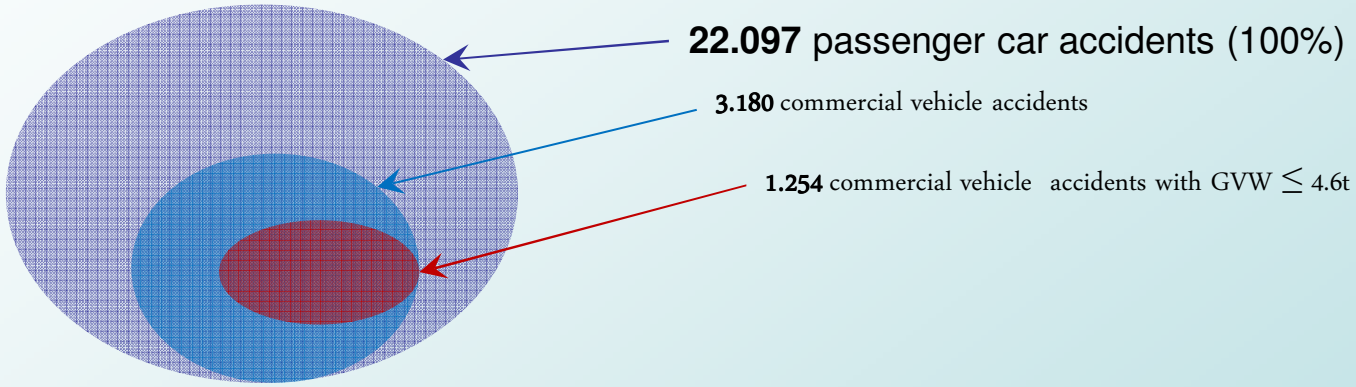
GIDAS accident analysis pole side impact with CV's

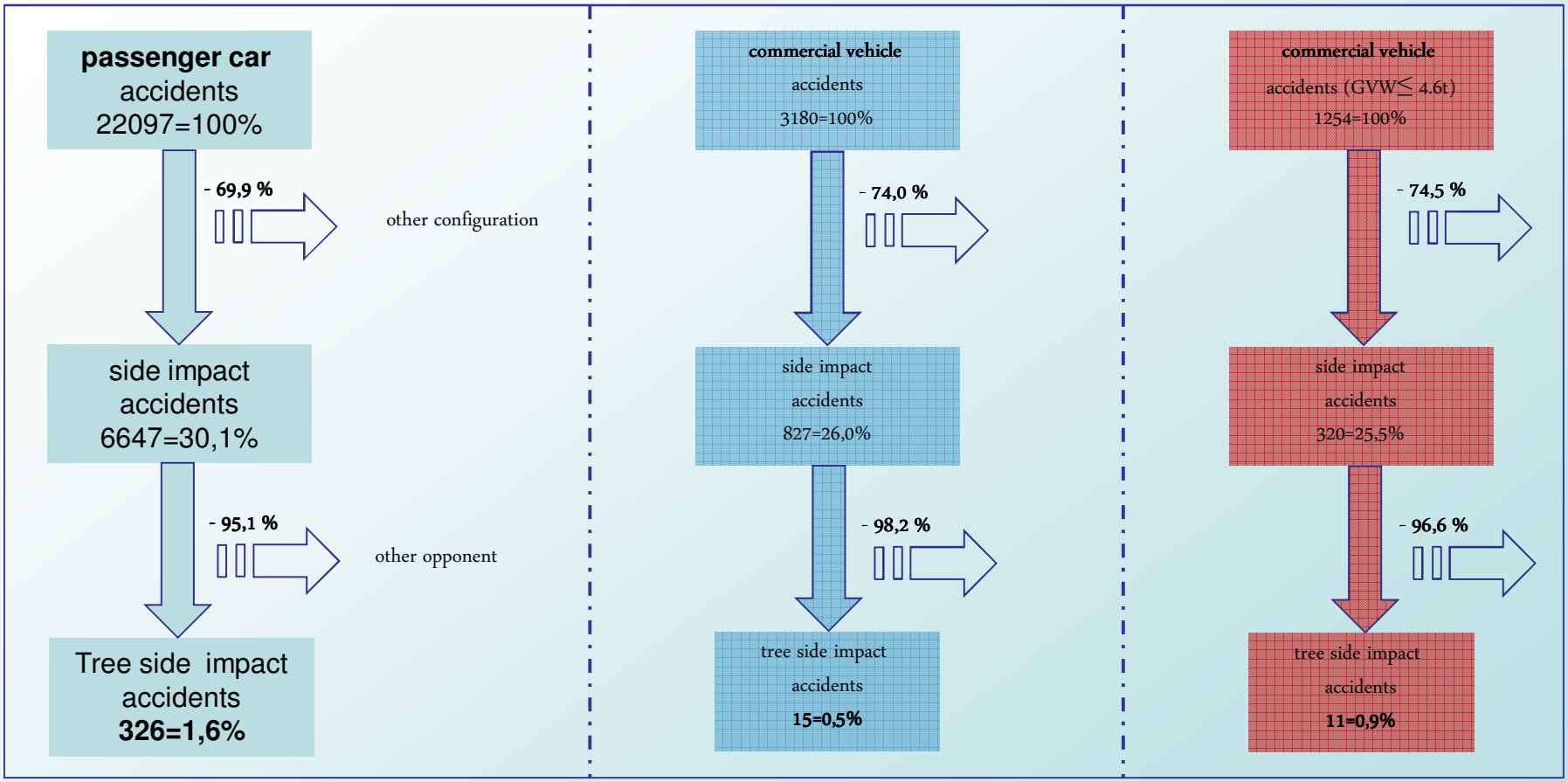
Overview

Source: GIDAS-Database , status 1st July 2010

20.979 analyzed accidents, out of:

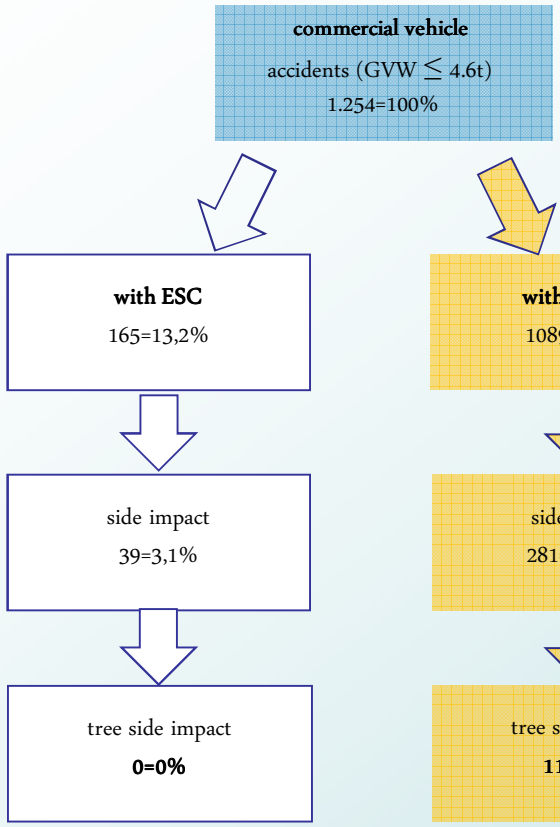


Overall significance



Conclusion:
Comparatively, far more often pole side impact accidents occur with passenger cars (1,6 %) than commercial vehicles (between 0,5% and 0,9%).

ESC influence on accidentology



Share of ESC vehicles at accident situation: 13,2%

Share of side impacts with ESC vehicles : 3,1%

- Reduced accident rate related to vehicle fleet, in general with ESC

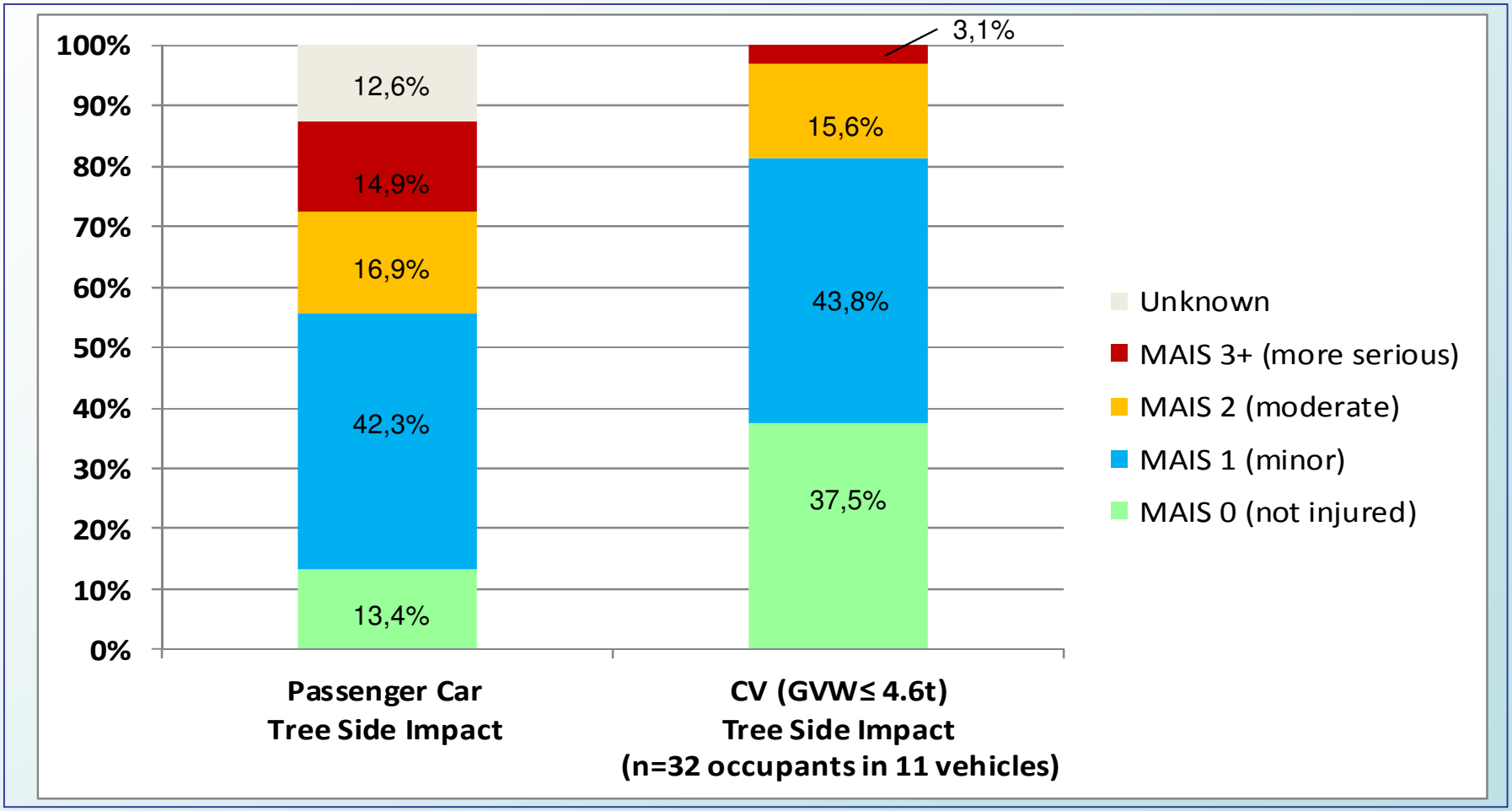
No vehicles with ESC and tree side impact

Conclusion:

None of the eleven vans involved in pole side accidents were equipped with ESC

Remark: The passenger car accident analysis shows a high reduction of side impact accidents when the vehicle is equipped with ESC.

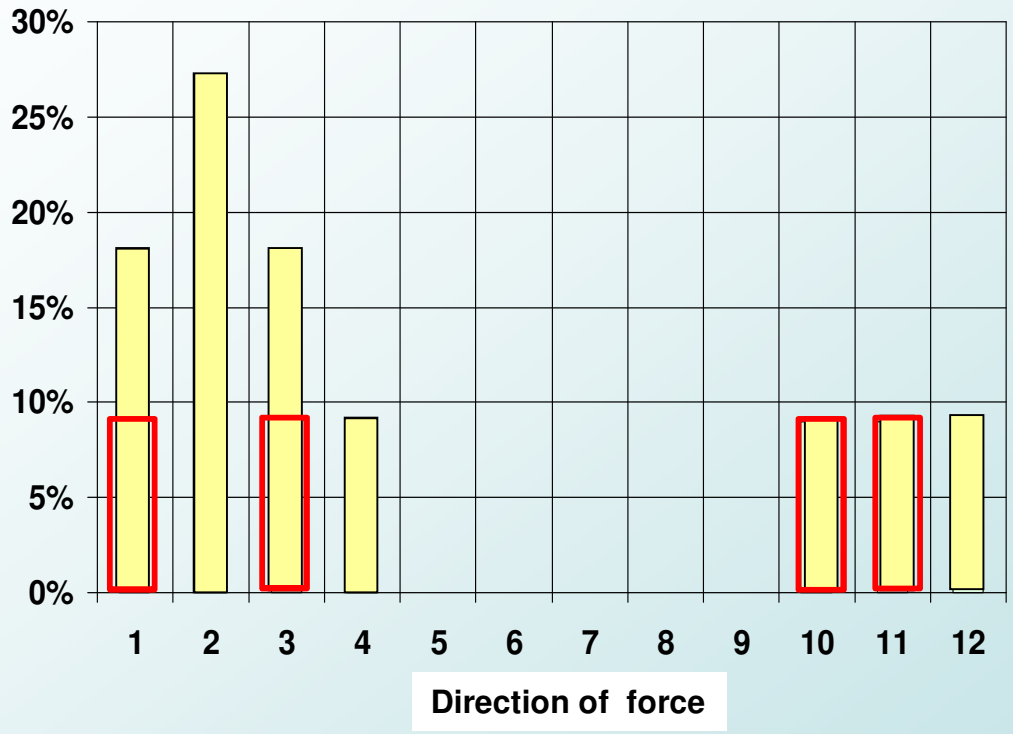
Commercial vehicles ≤ 4.6t and cars: Occupant injury severity distribution

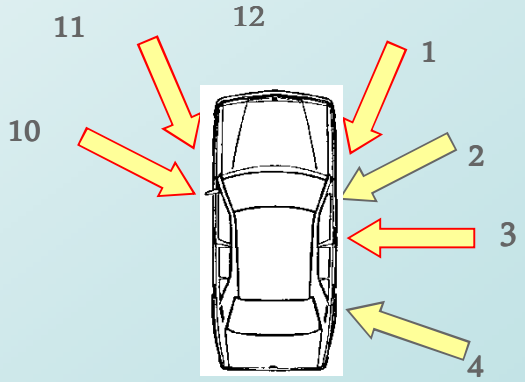


Conclusion: Only one accident occurred resulting in a serious injured. The occupant was seated in the rear, left of a commercial vehicle. (was belted)

Commercial vehicles ≤ 4.6t: Side impact distribution at passenger compartment

- 25,5% of all accidents are side impacts (source: GIDAS database)
- 11 accidents with pole/ tree side impact (0,9%)
- Only 4 pole side impacts occur in the passenger compartment





Oblique

Passenger compartment

Conclusion:

- Oblique direction for 3 pole side impacts and one pure lateral side impact.

Summary

- 30% of all passenger car accidents and 25% of all commercial vehicle accidents are side impacts.

- The pole side impact occurred for 1.5% of the passenger cars, but only for 0.5% of the commercial vehicles. For commercial vehicles with a GVW ≤ 4.6t , the pole side impact occurred in 11 accidents (0.9%).

- The analysis of these 11 accidents showed:
  - 4 accidents with mainly collision in front of the passenger compartment (direction11, 12, 1)
  - 2 accidents with lateral impact behind the passenger compartment (direction 3)
  - 1 accident with lateral impact in front of the passenger compartment (direction 10)
  - 4 accidents with an impact in the passenger compartment (direction1, 3, 10, 11)

- In all these cases only 1 accident resulted in a severe injury (MIAS 3+) to the vehicle occupants and no fatalities over this 10 year period.

Conclusion

- GIDAS accident database shows, that pole side impacts occur for 0.9% of commercial vehicle (≤ 4.6t) accidents

- The force diagram shows in 2 cases a test configuration of 90° pole
  - None of these vehicles were equipped with ESC
  - No ESC equipped LCV was found to be involved in a pole side impact accident in GIDAS database.

  ⇒Therefore the functionality of ESC has an accident reduction potential. An old study calculates about 50% reduction for passenger cars.

- In conclusion, the risk of been involved in a pole side impact contacting the passenger area of a LCV is very low. The fitment of ESC will further reduce the share.

Backup

Total light CV accidents showing in GIDAS over the last 10 years

Example no. 1010618
Frontal corner struck tree

VDI1=12

EES=10 km/h

Overlap=5%

Example no. 1030485
Frontal corner struck tree

impact area

VDI1=2

EES=15 km/h

Overlap=10%

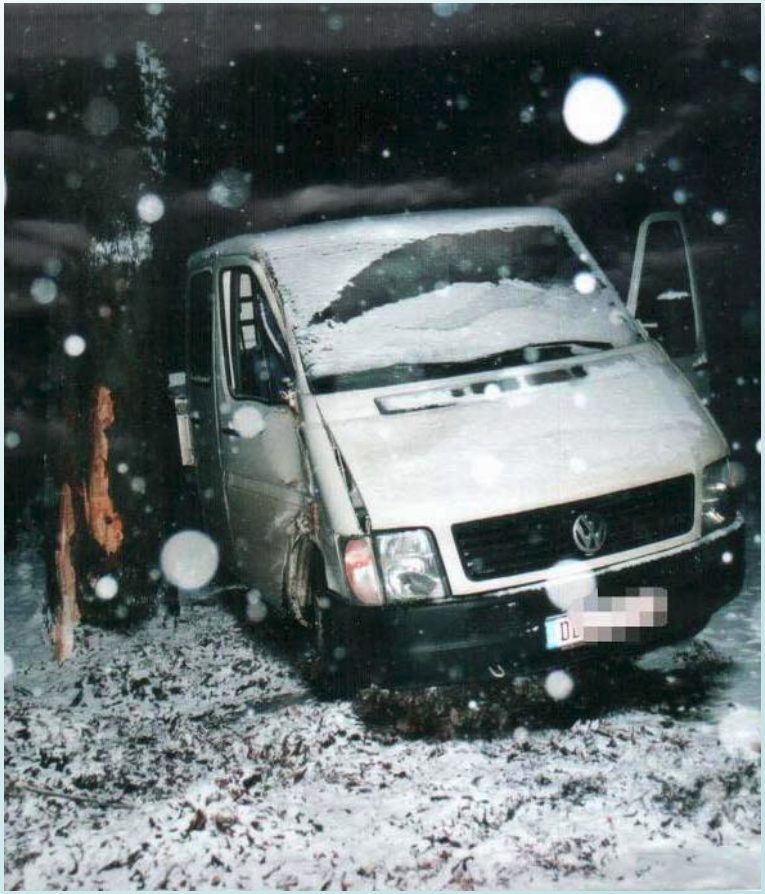
Example no. 1030762
Lateral rear against a tree

VDI1=4

EES=20 km/h

Overlap=10%

Example no. 1050964
Front corner against tree



VDI1=2

EES=18 km/h

Overlap=15%

Example no. 1090087
Lateral centre/middle against pole

impact area

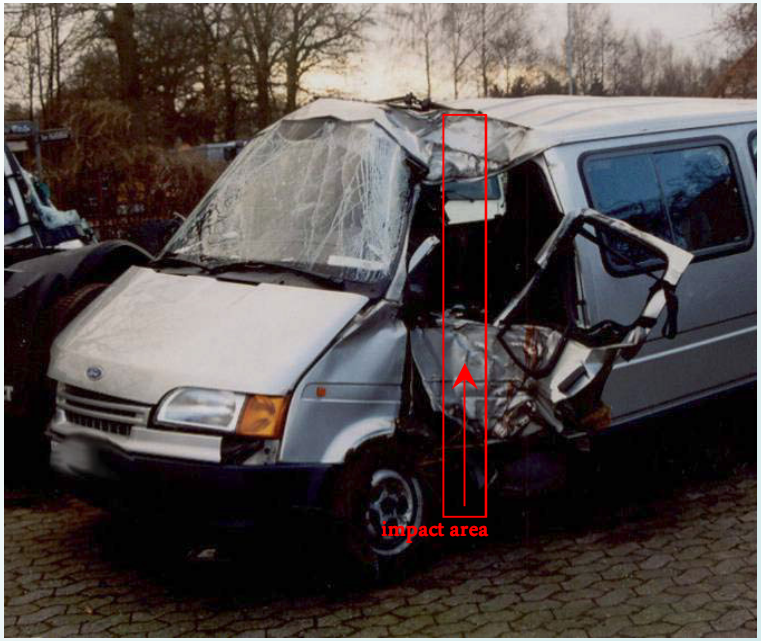
VDI1=3

EES=18 km/h

Overlap=14%

Department

Example no. 30000111
Lateral against tree



VDI1=10

EES=34 km/h

Overlap=8%

Example no. 30010162
Lateral middle against tree

VDI1=3

EES=40 km/h

Overlap=3%

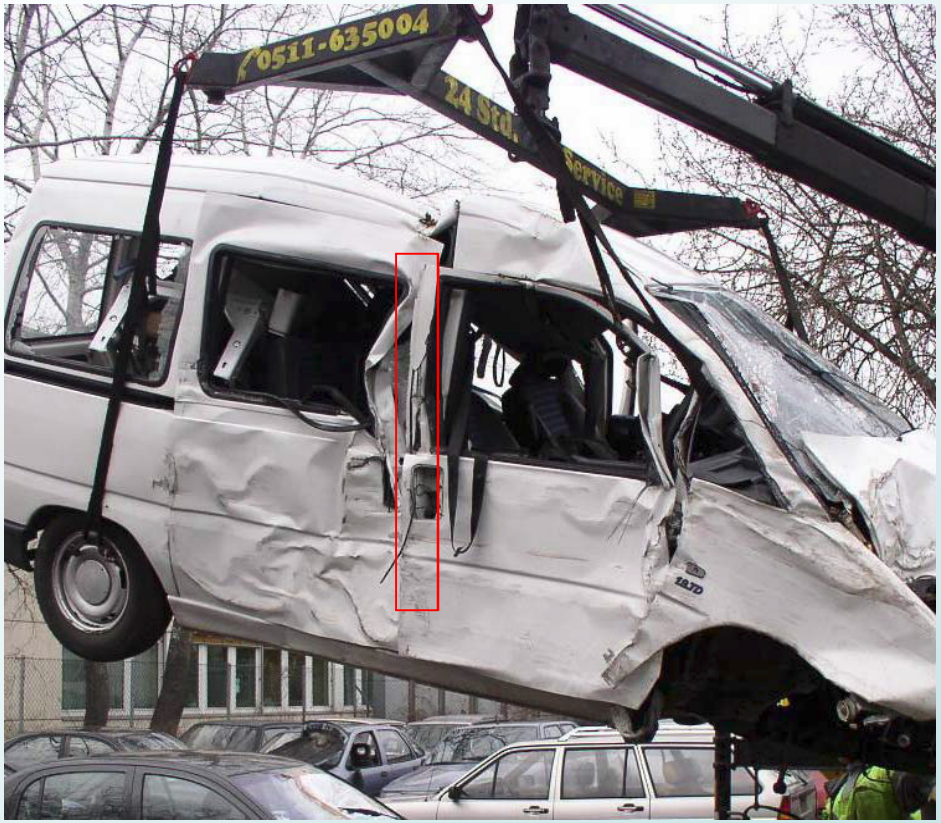
Example no. 30030039
Lateral against a pole

VDI1=2

EES=3 km/h

Overlap=1%

Example no. 30040047
Frontal against tree, then lateral against trees



VDI1=1

EES=25 km/h

Overlap=5%

Example no. 30040957
Lateral against tree

VDI1=11

EES=32 km/h

Overlap=7%

Example no. 30070272
Frontal corner against pole

VDI1=1

EES=1 km/h

Overlap=1%