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A 5-Year WHO Strategy for Road Traffic Injury Prevention

World Health Organization
Geneva, Switzerland

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Foreword

Road traffic injuries constitute a major public health problem. They cause an estimated 1,171,000 deaths annually and many more cases of disability. They happen to people from all economic groups but more often to the poor. When injured, the poor also have less chance of survival and full recovery.

Historically, road traffic injuries have been neglected because injuries have been seen as accidents or random events. Now, injuries are known to be preventable. Seat belts, child car seats, motorcycle helmets, designated drivers, traffic calming, etc. have all proved effective at preventing these types of injury.

Most traffic-related injury prevention efforts have been in the wealthier countries. Yet, other countries have higher rates of death and permanent disability resulting from collisions. In these countries, there is an urgent need for strategies that are appropriate, cost-efficient and effective. "Appropriate" means taking into account the complexities of the problem and the availability of resources in any particular country and, also, what has been shown to work elsewhere.

To develop these strategies, most countries need better information. They need to know more about the numbers and types of injuries and about the circumstances in which injuries occur. This information will indicate just how serious the injury problem is and where, exactly, prevention measures are most urgently needed. Countries need greater commitment to prevention. Provided there is adequate political will, millions of lives could be saved in the coming years.

To assist, WHO's Injuries and Violence Prevention Department has collaborated with agencies and public health experts from all continents to develop a five-year strategy to prevent road traffic injuries. We all hope that this strategy will provide guidance to dedicated researchers, practitioners and policy makers in the field on how to motivate governments to do more as well as how to prioritise road traffic injury prevention efforts.

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Acronyms

AFR	African Region
AFRO	African Regional Office (WHO)
AMR	American Region
AMRO	American Regional Office
CEE	Central and Eastern Europe
DALY	Disability Adjusted Life Years
EMR	Eastern Mediterranean Region
EMRO	Eastern Mediterranean Regional Office (WHO)
EUR	European Region
EURO	European Regional Office (WHO)
FIA	Fédération Internationale de l'Automobile
GRSP	Global Road Safety Partnership
GFHR	Global Forum for Health Research
HIC	High Income Countries
IFRC	International Federation of the Red Cross and Red Crescent Societies
IRTAD	International Road Traffic and Accident Database
LAC	Latin/Central America and the Caribbean
LMC	Low and Middle Income Countries
MADD	Mothers Against Drunk Driving
MENA	Middle East and North Africa
MoH	Ministry of Health
MoJ	Ministry of Justice
MoT	Ministry of Transport
OECD	Organisation for Economic Cooperation and Development
PIARC	World Road Association
RTI	Road Traffic Injury
SEAR	South-East Asian Region
SEARO	South-East Asia Regional Office
WHO	World Health Organization
WPRO	Western Pacific Regional Office
WPR	Western Pacific Region
VIP	Department of Injuries and Violence Prevention

1

Introduction

Road Traffic Injuries (RTIs) are the leading cause of death by injury, the 10th leading cause of all deaths and the 9th leading contributor to the burden of disease world wide *(1,2)*. They constitute a rapidly growing problem, with deaths from injuries projected to rise from 5.1 million in 1990 to 8.4 million in 2020. Rapid urbanization and motorization in developing countries will account for much of the rise and the rise will be steeper due to lack of appropriate road engineering and lack of injury prevention programs in the public health sector.

In comparison to the magnitude of the problem in developing countries there has been relatively little study on road traffic collisions and their consequences. There appears to be little awareness of their contribution to the burden of disease, so they are seriously neglected in research and policy. This is true at both the national and international levels. The lack of scientifically based epidemiological, economic and risk factor data from the national level, most especially from developing countries, has inhibited the response of international agencies. As a first step towards addressing the whole RTI problem, accurate data are needed at the national level for deciding national health priorities, planning prevention strategies to decrease the incidence of RTIs, monitoring trends over time, and evaluating the impact of interventions.

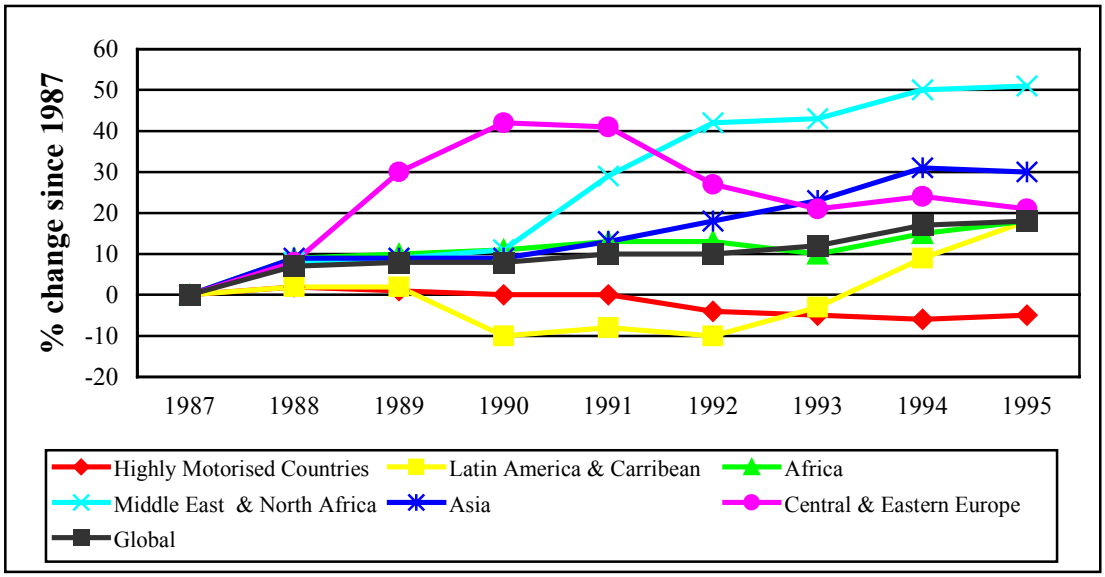

Figure 1 : Global road fatality trends

Figure 1 illustrates the slowly but steady decline in RTIs in highly motorised countries, where efforts to monitor and prevent these injuries have been extensive. It also illustrates the costs of rapid urbanisation and motorization in low and middle income countries (LMCs) *(3)*, where efforts to prevent RTIs have been minimal. There has been a steady increase in RTIs in those countries.

2

The Public Health Response to RTI Prevention

One reason for the poor public health response to RTIs is that they disproportionately affect the poor and vulnerable, who have little influence over policy decisions. Another reason is that RTIs are often perceived to be the proper concern of transport agencies rather than public health agencies. Uncertainty as to who should be concerned means that no one takes responsibility for focusing on the problem and co-ordinating multi-agency and multi-disciplinary responses.

In assessing the public health response to RTIs, it is also important to consider whether responses are appropriate for particular settings. In HICs, the main focus in recent years has been on behavioural changes (e.g. seat belt wearing) rather than on making the traffic environment safer. Making the traffic environment safer may be a more important consideration in LMCs, where many of the poor never drive vehicles but are still at considerable risk of being hit by them.*(4)*

In 1974 the WHO passed a resolution to address the growing problem of road traffic collisions and their health consequences (Annex A). Unfortunately, over the decades WHO involvement in this area has been sporadic and unsustained, largely due to a lack of personnel but also because of poor donor response to the situation. A road traffic conference was held in Mexico in the early 1980s and out of it a working group was convened. The group developed a document entitled 'New approaches to improve road safety' in 1989.*(5)* In addition, the conference approved a number of collaborative centers around the world to focus on RTI prevention.

In 2000 the Injuries and Violence Prevention programme at the WHO was given full departmental status. The WHO's current initiative into the control and prevention of RTIs is thus both legitimate and timely. In most developing countries in the world where the burden is the greatest, there is little or no public health leadership for the prevention and control of the consequences of such collisions. Consequently, the WHOs constitutional mandate, as the lead coordinating agency for international public health, places it in a unique position to guide a science-based programme of activities in RTI prevention.

3
Background

In 1998, an estimated 1,170,694 people died from road traffic injuries worldwide. RTIs were the 10th leading cause of death, accounting for 2.2% of all deaths. They were the leading cause of injury-related death, accounting for 20.3% of all deaths from injury *(1)*.

Of the total deaths from RTIs, 1,029,037 or 87.9% were in LMCs and 141,656 or 12.1% were in HICs. Deaths from RTIs per 100,000 population were 20.7 in LMCs and 15.6 in HICs *(2)*. RTI death rates were consistently higher in all LMCs than in HICs in the same regions *(3)*.

Table 1: Distribution of road traffic deaths and mortality rates, by WHO Region* and income group* (high and low/middle), 1998

COUNTRY	AFR	AMR		EMR	EUR		SEAR	WPR		WORLD
INCOME GROUP		HICs	LMCs		HICs	LMCs		HICs	LMCs	
Total RT Deaths (000)	170	49	126	72	66	107	336	25	220	1171
% of global RT deaths	14.5	4.2	10.8	6.1	5.6	9.1	28.6	2.1	18.8	100
RT deaths per 100,000	28.2	16.1	25.3	15.2	16.8	22.4	22.6	12.6	15.5	19.9
% of all deaths due to RTI	1.8	1.9	4	1.9	1.7	2	2.5	1.7	2.1	2.2

Source: Krug, 1999

* See list of abbreviations

By 2020, it is projected that RTIs will account for about 2.3 million deaths globally and will account for a greater proportion of all injury deaths (27.4%), with over 90% of these deaths occurring in LMCs *(1)*.

Aggregate global and regional road traffic related non-fatal injuries are not routinely published or accessible. Within-country data on non-fatal injuries are routinely available for some HICs, where sufficient resources exist for these data to be collected and collated. However, such data are rarely available for LMCs. Routinely collected police and/or transport sector reports may exist as sources of data, but the definitions and classifications of injury severity they use are not standardized, making aggregation and comparison of data difficult *(6)*.

Despite these limitations, estimates indicate that, in 1998, there were 38,848,625 disability-adjusted life years lost from RTIs worldwide. They were the 9th leading cause of all disability-adjusted life years lost and accounted for 2.8% of global disability. By 2020, it is projected that road traffic disability-adjusted life years lost will move from being the 9th leading cause of disability-adjusted life years lost to the 3rd leading cause (Table 2). They are already the leading cause of injury-related disability.

Table 2: Disease burden (DALYs* lost) for 10 leading causes

1998 Disease or Injury	2020 Disease or Injury
1. Lower respiratory infections	1. Ischaemic heart disease
2. HIV/AIDS	2. Unipolar major depression
3. Perinatal conditions	***3. Road traffic injuries***
4. Diarrhoeal diseases	4. Cerebrovascular disease
5. Unipolar major depression	5. Chronic obstructive pulmonary disease
6. Ischaemic heart disease	6. Lower respiratory infections
7. Cerebrovascular disease	7. Tuberculosis
8. Malaria	8. War
9. Road traffic injuries	9. Diarrhoeal diseases
10. Chronic obstructive pulmonary disease	10. HIV/AIDS

Source : **WHO, Evidence, Information and Policy, 2000**

* See list of abbreviations

Crude estimates suggest that the annual cost of road crashes is about 1% of the GNP in "developing" countries, 1.5% in "transitional" countries and 2% in "highly motorised" countries. A global estimate of US$518 billion was produced by the Transport Research Laboratory (Table 3) *(3)*. Although limited information is available on investment by the public sector in health R&D on motor vehicle safety it is safe to say that the lack of such investment contributes to the growing seriousness of the problem and the widening gap between LMCs and HICs. In fact, economic data show that only US$1 was spent for every disability-adjusted life year (DALY) caused by road traffic collisions in 1990 despite the fact that projections indicate that road traffic collisions will be the third biggest cause of DALYs by the year 2020.*(7)*

Table 3: Road crash costs by region (US$ billion)

Region	Regional GNP	Estimated annual crash costs	
	1997	GNP	Costs
Africa	370	1%	3.7
Asia	2,454	1%	24.5
Latin America/Caribbean	1,890	1%	18.9
Middle East	495	1.5%	7.4
Central/Eastern Europe	659	1.5%	9.9
Sub total	*5,615*		*64.5*
Highly motorised countries	22,665	2%	453.3
TOTAL			**517.8**

Source: **Jacobs et al, 2000**

Road safety research in the HICs has involved a large number of gifted professionals from a variety of disciplines over the past four decades. Some innovative work has resulted in a theoretical understanding of crashes as a part of a complex interaction of sociological, psychological, physical and technological phenomena. The results could be exchanged and solutions transferred from one HIC to another because the conditions in these countries were roughly similar. This understanding of injuries and accidents has resulted in the design of safer vehicles, roads and traffic management systems. A similar effort at research, development and innovation is needed in LMCs *(8)*.

Road traffic injuries are preventable but LMCs present unique challenges. They require unique solutions appropriate to their particular circumstances but also drawing on the experience of HICs. Such transfer of knowledge will be challenging, requiring research ranging from modifications to developed and tested interventions (Intervention A in the table below) to the development of new knowledge (Intervention D).

Table 4: Prevention strategies in developing countries

"Knowledge" (such as an intervention)	**Developed**	**Tested**	**Implemented**
Intervention A	+	+	+
Intervention B	+	+	-
Intervention C	+	-	-
Intervention D	-	-	-

Although most of the principles we discover will have universal applicability, many of the technologies and specific prevention methods may not. In fact, old technologies and simple methods may prove to be the most appropriate ones for some settings. Still, discovering which are the most appropriate measures and adapting them to particular settings will require innovative thinking, familiarity with the latest scientific information, and packaging of products in ways that may require combinations of technologies already available with new technologies developed by us. Unless we turn our research and development activities in these directions, we are likely to end up with inefficient technological systems that serve our countries and communities ill, so that there will continue to be unnecessary deaths and disability resulting from RTIs *(9)*.

4
Strategy

4.1 WHO Strategic Vision for RTI Prevention

This WHO Strategy aims to integrate RTI prevention into public health programmes around the world in order to reduce the unacceptably high levels of RTIs. Special emphasis will be placed on low and middle income countries (LMCs).

4.2 Strategy Objectives

- To *build capacity* at a national and local level to monitor the magnitude, severity and burden of RTIs
- To *incorporate RTI prevention* and control into public health agendas around the world
- To *promote action-orientated strategies and advocate* for prevention and control of the health consequences of motor vehicle collisions.

4.3 Strategic Framework

The development of this five-year strategy took into consideration competing needs and expectations as well as the limited resources in many countries. The strategy addresses:

- gaps in knowledge (as identified previously)
- current and planned efforts in the public health sector (especially in LMCs)
- current and planned efforts and expertise in the transport and other sectors
- opportunities for collaboration and co-ordination within the public health sector and with other sectors
- the most appropriate balance between the needs for descriptive information, aetiological (cause) information, information about effective interventions and the need to implement known effective interventions
- the available public health expertise and opportunities for capacity development in both public health and road traffic injury prevention, especially in low income countries

The strategy is sustainable and addresses long term goals, rather than focusing on “quick-fix” solutions. It also facilitates the continued development of a strong evidence-base, rather than perpetuate solutions or options that seem reasonable, but for which there is little evidence.

The strategy is presented in the three areas where the WHO can add value, i.e. epidemiology, prevention and advocacy (Figure 2).

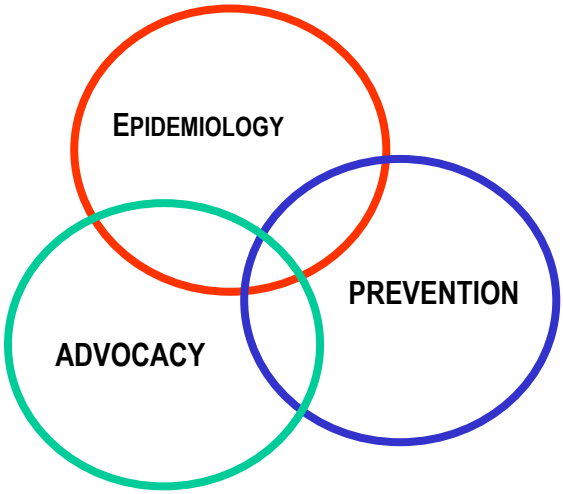

Figure 2 : WHOs added value in road traffic injury prevention

The strategic framework in the following section is presented in tabular form to make it as user-friendly as possible. For each of the three areas where WHO can add value, the framework presents the strategy, plan of action, proposed products, partners and timeline.

4.4 Five-year WHO Strategy for Road Traffic Injury Prevention

4.4.1 Epidemiology

STRATEGY	PLAN OF ACTION	PRODUCTS	PARTNERSHIPS	TIMELINE
1. Promote long-term epidemiological monitoring of road traffic injuries using standard, scientifically-based data collection methods	• Identify ways to build on existing knowledge • Develop techniques for primary and secondary data collection and analysis • Develop standard definitions, classifications • Develop better indicators • Undertake multi-country studies to document the health impact of road traffic collisions	• Guidelines for analysing secondary road traffic injury data • Minimum dataset development • Maintain a web-based database of the health consequences of road traffic collisions • Database	Collaborating centres GFHR Regional offices IRTAD ITMA	2001 - 2003
2. Set a research agenda focused on the determinants of road traffic injuries particularly in low and middle income countries, e.g. poverty, alcohol, conspicuity	• Review past and current data collection systems • Include qualitative and quantitative methods of investigation • Undertake multi-country studies to investigate risk factors and other determinants (such as inequalities) in low and middle income countries • Work with partners from LMCs to address the health consequences of poverty	• Database of risk factors for road traffic injuries in low/middle income countries	Collaborating centres Research institutes GFHR Regional offices	2002 - 2004

STRATEGY	PLAN OF ACTION	PRODUCTS	PARTNERSHIPS	TIMELINE
3. To facilitate regional networks in low/middle income countries and build capacity at country level	• Create sub-regional networks • Link governmental organisations with universities • Encourage partnerships, fellowships and meetings • Provide technical support to countries to develop road traffic injury policies • Encourage Ministries of Health to designate a School of Public health or similar institution to act as a road injury research centre in each country • Conduct field epidemiology training programmes • Promote exchange programmes , e-g- North – South as well as regional collaboration • Promote research through awards, prizes, etc.	• Training guidelines for assessing the economic and social costs related to road traffic collisions and injuries • Interactive CD – ROM on road traffic injury prevention • Curriculum development for higher education of professionals	Collaborating centres Regional offices GFHR GRSP	Ongoing
4. To strengthen the links between the environment, mobility and road traffic safety	• Make links with the environment and healthy city-related initiatives • Develop partnerships that link mobility, safety , environment and safety • Working with partners from LMCs to address the health consequences of poverty	• Partnerships	Other WHO Departments Collaborating Centres GRSP	2003 - 2005

STRATEGY	PLAN OF ACTION	PRODUCTS	PARTNERSHIPS	TIMELINE
1. To support interventions focusing on vulnerable road users based on the available knowledge and using models of interventions applicable to different regions in the world	• Give technical support to pilot studies: • Focus on vulnerable road users • Assess interventions in low to middle income countries • Conduct multi-country studies including urban and rural settings	• Multi-country database on effective intervention programmes in low and middle income countries • Ongoing interventions	Governments: DoH, DoT, DoJ GRSP Collaborating Centres WHO Regional Offices Transport Sector NGOs, e.g. MADD, BJD	2001 - 2005
2. To gather and package state-of-the-art knowledge on road traffic injury prevention through systematic reviews which are applicable to low and middle income countries	• Create a register or warehouse of controlled evaluation interventions through coordination with multiple centres • Include grey literature from low and middle income countries • Make materials widely available and preferably free • Promote known prevention strategies • Coordinate these activities (WHO responsibility)	• Manual of Good Practice • Guidelines on prehospital care systems • Guidelines for the implementation and evaluation of prevention studies	Cochrane Centre Collaborating Centres OECD Transport Research Board IFRC	2001 - 2002

STRATEGY	PLAN OF ACTION	PRODUCTS	PARTNERSHIPS	TIMELINE
3. To provide guidance for governments and institutions to manage road safety efficiently and sustainably	• Develop guidelines on road safety management based on existing best safety practices worldwide • Encourage governments to enact appropriate road safety legislation	• Guidelines on road safety management	Local governments GRSP Committee 13 on Road Safety (PIARC) World Bank Collaborating Centres	2003 - 2005
4. To develop new knowledge based on interventions taking into account vulnerable road users and different local contexts	• Encourage establishment of road safety research • institutes in countries (or jointly by a group of countries with similar traffic conditions and income level) • Encourage long term partnerships • Encourage collaborative research between research institutes in the north and south • Generate international funding for research organisations focused on low and middle income countries	• Best practice manual • New partnerships and institutional mechanisms • Road safety research institutes in countries	Research institutes (North-South, South-South partnerships) GFHR Governments: DoH, DoT, DoJ	2003 - 2005

STRATEGY	PLAN OF ACTION	PRODUCTS	PARTNERSHIPS	TIMELINE
1 To raise the general awareness for the potential for prevention of road traffic injuries	• Target general population and specific sub-groups such as victims' groups, community organisations • Empower and mobilise people's voices • Use grassroots communication strategies • Foster a demand for change in middle and low income countries • Target policy makers, decision makers • Deliver relevant, easily understood, evidence-based messages • Disseminate at global, regional, national and local levels	• Advocacy documents • Fact sheets • Interactive CD-ROM on RTI prevention	Collaborating centres Legal departments IFRC Research Institutes NGOs, e.g. MADD, BJD	2001 - 2005
2. To promote the inter-sectoral approach to road traffic injury prevention in low and middle income countries	• Target Ministries of Health and Transport (and others such as Finance) • Facilitate intra-national co-operation • Empower both health and transport • Advocate for creation of effective Departments of Road Traffic Safety • Advocate for inter-sectoral co-operation for RTI prevention at the global and regional level • Fund training courses	• Consultative meetings between MoH/MoT and WHO • Good Practice Manual • Campaigns for 'people friendly' roads • Funding from multi-lateral and bilateral donors • Institutes for road safety research in countries	Regional WHO offices Governments: DoH, DoT	Ongoing

STRATEGY	PLAN OF ACTION	PRODUCTS	PARTNERSHIPS	TIMELINE
3. To promote road safety research	• Coordinate research efforts • Foster development of partnerships and networks • Provide technical support to national and regional initiatives • Advocate research investments for RTIs • Promote relevant research in low and middle income countries • Facilitate the transfer of knowledge between north and south research institutes	• Research networks • Evaluated interventions	WHO regional offices Collaborating Centres GRSP IFRC ITMA	2002 - 2005
4. To advocate for resources for road traffic injury prevention	• Target multi and bi-lateral donors, foundations, national governments, local agencies and the private sector • Promote resource allocation for capacity development, research, intervention programmes, North-South consultations, regional initiatives • Advocate the 'cost savings' in RTI prevention including social costs	• Funding from donors	Collaborating Centres WHO regional offices GFHR NGOs	2002 - 2005

5
Conclusion

The major gaps in RTI prevention are broadly threefold: (1) inaccurate data on the magnitude of the problem, risk factors and economic consequences, (2) inadequate evaluation of prevention efforts in middle and low income countries, and (3) limited awareness of the problem, particularly among policy-makers and donors.

WHO's added value in the area of RTI prevention would follow the public health approach and, in so doing, would attempt to address the gaps, inequalities and inequities. WHO and its partners will promote the development of a multi-disciplinary national strategic plan within countries by strengthening capacity, collection of data, research, training and the development of appropriate RTI prevention interventions. In addition, WHO will be instrumental in pushing forward the agenda of RTI prevention by advocating at a global and regional level and encouraging donors to support efforts to reduce the magnitude of the burden. However, it should be stressed that concerted multi-sectoral efforts, strong partnerships and international co-operation will be required to take such an agenda forward.

6

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Appendices

Appendix A

WHA27.59 Prevention of road traffic accidents

The Twenty-seventh World Health Assembly,

Noting with great concern the extensive and serious individual and public health problems resulting from road traffic accidents;
Recognizing that the use of alcohol and other psychoactive drugs contributes significantly to the heavy toll taken by road traffic accidents;

Believing that effective solutions require the coordinated efforts of international organizations and agencies, the Member States, regional and local authorities, and the world citizenry;

Declaring that the World Health Organization has a responsibility to provide leadership, guidance and technical assistance to Member States in the fields of improving road traffic safety in so far as human and medical factors are involved; and

Recalling resolution WHA19.36,

1. URGES Member States:

(1) to promote improved driver licensing standards and traffic safety education programmes;

(2) to encourage the national health authorities to provide leadership in these matters in so far as human and medical factors are involved; and

(3) to require the manufacturers to apply safety principles in the development of new types of vehicles;
2. RECOMMENDS that the World Health Organization should encourage and assist the development of improved programmes in the field of traffic safety; and

3.REQUESTS the Director-General:

(1)to study, in consultation with other intergovernmental and nongovernmental organizations, means:

(a)of developing appropriate standards relating to the medical aspect of the licensing of drivers;

(b)of developing increasingly effective educational and other programmes designed to encourage responsible use of vehicles and roads; and (c) of promoting and coordinating further research required on human and medical factors involved in traffic accidents;

(2) to convene as soon as possible a group of experts to study the influence of alcohol and psychotropic drugs and their interaction on driver skills and traffic accidents; and

(3)to report to the Executive Board and to the Twenty ninth World Health Assembly on developments on these matters.

*Handb. Res., Vol. I, 1.11.5.3*Fourteenth plenary meeting, 23 May 1974

(Committee A, fifth report)