Road Accident in Depth Studies
Ian Yarnold - International Vehicle Standards
Road casualties cost the UK economy approximately £16bn per year.
Car occupant fatalities have fallen by nearly 70% since 1979

<table>
<thead>
<tr>
<th>Year</th>
<th>Total car fatalities</th>
<th>Fatalities per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>2429</td>
<td>7</td>
</tr>
<tr>
<td>2005</td>
<td>1675</td>
<td>5</td>
</tr>
<tr>
<td>2015</td>
<td>754</td>
<td>2</td>
</tr>
</tbody>
</table>

Key: = 1 car occupant fatality
35 year evolution: Differences?

![Old model](image1)

![New model](image2)

Road Accident In Depth Studies

Moving Britain Ahead
Example of improvement, based on regulatory requirement

Real world data used to inform regulatory development

- Delivering advances in vehicle safety performance
- Improving outcomes now and for the future
Collision investigation – it’s not new!

Previous studies dating back to 1983 include:

• Cooperative Crash Injury Study
• On the Spot
• Heavy Vehicle Crash Injury Study
• Truck Crash Injury Study
• Fatals database
RAIDS Phase 2 – April 2016 onwards

- 705 collision investigations
  - 400 – On scene
  - 200 – retrospective
  - 105 – Additional

Proposed additional areas: Hampshire (excluding Isle of Wight)
RAIDS is a team effort

RAIDS programme funded and managed by Department for Transport

Co-ordination by specialist contractors to:
• Investigate and collate collision information.
• Host and maintain study database for research access.
• Oversee technical aspects of programme.

- 12+ Hospital trusts
- 2 Police forces and appointed recovery operators
- 5 Coroners
RAIDS evidence sources and investigations

**Input:**
- Scene, Vehicle, People
  - In-depth scene and vehicle inspections
  - Follow up questionnaires
- Police & Ambulance
  - Notification
  - STATS19 data
- Hospitals & Coroners
  - Anonymised detailed injury data (AIS)

**Output:** to date 1300 cases

- RAIDS Database
  - It provides *evidence* on the causes and consequences of collisions ……….. in order to inform the development of policy, technologies and practice to improve road safety outcomes.
  - Clinical research network portfolio
Evidence
Highway factors
Injury mechanisms

Knee contact with dashboard

Poor seatbelt loading
Overview of studies in database (2000 onwards)

- **1983 – 2010 – 10,000 cases**
  - Car occupants
  - Retrospective vehicle inspection
  - Focused on impact phase
  - Biased towards fatal and serious injuries
  - Informed secondary safety legislation / Euro NCAP

- **1996 – 2010 – 4,000 cases**
  - Heavy vehicle fatal accidents (Casualty often another road user)
  - Data based on Police fatal accident files and PMs
  - Informed heavy vehicle policy
  - Identified countermeasures which mitigated the outcome

- **2000 – 2010 – 4,750 cases**
  - All vehicle types (including bicycles)
  - On-scene investigation
  - Informs on highway features, behaviour, effectiveness of accident prevention technology

- **1995 – 2010 – 1,500 cases**
  - Added CCIS-type non-fatal data to HVCIS
  - Retrospective vehicle examination
  - Informed heavy vehicle policy
Anonymous data – What use is that?

Open approach to investigations:

- Not seeking to determine responsibility.
- 3000+ fields per case
- Comprehensive record of collision / scene parameters and consequences to allow reconstruction.
- Combining anonymous injury and vehicle information.

Wide range of uses limited only to ensure that anonymity of all participants is guaranteed

- Improving vehicle design
- Understanding injury mechanisms
- Determining effectiveness of current countermeasures
- Improving road design and safety features
- Understanding human factors and anatomical influences
- Determining effectiveness of future countermeasures

Understanding of UK collision scenarios
Data usage

- General Safety Regulation amendments
- Organ trauma survivability
- Safer Verges
- Pedestrian collisions
- Night time KSIs
- Collisions involving child occupants
- Older drivers
- Rollover study
- Wheelchair occupant collisions
- EU serious road traffic injuries in the EU LU for DG move
- Frontal collisions occupant protection
- Vulnerable road users
- Cyclist AEB
- Various PhD e.g. thesis on safety of automated vehicle traffic
It’s a national resource!

- Available free of charge over internet
- Documented application process in recognition of confidentiality and ethical issues
- Access granted based on a research need that the data can fulfil with a defined output
- Users must sign agreements and comply with certain IT criteria before usernames and passwords are issued
- Further information please contact RAIDS@dft.gsi.gov.uk
Phase 2 - What’s new?

2nd phase of RAIDS includes developments of the programme to focus on

Vulnerable road users

Electronic vehicle data

Advanced assistance
How do we deal with incidents involving semi autonomous / autonomous vehicles?

- Incidents likely to be high profile.
- Who should lead an investigation?
- Should there be dedicated resources?

We’ve recognised the need – considering how to go forward with stakeholders