How you can help insurers make money?

Or: Preventing crashes is possible, predictable and profitable

Results from a driving simulator based paradigm

1 : 15

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What puts insurers at risk?

- Drugs
- Alcohol
- Fatigue
- Belts
- Speed
- Cell Phones
Remember these?
Young or Old?
Big or Small?
Mouse or Man (1)?
Mouse or Man (2) ?
Pro ball or monkey business?
Just imagine you are

on your way home

Late for a business appointment which will make you rich

All set for a really promising date

on your way to or back from an unbelievably interesting conference

by Michael Cale
The big, bad train
Not all of us are crooks
Classical Tools
Procedure

1. Definition of the problem
2. Watch real time recordings
3. Develop a list of proposals or suggestions
4. Develop a photo realistic driving simulator which includes the proposals
5. Test hypotheses on 483 subjects
6. Compute and publish results
7. Apply recommendations in vivo
Executive Summary

1. You can actually improve driving behavior with relatively simple tools

2. The changes made are effective for all groups; young and old, different personality types, experiences, professional or normal drivers etc.

3. Some changes are highly effective and lower speed by 10 km/h and more but others may cause additional dangers

4. The effective tools tend to be cheap to implement

5. Our results are supported by prior published research from abroad
Our model:
Sample n = 483

- 55 civil servants
- 5 Scientists from the Technion
- 119 employees of the prison service
- 105 school bus drivers
- 22 Residents of old age homes
- 41 social and rehab workers
- 34 Arab citizens
- 31 truck drivers
- 28 driving instructors
- 24 kibbutz members
- 56 attorneys
Some Examples:

a. Proposals which managed to reduce the average speed and mitigate the differences between drivers before open barriers

Avg speed baseline: 38.1 km/h

- White lines with declining distance create illusion of speed.
  Avg speed 28.21 km/h  - p<.001

- Painting on road creating illusion of the lane getting narrower
  Avg speed 31.59 km/h  - p<.01

- Vibration strip consisting of four lines causing speed dependent noise
  Avg speed 30.69 km/h  - p<.001

- Pictogram of familiar warning sign on road together with yellow painting between the rails
  Avg speed 36.98 km/h  - p<.001

- Yellow lines with declining distance create illusion of speed.
  Avg speed 29.4 km/h  - p<.01

- Safety blue carpet with the pictogram of a familiar warning sign
  Avg speed 33.07 km/h  - p<.001
b. Proposals which cause extreme, early breaking

- Poles before the crossing covered with light reflecting strips
- A black frame around barriers and signs improving vision when blinded by the sun
- Two sets of strips causing vibration and noise
c. Proposals which cause the breaking process to be delayed to less than 50m before the crossing

- Pre crossing traffic light 24 m before the crossing (day)
- 50 m long vibration strip ending 15 m before the crossing
- Pre crossing traffic light 24 m before the crossing (night)
d. Proposals which had no useful effects whatsoever

- Signs warning drivers of camera surveillance on one side of the road
- Yellow lines creating an illusion of a bottle neck (night)
- Signs warning drivers of the train ahead on both side of the road
- Yellow “carpet” with a pictogram of a train (night)
- Set of cats’ eyes moving towards the car when the barriers are down
e. Proposals which actually made things worse (including the negative outcome)

- Fewer lifted their foot from the accelerator

Drivers brake too late

- Illusion created from cats’ eyes moving towards the car when the barriers are down

A black frame around barriers and signs improving vision when blinded by the sun

Warning drivers of camera surveillance

- Creates excessive diversity between drivers
Based on our results we can make empirically based proposals all over the globe e.g. based on factors like ....

Location – urban or rural

Clear or limited vision

Characteristics of main users

Characteristics of traffic flow
We might not have all the answers
But we have the tool which can provide them
Main dependent variable used for this presentation:

**Speed 50 m before the crossing**

Other variables used:

- Variability of speeds 50 m before the crossing
- Place (distance) foot left the accelerator
- Proportion of drivers who brake strongly 150 m before the crossing
- Proportion of drivers who brake strongly 50 m before the crossing
- Distance from the curb

etc....
People are different.
Does this effect driving at crossings?
People are different.
Does this effect driving at crossings?

Old vs. young

Professional drivers vs "amateurs"

Speeders vs. normal drivers

D.D.S.

Arab Drivers
Let’s help them help us because

Preventing crashes is possible, predictable and profitable

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For further details and scientifically magical potions please contact Michael H. Cale’ (cale.michael@gmail.com)