

Injuries

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Specific Learning Objectives

- At the end of session, the learner shall be able to describe:
 - Types of injuries
 - Risk factors of injuries
 - Prevention of injuries
 - Haddon matrix

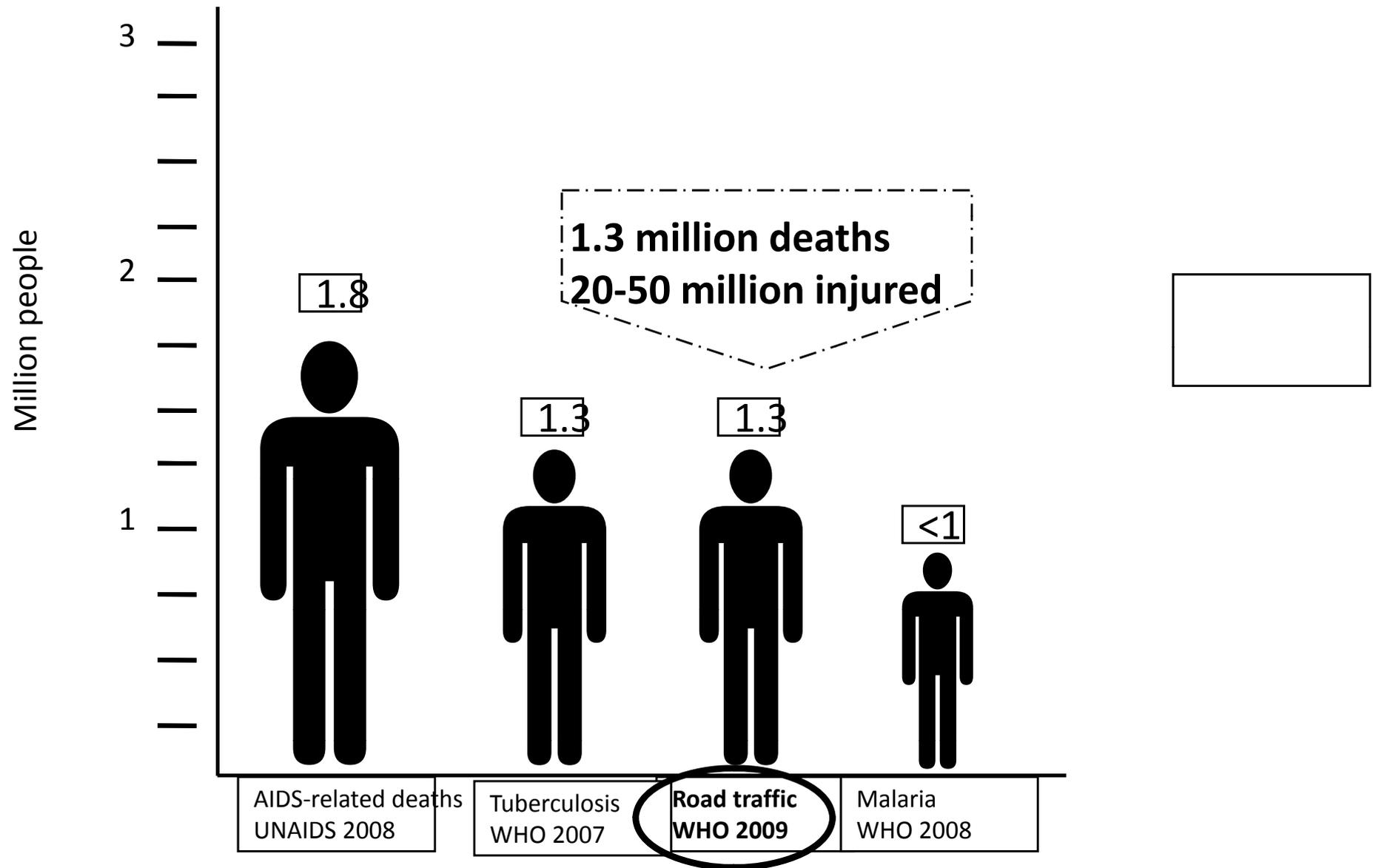
Injuries

- Injuries are caused by **acute exposure to** physical agents such as mechanical energy, heat, electricity, chemicals, and ionizing radiation interacting with the body in amounts or at rates that exceed the threshold of human tolerance. (by W.H.O.)
- In some cases (for example, drowning and frostbite), injuries result from the sudden **lack of essential agents** such as oxygen or heat” (by W.H.O.)

Types of Injury

- **Unintentional (i.e. accidental)**
- **Intentional (i.e. deliberate):**
 - Interpersonal (e.g. Assault and homicide)
 - Self-harm (e.g. Abuse of drugs and alcohol, self-mutilation, suicide)
 - Legal intervention (e.g. Action by police or other law enforcement personnel)
 - War, civil insurrection and disturbances (e.g. Demonstrations and riots);

Road Traffic Accidents



- Road traffic accidents are the leading cause of death **among young people**, aged 15–29 years.
- 91% of the world's fatalities on the roads occur in **low-income and middle-income countries**, even though these countries have approximately half of the world's vehicles.

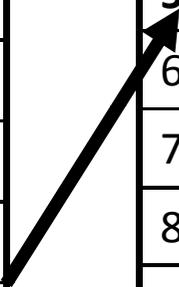
Leading causes of death in world

2004

Rank	Disease or Injury
1	Ischaemic heart disease
2	Cerebrovascular disease
3	Lower respiratory infections
4	COPD
5	Diarrhoeal diseases
6	HIV/AIDS
7	Tuberculosis
8	Trachea, bronchus, lung cancer
9	Road traffic injuries
10	Prematurity & low-birth weight

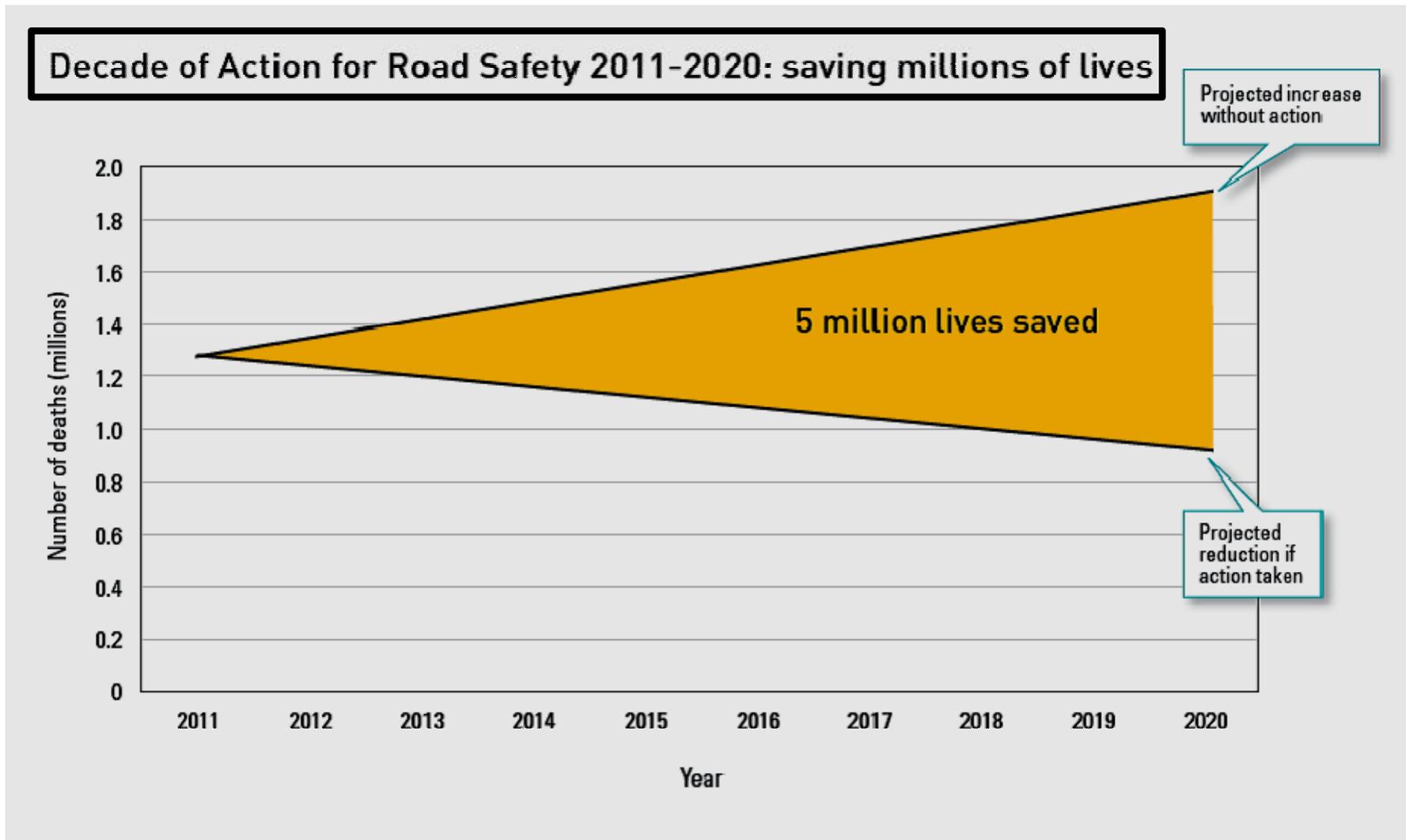
2030

Rank	Disease or Injury
1	Ischaemic heart disease
2	Cerebrovascular disease
3	COPD
4	Lower respiratory infections
5	Road traffic injuries
6	Trachea, bronchus, lung cancer
7	Diabetes mellitus
8	Hypertensive heart disease
9	Stomach cancer
10	HIV/AIDS



Goal of the Decade

To halt or reverse the predicted increase in road traffic fatalities around the world

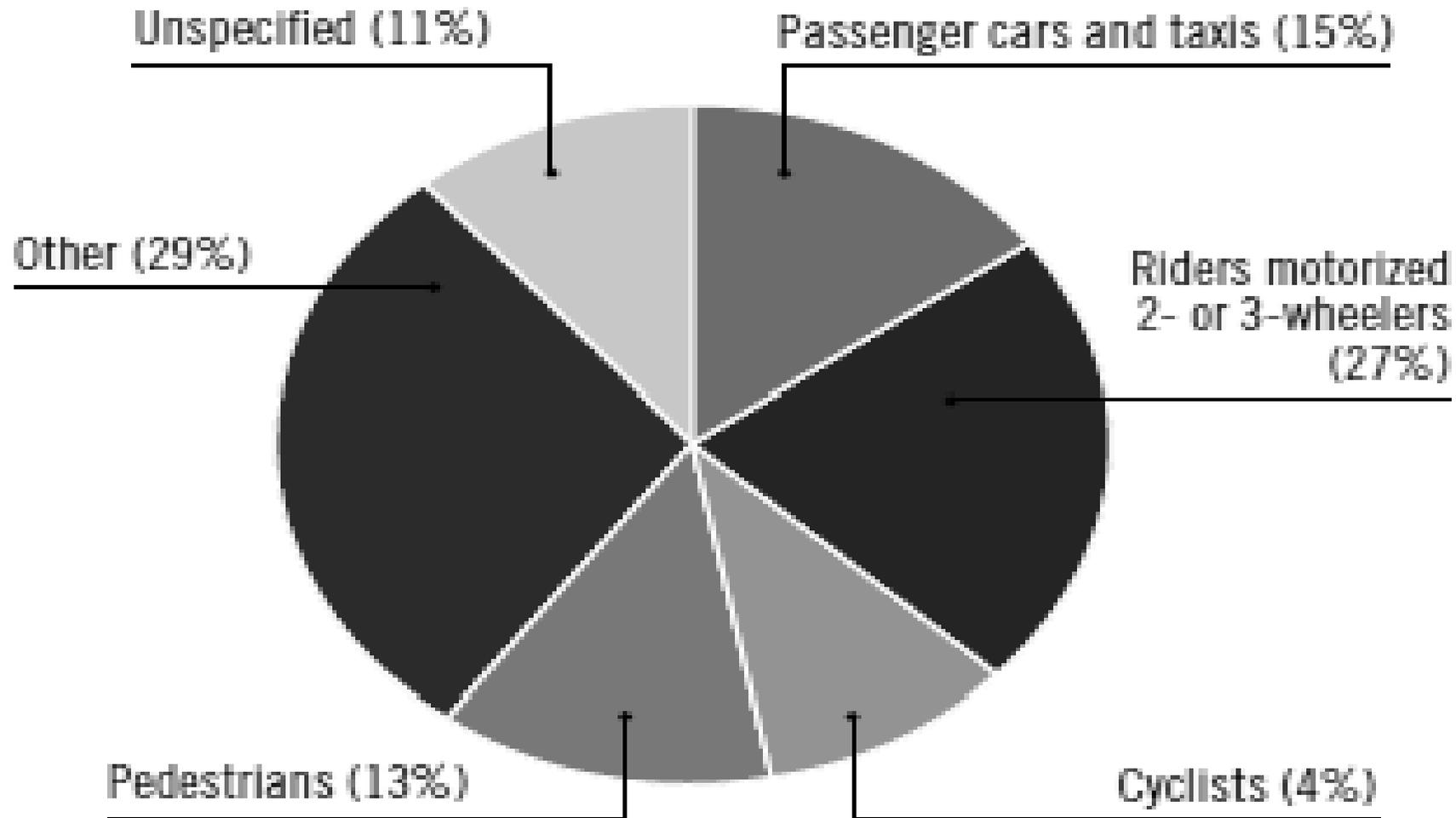


Chandigarh

	India	Chandigarh
No. of cases of Road Accidents	440123	441
Total Registered Motor Vehicles as on 31.03.2009 (in 000')	114953	747
No. of deaths due to Road Accidents in 2011	136834	136
Rate of Accidental Deaths per 000' vehicles	1.2	0.2
Rate of Deaths	31.1	7.2

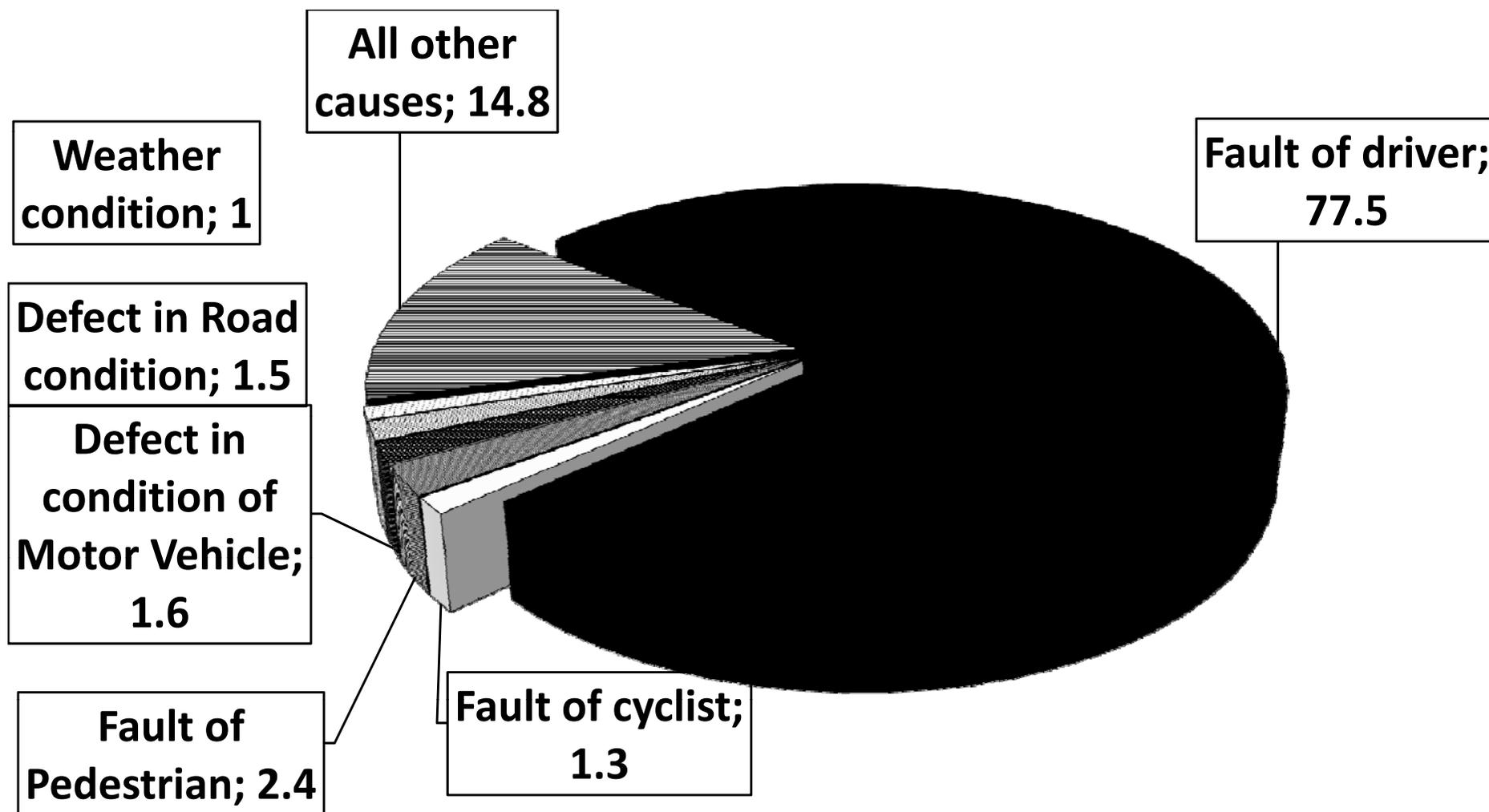
National Crime Record Bureau. Accidental Deaths & Suicides in India. NCRB Ministry of Home Affairs 2011.

Road user categories for road traffic deaths in India

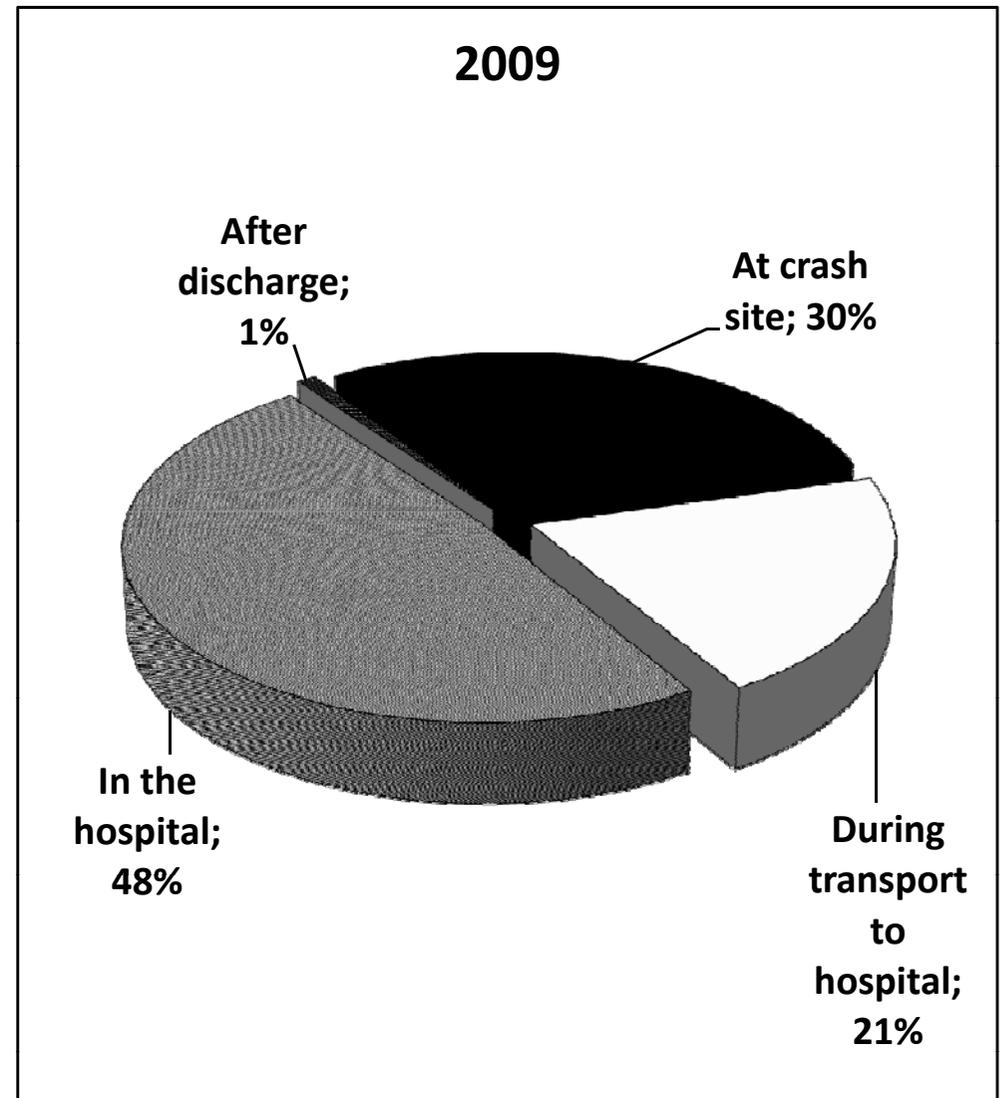
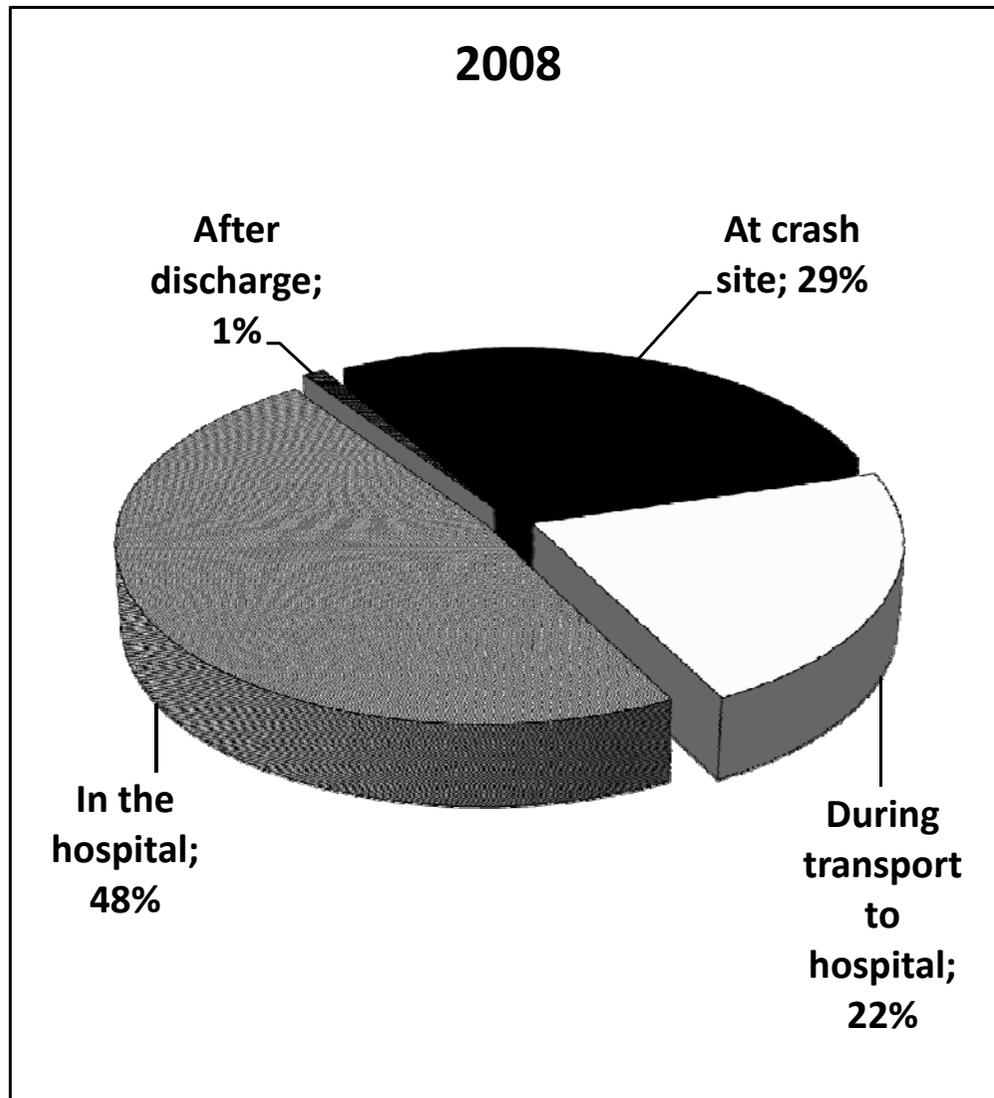


Global Status Report , 2009

Causes of RTA in India (2011)



Place of death among fatal road traffic injuries



Risk Factors

1. Speed:

likelihood of a crash occurring and to the severity of the consequences of the crash.

2. Drink-driving:

risk of a crash and the likelihood that death or serious injury.

3. Motorcycle helmets:

reduces the risk of death by 40% and of severe injury by 70%.

4. Seat-belts and child restraints:

reduces the risk of a fatality among front-seat passengers by 40–50% and of rear-seat passengers by 25–75%.

5. Distracted driving:

Drivers using a mobile phone are 4 times more likely to be involved in a crash.

Haddon Matrix

Prevention

Phase	Human	Vector (Vehicle)	Environment	Environment
Pre-Injury	Alcohol intoxication	Instability	Poor visibility hazards	Lack of knowledge regarding injury risks
Injury	Not wearing seat belt	No airbag	Tree too road	Lack of enforcement safety belt legislation
Post-Injury	Elderly, pre-existing medical condition	Rapidity of energy	Slow Emergency response	Lack of funding for emergency medical and rehabilitation services

Primary Prevention

Secondary Prevention

Tertiary Prevention

Best buys in road safety

- Speed reduction
- Seat-belts
- Child-restraints
- Helmets
- Drinking and driving
- ✓ Low cost engineering measures
- ✓ Safer vehicles
- ✓ Pre-hospital Trauma care

Violence

- Over 1.5 million deaths per year.
- Suicide and homicide account for more than 80% of violence-related deaths
- 90% of deaths due to violence occur in low- and middle-income countries
- Mainly impacts young, economically productive people
- The health impact of violence is not limited to physical injury



Prevention

- Violence is preventable and its impacts can be reduced
- Individuals can benefit from violence prevention programmes in schools
- Promoting positive, nurturing relationships within families can prevent violence
- Community programmes can play a role in preventing violence
- Societies can prevent violence by reducing risks such as alcohol, guns, and economic and gender inequality



Violence against women

- Particularly intimate partner violence (IPV) and sexual violence against women - are major public health.
 - 15–71% of women aged 15-49 years reported physical and/or sexual violence by an intimate partner at some point in their lives.
 - between 0.3–11.5% of women reported experiencing sexual violence by a non-partner since the age of 15 years
- Approximately 20% of women and 5–10% of men report being victims of sexual violence as children.
- Result in physical, mental, sexual, reproductive health and other health problems.

Risk factors

- Lower levels of education;
- Exposure to child maltreatment;
- Witnessing family violence;
- Antisocial personality disorder;
- Use of alcohol;
- Having multiple partners or suspected by their partners of
- Attitudes that are accepting of violence and gender inequality.

Prevention

- Currently, there are few interventions whose effectiveness has been proven through well designed studies.
- Primary prevention strategies those:
 - that combine microfinance with gender equality training;
 - that promote communication and relationship skills within communities;
 - that reduce access to, and harmful use of alcohol; and
 - that change cultural gender norms,have shown some promise but need to be evaluated further.

- It is important to:
 - enact legislation and develop policies that protect women;
 - address discrimination against women and promote gender equality; and
 - help to move towards more peaceful cultural norms.

Domestic Accidents

- Falls
- Burns
- Drowning
- Poisoning
- Injuries from sharp or pointed instruments
- Bites and other injuries from animals

Fall Related Injuries

- Falls usually in and around the home, with significant proportion being associated with fall from heights including rooftops and trees are common in younger people in developing countries.

Risk factors for Falls

- Low bone density;
- Poor nutritional status and low body mass index;
- Low calcium intake;
- Co morbid conditions like hypertension and diabetes;
- Low levels of physical activity;
- **Poor cognitive function and vision;**
- Environmental factors affecting balance or gait;
- Alcohol consumption.

Prevention & Control of Fall related injuries

- Interventions proven effective for preventing falls in older people in developed countries include:
 - Muscle strengthening and balance retraining that is individually prescribed at home by a trained health professional;
 - Home hazard assessment and modification that is professionally prescribed for older people with a history of falling; and
 - Multidisciplinary, multi-factorial health and environment risk factor screening and intervention programs, both for community dwelling older people in general and for older people with known risk factors.

- In relation to fall related injuries among young children, increased supervision of children and the importance of appropriate ground surfacing to prevent playground injuries are effective and relevant.

Burn Related Injuries

- In China and particularly India, fire related injuries clearly outweigh scald-related injuries.
- Overall women are at greater risk of fire related injuries than men.
- Environmental risk factors that have been identified include lack of water supply, storage of inflammable substances at home, cooking equipments in kitchen in the reach of children, and housing that is located in slums and congested areas.

Indian Scenario

- Total Number of Burn Injuries cases annually in India is approximately 70 lakhs and the cases are on increase.
- Approximately 1.4 lakhs people die on burn every year
- More than 7 lakhs burn injuries case require admission every year.
- 70% of all burn injuries cases occur in most productive age group (15-35 years)
- 4 out of 5 burnt cases are women & children.
- 80% of cases admitted are a result of accidents at home (kitchen related mishaps).
- Amongst all traumas, burn cases have highest duration of Hospital bed occupancy.

Common causes

- Scalds are caused by:
 - upsetting cups, especially containing hot tea and coffee;
 - upsetting large containers of boiling liquid from stove tops;
 - upsetting large containers of hot liquids from other places, such as pots of hot coffee on table tops;
 - hot tap water.
- Contact burns occur from:
 - irons;
 - stoves, especially electrical coils on the stove surface;
 - stoves used for heating.
- Fireworks during celebration of *Diwali*.

Prevention & Control of Burn related injuries

- These interventions include
 - separating cooking areas from living areas, including efforts to reduce the use of indoor fires for cooking,
 - ensuring that cooking surfaces are at heights,
 - reducing the storage of flammable substances in households, and
 - supervising young children more effectively.
- The introduction, monitoring, and enforcement of standards and codes for and the wearing of fire retardant garments have also been proposed.

Safer Stoves and Lamps



Safe stove

Safe Bottle lamp



Prevention from burns



Smoke Alarms



Nonflammable Fabrics



Making fireworks safer

Drowning

- Drowning incidents:
 - In low middle income countries are associated with every day activities near water bodies, including rivers, wells, and ponds;
 - In developing countries being commonly associated with recreation or leisure activities.
- Men account for a higher proportion of drowning incidents, and children aged one to four and young people appear to be at greater risk.
- Those living in rural areas are at a greater risk than their urban counterparts, probably indicating greater exposure to unprotected water surfaces.

Prevention & Control of Drowning related injuries

- Covering wells with grills,
- Fencing nearby lakes or riverbanks,
- Fencing domestic swimming pools, and
- Building flood control embankments.



Prevention of Accidents & Injuries

- Data collection
- Safety education
- Promotion of safety measures
- Alcohol and other drugs
- Primary care
- Elimination of causative factors
- Enforcement of laws
- Rehabilitation services
- Accident research

Prevention and Control of Accidents & Injuries

- A cycle of surveillance
- Risk factor identification
- Intervention implementation
- Evaluation.

“4 Es” for Injury Prevention

- One framework for conceptualizing the many approaches to injury prevention is termed the “4Es,” which consist of the following :
 - **Education**
 - **Environmental modification**
 - **Enforcement**
 - **Engineering**

Thanks...