Interventions for Pedestrian Road Traffic Injuries

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Burden of Pedestrian Injury

Pedestrian are the vulnerable road users, specially in low-income countries, mainly because of the greater variety and intensity of traffic mix and the lack of separation from other road users

In high-income countries between 5% and 10% of children with RTIs are pedestrians, while in LMICs the proportion ranges from 30% to 40% .

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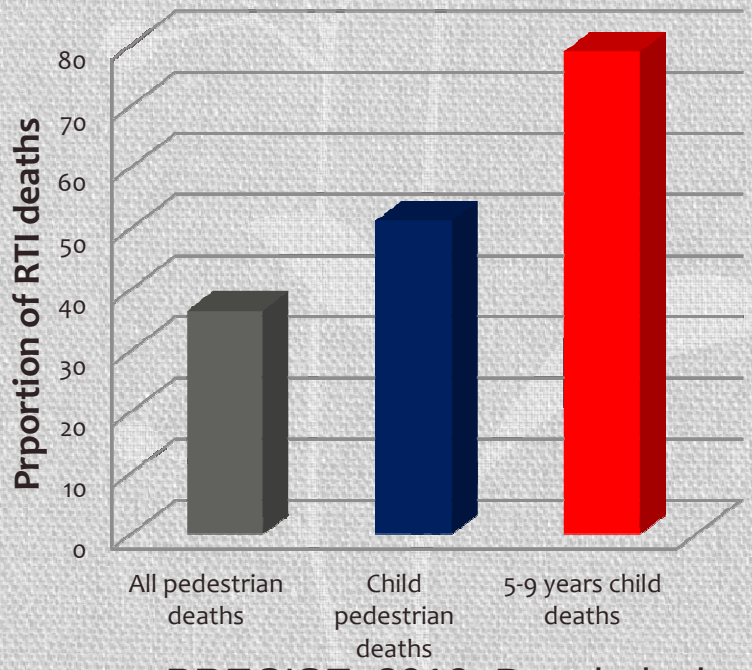
Pedestrian injury remains the second leading cause of unintentional injury-related death among children ages 5 to 14. Child pedestrian injury is highest in Africa and Asia

Compared with occupant injuries, pedestrian injuries are more severe, with a fivefold higher likelihood of death among those injured.



PRECISE, 2010; Bangladesh

The frequency and type of pedestrian injury depends on

- traffic patterns
- pedestrian patterns
- vehicles patterns and speed
- population densities
- road layouts,
- area e.g.urban , suburban or rural

Interventions for pedestrian safety

- **Minimizing exposure to high-risk scenarios**

  Preventing pedestrians and cyclists from accessing motorways and preventing motor vehicles from entering pedestrian zones

  Restricting access to different parts of the road network

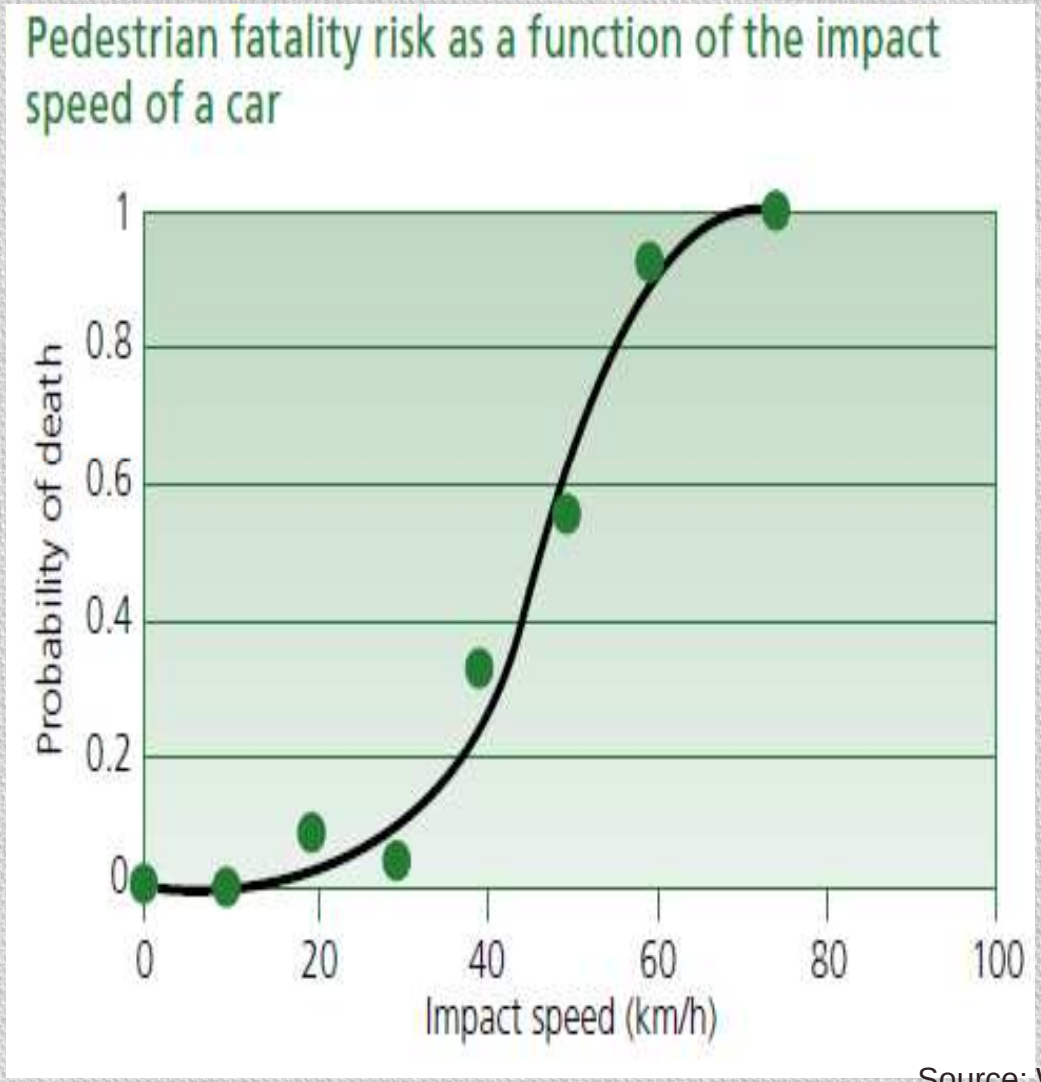
  Physically separating pedestrians from motor vehicle traffic with physical barriers, using pedestrian bridges, overpasses, underpasses, traffic islands and other similar measures, could reduce the instance of injury prevention and death.

Safety-awareness in planning road networks

- to prevent road use that does not match the functions for which the road was designed;
- to manage the traffic mix by separating different kinds of road users, so as to eliminate conflicting movements of road users, except at low speeds;
- to prevent uncertainty among road users about appropriate road use.

Traffic-calming measures

At speeds below 30 km/h pedestrians can coexist with motor vehicles in relative safety. Speed management and traffic-calming include techniques such as discouraging traffic from entering certain areas and installing physical speed-reducing measures, such as roundabouts, road narrowings, chicanes and road humps. These measures are often backed up by speed limits of 30 km/h, but they can be designed to achieve various levels of appropriate speed.



Pedestrians have a 90% chance of surviving car crashes at 30km/h or below, but less than a 50% chance of surviving impacts at 45 km/h or above.

Source; World report on road traffic injury prevention

Improving Visibility

Seeing and being seen are fundamental prerequisites for the safety of all road users.

Pedestrian Visibility

- The main intervention for pedestrians to protect themselves is to wear clothing that increases their visibility, especially in poor daylight and in darkness.

Motorized vehicle

- Daytime running light on the front of motorized vehicles
- use of reflective and protective clothing (jackets and vests), which increases the visibility of riders of two wheelers

Road

- illuminating crosswalks, including the floodlighting of pedestrian crossings and increased illumination at crosswalks.

Safer Vehicle design

- **Safer car fronts to protect pedestrians and cyclists**

  The majority of fatally-injured pedestrians are hit by the fronts of cars. Creating safer car fronts is thus a key means of improving pedestrian safety

- **Safer bus and truck fronts**

  Extending the crash-protective vehicle exterior concept to vans, pick-up trucks and other trucks, and buses is an urgent requirement for protecting vulnerable road users in low-income countries

Enforcement

- Enforcement of traffic laws, including apprehension of hit-and-run drivers, is effective in reducing traffic-related pedestrian death and injury. Greater penalties, such as impounding the vehicles of drivers who are unlicensed or driving with a suspended or revoked license, are proven to reduce pedestrian death and injury.

The role of education, information and publicity

Educating pedestrians on how to cope with the traffic environment is considered an essential component of strategies to reduce pedestrian injuries and has been recommended in all types of countries.

Educational approaches to pedestrian safety

In order to reach the two groups of pedestrians that are particularly vulnerable – children and older people – educational programmes use a variety of methods, frequently in combination. These approaches include talks, printed materials, films, multi-media kits, table-top models, mock-ups of intersections, songs and other forms of music. Education is provided either directly to the target population or indirectly – through parents or teachers, for instance – and in various settings, such as the home, the classroom or a real traffic situation.

- Pedestrian safety education can change observed road crossing behaviour, but whether this reduces the risk of pedestrian injury in road traffic crashes is unknown. There is a lack of good evidence

  of effectiveness of safety education for adult pedestrians, specially elderly people. None of the trials was conducted in low or middle income countries.

(BMJ. 2002 May 11; 324(7346): 1129)

- Pedestrian safety education can result in improvement in children's knowledge and can change observed road crossing behaviour, but whether this reduces the risk of pedestrian motor vehicle collision and injury occurrence is unknown. There is evidence that changes in safety knowledge and observed behaviour decline with time, suggesting that safety education must be repeated at regular intervals.

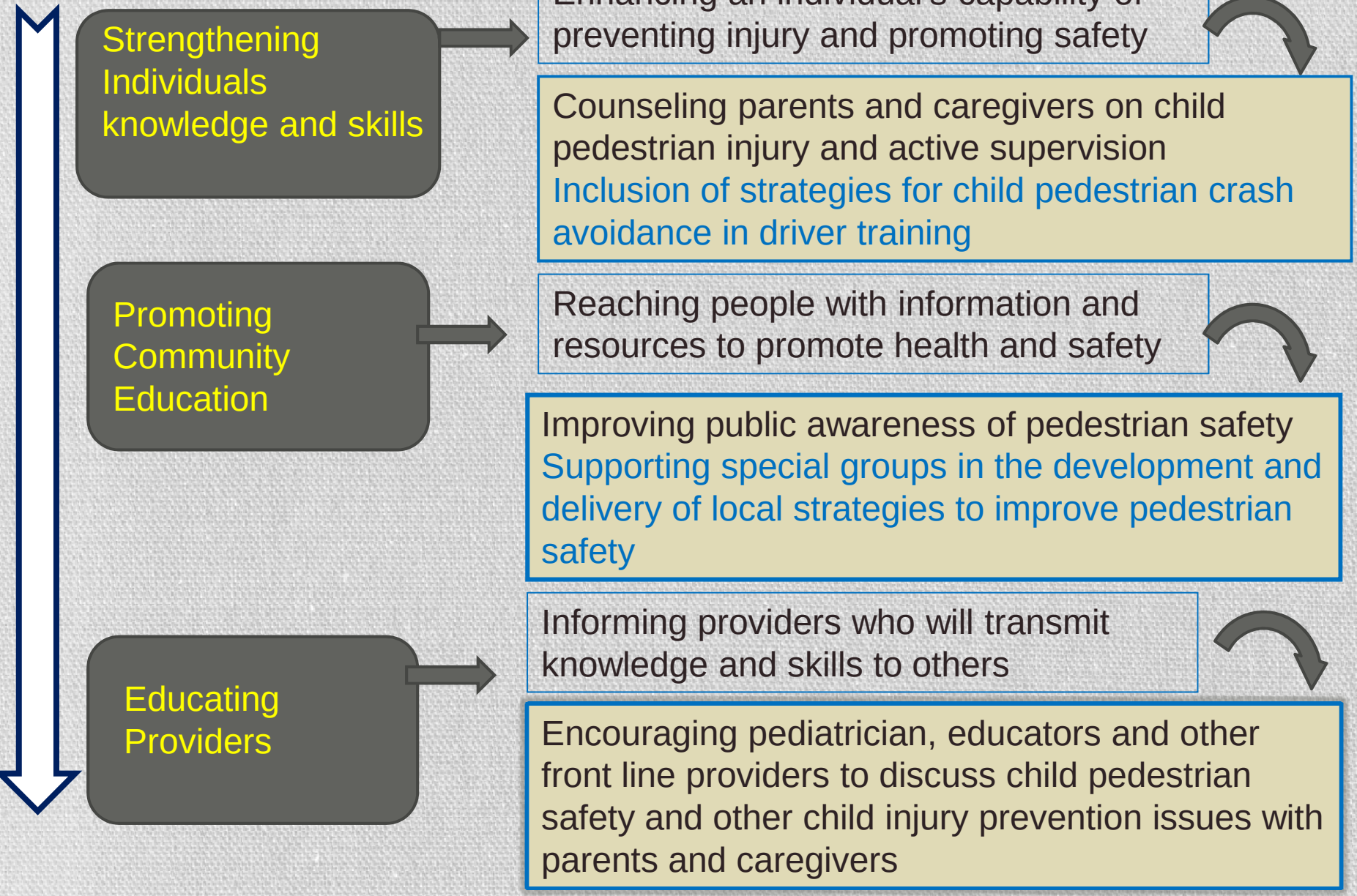
(***Safety education of pedestrians for injury prevention (Review)*** *The Cochrane Collaboration and published in The Cochrane Library 2009, Issue 1)*

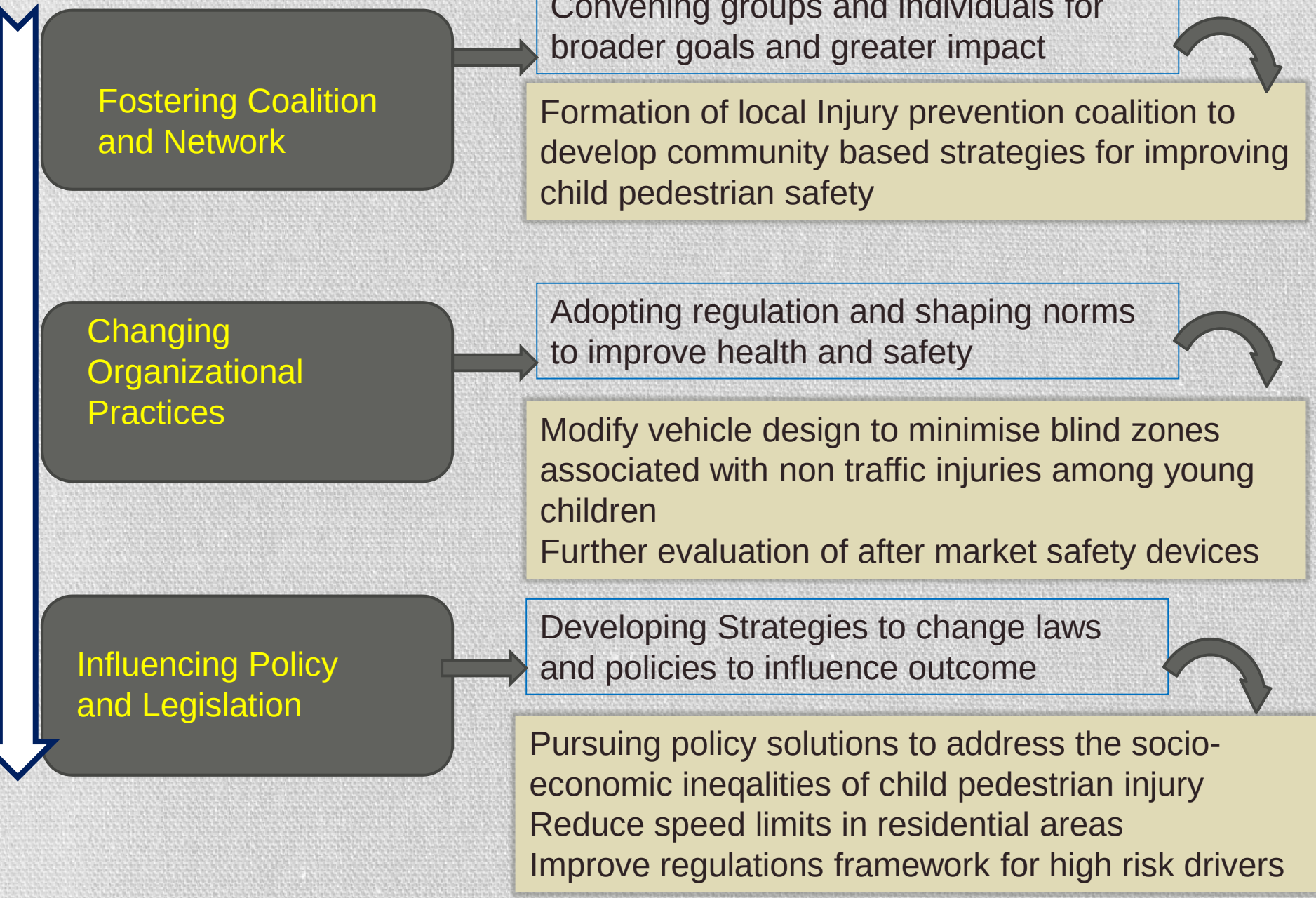
Child pedestrian safety interventions

Intervention Category	Description
Road Safety Education	It involves improving pedestrian safety focus, teaching pedestrians road safety skills, and/or the introduction of educational programmes aimed at altering driver or pedestrian behaviour.
Enforcement Interventions	Enforcement interventions refer to those traffic measures that promote road user's adherence to traffic regulations such as regulating driver behaviour, and/or monitoring pedestrian behaviour.
Environmentally -based Engineering Intervention	Refers to the structural change to the road environment such as pedestrian bridges, pedestrian crossing, speed humps, etc.
Engineering design	Refers to the development of safety or injury-reducing products such as retroreflective clothing, and other visibility aids.
Multi-type Intervention	Include those programmes that consist of two or more interventions in operation simultaneously, complementing each other.

Ediriweera Desapriya, Meridith Sones, Tansey Ramanzin, Sara Weinstein,Giulia Scime, Ian Pike. **Injury prevention in child death review: child pedestrian fatalities** Injury Prevention 2011;17(Suppl 1):i4ei9. doi:10.1136/ip.2010.026914

Policy and programme intervention for the prevention of child pedestrian fatalities across the Spectrum of Prevention




Fostering Coalition and Network
Convening groups and individuals for broader goals and greater impact
Formation of local Injury prevention coalition to develop community based strategies for improving child pedestrian safety
Changing Organizational Practices
Adopting regulation and shaping norms to improve health and safety
Modify vehicle design to minimise blind zones associated with non traffic injuries among young children
Further evaluation of after market safety devices
Influencing Policy and Legislation
Developing Strategies to change laws and policies to influence outcome
Pursuing policy solutions to address the socio-economic ineqalities of child pedestrian injury
Reduce speed limits in residential areas
Improve regulations framework for high risk drivers

Experiences of

"PRECISE" – Prevention of Child Injuries through Social Intervention and Education

What interventions work to prevent child injuries?

What is the operational feasibility for nation-wide scale-up?

unicef

TASC
The Alliance for Safe Children

CIPRB

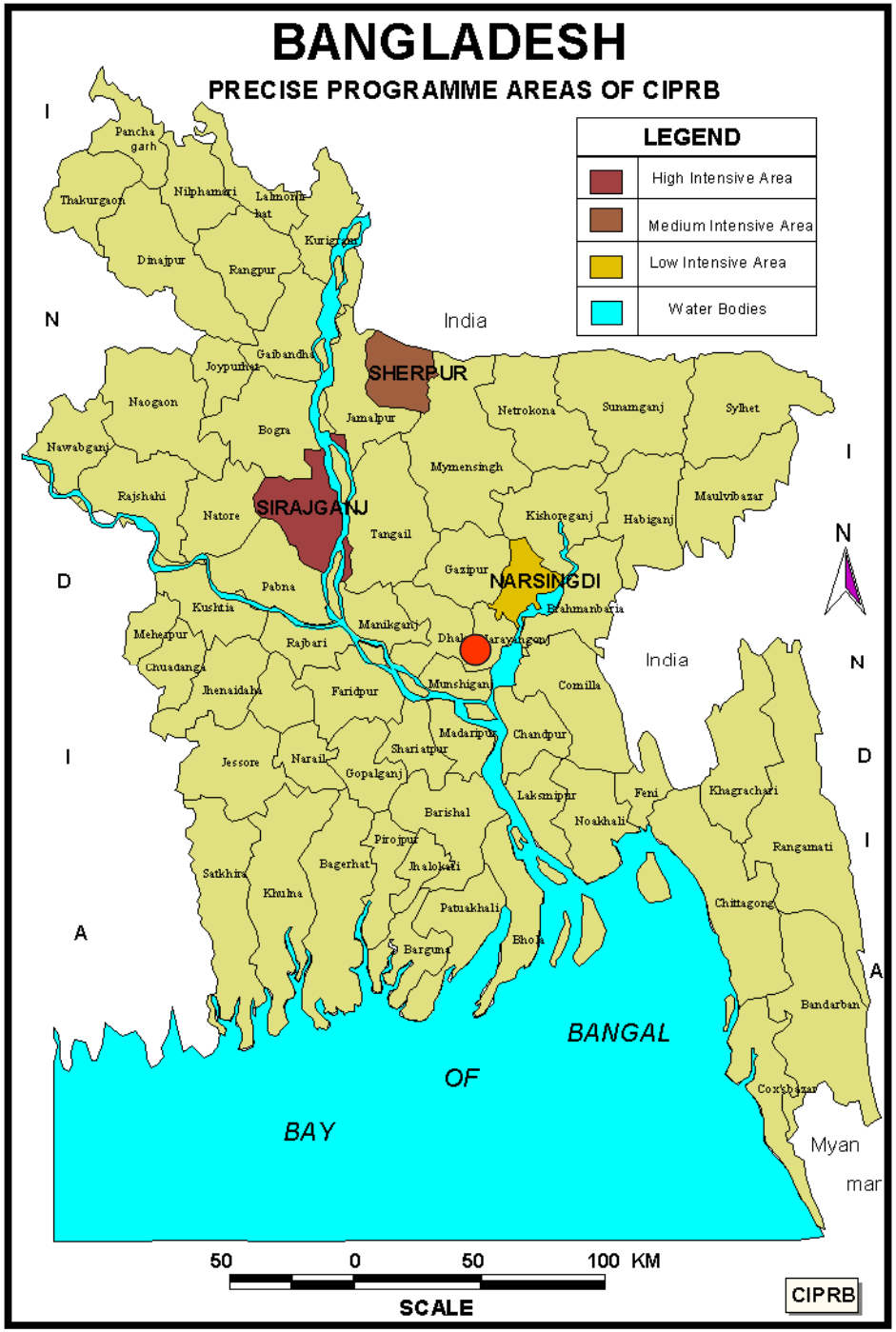
PRECISE programme areas

Intervention: 3 rural upazilas & 1 urban area

Control: 1 rural sub-district & 1 urban area

Covers:

- **Over 1 million population**
- **430,000 children under 18**
- **122,000 children under 5**



Key activities for prevention of Road Traffic Injuries

Advocacy and Fostering Coalition

Advocacy meetings (meeting with policy makers and local administrators, Village injury prevention meetings, parents meetings

Education and Skill development

School Safety Programme, Community based training such as child pedestrian training programme

Ensuring supervision

Home Safety Programme, Anchal (Community Crèche)

Awareness building

Courtyard meeting, Social autopsy, IPT, Video show, Annual event (Essay competition, Rally etc)

Emergency Injury Care

Development of first responder

Advocacy Meeting

Village Injury Prevention committee (VIPC)

Meeting with local Administrator

Courtyard meeting

SCHOOL SAFETY PROGRAMME

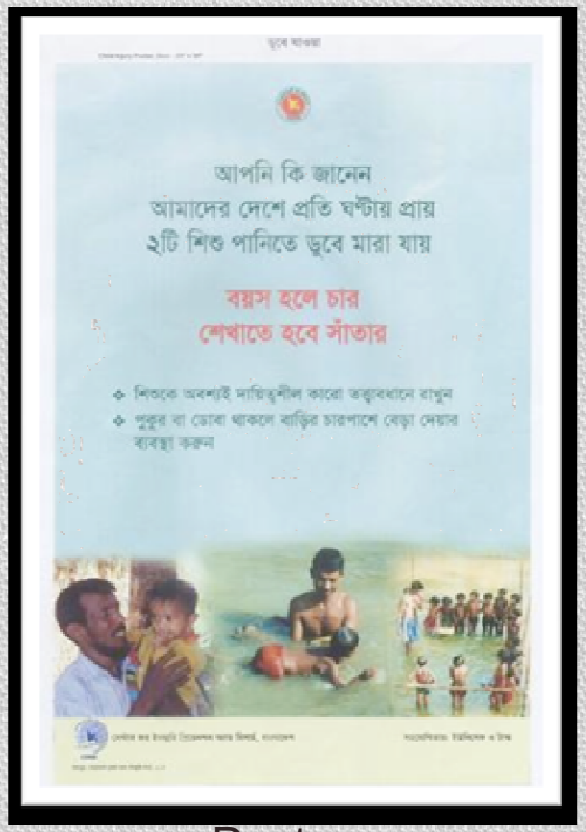
- Increase knowledge and skills on injury prevention of school children
- Reduction of injury risks at school environment

GRADE SPECIFIC INJURY PREVENTION BOOK

Anchal (Community Crèche)

Awareness Building

COMMUNICATION MATERIALS

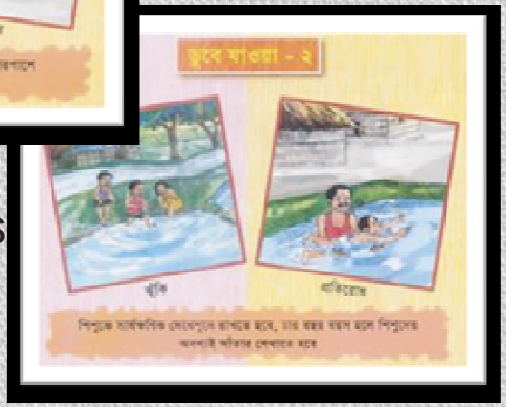


Posters

Video Docu-drama

Booklet

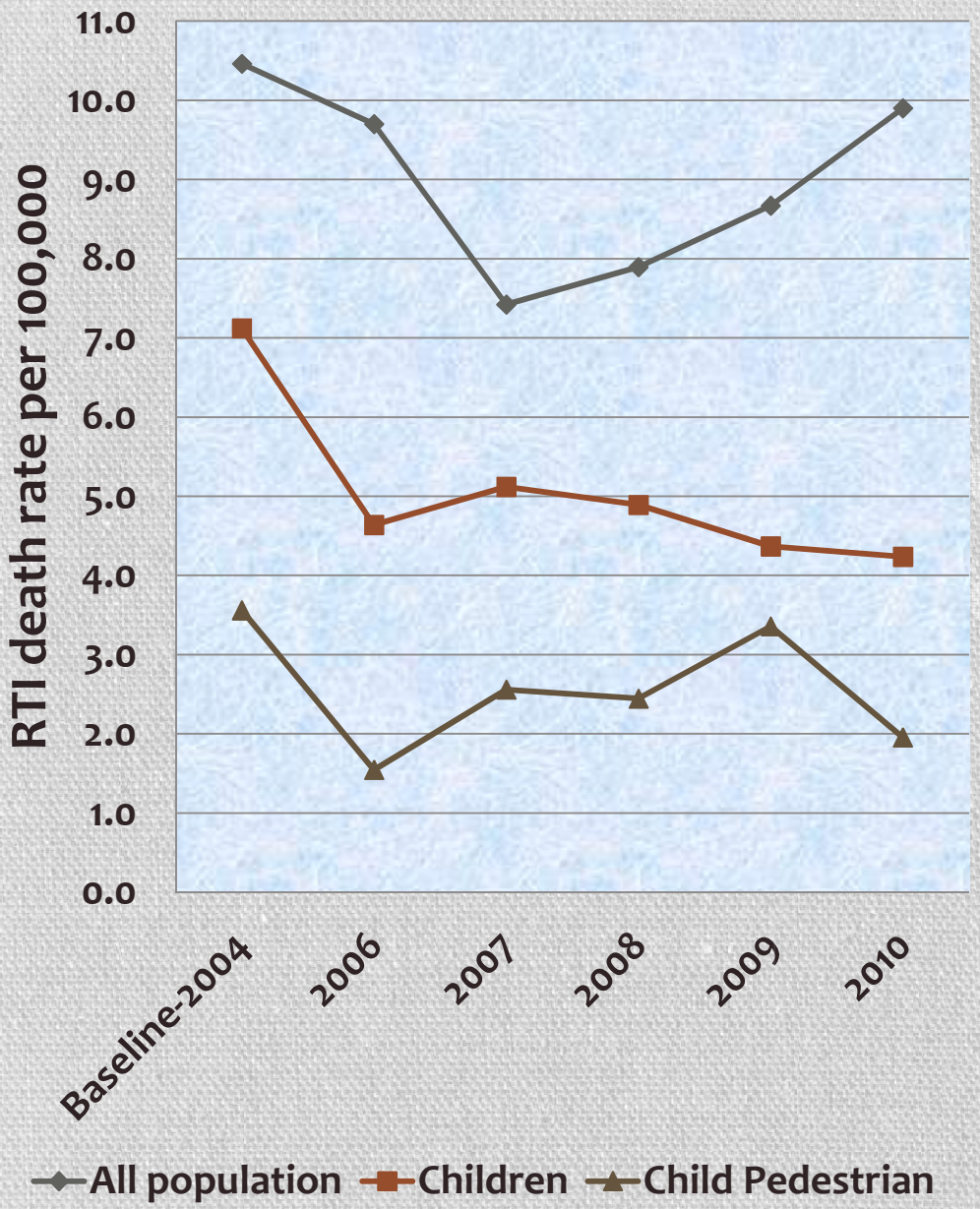
Flip Chart/
Flash Cards



COMMUNICATION ACTIVITIES

Emergency Injury Care

Volunteers, Teachers, Health workers trained on First response



Comprehensive interventions that engage the community at large and combined interventions could be the pedestrian safety strategy for low income countries

There is no standard package of interventions suitable for all contexts and countries. Interventions proven in one setting may not easily be transferable elsewhere, and will require careful adaptation and evaluation. Where effective interventions are altogether lacking, scientific research is needed to develop and test new measures.

Let us work together to prevent unnecessary deaths on the road