

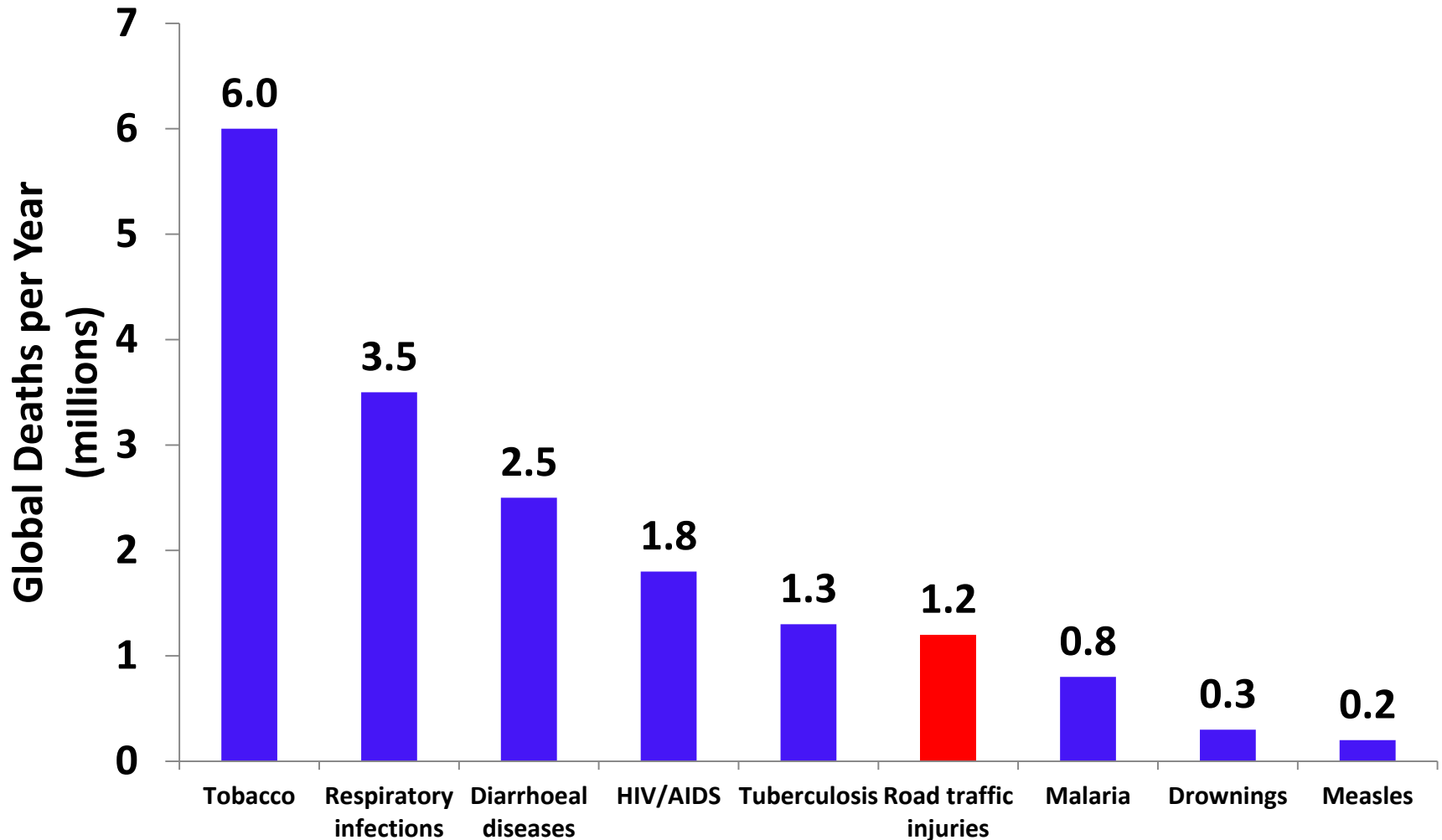


Road Safety in Low- and Middle-Income Countries

Kelly J. Henning, MD
Bloomberg Philanthropies

November 29, 2011

Road traffic deaths compared to other public health issues



Road traffic injuries are projected to be the 5th leading cause of death globally by 2030

2004
(actual)

RANK	LEADING CAUSE	%
1	Ischaemic heart disease	12.2
2	Cerebrovascular disease	9.7
3	Lower respiratory infections	7.0
4	Chronic obstructive pulmonary disease	5.1
5	Diarrhoeal diseases	3.6
6	HIV/AIDS	3.5
7	Tuberculosis	2.5
8	Trachea, bronchus, lung cancers	2.3
9	Road traffic injuries	2.2
10	Prematurity and low birth weight	2.0

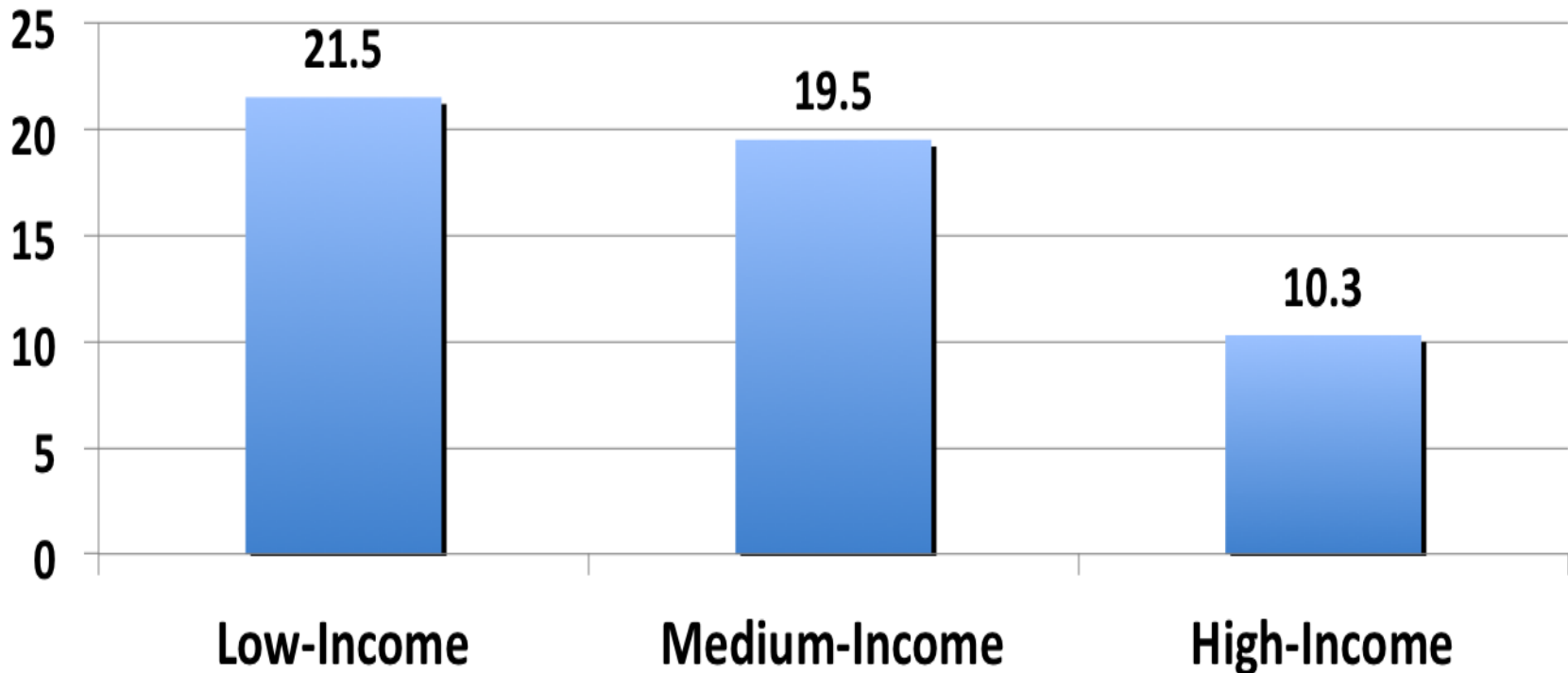
2030
(projected)

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1	Ischaemic heart disease	12.2
2	Cerebrovascular disease	9.7
3	Chronic obstructive pulmonary disease	7.0
4	Lower respiratory infections	5.1
5	Road traffic injuries	3.6
6	Trachea, bronchus, lung cancers	3.5
7	Diabetes mellitus	2.5
8	Hypertensive heart disease	2.3
9	Stomach cancer	2.2
10	HIV/AIDS	2.0

Road traffic crashes currently cause more than 1.2 million deaths a year – but by 2030 will kill an estimated 2.4 million people per year

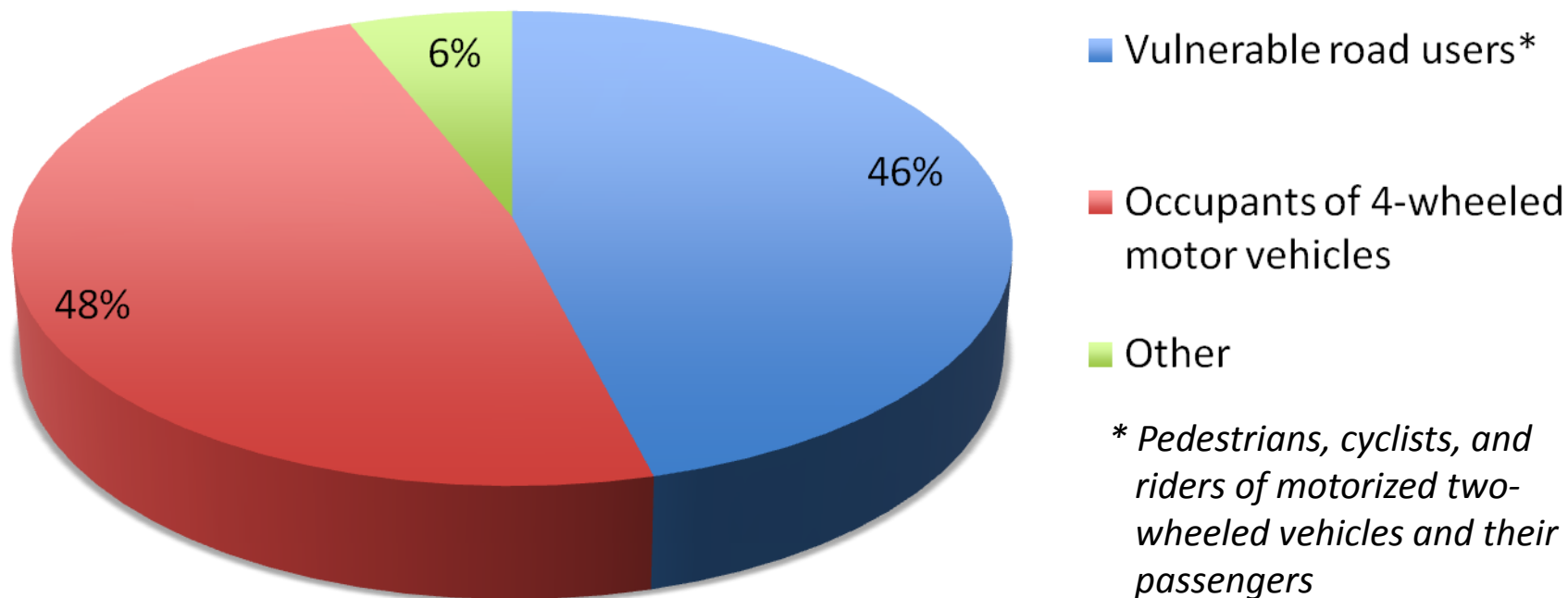
Road traffic death rates are twice as high in low-income countries as in high-income countries

Per 100,000 population



More than 90% of the world's road traffic deaths occur in low- and middle-income countries – even though these countries have less than half of the world's registered vehicles

Nearly half of road traffic deaths are among “vulnerable” road users – whose needs are often neglected when setting road safety policy



In some low-income countries, 80% of road traffic deaths are among “vulnerable” road users (compared with about 20% of road traffic deaths in some high-income countries)

Vehicles and Roads

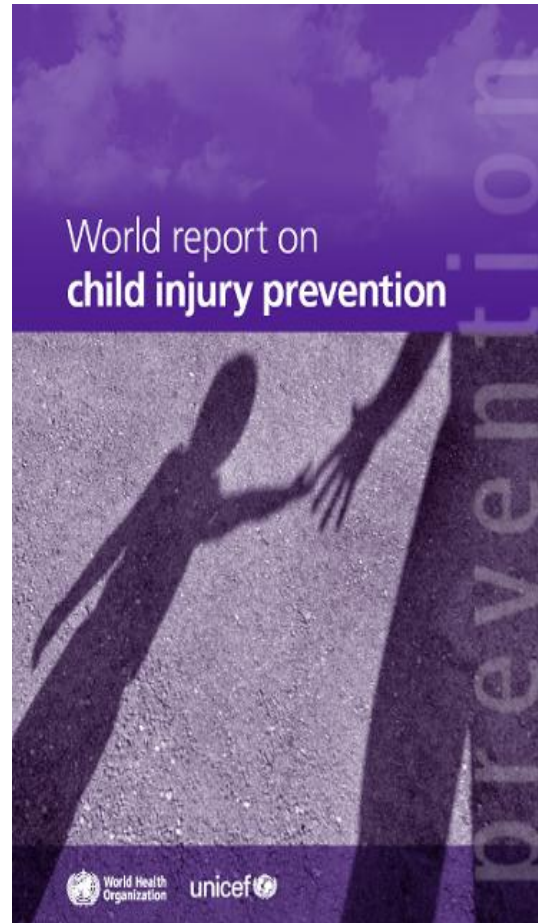
- Approximately 1 billion vehicles in the world
- 430M motorcycles
- 33M km (~19M miles) of roads; 18M km (~10M miles) in low- and middle-income countries
- By 2050, 610M cars in India alone
- 45,000 new vehicles entering the market a day in China



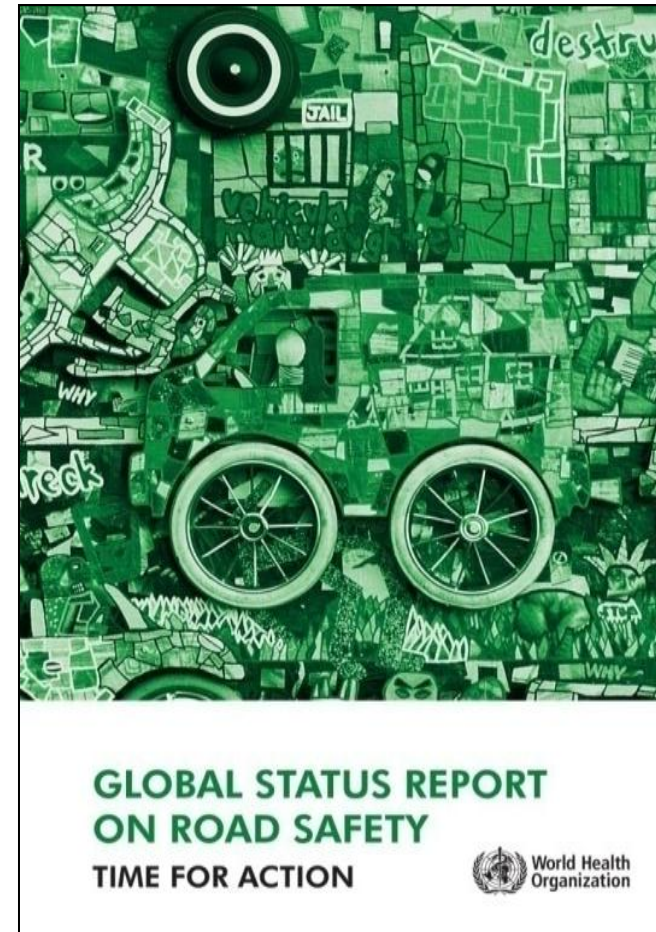
World Health Organization Reports



2004



2008



2009

Decade of Action for Road Safety

Launched May 11, 2011



- Goal of the Decade is to stabilize and then reduce the forecasted level of road traffic fatalities around the world
- Targets: 5 million lives saved, 50 million serious injuries averted and US \$5 trillion saved
- More than 110 countries launched the Decade



UN Secretary General Ban Ki-moon and Michael Bloomberg launch Decade in New York City

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Funding Priorities in Global Health

- High mortality and morbidity
- High-impact, evidence-based interventions are well defined
- Feasible
- Monitoring/surveillance possible
- Underfunded

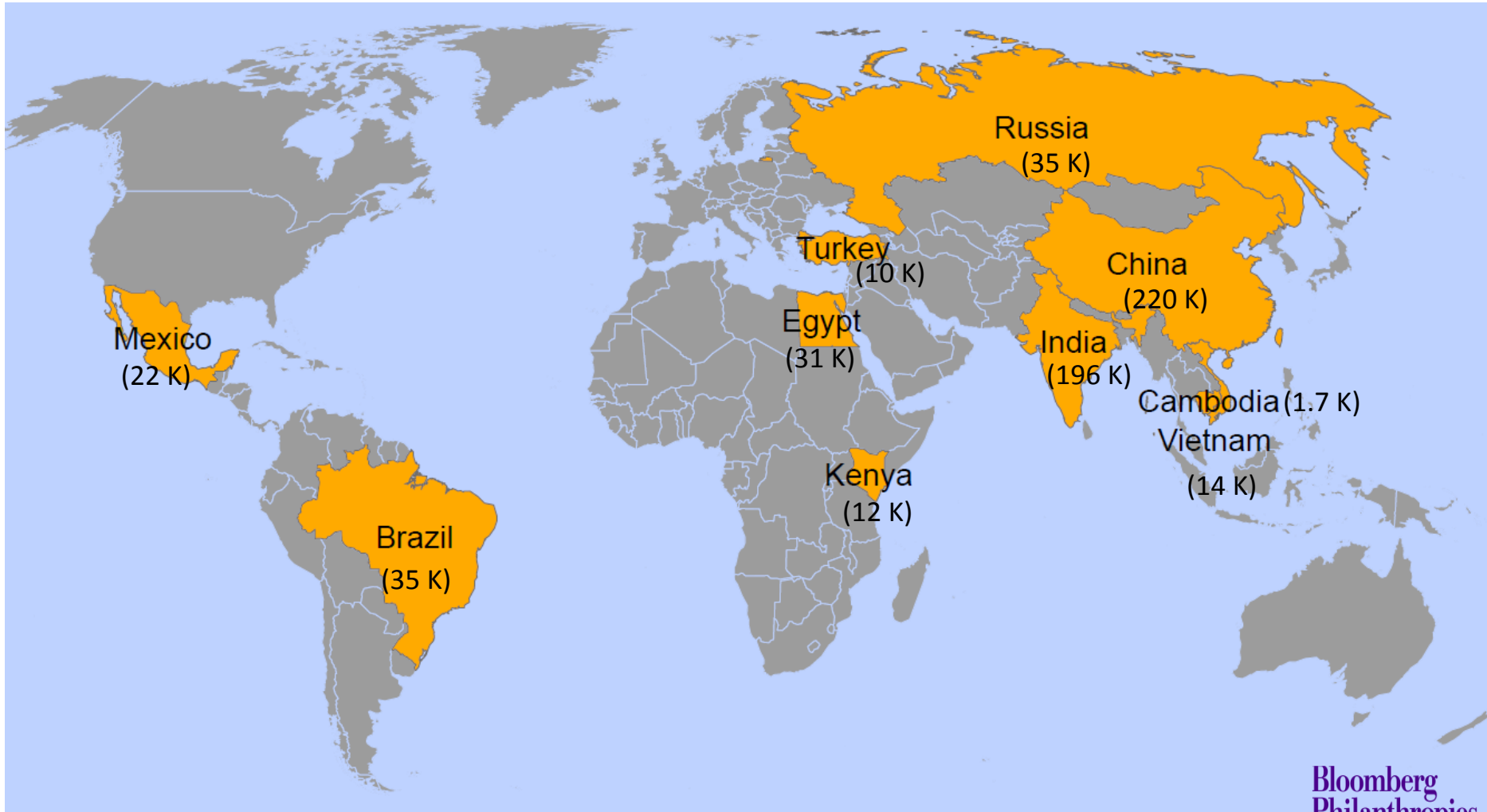
Bloomberg Global Road Safety Program Interventions Are Effective

Intervention	Effectiveness in low/middle income countries (% risk reduction)
Helmets enforcement	30%
Drink driving police enforcement (active surveillance and enforcement)	30%
Social marketing + drink driving + speeding	28%
Social marketing (general road safety)	26%
Speed control (new traffic laws, police enforcement)	22%
Seatbelt-focused social marketing	15%

Bloomberg Global Road Safety Program (RS10)

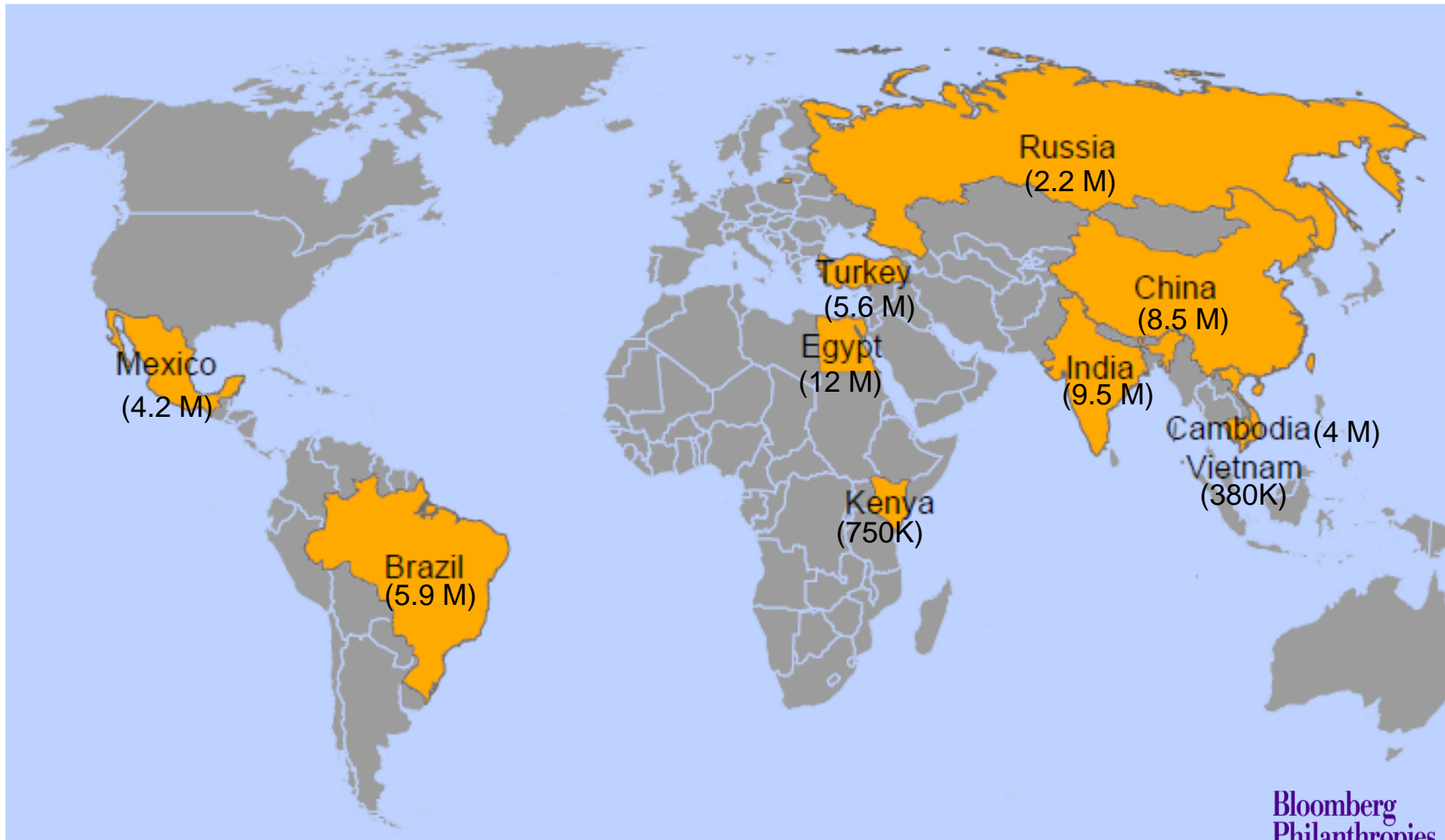
RS10 countries total 600,000 road traffic deaths annually

10 countries – total population 3.1 billion people



RS10 Intervention Areas

Comprise Over 50 Million People



Partner Organizations

World Health Organization

World Resources Institute/EMBARQ

Johns Hopkins Bloomberg School of Public Health

Global Road Safety Partnership

World Bank Global Road Safety Facility

Association for Safe International Road Travel



Bloomberg Global Road Safety Program

Countries and Interventions

	Helmets	Speed	Seat-belts	Drinking and Driving	Infrastructure	Sustainable Urban Transport
Brazil		✓		✓		✓
Cambodia	✓			✓		
China		✓		✓	✓	
Egypt		✓	✓			
India	✓	✓		✓	✓	✓
Kenya	✓	✓				
Mexico			✓	✓		✓
Russia		✓	✓		✓	
Turkey		✓	✓			✓
Vietnam				✓		

Bloomberg Global Road Safety Program

Strategies and Partners

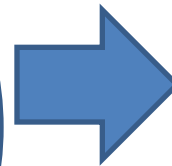
Interventions	Program Initiatives	Partner Organizations
Surveillance & Evaluation	<ul style="list-style-type: none"> • Policy level • Measurement of fatalities and injuries 	<ul style="list-style-type: none"> • WHO • Hopkins
Environment	<ul style="list-style-type: none"> • Reducing road crashes through transport and land-use policies • Incorporating safety into road design 	<ul style="list-style-type: none"> • EMBARQ • World Bank
Road Safety Behavior	<ul style="list-style-type: none"> • Legislation and best practices: helmets, speed, drinking and driving, seat-belt and child restraints • Training and compliance 	<ul style="list-style-type: none"> • WHO, GRSP, ASIRT • WHO, GRSP
Pre-hospital Care	<ul style="list-style-type: none"> • Pilot programs to show feasibility of delivering effective pre-hospital care 	<ul style="list-style-type: none"> • WHO, GRSP
Optimizing Interventions	<ul style="list-style-type: none"> • Public education/mass media • Training of public health professionals 	<ul style="list-style-type: none"> • ASIRT, WHO, GRSP, EMBARQ • Hopkins
NGO Development	<ul style="list-style-type: none"> • Capacity building 	<ul style="list-style-type: none"> • ASIRT

Bloomberg Global Road Safety Program

Goal: Reduction in serious traffic injuries and traffic-related mortality

Inputs

Training ✓✓
Paid/Earned Media ✓
Capacity Reviews ✓
Road Safety Audits ✓✓
Legislative Review ✓
Political Economy ±



Outcomes

Improved legislation/regulation
Improved enforcement/compliance
Increased seatbelt, helmet, child seat
Reduced drunk driving and speeding
Improved, safer infrastructure
Improved trauma care

Advocacy
Measurement and Evaluation

Status of National Legislation

2009

Country	Intervention Sites Population	Drinking and Driving		Helmets		Seat-belts		Speed	
		National Legislation	Enforcement	National Legislation	Enforcement	National Legislation	Enforcement	National Legislation	Enforcement
Brazil	5,940,000	Good	Fair					Fair	Fair
Cambodia	3,982,000	Poor	Poor	Poor	Poor				
China*	8,512,000	Good	Good					Good	Good
Egypt	12,359,000					Poor	Fair	Fair	Fair
India	9,500,000	Fair	Poor	Poor	Poor			Set subnationally	NA
Kenya	749,000			Poor	Poor			Fair	Poor
Mexico	4,252,000	Fair	Poor			Good	Poor		
Russia	2,214,000					Good	Fair	Poor	Fair
Turkey*	5,580,000					Good	Good	Good	Good
Vietnam	380,000	Fair	Poor						

Source: GSRRS 2009

* Official government reports of legislation status for China and Turkey may not reflect on-the-ground reality.

WHO Legislative Review Status

August 2011

Country	Situational assessment	Gap analysis	Recommendations	Action plan	Overall status of legislative review (Q2 - Aug 2011)
Brazil	Completed	Completed	Initiated	Not started	Preliminary review completed.
Cambodia	Completed	Completed	Completed	Initiated	Review complete and recommendations provided.
China	Completed	Completed	Initiated	Not started	Lawyer engaged to review legislation; report due Aug/Sept 2011.
Egypt	Initiated	Initiated	Not started	Not started	Preliminary analysis completed; discussing with NRSC.
India	Initiated	Not started	Not started	Not started	National Law school hired, report due by mid November 2011.
Kenya	Initiated	Initiated	Initiated	Not started	Desk audit completed; will be discussed during legislative review retreat.
Mexico	Completed	Completed	Completed	Ongoing	Law revised in Guadalajara; amendments being discussed with politicians in Leon; plan to go national.
Russia	Initiated	Not started	Not started	Not started	Preliminary discussions with government for legislative review challenging.
Turkey	Completed	Completed	Completed	Initiated	Review complete and report written.
Viet Nam	Completed	Completed	Completed	Ongoing	Review completed and amendments made to the law.

Green	Green is indicated if substantial progress has been made. Defined as completed situational assessment, gap analysis and recommendations.
Orange	At least situational assessment has been initiated, or contract in place to initiated legislative review process.

Vietnam 2007 Helmet Legislation

- 40 % helmet wearing rate prior to December 2007 law
- High level support (Prime Minister & Party)
- Whole government approach
- Law went into effect December 15, 2007



Pre-Law

2007 Helmet Law Implementation

- 95% helmet wearing rate in December 2009
- Effective implementation
 - Strict penalties (10 fold increase)
 - Social marketing and public education campaigns
 - Civil service role models: 4 million citizens, plus armed forces members
 - Stringent and consistent enforcement
 - Comprehensive coverage: all roads, all times, all riders



Post-Law

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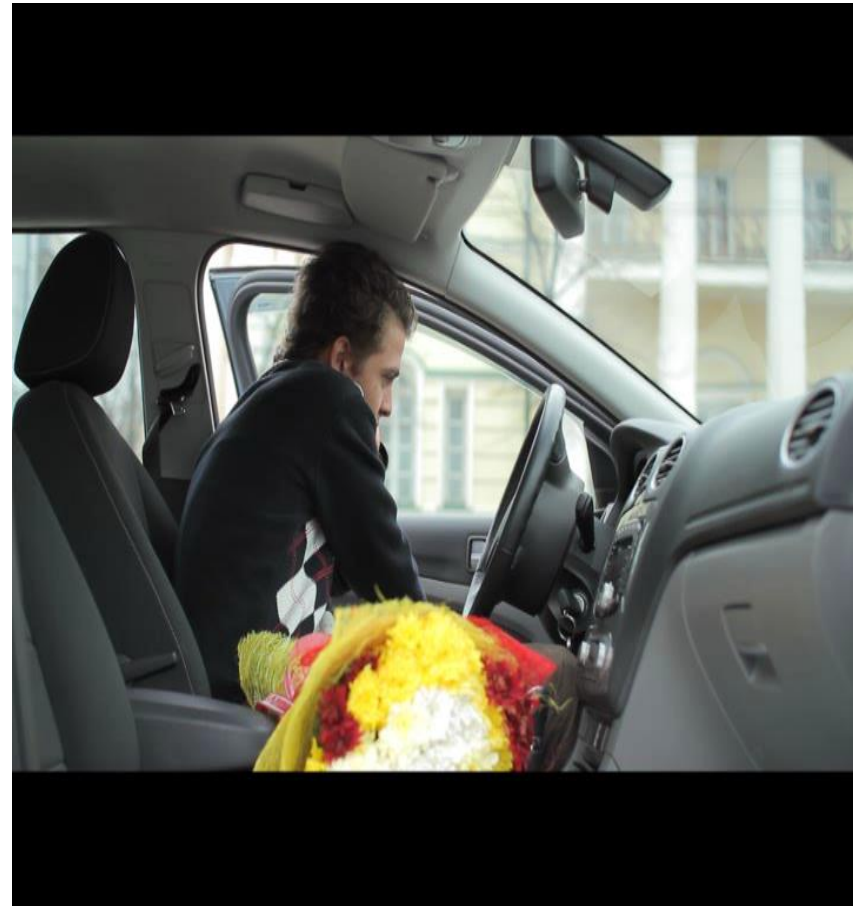
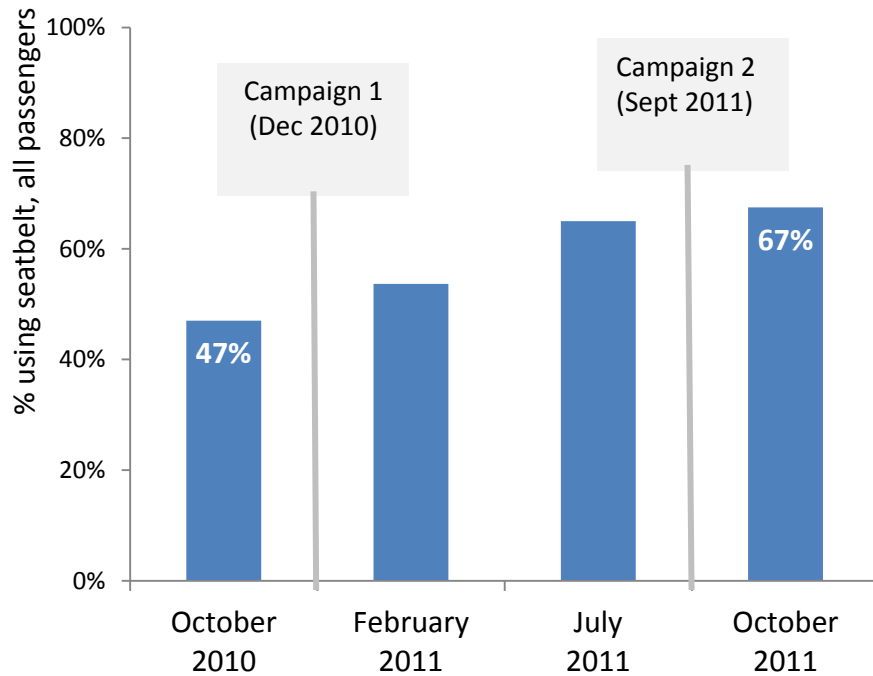
Cambodia increases *enforcement* of drinking & driving & night-time helmet use

- Over 400 police, government stakeholders trained in enhanced enforcement of DD and night-time helmet use
- Phnom Penh: Observational studies show an increase in helmet use from 32% in June 2010 to 50% in July 2011
- Phnom Penh, Kandal and Kampong Speu police increase checkpoints for DD and night-time helmet use



Increase in seat-belt use following media campaign in Lipetsk, Russia

Seatbelt use increases following social marketing campaign



Capacity Building, Data Collection, and Equipment Trainings completed in nearly every RS10 country

- 115+ training courses conducted for over 38,000 people in 9 countries
- 81 rounds of observational studies
- 42 rounds of roadside interviews
- 2 household surveys
- 4 online courses under development for completion by end of 2012
- Over 6,000 helmets distributed
- Over 195 alcometers distributed



Transit-Oriented Development



- Increased transit use, walking and biking
- Residents are more physically active
- More destinations closer to transit
- Lower car use

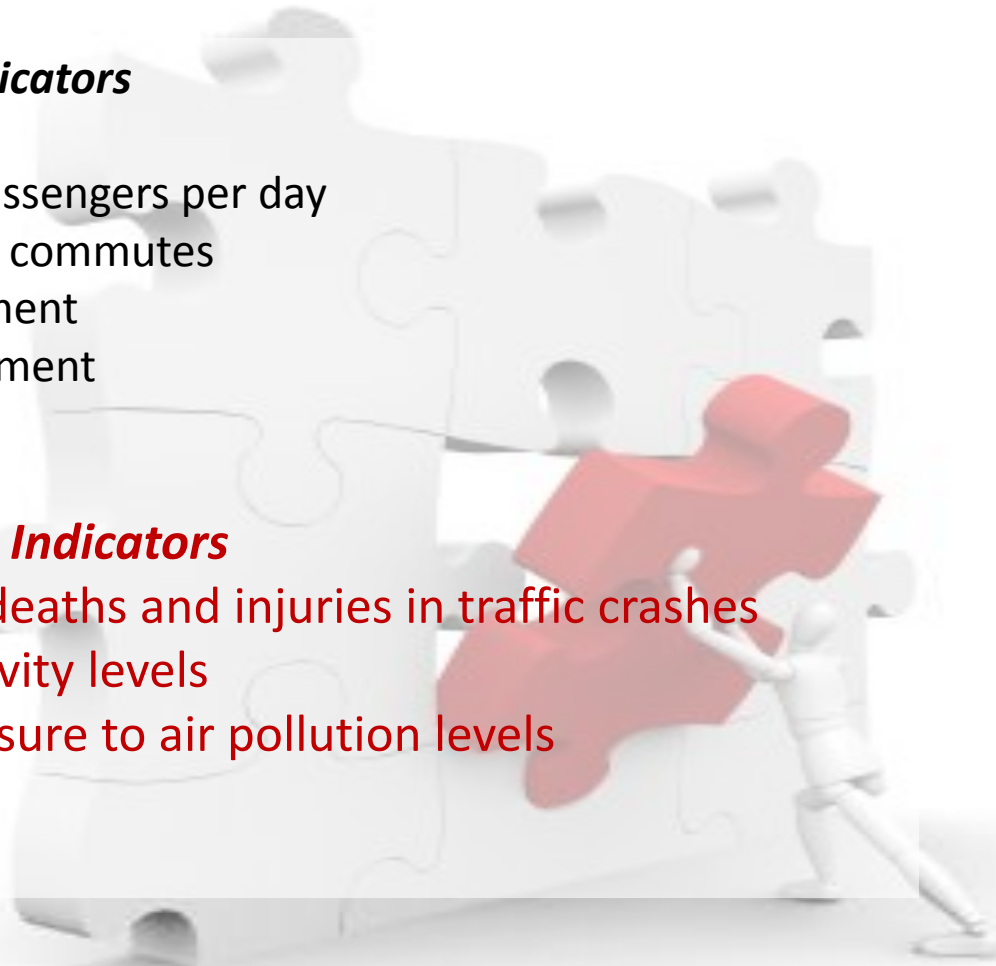
BRT Indicators

Traditional Indicators

- Number of passengers per day
- Time saved in commutes
- Public investment
- Private investment
- Others

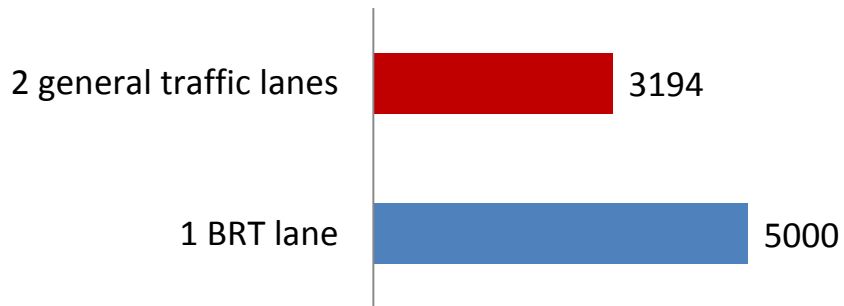
Public Health Indicators

- Number of deaths and injuries in traffic crashes
- Physical activity levels
- Health exposure to air pollution levels

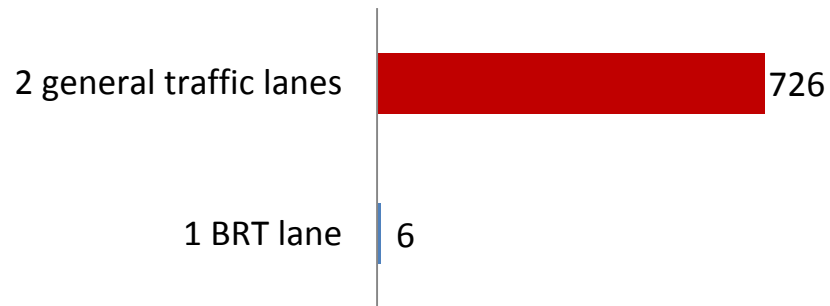


Macrobus, Guadalajara

Passenger per hour per direction (peak)



Crashes per year



Bus Rapid Transit in Brazil

Preparation for World Cup and Summer Olympics

Providing technical expertise to four 2014 World Cup and 2016 Olympic cities on high quality, high-performance and safe bus rapid transit systems (BRT) in:

1. Rio de Janeiro
(Population: 14M)
1. Porto Alegre (4.1M)
2. Belo Horizonte (5.3M)
3. Recife (4.1M)



FIFA WORLD CUP
BRASIL

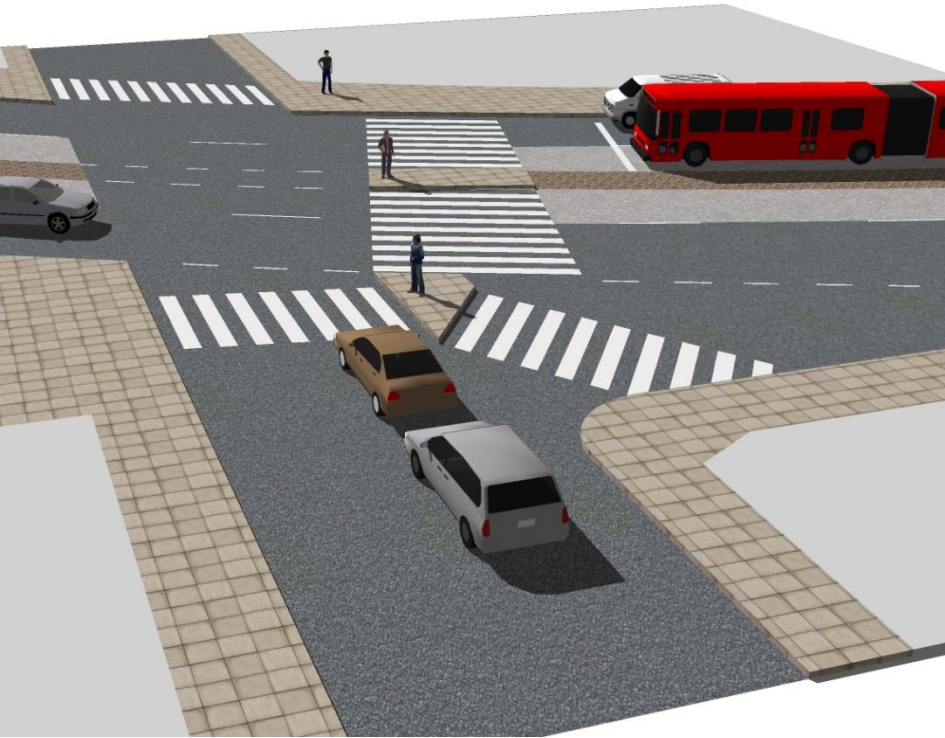


Rio 2016



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Road Safety Audits



- Intersection in Brazil



- Recommended redesign from a road safety audit

International Road Safety Assessment Program (iRAP)

- 800 miles of road being analyzed in Mariy El Republic, Russia
- Infrastructure recommendations provided to gov' t to improve safety during road upgrades
- Russian government has committed \$15M to upgrade roads



Trauma Care and Vital Registration

Trauma Care-India & Kenya

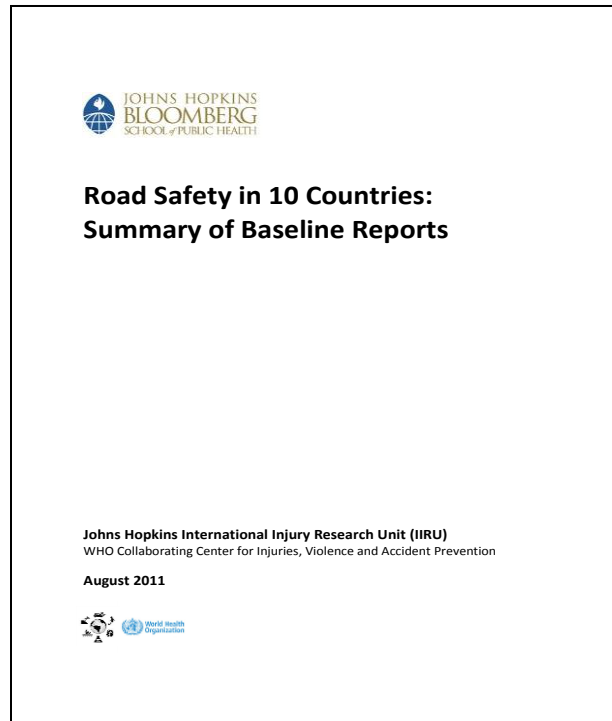
- Improve trauma care through appropriate training and equipment
- Focus on Basic Trauma Life Support (BTLS) and Incident Command Systems (ICS)

Vital Registration-Egypt & Kenya

- Improve data quality through improved hospital-based injury surveillance and technical assistance to improve death certification coding and recording

Summary baseline reports & publications

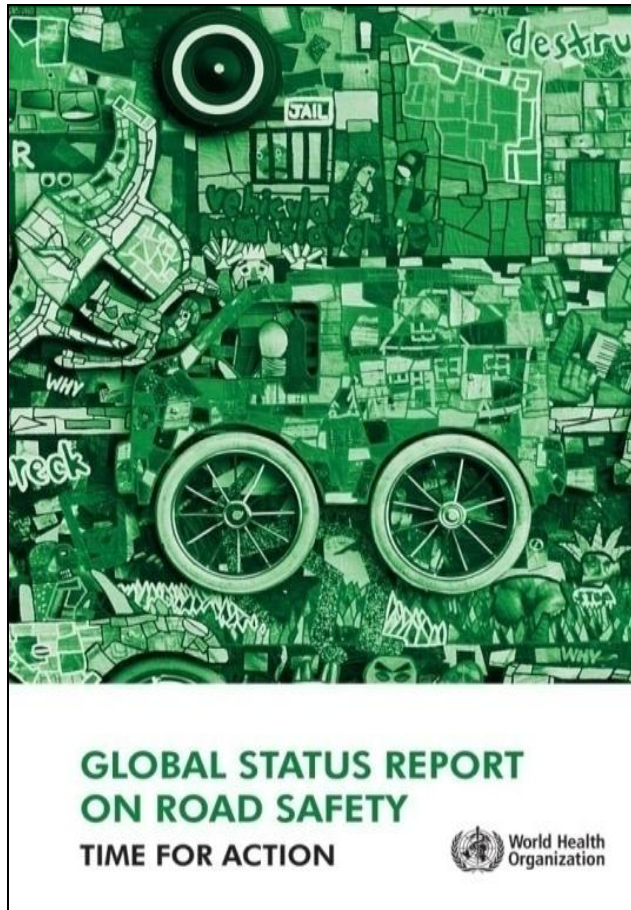
Road Safety in 10 countries



- 10 country-specific summary reports completed and disseminated
- Observational studies completed; 6 of 9 with multiple rounds
- Special issue in *Traffic Injury Prevention*, will be published in early 2012

Baseline Summary Reports for all 10
Countries

2012 Global Status Report on Road Safety



- 2nd Global Status Report on Road Safety will be published in Fall 2012
- All national data coordinators in place and trained
- Anticipate data from 178 countries
- Monitor progress over time
- Will support monitoring efforts for the Decade of Action

Successful implementation of interventions can save over 2,500 lives annually in intervention areas

- Interventions implemented fully in all intervention areas
- One year of RS10 projected to save: **2,534 lives**
- Five years of RS10 projected to save: **12,669 lives**

Key Challenges in 2012

- Creation of “culture of safety”
- Lack of in-country capacity
- Competing government priorities
- Critical need for improved advocacy
- Legislative change slow
- Social marketing quality



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BRAZIL

World Health Organization SAFETY COUNTRIES

Population (2008): 197,500,000
Income group: Middle
Gross national income per capita (2008): \$1,100
Road traffic death rate (estimate): 19.7/100,000 population
Number of registered vehicles (2007): 1,004,243

ROAD SAFETY IN TEN COUNTRIES

INDIA

World Health Organization SAFETY COUNTRIES

Population (2008): 1,100,000,000
Income group: Low
Gross national income per capita (2008): \$790
Road traffic death rate (estimate): 34.4/100,000 population
Number of registered vehicles (2007): 1,004,243

ROAD SAFETY IN TEN COUNTRIES

MEXICO

World Health Organization SAFETY COUNTRIES

Population (2008): 112,000,000
Income group: Middle
Gross national income per capita (2008): \$2,700
Road traffic death rate (estimate): 19.7/100,000 population
Number of registered vehicles (2008): 31,502,087

ROAD SAFETY IN TEN COUNTRIES

CAMBODIA

World Health Organization SAFETY COUNTRIES

Population (2008): 14,000,000
Income group: Low
Gross national income per capita (2008): \$790
Road traffic death rate (estimate): 34.4/100,000 population
Number of registered vehicles (2007): 1,004,243

ROAD SAFETY IN TEN COUNTRIES

CHINA

World Health Organization SAFETY COUNTRIES

Population (2008): 1,300,000,000
Income group: Middle
Gross national income per capita (2008): \$2,700
Road traffic death rate (estimate): 19.7/100,000 population
Number of registered vehicles (2008): 31,502,087

ROAD SAFETY IN TEN COUNTRIES

EGYPT

World Health Organization SAFETY COUNTRIES

Population (2008): 78,000,000
Income group: Middle
Gross national income per capita (2008): \$2,700
Road traffic death rate (estimate): 19.7/100,000 population
Number of registered vehicles (2008): 31,502,087

ROAD SAFETY IN TEN COUNTRIES

KENYA

World Health Organization SAFETY COUNTRIES

Population (2008): 36,765,000
Income group: Low
Gross national income per capita (2008): \$790
Road traffic death rate (estimate): 34.4/100,000 population
Number of registered vehicles (2007): 1,004,243

ROAD SAFETY IN TEN COUNTRIES

According to the Kenya Traffic Police Department there were 2863 road traffic deaths in 2007, although alternative sources have estimated that this number could be as high as 12 918. Irrespective of the actual number of deaths, used data shows a steady increase over the last forty years now beginning to plateau.

Half of the over 1 million registered vehicles in Kenya are motorcars with minibuses (usually used as public services vehicles and called "Matatus") accounting for 11% of the vehicle fleet. There are more than 180 000 motorcycles in Kenya and this number is rising rapidly. Many of these motorcycles are used as taxis referred to locally as "boda-bodas".

More than three-quarters of those killed on the roads in Kenya are males. About half are children or young adults. Fifty-seven percent are vulnerable road users – pedestrians, cyclists and motorcyclists. Speed has been identified as a major killer on Kenyan roads as has the lack of use of safety equipment such as helmets, seat-belts and child restraints.

The highway passing through the Thika district and the Northern Corridor (which passes through Nairobi) have been identified as high impact roads in the country, where 80% of victims presenting to the respective district hospitals sustain their injuries.

TRENDS IN ROAD TRAFFIC DEATHS

RUSSIAN FEDERATION

World Health Organization SAFETY COUNTRIES

Population (2008): 142,000,000
Income group: Middle
Gross national income per capita (2008): \$2,700
Road traffic death rate (estimate): 19.7/100,000 population
Number of registered vehicles (2008): 31,502,087

ROAD SAFETY IN TEN COUNTRIES

Young males of great particularity at risk of traffic crashes, this people aged 16-30. Common cause of the Russian Federal proportion of pedestrian and cyclist deaths.

To counteract this the Russian Government safety improvement Program 2006-2012 aims to reduce the road traffic death toll in Russia.

TURKEY

World Health Organization SAFETY COUNTRIES

Population (2008): 72,000,000
Income group: Middle
Gross national income per capita (2008): \$2,700
Road traffic death rate (estimate): 19.7/100,000 population
Number of registered vehicles (2008): 31,502,087

ROAD SAFETY IN TEN COUNTRIES

Young males of great particularity at risk of traffic crashes, this people aged 16-30. Common cause of the Russian Federal proportion of pedestrian and cyclist deaths.

To counteract this the Russian Government safety improvement Program 2006-2012 aims to reduce the road traffic death toll in Russia.

VIETNAM

World Health Organization SAFETY COUNTRIES

Population (2008): 86,210,000
Income group: Low
Gross national income per capita (2008): \$790
Road traffic death rate (estimate): 34.4/100,000 population
Number of registered vehicles (2008): 31,502,087

ROAD SAFETY IN TEN COUNTRIES

Ninety-five percent of the nearly 32 million registered vehicles in Vietnam are motorized 2- and 3-wheelers. It is therefore not surprising that the majority of those injured and killed in Vietnam are vulnerable road users – predominantly motorcyclists.

Most of those killed or injured on the roads in Vietnam are young adults – in fact, road traffic crashes are the leading cause of death for those aged 15 to 29 years.

Awareness of the road safety risks and laws as well as limited enforcement of legislation are the key challenges to reducing the road traffic toll in Vietnam.

Following the enactment of the motorcycle helmet law in 2007 the helmet wearing rate jumped from the low 30% to over 95% as a result of strict enforcement and good social marketing strategies. The helmet law has already saved many people's lives.

TRENDS IN ROAD TRAFFIC DEATHS

World Health Organization – Violence and Injury Prevention Unit (VIP)

http://www.who.int/violence_injury_prevention/road_traffic/countrywork/en/index.html