Road Safety Interventions: Evidence of What Works and What Does Not Work

Presenters
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PRESENTATION CONTENTS

• A quick recap on the global road safety problem
• The importance of investing in effective road safety interventions
• Addressing road safety through a Safe System approach
• Specific interventions by Safe System pillars
GLOBAL ROAD SAFETY

- 1.35m deaths each and every year
- Up to 50m injuries, many life altering
- 8th leading cause of death worldwide, and leading cause of death for those aged 5-29 years
- 93% of deaths in LMICs
- Economic impact 2-6% of GNP
KEY CRASH TYPES – FATAL/SERIOUS

- Pedestrians – walking along the road and crossing
- Motorcyclists and cyclists
- Run-off-road
- Intersection
- Head-on
- Rear-end
A new guide on road safety interventions

www.roadsafetyfacility.org
WHY THIS GUIDE?

• Limited budgets – need to invest in interventions that will produce the biggest reductions in fatal and serious injury

• Extensive body of evidence on what works, but this is often not accessed

• ‘Common sense’ often used – unfortunately, this is often wrong

• Bring together the evidence on effective interventions to improve road safety, but also to warn about interventions that are not as effective as we might expect
THE SAFE SYSTEM APPROACH

- People make mistakes
- Death and serious injury are not acceptable
- Road users are vulnerable
- Responsibility is shared

Safe road infrastructure
Safe Speeds
Safe road users
Safe vehicle
Effective post-crash care

All within an effective road safety management approach
<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>DESCRIPTION</th>
<th>POTENTIAL EFFECTIVENESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRAFFIC CALMING INCLUDING HUMPS,</td>
<td>Reducing speed of traffic, especially in areas of higher risk (that is,</td>
<td>HIGHLY EFFECTIVE</td>
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<tr>
<td>CHICANES</td>
<td>presence of vulnerable road users; poor quality infrastructure; entering a</td>
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<td></td>
<td>built up area on a rural road)</td>
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<tr>
<td>ROUNDABOUTS</td>
<td>Intersection control measure implemented in order to reduce speeds, angle</td>
<td>HIGHLY EFFECTIVE</td>
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<td></td>
<td>of impact, and road user conflict points</td>
<td></td>
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<tr>
<td>RAISED INTERSECTIONS</td>
<td>Raised section of roadway on approach and/or through an intersection</td>
<td>HIGHLY EFFECTIVE</td>
</tr>
<tr>
<td>RAISED CROSSINGS</td>
<td>Raised section of roadway at a pedestrian crossing point</td>
<td>HIGHLY EFFECTIVE</td>
</tr>
<tr>
<td>GATEWAY TREATMENTS</td>
<td>Signs used with other measures (including physical or painted lane</td>
<td>HIGHLY EFFECTIVE</td>
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<td></td>
<td>narrowing) to create a threshold or gateway between high and low speed</td>
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<tr>
<td></td>
<td>environments</td>
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<tr>
<td>LOWER SPEED LIMITS</td>
<td>Mandatory maximum speed limits for vehicles, most effective when these are</td>
<td>HIGHLY EFFECTIVE</td>
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<tr>
<td></td>
<td>set to provide safe mobility for all road users and supported with</td>
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<tr>
<td></td>
<td>appropriate infrastructure design</td>
<td></td>
</tr>
<tr>
<td>30 KM/H (20 MPH) ZONES FOR</td>
<td>Road environments designed to reduce speeds to 30 km/h (20 mph) or below.</td>
<td>HIGHLY EFFECTIVE</td>
</tr>
<tr>
<td>PEDESTRIANS</td>
<td></td>
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<tr>
<td>SPEED CAMERAS</td>
<td>Mobile or fixed cameras that can detect vehicle speeds at a set point, or</td>
<td>HIGHLY EFFECTIVE</td>
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<td></td>
<td>over a length of road</td>
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<tr>
<td>INCREASING TRAVEL SPEED WITHOUT</td>
<td>Increasing speed of traffic without appropriate improvements in</td>
<td>NOT EFFECTIVE: CAN</td>
</tr>
<tr>
<td>IMPROVING QUALITY OF INFRASTRUCTURE</td>
<td>infrastructure</td>
<td>RESULT IN INCREASED</td>
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<td>RISK</td>
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</table>

A.2.2 TRAFFIC CALMING INCLUDING HUMPS, CHICANES

Various road infrastructure devices can be used to effectively manage the speed of vehicles. Humps (Figure A.15) and platforms refer to raised sections of pavement, with various forms of speed humps and platforms available for different road types and speed environments. Chicane provide another mechanism for slowing vehicles through horizontal deflection (or movement) of vehicles. Again, the designs can vary depending on the degree of speed control desired, as well as the operating environment. These interventions can be used at high risk locations (such as areas where pedestrians and other vulnerable road users need to cross) or as part of an integrated area-wide traffic calming scheme.

Figure A.15: Traffic calming/Speed Hump (Source: NACTO)

Well-designed traffic calming can produce substantial safety benefits. Reductions of around 35 percent for all injury crashes are typical, but much higher benefits are likely for pedestrians and other vulnerable road users (around a 70 percent reduction in fatal and serious pedestrian injuries). 49 58 55 72
SELECTING ROAD SAFETY INTERVENTIONS

• Fatal and serious injury reduction potential
• Economic Efficiency and Affordability: Cost
• Compatibility: Broader health impacts and impact on Environment and Traffic / other road users
• Acceptability: Public acceptance / understanding
• Technical Feasibility and Experience installing and maintaining, etc.
• Legal Conformity
• Political And Institutional Acceptability: Is the intervention likely to attract political support?
Adopting a Safe System approach

Undertaking a road safety management capacity review

Strong leadership through a ‘lead agency’

A road safety management framework with Key Performance Indicators (KPIs), data collection strategies to plan and monitor road safety activity and outcomes

Building road safety capacity across the sector

Ambitious strategies and road safety targets with regular reporting on progress.

Road Safety Management System

Source: Bliss and Breen (2012)
SAFE ROADS AND ROADSIDES

Integrated public transport

• Moving road users on to safer forms of transport
• Well designed public transit: Bus Rapid Transit (BRT)
• Without adequate road infrastructure, e.g. safe crossing benefits will be greatly reduced.
• Evidence of more than 50% reduction in fatalities in TransMilenio BRT in Bogotá; a 46% reduction in crashes in Macrobús, Guadalajara; and a 55% reduction in fatalities from the Janmarg BRT in Ahmedabad.
SAFE ROADS AND ROADSIDES

Footpaths and crossings
SAFE ROADS

Crash barrier systems
WHAT DOES NOT WORK – SAFE ROADS

With Paving and Resurfacing Speeds increase
SAFE SPEEDS

Setting right speed limits and signs to convey

School zones

Traffic calming

Roundabouts
SAFE SPEEDS

Gateway treatments
SAFE ROAD USERS

Speed enforcement

In-vehicle monitoring systems – bus and fleet vehicles
SAFE ROAD USERS

Drink drive enforcement
SAFE ROAD USERS

Seat belts

Graduated driver license system

Helmet wearing
What Does Not Work – Safe Road Users

- School-based skills training
- Post-license driver and rider training (improve licensing system instead)
- Most school-based education programs – concentrate on safety provisions on roads around schools instead
- Public education campaigns on their own (must link to enforcement and penalties)
SAFE VEHICLES

• Improved vehicle specifications
• Vehicle maintenance
• Seat belts (front and rear)
• Daytime running lights
• New vehicle technologies
  ❖ Electronic stability control
EFFECTIVE POST-CRASH CARE

- Improved response times
- Improved care from first responders
- Improved hospital facilities
**OUR ROAD SAFETY ‘SUPERSTARS’**

*30%+ improvement

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<thead>
<tr>
<th>Roads and roadsides</th>
<th>Speeds</th>
<th>Road users</th>
<th>Vehicles</th>
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<tbody>
<tr>
<td>Integrated public transport</td>
<td>Traffic calming</td>
<td>Increased helmet wearing rates</td>
<td>Seat belts</td>
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<tr>
<td>Barrier systems</td>
<td>Roundabouts</td>
<td>Increased seat belt wearing rates</td>
<td>Electronic Stability control</td>
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<tr>
<td>Medians</td>
<td>Raised intersections</td>
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<td>Advanced vehicle technologies</td>
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<td>Infrastructure solutions to support appropriate speeds</td>
<td>Raised crossings</td>
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<tr>
<td>Roundabouts</td>
<td>Gateway treatments</td>
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<tr>
<td>Grade separation</td>
<td>Lower speed limits</td>
<td></td>
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<tr>
<td>Reducing risk exposure at intersections</td>
<td>30 km/h (20 mph)</td>
<td>zones for pedestrians</td>
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<tr>
<td>Pedestrian footpaths</td>
<td>Speed cameras</td>
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<td>Pedestrian crossings</td>
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Summary

➢ New guide on effective road safety interventions
➢ Some things don’t work - don’t make the situation worse!
➢ Use the evidence base – not ‘common sense’
➢ Some interventions of very high benefit and at moderate cost
➢ A Safe System response is needed across multiple pillars
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