

# Epidemiological Bulletin

PAN AMERICAN HEALTH ORGANIZATION

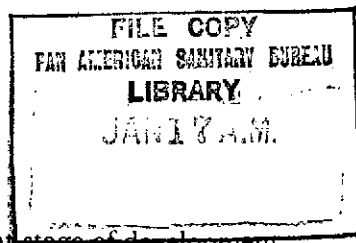
A I 00112 PR E RM 001 USF 480

HSM-L  
DOCUMENTATION & HEALTH INFO  
WASHINGTON DC USA

Vol. 5, No. 2, 1984

17738

## Traffic Accidents in the Americas



### Introduction

Traffic accidents have ceased to be the exclusive domain of the developed countries and have become, particularly among active young people, one of the principal causes of injuries, disabilities, and deaths in developing countries. Consequently, for each death in a traffic accident, on the average about 30 man/years of life expectancy are lost. This figure is considerably lower for cardiovascular diseases and cancer, which precede traffic accidents as a cause of mortality among the general population. On the other hand, individuals disabled by injuries in traffic accidents have displaced those affected by poliomyelitis in rehabilitation centers.

The economic impact is considerable; to direct costs such as damage to vehicles, roads, and property, medical care for the injured, and expenditures for administrative services indirect costs should be added, especially those due to the loss of potential productivity on the part of the victims.

In the countries of Latin America and the Caribbean (where great differences exist between countries or subregions), activities for the prevention and control of accidents and their consequences are, in

general terms, at an incipient stage of development. In these countries, traffic accidents are assuming epidemic proportions due to the increase in the population and in the total number of registered vehicles, as well as to the growth in urbanization and industrialization. Advances in traffic legislation, highway education for motorists, and road and vehicle safety have not kept pace with the factors generating the problem.

Latin American and Caribbean countries should consolidate the progress some have achieved and promote similar developments in the rest. Improved support systems can translate that progress into concrete projects for preventing accidents and diminishing their consequences; the experience of the industrialized countries in this field can be creatively utilized and studies can be made of the countries' own situation in order to design appropriate programs.

### Current Situation: Measuring the Magnitude and Seriousness of the Problem

As mentioned above, the countries of the Region of the Americas present widely diverse socioeconomic and cultural scenarios which include the most and

### IN THIS ISSUE...

- Traffic Accidents in the Americas
- Status of Chagas' Disease in the Region of the Americas
- Diseases Subject to the International Health Regulations

- Application of Epidemiology in Medical Technology Assessment
- Reports on Meetings and Seminars
- Calendar of Courses and Meetings
- Publications

least developed countries in the world; between these two extremes there is a great variety of situations. Human transportation is, of course, among the important variables in development.

Table 1 presents the number of motor vehicles registered in 1969 and 1980 and the percentage increases which ranged between 13.3% and 324.4% for 15 countries in the Region.

Table 2 relates the population and the total registered vehicles through the motorization index (number of motor vehicles/number of inhabitants), which ranged from 0.004 to 0.500 in 1969 and from 0.027 to 0.728 in 1980. A total of 14 of the 15 countries in which a comparison could be made had percentage increases in that period ranging between 12.2% and 875.0%; only one country (Cuba) experienced a decrease in this indicator. This table supports the assumption that the risk of traffic accidents among the population increased in almost all the countries analyzed.<sup>1</sup>

Regrettably, registration is uneven, since in most countries, data are collected only on those accidents considered serious. This inconsistency hinders verification and renders deaths caused by accidents a necessary yardstick, even though these are defined in notably different ways: for some, these are deaths at the site of the event, and for others, they are deaths within the month or the year following the accident.

Table 3 presents the traffic accident deaths in 1969 and 1980 as well as the rates per 100,000 inhabitants and per 10,000 vehicles, including the percentage variations observed for each of these two indicators. An analysis of this table reveals the following: in Costa Rica, Cuba, Ecuador, Guatemala, Panama, Peru, Trinidad and Tobago, Uruguay, and Venezuela the specific mortality rate from 1969 to 1980 registered an increase which oscillated between 9.7% and 167.3%; in Argentina, Chile, Canada, Colombia, Dominican Republic, El Salvador, and the United States reductions were noted in that rate ranging from 4.0% to 26.4%. The mortality rate per 10,000 vehicles increased in Cuba, Guatemala, Panama, and Uruguay and ranged between 1.9% and 90.0%; in the rest of the countries the rate decreased, ranging between 1.6% and 73.8%.

Table 4 summarizes the percentage variations of the five above-mentioned elements to provide a better comparative analysis. In general, it could be

<sup>1</sup>Another important index correlates the total registered vehicles with the kilometers of roadway: greater density suggests greater risk.

**Table 1. Number and percentage variation of vehicles registered in selected countries of the Americas in 1969 and 1980.**

Country	Registered vehicles		Variation
	1969	1980	(%)
Argentina	1,804,700	4,234,527	134.6
Brazil	2,490,900	...	...
Canada	7,746,800 <sup>a</sup>	...	...
Chile	254,500	828,480	225.5
Colombia	264,300	817,611	209.3
Costa Rica	51,600	213,904	314.5
Cuba	265,700	371,287	39.7
Dominican Republic	51,400	207,501	303.7
Ecuador	56,300	...	...
El Salvador	47,200	145,680	208.6
Guatemala	52,800 <sup>b</sup>	209,289	296.4
Mexico	1,465,800	6,221,397	324.4
Panama	53,200	137,721	158.9
Peru	306,900	486,048	58.4
Trinidad and Tobago	86,400	216,341	150.4
United States of America	99,563,400	165,700,000 <sup>c</sup>	66.4
Uruguay	232,300	263,119	13.3
Venezuela	863,784	2,532,000	193.1

...No data available.

<sup>a</sup>1968.

<sup>b</sup>1967.

<sup>c</sup>1981.

**Table 2. Index and percentage variation of motorization in selected countries of the Americas in 1969 and 1980.**

Country	Motorization index <sup>a</sup>		Variation
	1969	1980	(%)
Argentina	0.076	0.160	110.5
Brazil	0.028	...	...
Canada	0.373	...	...
Chile	0.027	0.076	181.5
Colombia	0.013	0.031	138.5
Costa Rica	0.032	0.098	206.3
Cuba	0.035	0.032	-8.6
Dominican Republic	0.004	0.039	875.0
Ecuador	0.010	...	...
El Salvador	0.014	0.030	114.3
Guatemala	0.011	0.027	145.5
Mexico	0.031	0.095	206.4
Panama	0.039	0.076	94.9
Peru	0.024	0.027	12.5
Trinidad and Tobago	0.085	0.187	120.0
United States of America	0.500	0.728	45.6
Uruguay	0.082	0.092	12.2
Venezuela	0.086	0.182	111.6

...Data not available.

<sup>a</sup>Ratio of vehicles/population.

assumed that the increase in the motorization index contributed to raising the death rates per 100,000 population in nine of the countries analyzed; in contrast, it appears to have contributed to reducing the death rates per 10,000 vehicles in 10 of the countries.

Figure 1 shows clearly the correlation between the two indicators most widely used in measuring the magnitude and seriousness of traffic accidents: mortality rates per 100,000 population and per 10,000 vehicles. It can be seen that in the countries with a

*very high* motorization index (as in the United States) the mortality rate per 10,000 vehicles reaches, approximately, 22.2% of the value of the rate per 100,000 population. In countries with a *high* motorization index (0.160-0.187) that rate reaches 50-75%

**Table 3. Number of deaths from traffic accidents in selected countries of the Americas in 1969 and 1980 and percentage variation.**

Country	Number of deaths		Mortality rates per 100,000 population			Mortality rates per 10,000 vehicles		
	1969	1980	1969	1980	Variation (%)	1969	1980	Variation (%)
Argentina	3,524	3,779	14.9	14.3	-4.0	20.0	8.9	-55.5
Brazil	...	20,217	...	16.4	...	...	...	...
Canada	5,696	5,170 <sup>a</sup>	27.4	21.7 <sup>a</sup>	-20.8	7.0	...	...
Chile	1,668	1,434	17.8	13.1	-26.4	66.0	17.3	-73.8
Colombia	2,026	2,242	10.2	8.5	-16.7	70.0	27.4	-60.9
Costa Rica	201	363	12.3	16.6	35.0	39.0	17.0	-56.4
Cuba	947	1,212	11.3	12.4	9.7	32.0	32.6	1.9
Dominican Republic	286	353	7.1	6.7	-5.6	56.0	17.0	69.6
Ecuador	837	1,817 <sup>a</sup>	14.7	21.8 <sup>a</sup>	48.3	149.0	...	...
El Salvador	296	371	9.1	7.7	-15.4	63.0	25.5 <sup>b</sup>	-59.5
Guatemala	261	1,123	5.5	14.7	167.3	49.0	53.6	9.4
Mexico	...	17,507	...	26.8	...	...	28.1	...
Panama	114	364	8.3	20.0	141.0	21.0	26.4	25.7
Peru	1,336 <sup>c</sup>	2,103	10.5 <sup>c</sup>	11.8	12.4	44.0 <sup>c</sup>	43.3	-1.6
Trinidad and Tobago	148	230	14.5	19.9	37.3	17.0	10.6	-37.6
United States of America	56,400	50,800 <sup>b</sup>	28.3	22.2 <sup>b</sup>	-21.6	6.0	3.1 <sup>b</sup>	-48.3
Uruguay	177	400	6.3	14.0	122.2	8.0	15.2	90.0
Venezuela	2,424	5,211	24.2	37.4	54.5	28.0	20.6	-26.4

...Data not available.

<sup>a</sup>1978.

<sup>b</sup>1981.

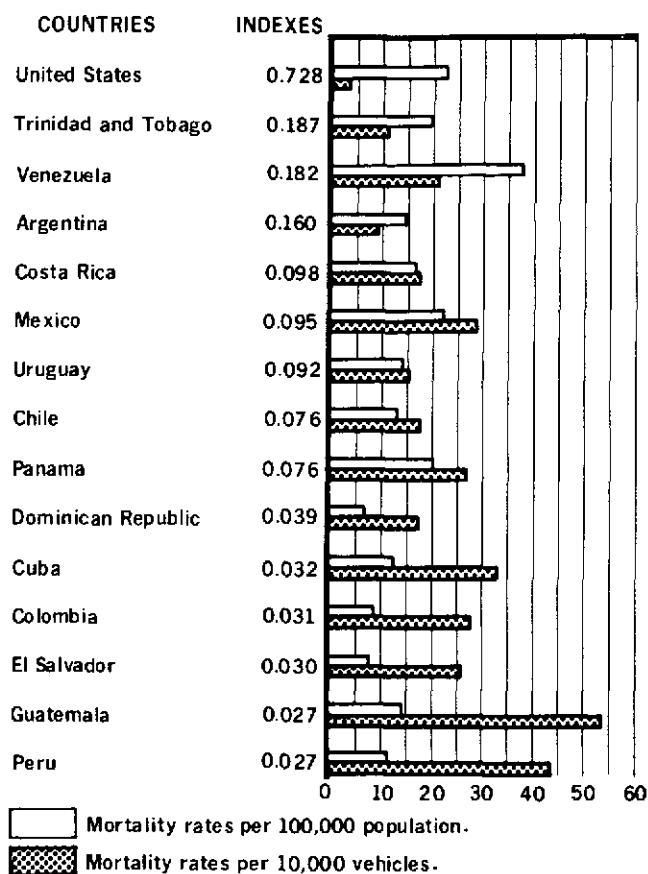
<sup>c</sup>1967.

**Table 4. Percentage variations of some indicators related to deaths from traffic accidents between 1969 and 1980 in selected countries of the Americas.**

Country	Percentage variations				
	Population	Vehicles	Motorization index	Mortality rates per 100,000 population	Mortality rates per 10,000 vehicles
Argentina	-4.0	134.6	110.5	-4.0	-55.5
Canada	4.7	...	...	-20.8	...
Chile	6.5	225.5	181.5	-26.4	-73.8
Colombia	11.6	209.3	138.5	-16.7	-60.9
Costa Rica	11.4	314.5	206.3	35.0	-56.4
Cuba	5.0	39.7	-8.6	9.7	1.9
Dominican Republic	12.3	303.7	875.0	-5.6	-69.6
Ecuador	16.0	...	...	48.3	...
El Salvador	20.1	208.6	114.3	-15.4	-59.5
Guatemala	31.2	296.4	145.5	167.3	9.4
Mexico	8.4	325.3	206.4	...	...
Panama	9.4	158.9	94.9	141.0	25.7
Peru	13.9	58.4	12.5	12.4	-1.6
Trinidad and Tobago	7.0	150.4	120.0	37.3	-37.7
United States of America	6.9	66.4	45.6	-21.6	-48.3
Uruguay	-6.5	13.3	12.2	122.2	90.0
Venezuela	16.0	193.1	111.6	54.5	-26.4

...Data not available.

Figure 1. Ratio of mortality rates per 100,000 population and per 10,000 vehicles, according to motorization indexes in selected countries, Region of the Americas, 1980.



Source: Tables 1 and 3.

of the rate related to population (Trinidad and Tobago, Venezuela, and Argentina). In the countries with a *low* motorization index, Costa Rica, Mexico, and Uruguay (0.092-0.098) the two rates are close or equal; finally, in the countries with a *very low* motorization index (less than 0.080) the mortality rate per 10,000 vehicles is one or more times higher than the value of the rate for the population.

It should be noted that categorization of the countries according to the value of the motorization index is conventional and is only an attempt to explain the numerical phenomenon observed.

### The PAHO/WHO Commitment

WHO categorically expressed its interest in traffic accidents during the XIX World Health Assembly in 1966 when the Member States approved a resolution encouraging the Organization to play a more active role in accident prevention. In 1976 a decision

was adopted to delegate responsibilities to the Regional Offices of WHO, entrusting the management of the world program to the Regional Office for Europe.

Since the beginning of the 1970s, several seminars and meetings have been held in the Region of the Americas under the auspices of PAHO for the purpose of promoting the formulation of comprehensive national programs for preventing traffic accidents. Among these activities, the following may be mentioned: a seminar on "Alcoholism and Drug Addiction and the Problem of Traffic Accidents" (Lima, January 1976); two Andean subregional seminars (Lima, November 1977 and Guayaquil, December 1978), and a seminar on "Traffic Accidents in Developing Countries," held jointly with the World Bank (Washington, D.C., May 1979).

As part of the plan for studying the problem and establishing effective measures for accident prevention, a conference was held in Mexico City in November 1981 on "Traffic Accidents in Developing Countries." About 130 delegates from some 50 countries participated, representing different sectors of public and private service (particularly transportation and public health) and a broad range of disciplines. The discussions and recommendations were directed toward seven specific points: information, organization, legislation, alcohol and drugs, training and education, roads and vehicles, and international cooperation.

An important area of PAHO cooperation with countries interested in the problem is the provision of epidemiological and statistical support for measuring the problem; assistance in the planning and organization of services, including better data collection; and promotion of the training and education of personnel involved in the respective programs. An example of this is the "Course on Prevention and Control of Injuries in Traffic Accidents in Developing Countries," sponsored by WHO and held in June 1983 at the Johns Hopkins University, Maryland, United States.

PAHO's role is to collect and disseminate information on traffic accidents in the countries and thus promote the adoption of uniform terminology and statistical systems that make possible the collection of correct and comparable data.

(Source: Health of Adults Unit, Health Programs Development, PAHO.)