

Road Safety 2020: Smart Solutions, Sustainability, Vision

Prof Mark Stevenson

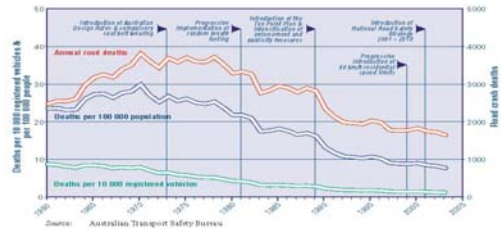
Overview

- Decades of Achievement
- Research and Road Safety
- Implementing the Research Evidence
- Gaps in Our Knowledge: Research for 2020 Targets
- Conclusion

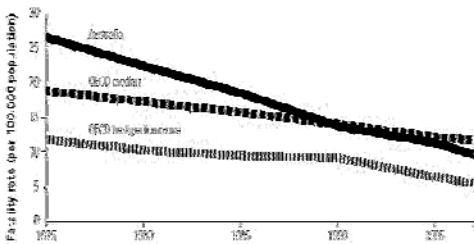
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Decades of Achievements



Decades of Achievement

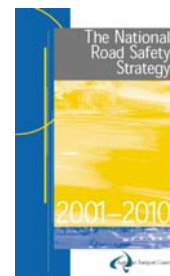


Decades of Achievement

National Road Safety Strategy 2001-2010

Vision: Safe road use for the whole community

Target: Reduce road fatalities by 40% (from 9.3-5.6/100,000)



Decades of Achievement

National Road Safety Strategy 2001-2010

Objectives:

- Improve road user behaviour
- Improve the safety on the roads
- Improve vehicle safety
- Improve equity among road users
- Improved trauma/retrieval services
- Improved policy (via research)
- Encourage alternatives to motor vehicle use
- Use of new technologies



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Research and Road Safety

- Base research evidence on the hierarchy of the methods applied
- Systematic Reviews
 - Cochrane Collaboration
 - Campbell Collaboration



THE COCHRANE COLLABORATION

<http://www.cochrane.org>



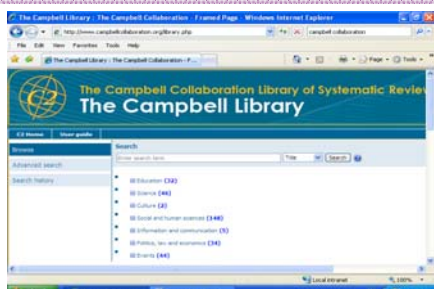
THE CAMPBELL COLLABORATION

<http://www.campbellcollaboration.org>

Research and Road Safety



Research and Road Safety



Research and Road Safety

- What do we know about getting research into practice?
 - Limited evidence for what works
 - Barriers
 - Case-study

Research and Road Safety

What do we know about getting research into practice?

Limited evidence for what works

Barriers

- Research:
- Inconclusive
 - Not relevant to practice
 - Poorly communicated
 - Implications for practice not clear
- Organisation:
- Lack of time to engage with research
 - Individual resistance to research
 - Hostile culture

Research and Road Safety

What do we know about getting research into practice?

Limited evidence for what works

Barriers

Case-study – Young Drivers

- Over-represented in road injuries – 4x higher for 17-19 years
- Over-represented in road deaths – 2x higher for 17-19 years
- Considerable cost \$43 million annually

Research and Road Safety – Case Study

Why Are The Crash Rates So High?

- Driver inexperience combined with overconfidence
- Distractions
- Alcohol and drugs
- Speed
- Carrying peer passengers
- Driving at night

Research and Road Safety – Case Study

Why Are The Crash Rates So High?

Carriage of Peer Passengers

- Increases risk of injury up to 15 fold
- Increases risk of death 2 fold

Driving at Night

- Young drivers are at an increased risk
 - 31% of young driver fatalities occur between midnight and 6.00am

Research and Road Safety – Case Study

Why Are The Crash Rates So High?

Restricting Carriage of Peer Passengers

Injury-related Crash Reductions			
▪ NZ	no passengers [†]	35%	↓
Injury-related Reductions for 15-19 year old passengers			
▪ U.S. (California)	no passengers	3-23%	↓

Night Driving Restrictions

Reduction in Nighttime Crashes			
▪ U.S. (California)	midnight - 5.00am	20%	↓
▪ U.S. (North Carolina)	10.00pm – 05.00am	47%	↓
▪ NZ	10.00pm – 05.00am	32%	↓

[†]No passengers unless supervised by licensed holder > 25 years

Research and Road Safety – Case Study

Policy Pathways

To identify the main factors influencing research utilisation in GDL policy in Australia

Analysis of the partial introduction of night-time and/or passenger restrictions in NSW, VIC, QLD and WA

Methods: Comparative stakeholder analysis regarding recent policy debates; 48 interviews between 2007 and 2009. Media analysis of print and TV coverage

Results: There was considerable research exchange due to extensive networks and inclusive policymaking structures; research was used both 'instrumentally' and 'tactically'

Research and Road Safety – Case Study



Overview

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- **Conclusion**

Implementing the Evidence

- Risk of death is reduced by 60% in drivers restrained by a seat belt
- Seat belt use reduces serious injury to head, chest and extremities by 50%-80%
- Research evidence from systematic reviews suggest...



Implementing the Evidence

China Seat Belt Intervention

- Translating an Effective Intervention from a High Income Country to a Low-Middle Income Country
- Assess the Cost-Effectiveness of Intervention
- Build Partnerships and Institutional Capacity



Implementing the Evidence

China Seat Belt Intervention

- Initiated an intervention to increase the prevalence of seat belt use
 - Enhanced Enforcement
 - Police Training
 - Social Marketing
 - Health Education
- Evaluated using pre-test post-test comparison group design



Implementing the Evidence

China Seat Belt Intervention

- Increased Prevalence of Seat Belt Use of 20%
- Highly Cost Effective (US\$418 per DALY saved)
- Built Capacity and Sustainable Solutions



Implementing the Evidence

Adoption of Inappropriate Interventions

- Road Infrastructure
 - Removal of Bicycle Lanes for Multiple Motor Vehicle Lanes



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Gaps in our Knowledge

Background

- Driver distraction contributes to between 14-32% of crashes

Types of Distraction

- Mobile Phones
- Billboards & other signage
- In-vehicle gadgets like music systems, GPS, DVD players etc

Gaps in our Knowledge

What We Know

Mobile Phones

- 21 million mobile phone subscribers in Australia
- Survey estimates ~150,000 drivers avoided in the last 12 months a crash due to mobile phone use



Gaps in our Knowledge

What We Know

Mobile Phone Study

- Mobile phone use is associated with a 4x increase in likelihood of crashing
- Risk raised irrespective of gender & age group
- Using a hands-free phone is not safer (RR=3.8)



Gaps in our Knowledge

What We Know

100 Car Study

- First instrumented-vehicle study undertaken with the primary purpose of collecting pre-crash, naturalistic driving data
- First study of its kind detailing information on a large number of near-crash events



Gaps in our Knowledge

100 Car Study

Results

- 80% of all crashes and 65% of all near-crashes involved driver distraction
- 93% of rear-end-striking crashes involved drivers distracted by eating, writing, or looking away from the forward roadway at objects in the vehicle or objects outside the vehicle

Gaps in our Knowledge

What We Don't Know

- How do drivers interact with in-vehicle technologies (IVT)?
- What impact do in-vehicle technologies have on driver behaviour, performance and safety?
- What is the most ergonomic way to design in-vehicle devices so that distraction is minimised?



Gaps in our Knowledge

Investigating the Knowledge Gap Information from the INTERACTION Study



Gaps in our Knowledge



- Factors which motivate/encourage drivers to engage in distracting activities
- Effect of interaction with in-vehicle technology
- It will quantify the positive (or otherwise) benefits of in-vehicle technologies

Conclusions

- **Further reductions in road fatalities and injuries can be achieved**
- **Need for evidence-informed policy**
- **Greater need for research to:**
 - Understand the gaps in our knowledge
 - Understand how to translate the research into policy/practice
 - How to implement road safety interventions