Speed Management as a Key Component of Systems Approach to Road Safety

Road Safety in Romania - Challenges and Opportunities
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Overview of talk

• Road Safety Romania

• What is the real extent of the role of speed in fatal/serious crashes?
  - Right and Wrong ways to measure it

• Misunderstanding the consequences of managing speed

• Effective ways to manage speed in Romania
DEATHS BY ROAD USER CATEGORY

- Drivers/passengers
  - heavy trucks (1%)
  - buses (<1%)
- Other (2%)
- Pedestrians (39%)
- Cyclists (9%)
- Riders motorized 2- or 3-wheelers (5%)
- Passengers 4-wheeled cars and light vehicles (20%)
- Drivers 4-wheeled cars and light vehicles (24%)

Source: 2013, E.A.C. the Traffic Police Accidents Database.
Wrong Way: Police data

- Not an attack on police: it's an almost impossible job in many cases

- Consider:
  - Fatal or SI pedestrian crash
  - Single vehicle off road fatal crash, no witnesses

- The job is to consider the Law, not make estimates for research

- New South Wales, Australia:
  - Police data: speed estimated as a factor in 40% of fatal crashes
  - First 28 speed cameras: 89% reduction in fatalities at these locations
Wrong/Right Way: Personal experience of risk

“I have been driving for 6 months/5 years/25 years/50 years, and speed regularly. I have not had a fatal crash. So, either:
- Speeding is not as risky as road safety people claim
- OR
- It is risky for others but not for me.

Right or Wrong depends on: What amount of time gives enough evidence?
Optimism Bias

Most drivers

Better than average (over-confidence)

About average

Worse than average (cautious)

Only 2.1%

Allows people to believe the statistics but not apply it to themselves
Wrong Way:
Personal experience of risk

- Romania:
  8.7 deaths/100,000 people/year
  = probability per person per year of 0.000087 = 11,479 years for each death
  * say 70 years of driving/road use in a typical lifetime
  = 164 lifetimes per 1 fatality

If you speed all the time (by say 5km/h over the urban speed limit) you double your risk of a serious crash, then this comes down to 82 lifetimes

So, to make the comparison takes (164 plus 82 =) 246 lifetimes

- So: Personal experience cannot not reveal the problem (even though it’s a huge public health and economic issue)
Right Way: What happens when the issue is removed?

• By analogy:
  • How many deaths are caused by disease xxxx
  • Autopsy can miss the signs (= Crash assessments)
  OR
  • Remove the disease and see how many less deaths occur. This is a best scientific way to assess causality.
  • Speed cameras (largely) remove speeding:
    • In NSW, Australia: 89% reduction in deaths
    • In studies of P2P: vast majority of deaths and SI disappear.

• We are under-estimating the role of speed in deaths
Right Way:
What happens when the issue is changed?

Changing speed limits:

Sliogeris (1992): 100km/h up 110km/h 25% ↑ injury crashes
Sliogeris (1992): 110km/h to 100km/h 19% ↓ injury crashes
Nilsson (1990): 110km/h to 90km/h 21% ↓ fatal crashes
Scharping (1994): 60km/h to 50km/h 20% ↓ all crashes
NHTSA (1989): 89km/h up 105km/h 21% ↑ fatal crashes
Bhatnagar (2010): 110km/h to 100km/h 26% ↓ casualty crashes

• Note this is not assuming that everyone obeys the limits. If they did benefits would be greater.
• Germany ????
Right Way:
What happens when the issue is changed?

- Collate many studies of these effects
The costs and benefits of reducing speeds are misunderstood.

Optimal speeds are MUCH MUCH lower in urban settings.
The costs and benefits of reducing speeds are misunderstood.

Congestion can be improved by reducing speeds.
Speed management across arenas: Management and Leadership

- Greater appreciation of the need for measurement and monitoring is needed.
- Measurement and Targets on intermediate indicators are needed.
Speed management across arenas: Roads

**GREAT OPPORTUNITY**

Many available (and often cheap) solutions:

- Lower speed limits
- Speed humps (cheap, effective, accepted)
- Raised platform crossings
- Lane narrowing lines
- Chicanes
- Roundabouts (well designed)
- Gateway treatments
Speed management across arenas: Vehicles

- Major opportunities for HICs with control of vehicle manufacture, are still poorly used. Autonomous driving is hijacking earlier opportunities. Autonomous vehicles are a long way off for LMICs, yet we have not tackled large gain basics such as speed limiting
Speed management across arenas: behavior change

• The obvious, and overly and often poorly used option
• Driver training is still seen as a sound option: more speed just needs more skill (supported by personal experience)
• Education and promotion alone are weak options
• Enforcement, Promotion OF AND WITH enforcement CHANGES work best
CONCLUSIONS

- The wrong ways to measure the effects of speed are in common use
- The scientifically right ways give the real answer: Speed is a critical death factor
- Speed management will help with climate change, fuel efficiency, air pollution, noise pollution
- Speed management is possible, feasible, extensively valuable, and can be popular and inexpensive
Thank you for your attention

Soames Job
Main references

Social disapproval advertising: allows for stronger action that does change behavior.
Synergies of Speed enforcement and advertising: low fear advertising works
Core principles of Safe System:
Safety in working at heights: the risk of excessive physical force is removed. Safe system principles are more radical than is often appreciated.
Main references