Safety in Road Communication and Role of pre-Hospital Emergency Service.

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Abstract

**Background:** Around 1.25 million people die each year due to traffic accidents. Traffic accident injuries are the leading cause of death in the most productive age group – 20-45 years old. If no preventive measures are taken, it is expected that in year 2030 traffic accidents will be the leading cause of death in general.

**Aim of study:** Gathering and comparing the statistics regarding traffic accidents to have a better overview of the problem. To identify the most common factors of traffic accidents. To compare the number of accidents and casualties at local, regional and global level. To evaluate the way traffic accidents are handled from urgent medicine services and the Centre of Urgent Medicine in particular. To improve the quality of handling traffic accident from medical teams.

**Material and methods:** data for this paper is extracted from QMU and archive protocols. We have cooperated with Emergency Centre of UCCK, and Kosovo Police, Pristina regional unit. Retrospective method of research and afterwards descriptive and analytical method has been applied.

**Results:** Of 604 cases of traffic accidents that have been analyzed, 212 or 35.1 % included persons of age group 16-25. Of the total number, 411 or 68.04 % were males and 193 or 31.9 % were females. The average time of arriving at the scene of CEM teams was 7.65 minutes. 5150 patients were transported to Emergency Centre in UCCK, 3158 of them or 61.32 % were transported with private vehicles and 1992 or 38.62 % were transported with ambulance.

**Conclusions:** The main factor of traffic accidents remains human factor. Traffic accidents increase the incidence of death and disability in general population. Laws and their obedience, technical condition of vehicles, road infrastructure are also factors that influence the number of traffic accidents. Enforcing Emergent Medical Services, promoting and educating the population, institutional cooperation, have positive impact in reducing the number of traffic accidents, decreasing mortality and disability caused by traffic accidents.

**Keywords:** traffic accident, medical urgency, fatality, security.

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Full Text

Introduction
Traffic accidents are leading cause of death in the most productive age group - 20-45 years of age. 20 - 50 million people in the world are left with injuries and disability caused by traffic accidents. Half of those who lose their life in traffic accidents are active participants - pedestrians, bicycle and motorcycle drivers. Unless preventive measure are taken, it is expected that by year 2030, traffic accidents will be the 7th leading cause of death in the world. Large number of traffic accidents is caused by a variety of factors and the result is a relatively large number of victims left with disability and material loss. This number can be lowered with proper laws and practices.

Lack of strategic multisectorial plan
Kosovo should have a strategic plan dedicated to traffic safety in national level.
Experience from other countries in the region has shown that strategic plans regarding traffic safety have improved the efficacy of the institutions by improving cooperation between them. Traffic accidents are one of the leading cause of death and disability. Traffic safety is a serious problem especially in transitional countries such as Kosovo.

Aim of study
To gather and compare data from traffic accidents to have a better view on the problem.
To identify the most common causes of traffic accidents in Kosovo.

To compare the number of accidents and victims with other countries.
To evaluate the medical service of relevant institutions especially the Centre of Urgent Medicine in Pristina.
To offer information and ideas on how to increase the quality in service by First Aid service teams.

Material and methods
This research uses retrospective, descriptive and analytical method.
Cases of accidents from year 2002 to 2018 have been included.
The number of casualties from these years has been included.
The number of accidents in year 2017 and 2018 have been compared.
The number of accidents has been compared with data from other countries in the region.
Data from Centre of Urgent Medicine interventions in year 2018 has been presented in tables and graphics including the number of patients that have been transported to Emergency Centre of University Clinical Centre in Pristina.

Results
Results from the research have been presented in tables and graphics.

| Year | Nr. of accidents | of accidents |
|------|------------------|--------------|
| 2002 | 9386             |              |
| 2003 | 5541             |              |
| 2004 | 6564             |              |
| 2005 | 13917            |              |
| 2006 | 14582            |              |
| 2007 | 17006            |              |
Table 1: Number of traffic accidents in Kosovo from year 2002 to 2017. Average number 15564, lowest number in 2003 - largest number in 2013.

| Year | Numri | %  |
|------|-------|----|
| 2008 | 15932 |    |
| 2009 | 19212 |    |
| 2010 | 18030 |    |
| 2011 | 18888 |    |
| 2012 | 19754 |    |
| 2013 | 19954 |    |
| 2014 | 16300 |    |
| 2015 | 17722 |    |
| 2016 | 18541 |    |

Total 249524

Graph 1: Traffic accidents in Kosovo in years.

Table 2: Number of traffic accidents with fatality from year 2002 to 2017. The lowest number was in 2016 while the largest number was in 2006. On average there are 143 people who lost their life in traffic accidents yearly.

| Year | Numri | %  |
|------|-------|----|
| 2002 | 132   | 5.8|
| 2003 | 130   | 5.7|
| 2004 | 170   | 7.5|
| 2005 | 155   | 6.8|
| 2006 | 178   | 7.8|
| 2007 | 138   | 6.1|
| 2008 | 133   | 5.9|
| 2009 | 176   | 7.8|
| 2010 | 175   | 7.7|
| 2011 | 157   | 6.9|

Total 2265 100
The structure of traffic accidents in Kosovo in year 2017-2018.

|                          | 2017 |       | 2018 |       | Total |       |
|--------------------------|------|-------|------|-------|-------|-------|
| Accidents                | Nr   | %     | Nr   | %     |       | %     |
| Accidents with casualty  | 122  | 54    | 100  | 46    | 222   | 100   |
| Dead persons             | 137  | 51    | 129  | 49    | 266   | 100   |
| Accidents with injuries  | 6390 | 50.68 | 6217 | 49.32 | 12607 | 100   |
| Injured persons          | 12645| 50.57 | 12359| 49.43 | 25004 | 100   |
| Accidents with material damage | 11183 | 54.27 | 9424 | 45.63 | 20607 | 100   |
| Total accidents          | 17695| 52.92 | 15741| 47.08 | 33436 | 100   |

Table 3: Structure of accidents in Kosovo for the period of time between 2017 - 2018. The table shows decline in the number of accidents.

The same trend is seen in accidents with casualties and in accidents with material damage. The same is with the number of deceased and those injured.

Statistics for Prishtina region, year 2014 – 2018

|                          | 2014 |       | 2015 |       | 2016 |       | 2017 |       | 2018 |       |
|--------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|
| Year                     | Nr.  | %     | Nr.  | %     | Nr.  | %     | Nr.  | %     | Nr.  | %     |
| Accidents with casualties| 34   | 0.45  | 31   | 0.38  | 33   | 0.40  | 31   | 0.40  | 34   | 0.52  |
| Number of deceased       | 37   | 0.49  | 35   | 0.42  | 38   | 0.42  | 35   | 0.46  | 43   | 0.66  |
| Accidents with Injuries  | 2012 | 27.05 | 2194 | 26.89 | 2262 | 27.72 | 2347 | 30.86 | 2185 | 33.65 |
| Number of injured persons| 3915 | 52.64 | 4383 | 53.73 | 4392 | 53.82 | 4604 | 60.54 | 4466 | 68.78 |
| Accidents with material damage | 4903 | 65.92 | 5361 | 65.72 | 5865 | 71.87 | 5226 | 68.72 | 4274 | 65.82 |
| Hit and run accidents    | 488  | 6.56  | 571  | 7.0   | /    | /     | /    | /     | /    | /     |
| Total                    | 7437 | 52.92 | 8157 | 47.08 | 7604 | 6493  |

Table 4: The table shows data with number and percentage of traffic accident from year 2014 to 2018. The largest number of accidents was in 2016 while the lowest was in 2018 with 1667 less accidents.

Number of deceased in traffic accidents in Kosovo and the region.

| Country | Number of deceased in year 2017 | Number of deceased in 100 000 inhabitants |
|---------|---------------------------------|------------------------------------------|

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### Table 5: Number of deceased in traffic accidents in year 2017 for 100 000 inhabitants. Kosovo has 137 cases (7.8 %). Slovenia has the lowest percentage - 5.75 %, Serbia: 6.38 %, Greece with 890 cases or 7.0 %. It shows that Kosovo has an average index of mortality compared to the region.

Source of data: [http://www.worldlifeexpectancy.com/road-traffic-accidents](http://www.worldlifeexpectancy.com/road-traffic-accidents)

### Interventions by Centre of Urgent Medicine in traffic accidents by month 2018.

| Mon. | Jan | Febru. | Mar. | Apr | Ma. | June | July | Aug. | Sep. | Oct | Nov. | Dec. | Total |
|------|-----|--------|------|-----|-----|------|------|------|------|-----|------|------|-------|
| Nr.  | 101 | 83     | 69   | 108 | 98  | 116  | 110  | 198  | 101  | 121 | 95   | 83   | 1283  |
| %    | 7.9 | 6.4    | 5.4  | 8.4 | 7.6 | 9.1  | 8.6  | 15.4 | 7.9  | 9.4 | 7.4  | 6.5  | 100   |

### Table 4: The number and percentage of interventions in traffic accidents by month 2018. The largest number is in August, the lowest number is in March.

### Number of traffic accident interventions by age group and gender of victims

| Age            | Male | Female | Total |
|----------------|------|--------|-------|
|                | Nr.  | %      | Nr.   | %    | Nr.  | %    |
| 16-25 years    | 147  | 35.8   | 65    | 33.7 | 212  | 35.1 |
| 26-35 years    | 94   | 22.9   | 37    | 19.2 | 131  | 21.7 |
| 36-45 years    | 62   | 15.1   | 39    | 20.2 | 101  | 16.7 |
| 46-55 years    | 46   | 11.2   | 29    | 15.0 | 75   | 12.4 |
| 55-65 years    | 33   | 8.1    | 16    | 8.3  | 49   | 8.1  |
| over 65 years  | 16   | 3.9    | 7     | 3.6  | 23   | 3.8  |
| **Total**      | **411** | **68.04** | **193** | **31.9** | **604** | **100** |

### Table 6: Number of traffic accident victims treated by QMU in year 2018 based on age group and gender. Of total 604 cases, the most common age group is 16-25 with 212 cases of 35.1 %. Of the total number 604, male gender was more common with 411 cases or 68.04 % while females were 193 or 31.9 %.
Average time of intervention by QMU teams in traffic accidents measured from the moment of take to arrival at the scene in year 2018

| Nr. of cases | Time of take off after call | Average time of reaction | Total |
|--------------|-----------------------------|--------------------------|-------|
| 604          | 50 sek.                     | 7.65 min                 | 8.15 min |

Table 6: Time of intervention in 604 cases of traffic accidents in year 2018.

Number of cases and type of transportation to the Emergency Centre.

| Type of transport   | Nr. of cases | %   |
|---------------------|--------------|-----|
| With private vehicles | 3158        | 61.32 |
| With autoambulance  | 1992        | 38.68 |
| Total               | 5150        | 100 |

Table 8: The table shows that the type of transportation for most of the injured in traffic accidents is not adequate.

Discussion
Traffic accidents are a serious problem in the world.
This problem is very complicated and the number of victims is large.
According to a WHO research undertaken in 2013, 1,240,000 people die each year on traffic accidents.
Our country is also part of this problem where on average 100 people lose their life on yearly basis on traffic accidents.
In year 2017, the number of deaths in 100,000 people in traffic accidents was 137, or 7.8% of all traffic accident victims.
This percentage in other countries in the region is: Slovenia - 5.75%, Serbia - 6.38%, Greece - 7.0%.
Kosovo has an average index of traffic accident mortality.
There are several factors that influence the number of traffic accidents.
Main risk factors according to WHO are driver's and pedestrian's fault.

In some cases interventions in traffic accidents are covered by Firemen and Police officers who offer technical support in the place of accident.
Centre of urgent medicine in Prishtina offers support in traffic accidents by responding to a call on 194 line.
After arriving at the scene, the team evaluates the danger, and offers treatment to the injured.
Stabilisation of the victim at the scene includes breathing, bleeding, immobilisation.
During transport, the team monitors vital signs, pulse, consciousness, blood pressure, breathing, SPO2, and based in indications administers Oxygen, fluids and medicaments.
During transport the teams informs the receiving centre for the incoming injured person.

Most common factors that cause accidents
- dangerous manipulation of the vehicle
- not keeping a safe distance
- driving above the speed limit
- unsafe entering in traffic etc.

Drivers responsibility:
• speed
• influence of alcohol

Alcohol is responsible for 3 million deaths yearly globally, more than AIDS, violence and accidents, according to WHO:
• not wearing helmet
• not putting the seat belt on
• lack of proper seating for children
• use of cell phone
• not respecting the traffic signs

Human factor: human psychophysical stance is an important factor that influence traffic accidents. If the vehicle driver is a bad physical of psychological condition, it will influence the reaction during driving.

Vehicle factor: a large number of vehicles that are present in traffic in our roads are in a bad technical condition.

The street: is another factor that plays an important role.
The increase in number of vehicles and inadequate infrastructure is another factor.

Conclusion
The main factor in traffic accidents is human factor. Traffic accidents increase mortality and disability in population. Traffic legislature, technical condition of vehicles, road infrastructure are also important factors that influence the rise in number of traffic accidents. Promoting and educating the population, institutional cooperation can prevent traffic accidents. The cooperation should include all relevant institutions and the community. Managment of road accidents should be continuous. It will be effective by sharing the responsibilities and coordinating educative, legislative, supportive methods. Contemporary managerial policies can improve the prevention of this public health problem. This includes the necessity to have a national traffic safety strategy.

Prevention measures
National Strategy for prevention of road accidents in Kosovo.
This strategy should include contemporary managment of traffic accidents through several phases:
Pre-accident: legislative approvals, educative programs, intitutional coordinaion (police, healthcare, community) communication and transport equipment.
Higher fines which are regulated by the new legislature on road traffic have given the first results on lowering the number of accidents in Kosovo. This phase should be continuous.
During the accident: providing first aid to the victims.
Quick and coordinaed reaction by profesional healthcare and police officers.
After the accident: offering support, social and health rehabilizations to victims of traffic accidents.
Higher commitment by legal institutions in solving traffic accident cases.
Continuous professionalism training of emergency service staff that offer medical support in traffic accidents.
Frequent campaigns by police and emergency services with the aim to educate population and promote
health in the community with focus on traffic accidents.

**Careful! Cherish life! Accidents don't just happen, they are caused!**

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