over by pre-hospital emergency service, according to the age group in the years 2011 to 2014. Londrina-PR, 2016.

AGE/YEAR	*2011*		*2012*		*2013*		*2014*		**TOTAL**	
	N = 468	*%*	*N= 429*	*%*	*N= 408*	*%*	*N=355*	*%*	**N= 1660**	**%**
0TO4	21	4.5	15	3.5	11	2.7	13	3.7	**60**	**3.6**
5TO9	43	9.2	34	7.9	38	9.3	21	5.9	**136**	**8.2**
10 TO14	30	6.4	40	9.3	36	8.8	20	5.6	**126**	**7.6**
15A 19	33	7.1	40	9.3	30	7.4	23	6.5	**126**	**7.6**
20 TO 24	31	6.6	26	6.1	30	7.4	29	8.2	**116**	**6.9**
25 TO29	19	4.1	25	5.8	18	4.4	14	3.9	**76**	**4.6**
30 TO34	28	6.0	26	6.1	22	5.4	31	8.7	**107**	**6.4**
35 TO 39	25	5.3	27	6.3	25	6.1	18	5.1	**95**	**5.7**
40 TO 44	28	6.0	34	7.9	33	8.1	27	7.6	**122**	**7.3**
45 TO 49	35	7.5	19	4.4	18	4.4	27	7.6	**99**	**6.0**
50 TO 54	27	5.8	36	8.4	20	4.9	27	7.6	**110**	**6.6**
55 TO 59	26	5.6	18	4.2	18	4.4	30	8.5	**92**	**5.5**
60 TO 64	28	6.0	25	5.8	20	4.9	13	3.7	**86**	**5.2**
65 TO 69	25	5.3	23	5.4	23	5.6	21	5.9	**92**	**5.5**
70 TO 74	31	6.6	20	4.7	24	5.9	12	3.4	**87**	**5.2**
75 TO 79	17	3.6	12	2.8	23	5.6	11	3.1	**63**	**3.8**
80 TO84	12	2.6	8	1.9	11	2.7	12	3.4	**43**	**2.6**
85 TO 89	7	1.5	1	0.2	7	1.7	6	1.7	**21**	**1.3**
90ANDUP	2	0.4	0	0.0	1	0.2	0	0.0	**3**	**0.2**

Note - three (0.2%) records did not have the description of age.
Source: Rescue Care Report (RAS).

When the age range was categorized by age group, in the four years, the most representative of the run over was adults, considering the age group between 20 and 59 years old, standing out with 817 (49.1%) of the cases in that period. It should be noted that in three (0.2%) RAS there was no data on the age of the victim. However, children and adolescents were the most affected, and the age between five and nine years had 136 (8.2%) of the occurrences, in the age groups between 10 and 14 years and between 15 and 19 years old, each one of them corresponded to 126 (7.6%) of the cases. In 2014 alone, there was a higher frequency of adults run over in the age group between 30 and 34 years, with 31 (8.7%) cases run over.

This finding corroborates the data found in other studies regarding the fact that the most affected age group is the young adult[3,5,7,9], but also emphasizes the similarity of the results found in studies with the pediatric population[13].

It is understood that children and adolescents are vulnerable pedestrians in traffic due to height limitation. They are shorter than the adults and cannot see above the vehicles, nor are they seen behind them, of bushes or any other blind spot of vision; Their view angle is not as wide as that of the adults. In addition, children are not aware of traffic rules, are beginning to walk on their own in their day-to-day activities and have a lower

perception of danger[6,14,15].

On the other hand, there are studies that emphasize that children are able to acquire knowledge of first aid and also know correct techniques of some emergency procedures, as well as prevent, warn and help in different situations, as long as they have adequate guidelines from childhood[6;16]. Due to this reality, there is an increasing need for children to be aware of programs for the prevention of childhood accidents[6].

Table 2 shows the distribution of run over according to the day of the week and period of the day on which the accident occurred.

Table 2. Distribution of run over victims attended by pre-hospital emergency service,according to the day of the week and period of the day, 2011 to 2014. Londrina-PR, 2016.

Day of the week/ Period of the day	*Monday* IF(%)	*Tuesday* IF(%)	*Wednesday* IF(%)	*Thursday* IF(%)	*Friday* IF(%)	*Saturday* IF(%)	*Sunday* IF(%)	Total IF(%)
Dawn	7 (3.3)	4 (1.8)	3 (1.1)	6 (2.4)	5 (1.9)	15 (5.8)	22 (12.7)	**62 (3.8)**
Morning	54 (25.2)	59 (26.8)	55 (20.8)	59 (24.1)	64 (23.6)	47 (18.4)	24 (13.9)	**362 (21.8)**
Afternoon	82 (38.3)	74 (33.6)	105 (39.6)	89 (36.3)	87 (32.1)	85 (33.2)	52 (30.1)	**574 (34.5)**
Night	71 (33.2)	83 (37.8)	102 (38.5)	91 (37.2)	115 (42.4)	109 (42.6)	75 (43.4)	**646 (38.8)**
Total	**214 (100)**	**220 (100)**	**265 (100)**	**245 (100)**	**271 (100)**	**256 (100)**	**173 (100)**	**1644 (98.9)**

Note – 19 (1.1%) records had no time registered
Source: Rescue Care Report (RAS).

There was a higher proportion of accidents on Fridays, followed by Wednesdays and a lower proportion of accidents on Sundays. It should be noted that the night time period presented a higher proportion of run over than in other periods, with Fridays being more representative.

Applying the Chi-square test with 18 degrees of freedom, a significant association (p = 0.000) was observed between the days of the week and the period of the accidents, that is, the accidents had a higher frequency in a given period of the day, that is, the night time period (6:00 p.m. to 11:59 p.m.) and a certain day of the week, Friday. This information is consistent with other studies[8-12].

It is believed that there is a greater circulation of people and vehicles in the streets during these hours, because it is the time of leaving work and school. Another factor that also contributes is that at the end of the week the behavior and the exposure of young adults change in relation to the other days of the week, having a longer stay in streets and nightclubs, such as bars, besides the consumption of alcoholic beverages, by the pedestrians and by drivers.

When the gender was associated with the day of the occurrence, it was observed that in the female population the occurrences were more frequent on Wednesday, with 131 (7.8%) treatments and in the male population, at the end of the week, with 159 (9.6%) on Saturday and 157 (9.4%) on Friday. It is possible to notice the predominance of accidents involving women on working days. In a female case and in three male records there was no data described in the RAS, and in six records there was no gender

The findings of this research point to the fact that the incidence of run over was higher in females on working days, especially on Wednesdays, in the morning in intervals from 7 a.m. to 8:59 a.m., and in relation to men in night periods in the four years of study. Still on the occurrences related to the female gender, the study indicates the predominance in the time from 1 p.m. to 2:59 p.m. in 2011, from 11 a.m. to 11:59 a.m. in 2012. Also in the four years, the months of March and May had more occurrences. This association was not found in other studies[3-6,8-13,17].

We may assume that women have a distinct life habit in relation to men, as they are often responsible for bringing children to school regularly at these times, making them predisposed to events.

Most of the assistance occurred in urban areas of the municipality, mainly in streets, with 862 (51.8%) of the occurrences, followed by avenues, corresponding to 641 (38.5%). The highest

frequency of occurrences was in the central area of the city, especially from Monday to Thursday, followed by the northern region on weekends. These two regions present common characteristics, such as the great circulation of pedestrians and vehicles, the central area being formed by narrow streets, with a large presence of traffic lights, and the north region has a central avenue of great traffic, however, the neighborhood has narrow streets. It is noteworthy that in 32 (1.9%) records the type of route of the accident was not described.

It is believed that interventions in these points, with actions of education for traffic, better signaling, conservation of the road structure and inspection, would be valid strategies to favor the reduction of accidents[5].

Considering that, normally, the traffic inspections occur in avenues of greater flow, a finding appears, because, in this study, it was detected that the run over occurs in great proportion in the streets. Therefore, it is suggested that monitoring is more intense in this type of road, as well as checking for signs of deficiency of signaling in these streets, dark or poorly lit places, and/or obstacles such as trees that make it difficult to see both pedestrian and drivers.

As for severity, it was evidenced by the Glasgow Coma Scale (ECG) and Revised Trauma Scale (RTE) scores, which the victims of run over, attended by SIATE, during the study years presented, mostly, mild traumas, followed by severe and, lastly, moderate. Of the individuals who suffered severe trauma, the adults in the four years of the study is evidenced, followed by the elderly and then by the children and adolescents. Perhaps this fact justifies the lesser need for medical attendance at the site.

Of the 1,663 visits performed by the basic support of SIATE, SAMU was activated to support the advanced support in 170 (10.2%) occurrences and in 28 (1.7%) the care reports did not have this information.

Regarding the type of vehicle that caused the accident, the data reveal the following: automobile, 715 (43.0%); motorcycle, 692 (41.6%); buses, 52 (3.1%); bicycle, 44 (2.6%); truck, 33 (2.0%); train, three (0.2%); tractor, two (0.1%), and in 101 (6.1%) the type of vehicle was not described on the RAS. This fact evidences a problem in the service for not adequately filling out the RAS. Of the attended cases, 49 (2.9%) of the files contained information about the driver's evasion from the vehicle, without providing assistance to the victim, and 170 (10.2%) victims of motor vehicle crashes had alcoholic breath.

There is an emphasis on public policy to avoid drink and driving, but the victim in an altered state of consciousness by the use of some kind of licit or illicit drug becomes a potential for run over. This data is considered and written in the rescuer´s report by the team when the odor of alcoholic breath and/or behavioral change during the service is noted, however, it can be under-registered in a great proportion of occurrences by the team due to absence of odor or behavior change[5].

Other important information is the evasion of drivers without providing assistance to the victim, and it could be assumed that the driver was under the effect of that substance, and, when evading the place, could have thought that he would not suffer the penalties of that traffic violation.

Regarding the type of injury, it was observed that the contusion was predominant, followed by excoriation. The least frequent injury was burns. It was observed that 13 (0.8%) victims of run over had no wounds, and in 20 (1.2%) RAS there were no information on wounds found.

A similar pattern of areas with wounds found is observed, depending on the age group. In the contusions, it can be observed that children and adolescents presented a higher incidence of lesions in head regions, with 88 (5.3%) and multiple regions, with 104 (6.2%); in adults, lesions occurred in the lower limbs, with 126 (7.6%) and multiple regions, with 204 (12.3%). In the elderly, the head region was highlighted, with 61 (3.7%), lower limbs, with 46 (2.8%) and multiple regions, with 97 (5.8%). It is known that injuries resulting from run overs vary according to the height and weight of the victim and also with the height of the vehicle[19].

Regarding the intrinsic and extrinsic vulnerability factors among the age groups, children, adolescents and the elderly are the most fragile groups from the point of view of pedestrian traffic. As already mentioned, the child and the adolescent become more vulnerable because they are still developing their psychomotor state, moving towards the achievement of a complete balance and dexterity, including the factors anatomy, physiology, environment and social relation.

On the other hand, the elderly go the opposite way as they lose their sensory, balance, muscular and intellectual strength, characterized by physiological and functional decline, becoming increasingly vulnerable[3,17].

Regarding the procedures performed in pre-hospital care, 957 (57.5%) of the victims were immobilized on a long board; 924 (55.6%) immobilized with cervical collar; 16 (1.0%) were able to walk during the team's primary approach; six (0.4%) refused treatment of the pre-hospital team; and one (0.06%) was removed from the site by people.

Also, 32 (1.9%) deaths were recorded, 25 (1.5%) were already dead when the team arrived, and seven (0.4%) died during the care and transportation, and 12 (0,7%) were taken to the Legal Medical Institute. It is noted that 23 victims (1.4%) were released at the site and 101 (6.1%) refused to be taken for continued treatment. The referrals of victims of run overs are shown in table 3.

Table 3. Distribution of run over victims attended by pre-hospital emergency service, according to type of hospitals, 2011 to 2014. Londrina-PR, 2016.

Year/Type of Hospital	*2011*	*2012*	*2013*	*2014*	*Total*
	FI (%)	FI (%)	FI (%)	FI (%)	FI (%)
Primary Hospitals	2 (0.5)	5 (1.4)	23 (6.8)	57 (19.8)	**87 (6.4)**
Secondary Hospitals	165 (42.1)	174 (50.3)	130 (38.1)	97 (33.7)	**566 (41.4)**
Tertiary Hospitas	225 (57.4)	167 (48.3)	188 (55.1)	134 (46.5)	**714 (52.2)**
Total	**392 (100)**	**346 (100)**	**341 (100)**	**288 (100)**	**1367 (100)**

Note that 140 (8.4%) files have no information of the place of referral of the victim
Source: Rescue Care Report (RAS).

Despite minor trauma, tertiary hospitals were the ones that received the most victims of run over by pre-hospital care, totalizing 714 (52.2%) of referrals, followed by secondary services corresponding to 566 (41, 4%). Over the four years, there was an increase in the admission of victims in primary services and a slight reduction in referrals to tertiary services. When comparing this information with the severity of the traumas identified in the study, it is observed that the majority had mild traumas, followed by severe traumas. Thus, it can be considered that the medical regulation of the SAMU is of great value within a health system of the municipality, since it directs the victims to the health services according to the necessity, being in agreement with the one recommended by CONASS[4].

The fact that victims of run over with mild and moderate traumas were referred to tertiary services (52.2%) rather than secondary services (41.4%) became intriguing. There are reports of the difficulty of pre-hospital medical regulation for the in-hospital and that these factors depend on the victim's condition, the number of available places and the current political system[20]. It is suggested studies and documents that support the process of evaluating victims at the scene of the accident and due referral, supporting the team performing duties.

There are some limitations in the present study. One of them refers to the lack of data collection also in the SAMU, which may eventually attend trauma without the presence of the SIATE team. The other, refers to the fact that the study established as the study population the victims of run over who were treated by SIATE, then, it is presumed that this statistic may have been underestimated, since not all run over produced injuries, and also because of the possibility that the victim may have been cared for and transported by popular and/or other pre-hospital care services.

FINAL CONSIDERATIONS

There has been a gradual decrease of the run over in the last four years in the city under study. The central urban area, mainly in narrow streets, had more occurrences, involving automobiles.

The highest number of victims was male and the median age of the run over was 39, but in addition to the young adults, children and adolescents between the ages of five and 19 were the most affected.

In the four-year study, male victims were mostly run over during the night, especially on weekends, while females in the daytime and especially during

the week, with emphasis on Wednesday, also the months of March and May had more occurrences.

Most of the victims had mild trauma, with children, adolescents and the elderly having more head injuries while adults had injuries on the lower limbs

It was identified that 10% of adult victims had alcoholic breath, which becomes a working field for public health. Most of the victims were referred to the tertiary care services, although the traumas were mild. It is suggested that further studies be carried out in the area.

ATROPELAMENTOS: ANÁLISE EPIDEMIOLÓGICA DOS ÚLTIMOS QUATRO ANOS

RESUMO

O objetivo do estudo foi caracterizar os atropelamentos atendidos por serviços de urgência pré-hospitalar móvel em um município do norte do Paraná. Pesquisa retrospectiva, transversal, com abordagem quantitativa, obtida por meio dos dados do prontuário das vítimas atendidas pelo serviço pré-hospitalar móvel nos últimos quatro anos. A análise dos dados foi por meio da estatística descritiva e exploratória. Foram analisadas 1.663 ocorrências: 469 no ano de 2011, 431 em 2012, 408 em 2013 e 355 em 2014. Das ocorrências atendidas, a idade mediana foi de 39 anos, entretanto,as crianças e adolescentes foram mais acometidos. Também o episódio foi mais freqüente em ruas, na região central do município, às sextas e quartas-feiras, nos meses de março e maio, sendo mulheres no período da manhã e tarde, e homens principalmente no período noturno, provocado por automóvel, seguido por motocicleta. Destes acidentes, 3% dos condutores se evadiram do local sem prestar assistência à vítima. Identificou-se uma diminuição do evento atropelamento nos últimos quatro anos. Sugere-se intensificar a fiscalização nos pontos descritos e a elaboração de medidas preventivas, utilizando-se outros métodos e outras fontes de informação.

Palavras-chave: Causas externas.Acidente de trânsito. Transeuntes. Serviço hospitalar de emergência. Perfilepidemiológico.

ATROPELLOS: ANÁLISIS EPIDEMIOLÓGICO DE LOS ÚLTIMOS CUATRO AÑOS

RESUMEN

El objetivo del estudio fue caracterizar los atropellos atendidos por servicio de urgencia prehospitalario móvil en un municipio del norte de Paraná, Brasil. Investigación retrospectiva, transversal, con abordaje cuantitativo, obtenida por medio de los datos de los registros médicos de las víctimas atendidas por el servicio prehospitalario móvil en los últimos cuatro años. El análisis de los datos fue por medio de la estadística descriptiva y exploratoria. Fueron analizadas 1.663 ocurrencias: 469 en el año de 2011, 431 el 2012, 408 el 2013 y 355 el 2014. De las ocurrencias atendidas, el promedio de edad fue de 39 años, aunque los niños hayan sido los más acometidos. El hecho fue más frecuente en calles, en la región central del municipio, los viernes y miércoles, los meses de marzo y mayo, siendo las mujeres en el período de la mañana y tarde, y los hombres principalmente en el período nocturno, provocado por automóvil, seguido por motocicleta. De estos accidentes, el 3% de los conductores se evadieron del local sin prestar atención a la víctima. Se identificó una disminución del evento atropello en los últimos cuatro años. Se sugiere intensificar la fiscalización en los puntos descriptos además de la elaboración de medidas preventivas, utilizándose otros métodos y otras fuentes de información.

Palabras clave: Causas externas. Accidente de tráfico. Peatones. Servicio hospitalario de urgencia. Perfil epidemiológico.

REFERENCES

1. Organização Mundial da Saúde (OMS). Sistemas de dados: um manual de segurança viária para gestores e profissionais da área. Brasília (DF): OPAS; 2012. [citado 2015 nov 12].Disponível em: www.who.int/iris/bitstream/10665/44256/3/9789275717110_por.pdf. 2. Ministério da Saúde (BR). Secretaria-Executiva. Subsecretaria de Planejamento e Orçamento. Plano Nacional de Saúde (PNS): 2012-2015. Brasília (DF); 2011.

3. Camargo, ABM. Idosos e mortalidade: preocupante relação com as causas externas. 1ª Análise SEADE. São Paulo; 2016.

4. Conselho Nacional de Secretários de Saúde (BR). Rede de atenção às urgências e emergências: avaliação da implantação e do desempenho das unidades de pronto atendimento (UPAS). Brasília (DF); 2015.

5. Mesquita MF, Silva FM, Veiga VT. Acidentes de trânsito ocorridos antes e depois da legislação restritiva ao consumo de bebidas alcoólicas. Rev Med Minas Gerais, 2012; 22(3): 259-64.

6. Matos KF, Martins CBG. Mortalidade por causas externas em crianças, adolescentes e jovens: uma revisão bibliográfica. Rev Espaço Saúde. 2013 dez; 14(1-2):82-93.

7. IG Vigilante. Mortes por atropelamento caem 17% no primeiro semestre de 2016. IG Vigilante. [citado 2017 jan 17]. Disponível em: http://ultimosegundo.ig.com.br/igvigilante/transito/2016-08-09/mortes-atropelamento-sao-paulo.html

8. Soares RAS, Pereira APJT, Moraes RM, Vianna RPT. Caracterização das vítimas de acidentes de trânsito atendidas pelo Serviço de Atendimento Móvel de Urgência (SAMU) no município de João Pessoa, Estado da Paraíba, Brasil, em 2010. Epidemiol Serv Saúde. 2012 dez; 21(4):589-600.

9. Gallinari JCC, Gallinari HFS, Valadão AF, Gaspar VLV. Causas externas: análise das internações ocorridas no Hospital Márcio Cunha, em Ipatinga-MG. Braz J Surg Clin Res. 2014 set-nov; 8(3):6-14.

10. Welter DS, Frigo J, Busnello G, Kolhs M. Caracterização das ocorrências traumáticas atendidas por corpo de bombeiro do município de Itapiranga SC. Rev Pesq Cuidado Fundamental. 2013 abr/jun;5(2):3620-25.

11. Sant'anna FL, Andrade SM, Sant'anna FHM, Liberatti CLB. Acidentes com motociclistas: comparação entre os anos 1998 e 2010. Londrina, PR, Brasil. Rev Saúde Pública. 2013; 47(3): 607-15.

12. Marín-león L, Belon AP, Barros MBA, Almeida SDM, Restitutti MC. Tendência dos acidentes de trânsito em Campinas, São Paulo, Brasil: importância crescente dos motociclistas. Cad Saúde Pública. 2012 jan; 28(1):39-51.

13. Costa PC, Miranda JOF, Souza KA. O. Pediatric prehospital assistance conducted by the mobile emergency care servisse (SAMU). J Res Fund Care. 2013 out/dez; 5(4):614.

14. Casarolli ACG, Camboin FF, Rodrigues RM, Toso BRGO. Educação em saúde para o trânsito em uma unidade pediátrica de hospital público. Ciênc Cuid Saúde, 2014 out/dez; 13(4):650-6.

15. Datasus. Departamento de informática do SUS. Relatório publicado em 22 de junho de 2012. [citado 2017 jan 11]. Disponível em: http://datasus.saude.gov.br/noticias/atualizacoes/494-o-poder-publico-e-o-transporte-alternativo-brasileiro.

16. Coelho JPSL. Ensino de primeiros socorros nas escolas e sua eficácia. Rev Cient ITPAC. 2015 jan; 8(1):7.

17. Instituto de Pesquisa Econômica aplicada (IPEA). Estimativa dos custos dos acidentes de trânsito no Brasil com base na atualização simplificada das pesquisas anteriores do IPEA. Relatório de Pesquisa. Brasília (DF); 2015.

18. Gorios C, Souza RMS, Gerolla V, Maso B, Rodrigues CL, Armond JE. Acidentes de transporte de crianças e adolescentes em serviço de emergência de hospital de ensino, Zona Sul da cidade de São Paulo. Rev Bras Ortop. 2014;49(4):391–5

19. National Association of Emergency Medical Technicians. PHTLS basic and advanced Prehospital Trauma Life Support. 6th ed. St. Louis: Mosby; 2007. Atendimento pré-hospitalar ao traumatizado: PHTLS / NAEMT. Rio de Janeiro: Elsevier; 2011.

20. O´Dwyer G, Mattos RA. O Samu, a regulação no Estado do Rio de Janeiro e a integralidade segundo gestores dos três níveis de governo. Physis: Rev Saúde Coletiva; 2012, 22 (1):141-60.

Corresponding author: Nilvana Teixeira da Silva Moreno. Av: Roberto Conceição nº 692, bloco 1 apto 302, Centro,CEP: 86192 550, Cambé/PR, Brasil. E-mail: nilvana_enf@hotmail.com

Submitted: 17/02/2016
Accepted: 05/12/2016