
Introduction

Deaths from road traffic injuries (RTI), and in particular Motor Vehicle Traffic Accidents (MVTA) have been characterized worldwide as a hidden epidemic which affects all sectors of society. An estimated 1.26 million people worldwide died in 2000 from RTI, 90% of them in low and middle-income countries. In 2000, the road traffic injury mortality rate for the world was 20.8 per 100,000 population (30.8 in males, 11.0 in females). In the Americas, it was of 26.7 for males and 8.4 for females. The Americas bear 11% of the burden of road traffic injury mortality. Globally, traffic deaths and injuries on health and society have an enormous cost estimated around 1 - 2% of a country’s GNP in lower income countries. The theme for this year’s World Health Day (WHD), celebrated on 7 April, was Road Safety when the growing problem of worldwide road traffic deaths and injuries were highlighted and a global initiative on road safety and road traffic injury prevention presented. The World Report on Road Traffic Injury Prevention, published on the occasion of WHD, presented a number of recommendations highlighted in Box 1.

In the Americas during 1997-2000, mortality from all land transport accidents was the tenth leading cause of death in the general population, the 6th leading cause in males with an annual average of registered deaths of 77,820 and the 16th in females, with 24,702 deaths. The importance of the burden of death from land transport accidents, especially among younger age groups, is further noted in that they are the 2nd leading cause of potential years of life lost (YPLL) to 75 years of age overall (annual average of 4.2 million years) and in the male population (annual average of 3.2 million years) and 5th among females (annual average of 1.0 million years) over the same period.

The objective of this paper is to present a brief overview of the situation of MVTA in the Region of the Americas.

Methods

The full impact on the toll in human lives from motor vehicle accidents becomes clearer when annual data are studied. Registered deaths from MVTA were analyzed in 12 countries of the Americas during 1985-2001 – Argentina, Belize, Brazil, Canada, Chile, Colombia, Cuba, Guatemala, Mexico, Puerto Rico, United States and Venezuela. These countries

Box 1: Recommendations from the World Report on Road Traffic Injury Prevention*

1) Identify a lead agency in government to guide the national road safety effort
2) Assess the problem, policies and institutional settings relating to road traffic injury and the capacity for road traffic injury prevention in each country
3) Prepare a national road safety strategy and plan of action
4) Allocate financial and human resources to address the problem
5) Implement specific actions to prevent road traffic crashes, minimize injuries and their consequences and evaluate the impact of these actions
6) Support the development of national capacity and international cooperation

were chosen for geographical and data availability reasons. During this period, mortality was classified according to the Ninth and Tenth Revisions of the International Classification of Diseases (ICD) in all of these countries with the exception of Guatemala where ICD-9 only was used.

A motor vehicle is defined as any mechanically or electrically powered device not operated on rails, and includes cars, buses, trucks, vans, motorcycles, and off-road vehicles. A traffic accident is defined as any vehicle accident occurring on a public road or highway and includes vehicle accidents where the place of occurrence is unspecified. Non-traffic accidents are defined as occurring entirely in any other place than a public highway. Motor vehicle traffic accidents were assigned to categories E810-E819 in ICD-9 and to the following categories in ICD-10: V02-V04 (.1-.9), V09.2, V09.3, V12-V14 (.3-.6), V19 (.4-.6), V20-V28 (.3-.9), V29-V78 (.4-.9), V80 (.3-.5), V81.1, V82.1, V83-V86 (0-.3), V87 (.0-.8), V89.2 and V89.9. In ICD-10, deaths from transport accidents are assigned according to the type of vehicle in which the victim was an occupant and then to the characteristics of the injured person – car or bus occupants, pedestrian, motorcycle rider, pedal cyclist and whether the accident was traffic or non-traffic. In ICD-9, however, the deaths were classified by the type of vehicle involved in the accident – train, motor vehicle, watercraft, and aircraft and whether the accident was traffic or non-traffic and then identifying the injured person. Also, in ICD-10, the death must clearly indicate that a “motor” vehicle was involved, whereas in ICD-9, the term “motor” did not have to be specified. Accidents involving unspecified vehicles or where the victim’s mode of transport in ICD-10 is unknown are classified to “Other land transport accidents”. It should be noted that deaths assigned to cause categories X59 in ICD-10 and to E887 and E928 may include “unspecified” deaths involving motor vehicles and were not

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* The term “accident” is used in this article because the data presented specifically refers to codes used in the ICD and to the category titles used in the ICD 9 and 10 manuals. The distinction the ICD is making is that these deaths are not intentional and are accidental.
specified on the death certificate. As a result of the coding changes in ICD-10, caution should be observed when comparing mortality assigned to MVTA in both revisions. When available, comparability ratios between ICD-9 and ICD-10 for MVTA should be used to help interpret the data.

To analyze the data, proportionate mortality ratios and mortality rates were used. Analyses were carried out by age and sex. Death rates were also standardized by the direct method to allow comparisons between countries and periods.

**Trends**

*Magnitude of the problem*

In the selected countries, motor vehicle traffic accidents were the leading cause of death in females from 5-14, 15-24, and 25-44 years of age accounting for 15%, 18% and 7%, respectively, of all deaths from defined causes. They were also the leading cause among males 5-14 years of age (19%) and the second leading cause of deaths in males 15-24 (19%), and 25-44 years of age (12%). Of the registered deaths from all external causes 1985-2001 in these 12 countries, MVTA represents an average of around 20-30% in Brazil, Belize, Canada, Mexico, Puerto Rico, and the United States, 32% in Venezuela and 6% in Guatemala. Of the motor vehicle traffic accident deaths registered 1996-2001, pedestrians account for 12% in Argentina, Canada and the United States, 20-30% in Colombia, Cuba, Mexico, Puerto Rico, and Venezuela, and 30% or more in Brazil and Chile. These proportions appear to underestimate the actual toll of pedestrian deaths because in most countries 30-50% of MVTA deaths were assigned to “unspecified” categories, where the victim’s mode of transport was unknown or the type of vehicle was unspecified. However, studies in Mexico and Colombia indicate that pedestrians are the most vulnerable road users especially in main urban areas such as Mexico City (54% of traffic deaths, 1994-1995), Bogotá, Medellín and Cali (32% of injuries, 40% of traffic deaths overall and 68% of fatalities in Bogotá, 1996-2000). In contrast, motor vehicle occupant deaths accounted for 30-50% of MVTA deaths in Argentina, Canada, Cuba, Puerto Rico and United States; 10-25% in Brazil, Colombia, Mexico, and Venezuela and less than 10% in Chile during 1996-2001. The results highlight the relevance of the information on the characteristics of the injured person, particularly whether he/she was an occupant of a vehicle or a pedestrian, for the design of intervention strategies.

The average crude mortality rate from MVTA observed during 1985-2001 ranged from highs of 22.8 and 21.9 per 100,000 population in Brazil, and Venezuela to lows of 4.8 and 10.0 per 100,000 population in Guatemala and Chile. Similarly, the highest average rates were found among males in Brazil (36.0) and Venezuela (34.6) and the lowest male rates in Guatemala (7.5), Argentina (15.8) and Chile (16.3). Overall, average female crude rates were much lower than males. They ranged from highs of 9.9 and 10.9 per 100,000 population in Brazil and the United States to average lows of 2.0 and 3.9 per 100,000 population in Guatemala and Chile, respectively.
While deaths rates are powerful indicators of the relative magnitude of the problem, they do not measure the full burden of injuries due to motor vehicle crashes. Indicators of morbidity, disability, and the economic cost of injuries, among others, are necessary to provide a full picture of the situation.

**Trends in MVTA**

Over the period 1985-2001, age and sex standardized rates from motor vehicle traffic accidents shown in Figures 1, 2, and 3 show a declining trend in Mexico, Colombia, Brazil, Canada, United States, Cuba and Puerto Rico; and an increasing trend in Belize and Chile and, from 1996, in Venezuela. The rates were slightly decreasing in Guatemala and steady in Argentina. The effect of the change in ICD revisions is probably reflected in noting that in the year that countries changed to ICD-10 (Brazil, Venezuela 1996; Argentina, Belize, Chile and Colombia 1997; Mexico, 1998; Puerto Rico and United States 1999; Canada 2000 and Cuba 2001), MVTA rates tended to drop and then increase the following year. Belize was the exception when a dramatic two-fold rate increase was observed, which may reflect, in part, changes in ICD and some other unknown effect. Caution should be observed in the interpretation of the rates in Chile which may be underestimated since on average over the period, one third of the deaths from all external causes have been assigned to “events of unknown intent” (ICD-10: Y10-Y34, ICD-9: E980-E988) and may include deaths involving motor vehicles. This proportion varies over time and might also affect the actual trend. Average age standardized rates from motor vehicle traffic accidents in this period showed that Venezuela and Brazil had the highest rates, 24.1 and 24.2 per 100,000 population, respectively, while the lowest average rates were found in Guatemala and Argentina, 6.1 and 9.7. Among males, the highest average age standardized rates again were found in Brazil and Venezuela, 38.0 and 38.8 per 100,000 and lowest in Guatemala and Argentina, 9.7 and 15.0, respectively. Among females, the United States and Venezuela had the highest average age standardized rates, 9.5 and 9.6 respectively, and Argentina and Belize the lowest, 4.7 and 6.3, respectively. Masculinity mortality ratios (the ratio of age standardized male: female deaths per 100,000) with values over 1.0 indicating “excess” male mortality, highlight the relative severity of this problem in males. These ratios ranged from an average of 2.3 in Canada and United States to around 4.0 in Puerto Rico, Venezuela, Guatemala, and Chile, and to 5.4 in Belize during 1985-2001. Excess male mortality increases the number of widows and orphans and exposes them to a higher risk of economic difficulty.

As can be seen in Figures 3, 4, and 5, age specific death rates show a similar toll of excess male to female deaths per 100,000, in Brazil, Canada and Mexico, particularly after age 15. The age specific death rates, especially in males, observed in Brazil, 2000 demonstrate a rapid increase in MVTA mortality from 5-14 years of age to the most vulnerable age groups 15-24, 25-44 and 45-64 years of age. The trend is similar in Mexico 2001, but with smaller increases observed in the age groups 25-44 and 45-64 years of age. In contrast, age specific
rates in Canada in 2000 increase from 1-4 to a maximum at 15-
24 years of age then decrease through 45-64 and then in-
crease in those aged 65 years and over. This is consistent
with the finding that in high income countries, adults aged
between 15 and 29 have the highest rates of injuries. Con-
tributing risk factors for this age group include inexperience
with vehicles, thrill-seeking and over-confidence, less toler-
ance of alcohol compared with older people, and excess or
inappropriate speed. In Puerto Rico (2000) and United States
(2000), similar decreases in rates from ages 15-24 to 25-44
year were seen, while rate decreases were also seen in these
age groups for females in Belize (2000), Cuba (2001), Argenti-
a (2001), and Venezuela (2000) [data not shown]. Overall,
elderly people are more likely to be killed or seriously dis-
abled than younger people due to their lack of resilience. These
preliminary results suggest the need for a more de-
tailed analysis on the risk factors involved prior to suggest-
ing interventions in a more specific way.

Injury prevention

To a large degree, MVTA are preventable and can be influ-
enced through national policy decisions, education and
individual choices. As the number of cars increases, the roads
have become more dangerous and the expected number of
deaths and injuries will continue to rise relative to the num-
er of vehicles on the road. The most important risk factors
for motor vehicle injury identified are driving while impaired
by alcohol or drugs and failing to use occupant protection
e.g., safety belts, child safety seats, and motorcycle hel-
mets), speeding, poor road planning and road construc-
tion which does not plan for the interaction of different road
users, especially pedestrians, unsafe vehicle design and inade-
quate implementation of road safety measures. Increasing
the standards for motor vehicle crash worthiness and proper
road design can, however, reduce their frequency and/or pre-
vent crashes. It is nevertheless important to note that risk fac-
tors vary from one setting to the other, and that only high qual-
ity data on the nature of the crash and of the injured persons
will allow for adequate prevention strategies to be put in place.

Researchers over the years have generated evidence on
the injury problem, its risk factors, and ways to prevent mo-
tor vehicle fatalities long before changes occurred in public
policy and legislation. They have noted the increased risk of
motor vehicle accidents with drinking and driving and, the
life-saving effects of the use of seat belts and occupant re-
straints for infants and small children. Unfortunately, data
alone cannot always bring about changes in policies that
affect individual behavior. Further, prevention strategies need
to be customized to the specific situation of countries and
not all measures work in all settings. The data that is collect-
ed needs to be analyzed and demonstrate the health, social
and economic impact of road traffic injuries as well as to
monitor and evaluate road safety interventions. Public sup-
port for enforcement, enactment of new laws, road safety
education and implementation of mass transportation sys-
tems and insurance programs to cover health care costs of
victims has led to reductions in motor vehicle fatalities yet
the toll is still high. Successful strategies in reducing injuries
suggest a multi-sectoral approach involving the sectors of
health, transport, education, law enforcement and environ-
ment. Governments have a critical role to play in prevention
efforts and in creating, fostering and maintaining an environ-
ment for road safety.

References:

(3) WHO. The Injury Chart Book. Geneva 2002

Source: Prepared by Mr. John Silvi from PAHO’s Area of Health Analysis and Information Systems (AIS)

Avian Influenza

Since mid-December 2003, a highly pathogenic epidemic
of avian influenza type A (H5N1) has been reported in do-
mestic and other types of birds. As of 10 February 2004, cas-
es have been reported in eight Asian countries (Cambodia,
China, Indonesia, Japan, Laos, Republic of Korea, Thailand
and Viet Nam). Although the majority of episodes of these
infections are self-limited, they generate heavy human and
economic losses. Some of these strains have demonstrated a
unique ability to cause infection and serious disease in hu-
man beings. Apart from the immediate risk of transmission
to human beings in close contact with infected birds, the wide-
spread geographical presence of H5N1 increases opportuni-
ties for human coinfection with bird and human influenza
virus. Such events increase the opportunities for antigenic