IWG AEBS HDV

Accident Analysis

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General accident situation for HDV [5]

- Nearly 114,000 commercial vehicle drivers involved in accidents with personal injuries (Sum 2016-2018)
- Development of the figures relatively constant for reviewed period
General accident situation for HDV [5]

Accidents per Scenario:
- Frontal collisions: 9,200
- Lane departure accidents: 19,979
- Accidents at junctions: 12,050
- Accidents with bicycles: 6,239
- Other type of accident: 18,951
- Rear-end collision accidents: 29,454

Most frequent accident scenarios with fatalities:
- Frontal collisions: 1,272
- Rear-end collision accidents: 1,093
- Accidents with pedestrians: 740

Graph showing number of accidents by country and year:
- Austria
- France
- Germany
- Sweden
- United Kingdom

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German Insurers Data [4]

- 70 accidents with the knowledge concerning the state of motion of the struck vehicle
- 6 out of 29 moving struck vehicles had a velocity < 10 km/h

→ Avoidance of 41 (stationary) + 6 (low speed) accidents not addressed by UN R 131

Additional in-depth investigation of N3-caused Rear-End collisions in Brandenburg 2016 shows quite similar results:
Huge portion of stationary struck vehicles (54% in average)

Accidents with stationary Safety/Service or broken down vehicles are an issue (6 accidents in 2017, 5 in 2019)
German In-Depth Accident Study (GIDAS)

- Most accidents (n=60) in traffic jam situations (611-613)
- Notable amount of accidents due to traffic light situations (623) and following scenarios (601, 602)
German In-Depth Accident Study (GIDAS)

Cumulative frequency of initial and collision speed (struck vehicle)

- Collision speed $v_c$
- Initial speed $v_0$
German In-Depth Accident Study (GIDAS)

Collision speed $v_c$
Initial speed $v_0$

→ 22 out of 25 cases with killed or seriously injured (KSI) car occupants happened on motorways

Motorways

KSI

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Impact of AEBS on the development of rear-end collisions on German motorways

Comparison period (CP)

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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</thead>
</table>

Analysis period (AP)

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
</table>

**Scenario**

<table>
<thead>
<tr>
<th>Vehicle age</th>
<th>Rear-End</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>AG</td>
<td>CG I</td>
</tr>
<tr>
<td>Old</td>
<td>CG II</td>
<td>CG III</td>
</tr>
</tbody>
</table>

- Odds ratios used to determine total effect of AEBS
- Total effect has been determined from individual changes within each group from CP to AP
- Total effect 37% (significant); also reduction in injury severity

AG: Analysis group  CG: Control group I-III
Conclusions

• Rear-End accidents caused by HDV are still a problem (> 1000 fatalities in Sweden, UK, France, Austria and Germany in 2016-2018)
• A huge portion of struck vehicles remains stationary or is driving with low speed (< 10 km/h)
• Notable amount of accidents with maintenance or broken down vehicles
• Accidents with Killed or seriously injured car occupants most frequent on Motorways
Sources


[5] EU-Accident data for commercial vehicles. Provided by Euro NCAP Truck working group
Thank you for listening!

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