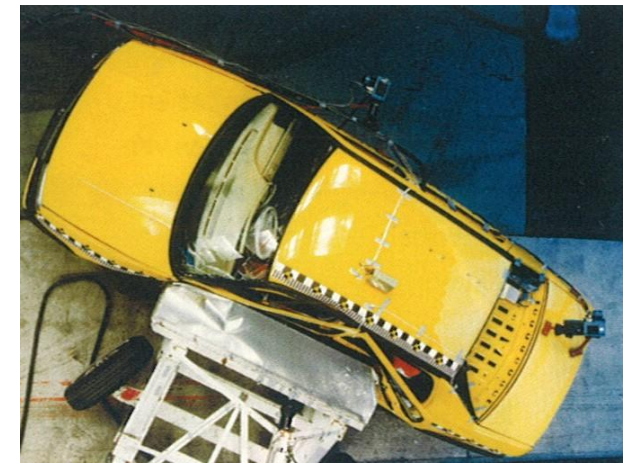




Road safety: Reliable Data - Effective Policies



Dietmar Otte

Hannover Medical School



Henry Bliss 14. 9. 1899 New York died in a collision with an electrical vehicle as pedestrian



1890 driver killed



1921 Washington

Road traffic accidents in Statistics



1924 London

Road traffic accident statistics

- German Empire 1.4.1906

October 1st 1906

4 864 damaging events

145 persons killed and **2 419 injured persons**

Statistics determine for the first declaration day on 1.1.1907
27 026 vehicles in the German Empire.

1914

1 785 damaging events with **504 killed persons** and **6 313 injured persons**

The stock of licensed vehicles expanded to **93 072**.

1936

2,5 mio. motor vehicles

Number of accidents raised to approx. **267 000** with **174 000 injured persons**
and **8 388 killed persons**

*Ingeborg Vorndran, Unfallgeschehen im Straßenverkehr
2006, DeStatis 2007*

Germany 1976

deaths 17.144

Injured Casualties 531.000

The seventies



Germany 1996

The nineties

deaths 8.758

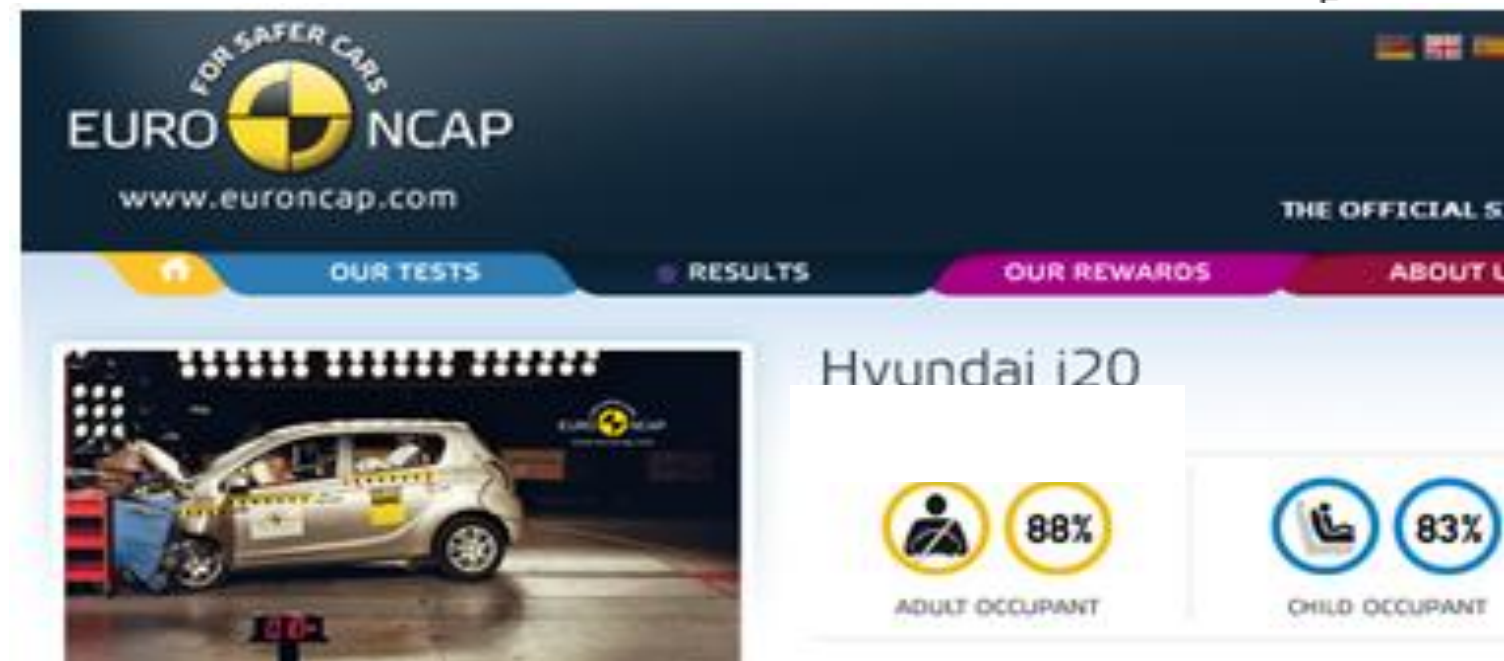
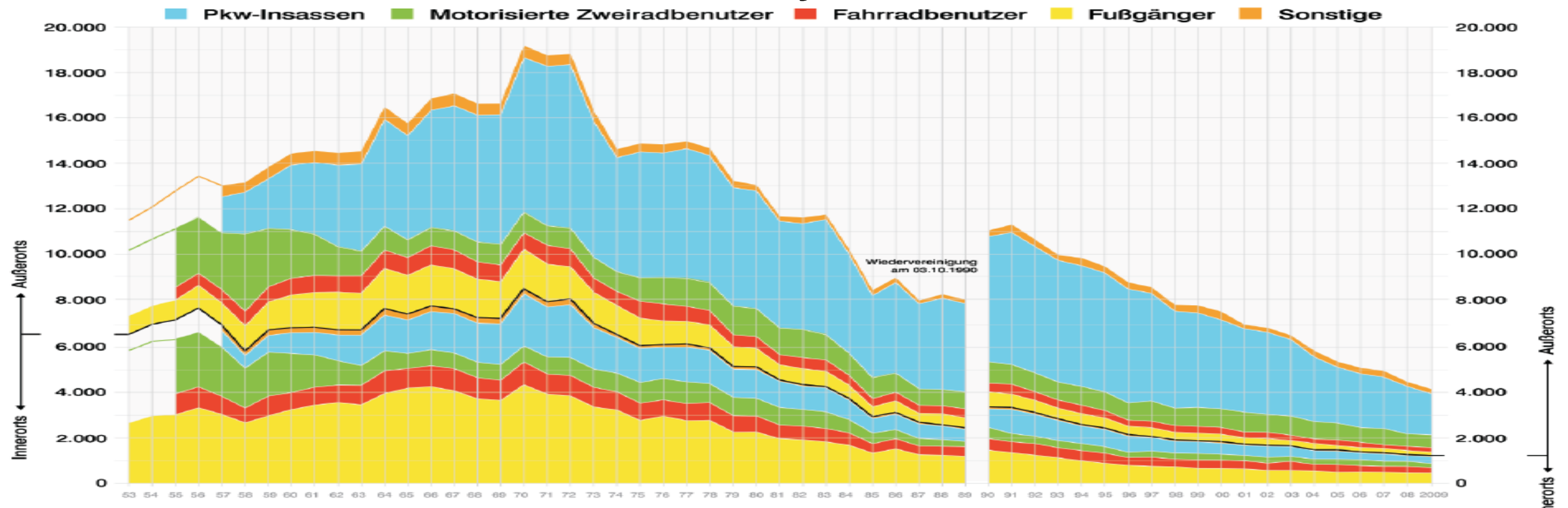
Injured Casualties 493.158



Safety in road traffic can be measured !

Number of deaths in Germany

Bundesanstalt für Straßenwesen **bast**



- 1903 Henry Ford Automobil Modell A →
- 1903 Leveau seat belt pinciple leather belt
- 1903 Renault 5-Point-seat belt
- 1905 Ford Modell TT truck →
- 1913 Ford first production in serie USA
- 1948 Continental Radial tire wheels
- 1952 Mercedes energy absorption zone →
- 1957 Mercedes 2-Point seat belt
- 1959 Saab,Volvo 3-Point Seat belt →
- 1978 Mercedes deformable steering column
- 1980 Mercedes Airbag
-



Front design of cars – historical view



60ies

70ies



First In-depth-investigation on scene

1973 Medical University Hannover



1974-113



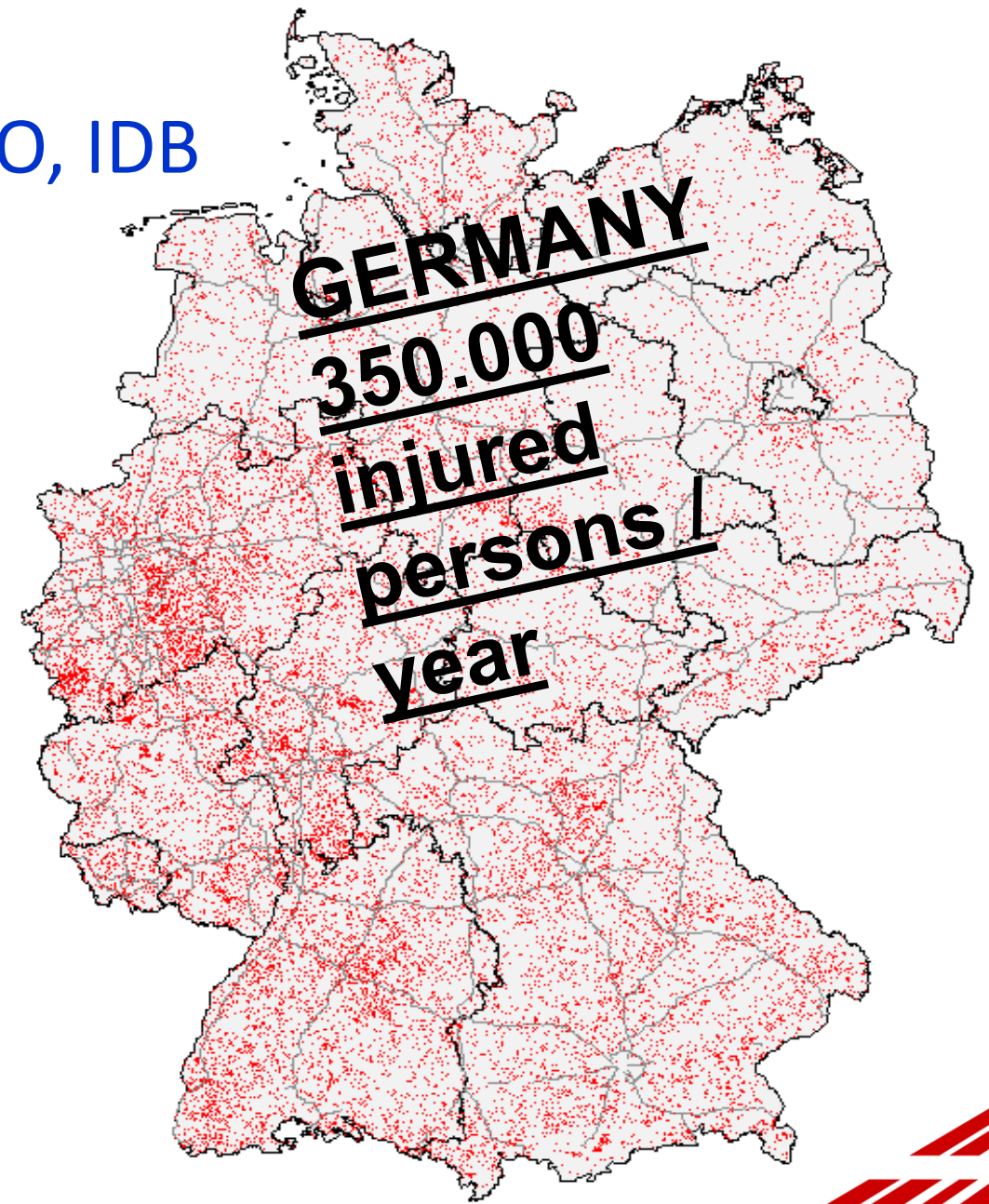
1974-122



Data sources in general

- **Police** gather traffic accident data and transfer to accident statistics

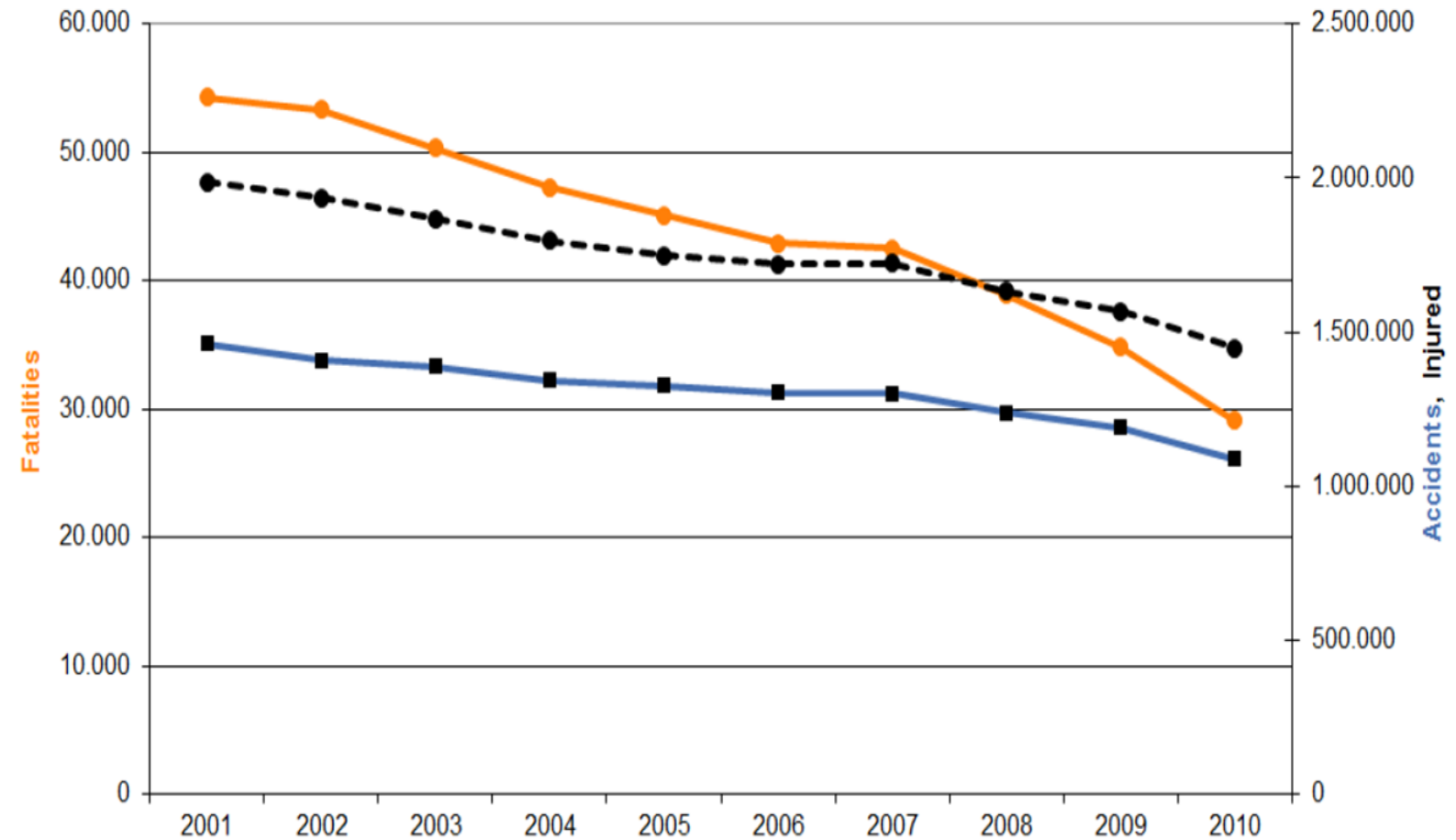
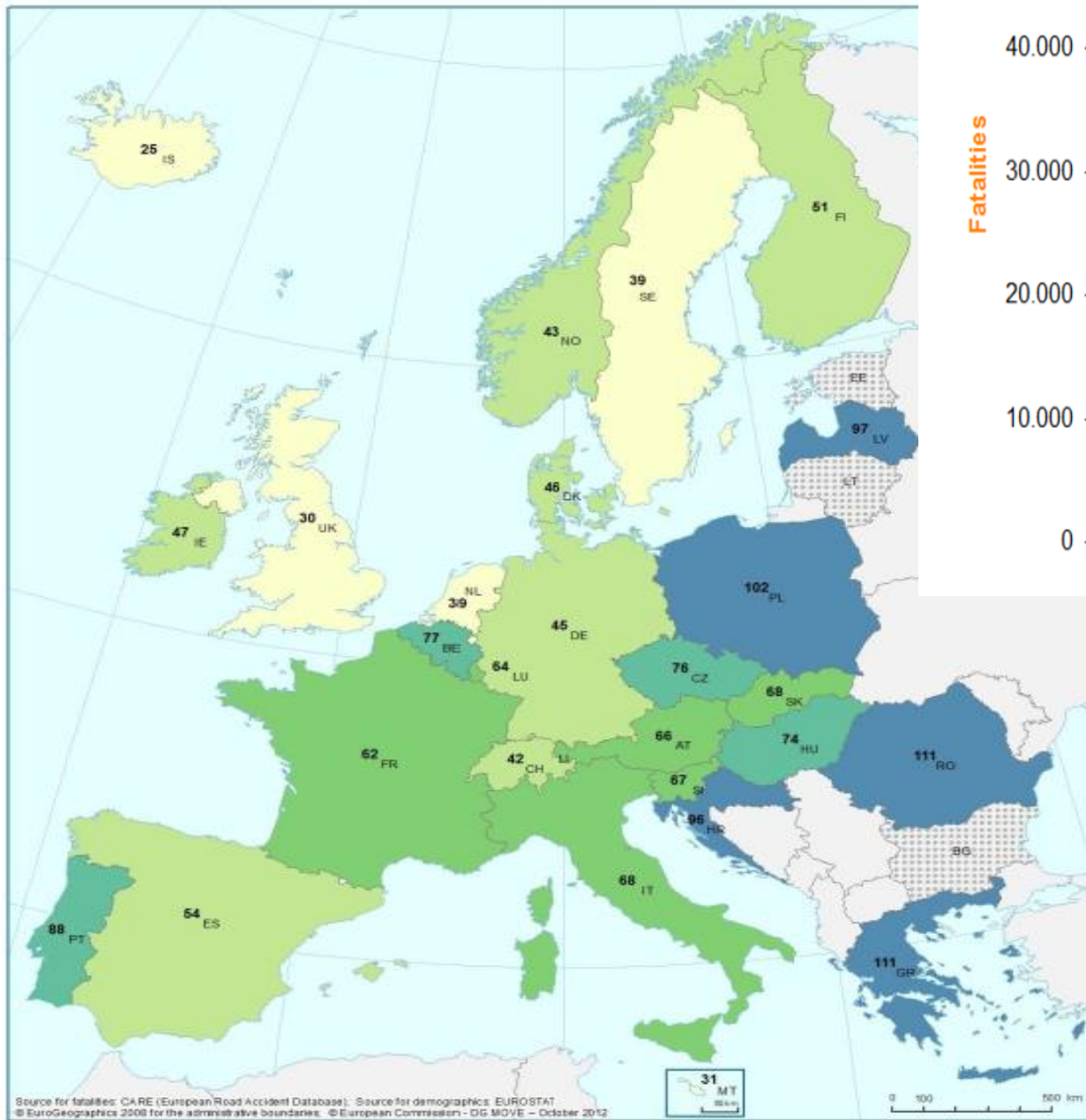
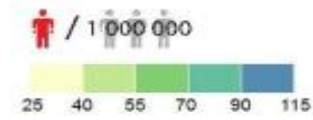
DESTATIS, IRTAD, CARE, EuroStat, WHO, IDB



Data sources in general

- **Police** gather traffic accident data and transfer to accident statistics
DESTATIS, IRTAD, CARE, EuroStat, WHO, IDB
- **Hospitals** gather medical patient data with details of injuries and (injury severity AIS)
Trauma Registry DGU-DE, TARN-UK
- **Insurer** document claim settlements
GDV, DGUV,
- **In-Depth-Investigation On scene** with specialized Teams
GIDAS, ADAC, INTACT, OTS, IFSTAR etc

Amount of road deaths in Europe 2012



1.1 mio accidents
1.5 mio casualties
30.000 fatalities

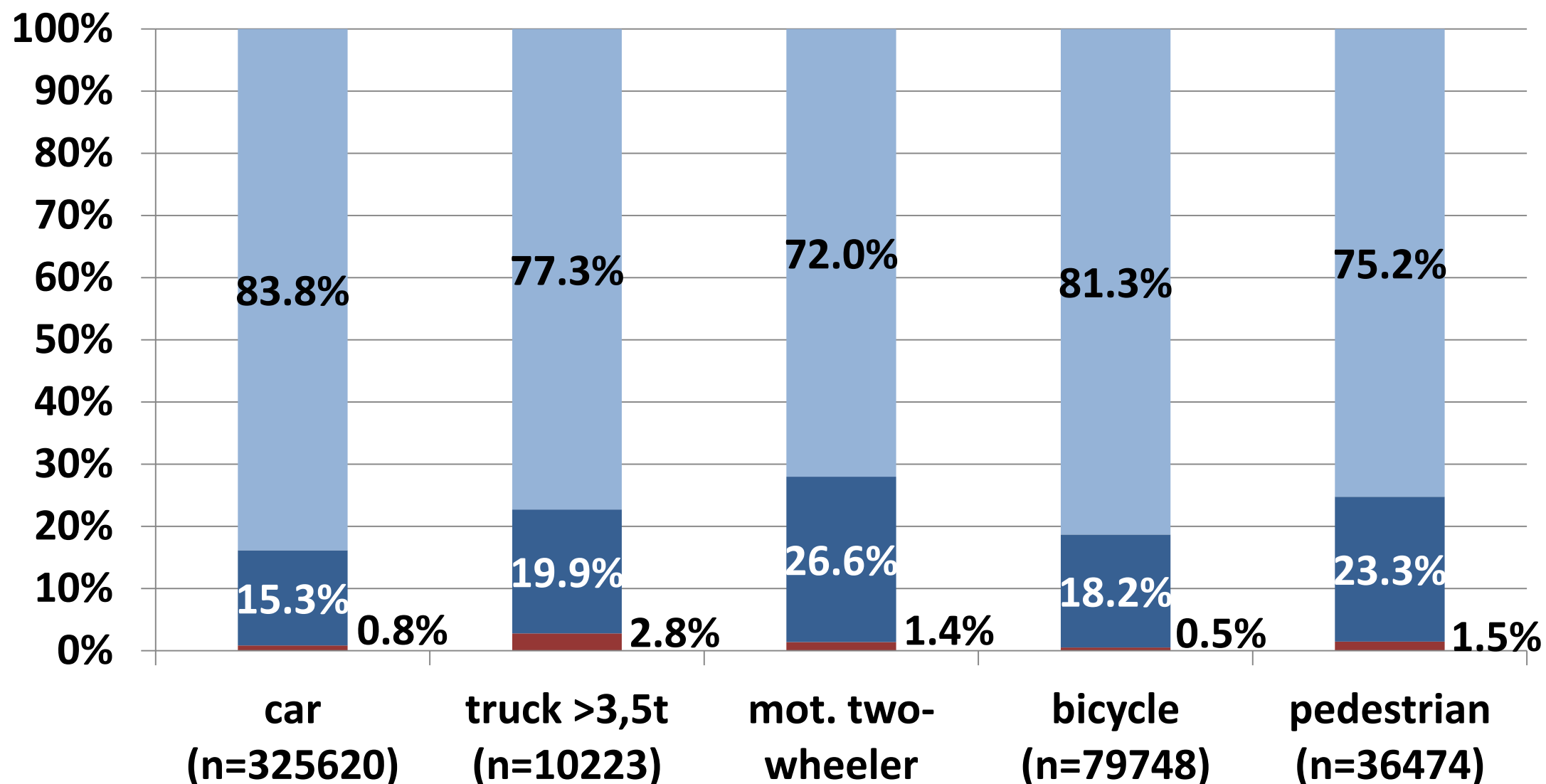
Unfortunately there is no common definition of the injury severity in the EU-countries

Country	Current definition of a seriously injured person in a road collision.
Austria	Whether an injury is severe or slight is determined by §84 of the Austrian criminal code. A severe injury is one that causes a health problem or occupational disability longer than 24 days, or one that "causes personal difficulty". Police records.
Belgium*	Hospitalised more than 24 hours. But in practice no communication between police and hospitals so in most cases allocation is made by the police. Police records.
Bulgaria	n/a. Police records.
Cyprus*	Hospitalised for at least 24 hours. Police records.
Czech Republic*	No official definition, but common approach is hospitalised for at least 24 hours. Police records.
Denmark*	All injuries except "slight". Police records.
Estonia	Separate statistics of serious and slight injuries are n/a.
Finland	Separate statistics of serious and slight injuries are n/a.
France*	Until 2004: hospitalised for at least 6 days. From 2005: hospitalised for at least 24 hours. Police records. People injured are asked to go to the police to fill in information about the collision, in particular if they spent at least 24 hours as in-patient.
Germany*	Hospitalised for at least 24 hours. Police records.
Greece*	Injury and injury severity are estimated by police officers. It is presumed that all persons who spent at least one night at the hospital are recorded as seriously injured persons. Police records.
Hungary	Serious injury which necessitates hospitalisation for more than 48 hours within seven days after occurrence or caused fracture, except for finger, toe, nose fractures; or caused cut wounds, which resulted in serious bleeding or nerve, muscle or tendon injuries; or caused injury of inner organs; or caused burn of second or third degree or burn affecting more than 5% of body surface.
Ireland*	Hospitalised for at least 24 hours as an in-patient, or any of the following injuries whether or not detained in hospital: fractures, concussion, internal injuries, crushing, severe cuts and lacerations, several general shock requiring medical treatment. Police records.

Source PIN report ETSC 2012

Casualties for different types of traffic participation in 2012

■ killed persons ■ severely injured ■ slightly injured



Source: Destatis

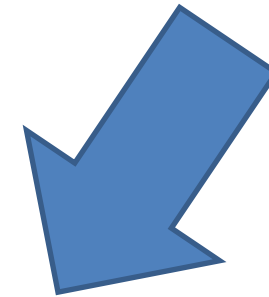
**15 to 27 % related to their participation
are severely injured in road traffic accidents
in GERMANY**

Definition of Injury Severity

Injury Severity	official	proposal DVR	proposal MHH
minor injured	outpatient	outpatient	outpatient
severe injured	min. 24 h inpatient treatment	min. 24 h stationary treatment	min. 24 h inpatient treatment, MAIS 2+
most severe injured (proposal EU)	-	MAIS 3 +	
dangerous to life injured (proposed DVR)	-	primary medical intervention, intensive care treatment	intensive care treatment, ISS > 15, MAIS 4+
fatal injured	died within 30 days	died within 30 days	died within 30 days

The structure of the AIS code

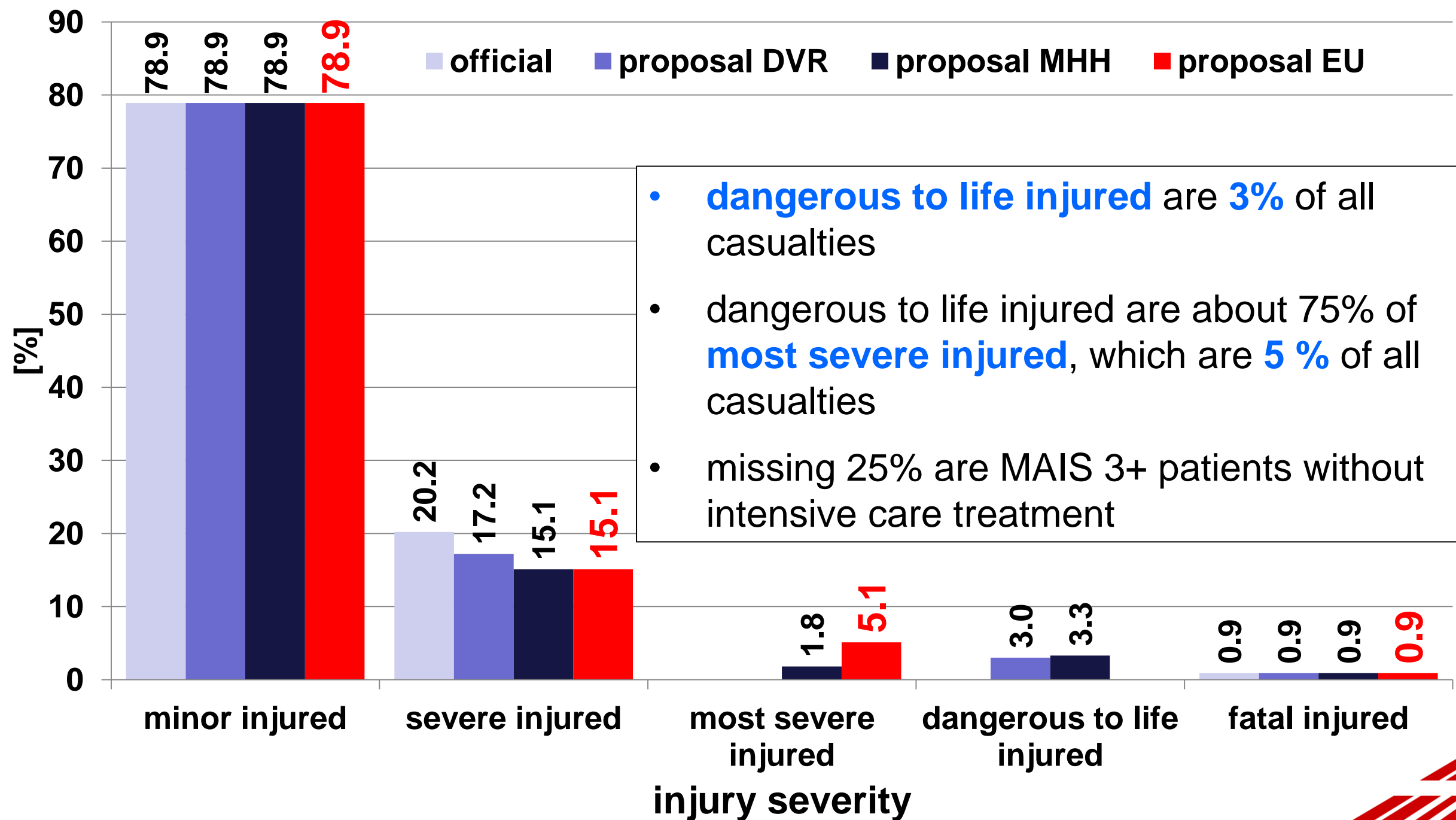
A	B	CD	EF	.	G
body region	type of anatomic structure	specific anatomic structure	level of injury		AIS severity code



- **AIS1** **minor**
- **AIS2** **moderate**
- **AIS3** **serious**
- **AIS4** **severe**
- **AIS5** **critical**
- **AIS6** **maximum**



n = 28.505 injured persons by traffic accident

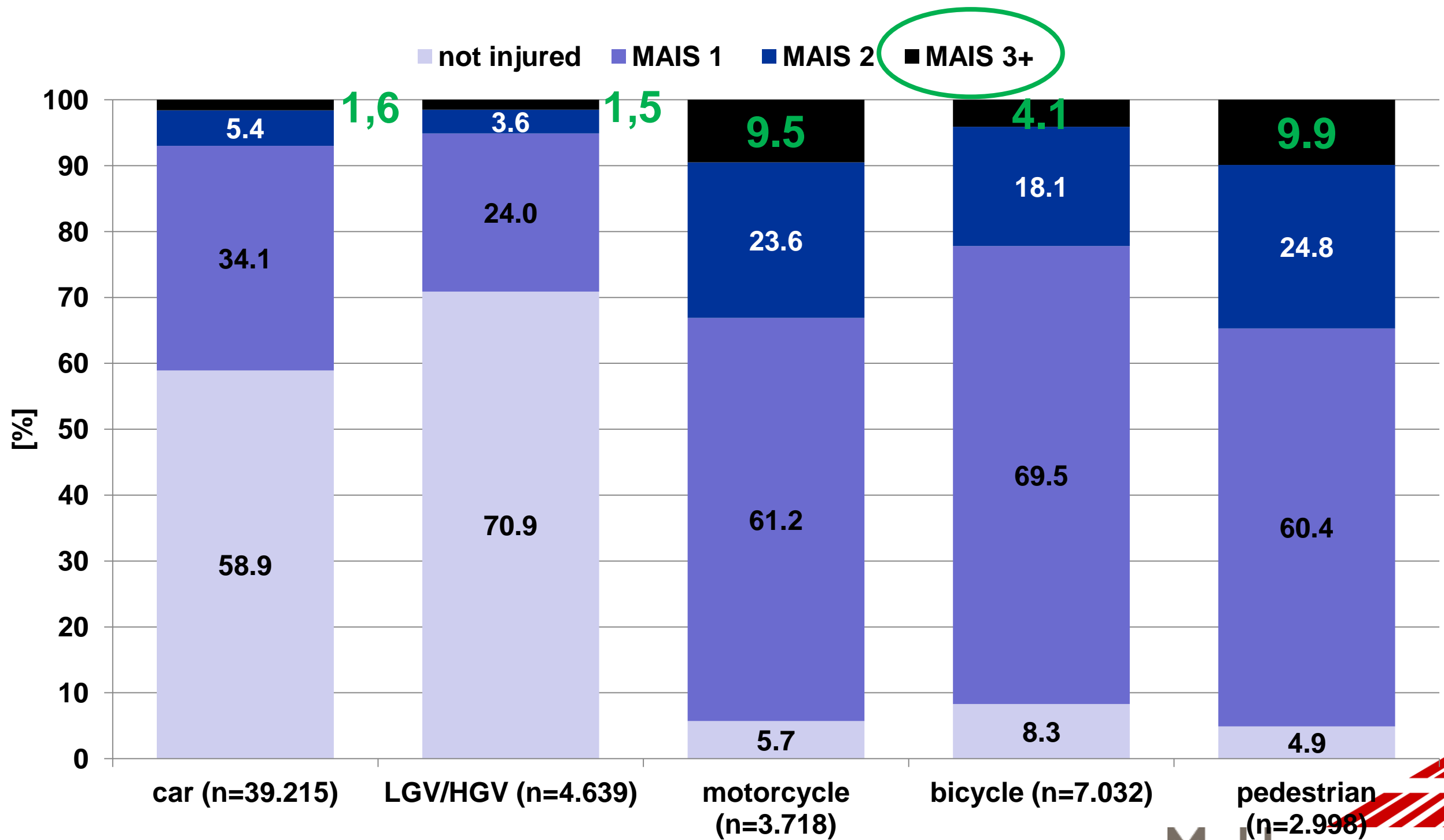




GIDAS

German In-Depth Accident Study

all persons involved



Definition of Injury Severity

Injury Severity	official		
minor injured	outpatient		
severe injured	min. 24 h inpatient treatment		
most severe injured (proposal EU)	-	MAIS 3 +	
fatal injured	died within 30 days		



Participating hospitals

until 2012

total: 614

active 2012 573

inactive 41

D: 579 (543)

A: 16 (13)

SI: 5 (4)

CH: 4 (4)

NL: 4 (3)

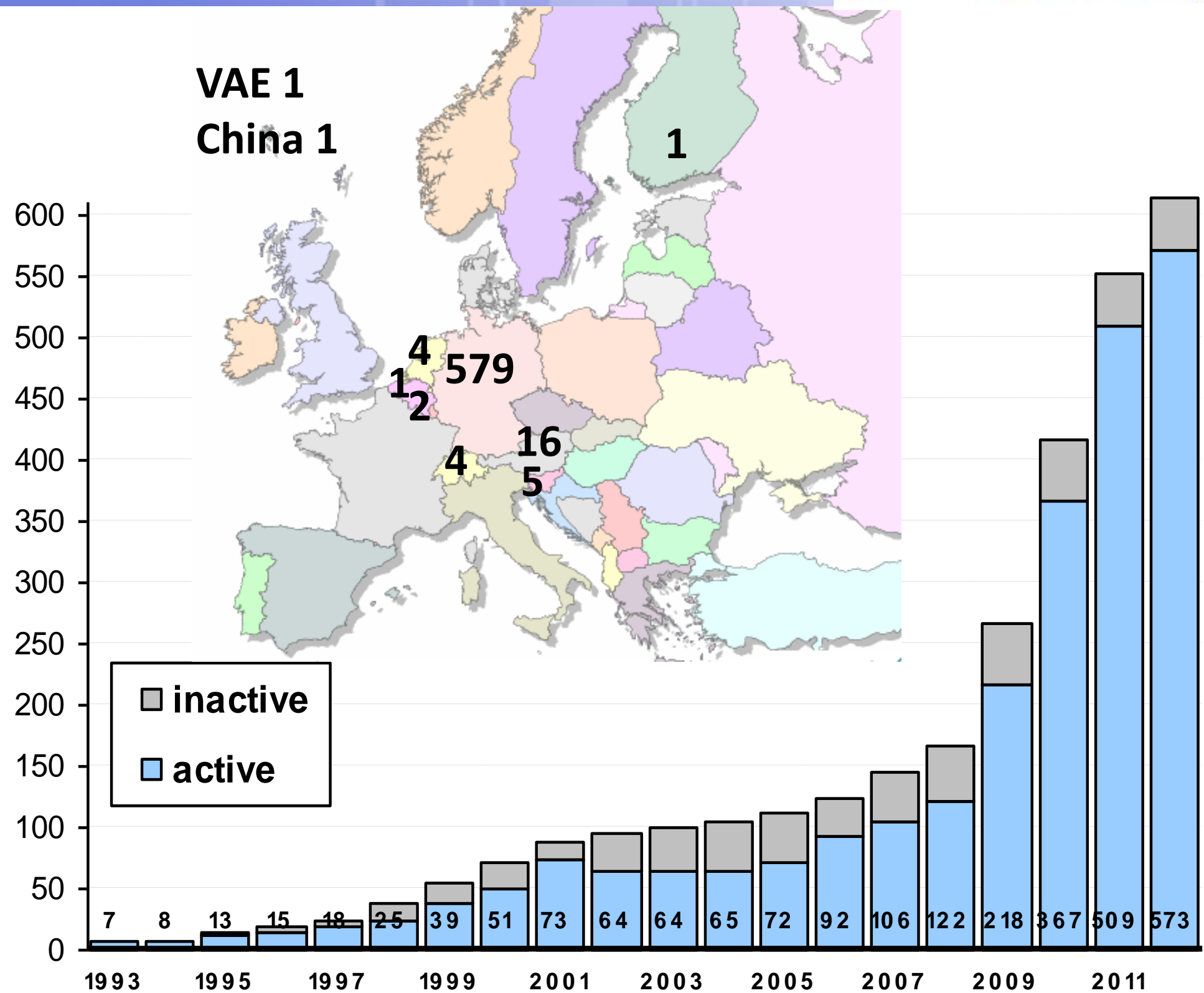
L: 2 (2)

B: 1 (1)

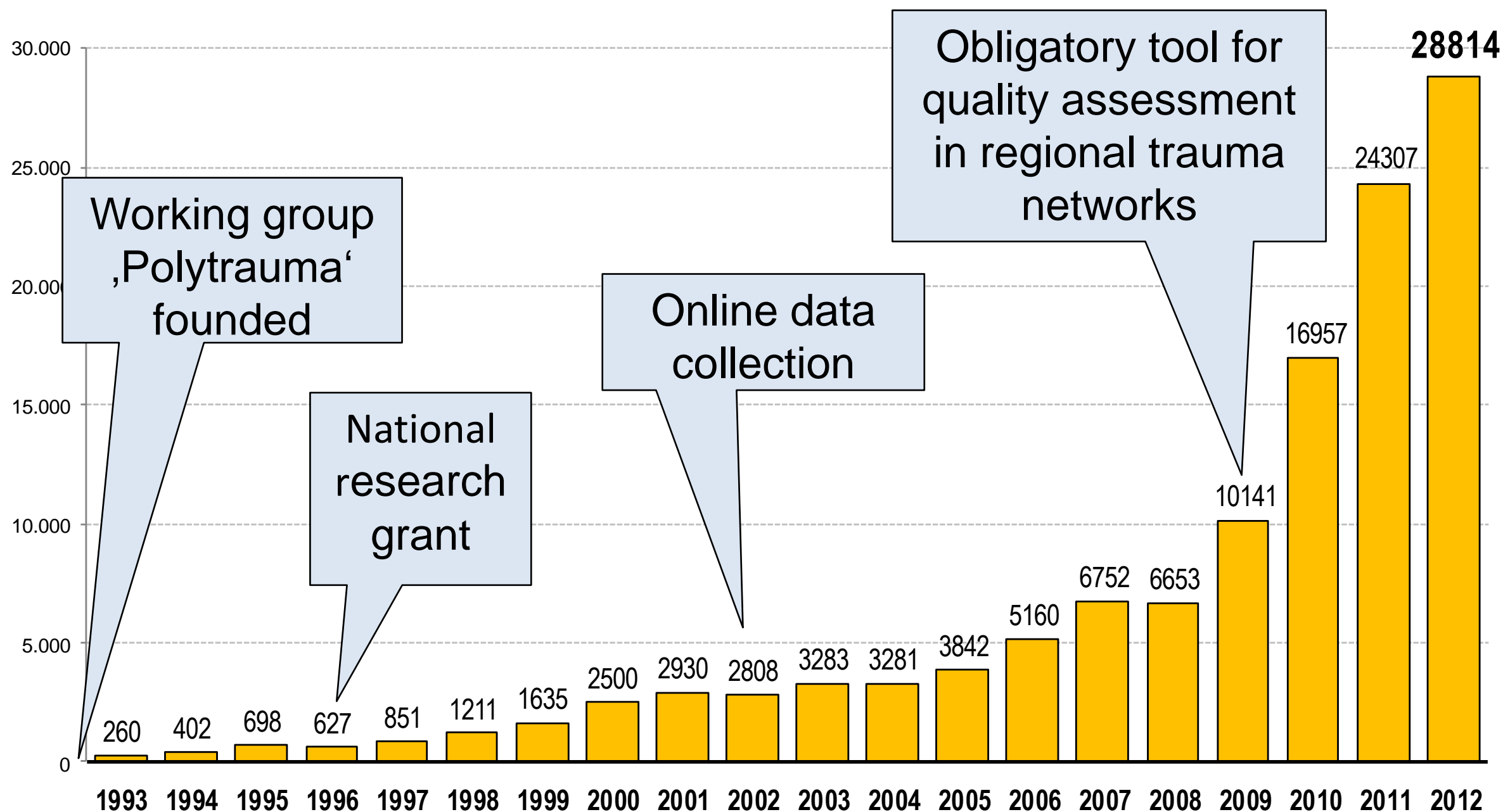
VAE: 1 (1)

FIN: 1 (1)

China: 1 (1)



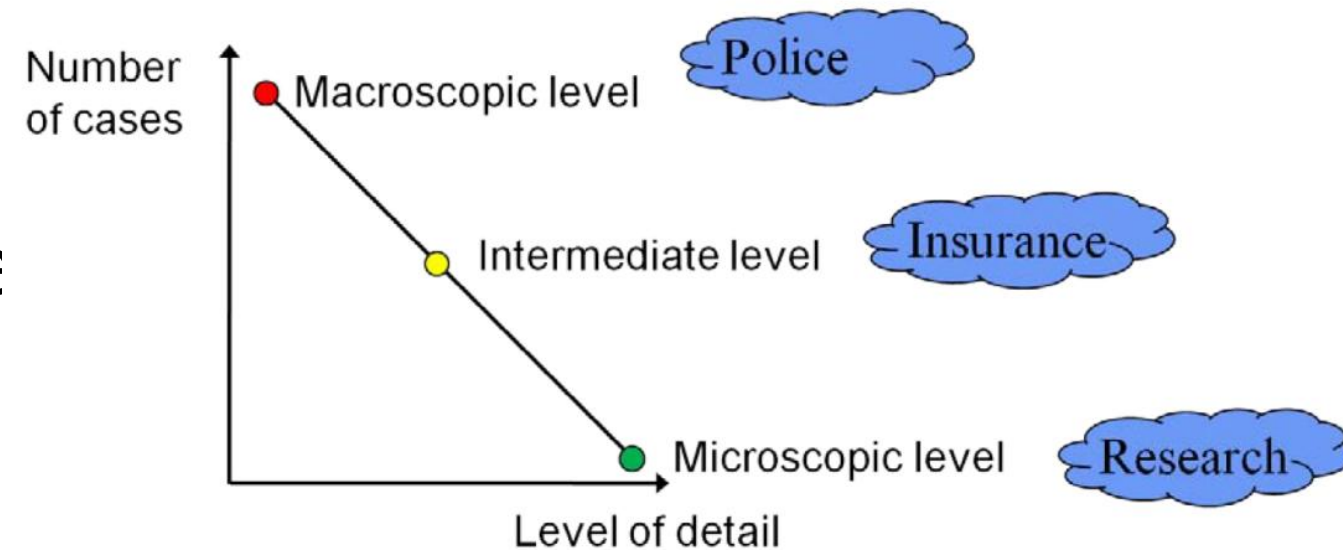
Annual Number of Patients ISS > 15



Conclusion for the situation available macroscopic data for Europe

A step further to In-Depth-Data

- No harmonized data
- Many different source



- National statistics in different countries
- Aggregated data i.e. IRTAD, CARE,
- Summerized data-reports i.e. PIN-program,



How do Accidents happen?

In-Depth-Investigation on scene

accident research - in-time practice

Real World Analysis

Official Statistics

scientific Statistics

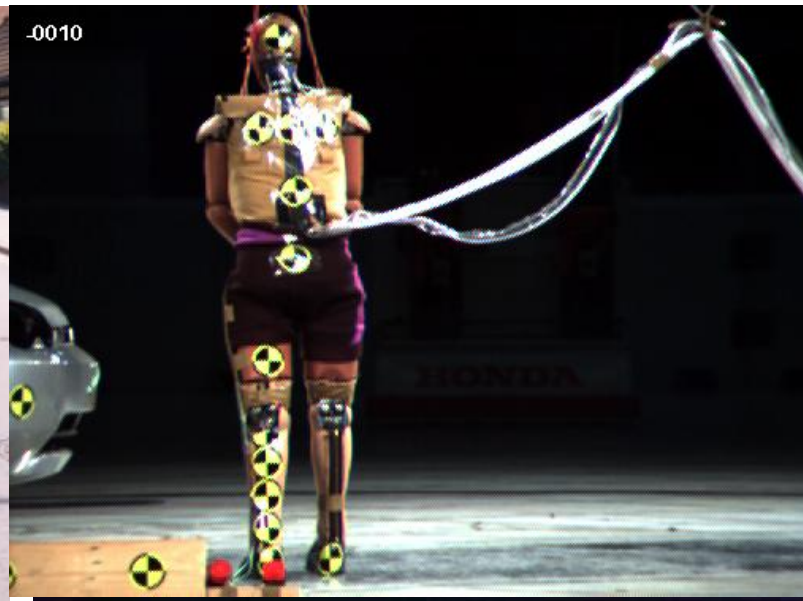


Nat. + int. statistics
Accident Research Unit

Experimental

Dummy test

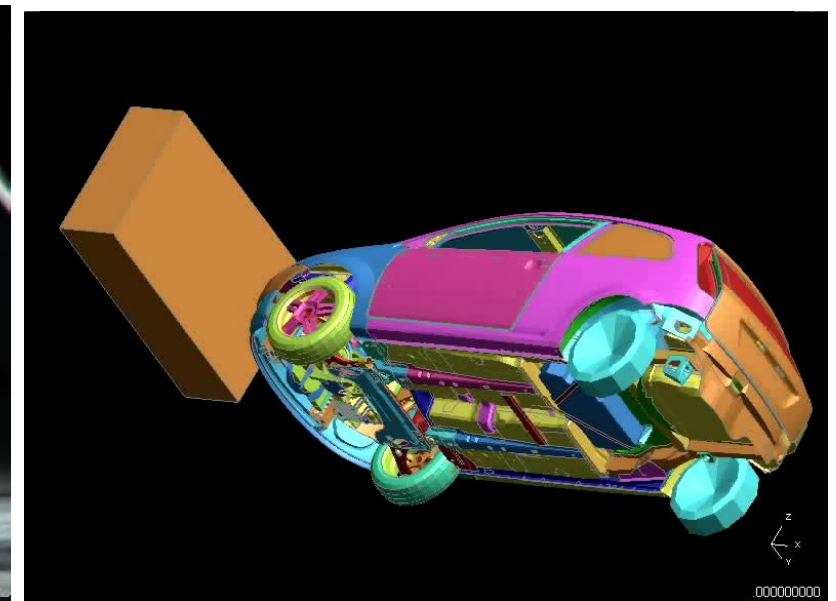
Cadaver tests



Crashtests
Component tests

Simulation

Computerised modelling



Vehicle development
Field analyses
Computersimulation

ROAD ACCIDENT INVESTIGATION IN THE EUROPEAN UNION

REVIEW AND RECOMMENDATIONS

RO-SAT (Road Strategy for Accidents in Transport)

EC group of experts 2004



Table 3.2: In-Depth databases available in Europe and elsewhere and their level of information available

		ASIA			Europe											
		ANCIS (AUS)	GM-MUARC (AUS)	ITARDA (Japan)	CCIS (UK)	GDV	GIDAS (MUH)	LAB (FRA)	CZ (SPAIN)	VALT (FIN)	SAAB	MERC	BMW	VW	PENDANT	FORD
General Database Characteristics	How many cases are currently in your database?	220	535	3,300	~20,000	5,100	9,167	13000	1,100	17000	~6200	3554	1909	17000	700	
	Year of First Case	1999	1993	1993	1983	1998	1999	1970	1992	1968	1970	1969	1975	1987	2003	
	Year of Most Recent case	2003	2003	2004	2005	2002	2004	2003	2004	2004	2005	2004	2004	2004	2005	
	Data format	Access	Access	Oracle	Access	dBase	SIR Access	SAS	Access	SAS	CAST *	Oracle	Oracle	SIR	Access	
	Restrictions of use (e.g. ownership)	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	yes	✓	✓	VW	✓
Is your Inspection Type...	Retrospective	✓	✓		✓	✓	✓	✓	✓	x	✓ ⁵⁾	✓	✓	no	yes	
	or On-the-Spot	x	x	✓	x	-	✓	-	-	✓		✓	-	yes	no	
Do you select potential cases based on...	Age or Type of Vehicle	✓	✓	✓	✓	✓	✓	✓	-	x	✓ ⁶⁾	✓	✓	yes	yes	
	Level of Injury	✓	x	✓	✓	✓ ¹⁾	✓	✓	-	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Level of Vehicle Damage	x	✓	✓	✓	✓	✓	✓	-	x	✓ ⁶⁾	x	✓	yes	No	
	Types of collision partners	x	x	✓	✓	✓	✓	✓	-	x	✓ ⁶⁾	x	✓	yes	yes	
	Age and Sex of Occupant	x	x	✓	✓	✓ ²⁾	✓	✓	-	x	✓ ⁶⁾	x	✓	yes	No	
	Seating Position of Occupant	x	x	✓	✓	✓	✓	✓	-	x	✓ ⁶⁾	x	✓	yes	No	
	Population Representativeness	x	x		x	-	✓	-	-	x	No	x	-	yes	No	
	Other Criteria				✓			✓	✓ ⁵⁾	x		x	✓	yes	No	
	Special Exclusions (e.g. fatalities or single vehicle impacts)							-	-	x	No	x	no	no	No	
Are some cases in your databases...	Drivers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Front Seat Passengers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Rear Seat Passengers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Children	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
Does your database include variables involving...	Impact Severity	✓	✓	✓	✓	-	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes		
	Crash Type (side, frontal, multiple vehicle, etc)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Vehicle Safety Systems	✓	✓	✓	✓	✓ ³⁾	✓	✓	✓ ³⁾	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Injury Severity	✓	✓	✓	✓	-	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Treatment levels (e.g. Hospitalised)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶⁾	✓	✓	yes	yes	
	MAIS level	✓	✓	✓	✓	✓	✓	✓	✓ ³⁾	✓	✓ ⁶⁾	✓	✓	yes	yes	
	ISS score	✓	✓	✓	✓	-	✓	-	-	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Other Injury Measures (specify)			No		-	GCS/PTS	-	-	ICD-10, AIS98	No	x	medical injury description	medical injury description	yes	
	Restraint Use	✓	✓	✓	✓	✓	✓	✓	✓ ³⁾	✓	✓ ⁶⁾	✓	✓	yes	yes	
	Location of crash site	✓	✓	✓		✓	✓	✓	✓	✓	✓ ⁶⁾	✓	-	yes	yes	
	Type of road	✓	✓	✓		✓ ⁴⁾	✓	✓	✓	✓	✓ ⁶⁾	x	✓	yes	yes	

On The Spot Investigations

UK

from 2000 to 2012

Total investigations = 500 p.year

VSRC in Nottinghamshire

£ 2 million
39 month



TRL in Thames Valley



Investigation Network and Traffic Accident Collection Techniques

Investigation of traffic accidents for safer road traffic

INTACT



CHALMERS



Starting 2007





GIDAS

German In-Depth Accident Study

**Technische Universität
Dresden**

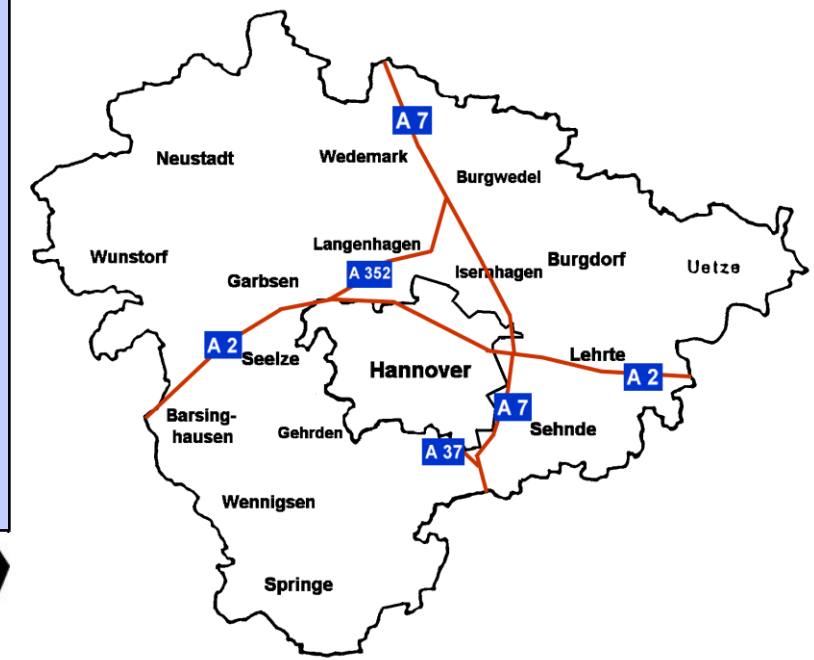
Since 1999

**Medizinische
Hochschule Hannover**

Since 1973



**In-depth-investigation
BAST / FAT**
Accidents with injured persons
In statistical representative
Sampling procedure
Common Database



Otte et al

**2000
accidents
documente
annually**



Medizinische Hochschule
Hannover



GIDAS

German In-Depth Accident Study



Technical Documentation

- accident site, accident scetch
- vehicles, deformations, damages
- technical classifikations (acc. type, CDC)

} **accident severity**
Delta-v
EES



Medical Documentation

- injuries
- rescue system
- medical clasificatiосn (AIS, ISS, GCS)

} **injury**
severity



Personal Interview

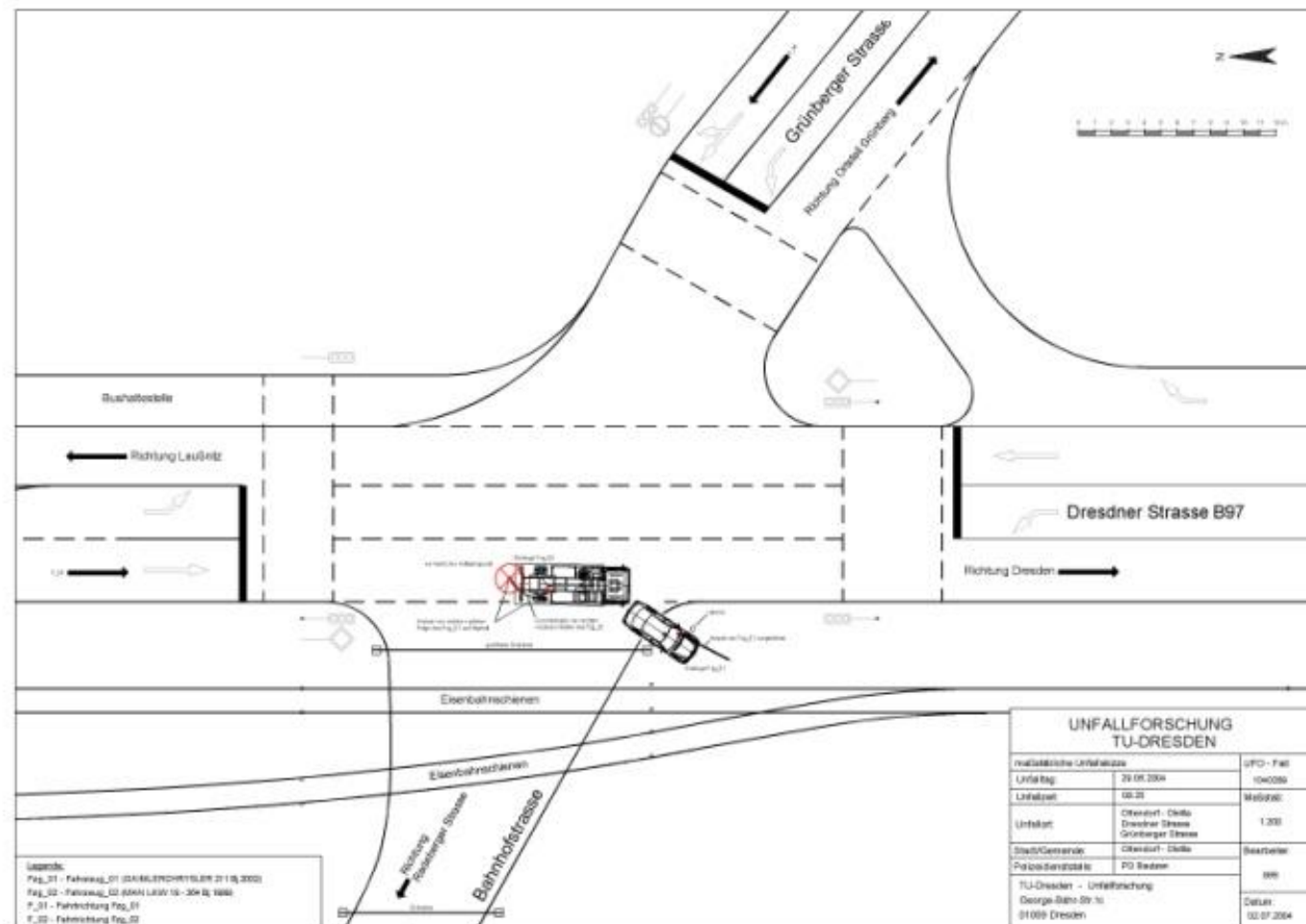
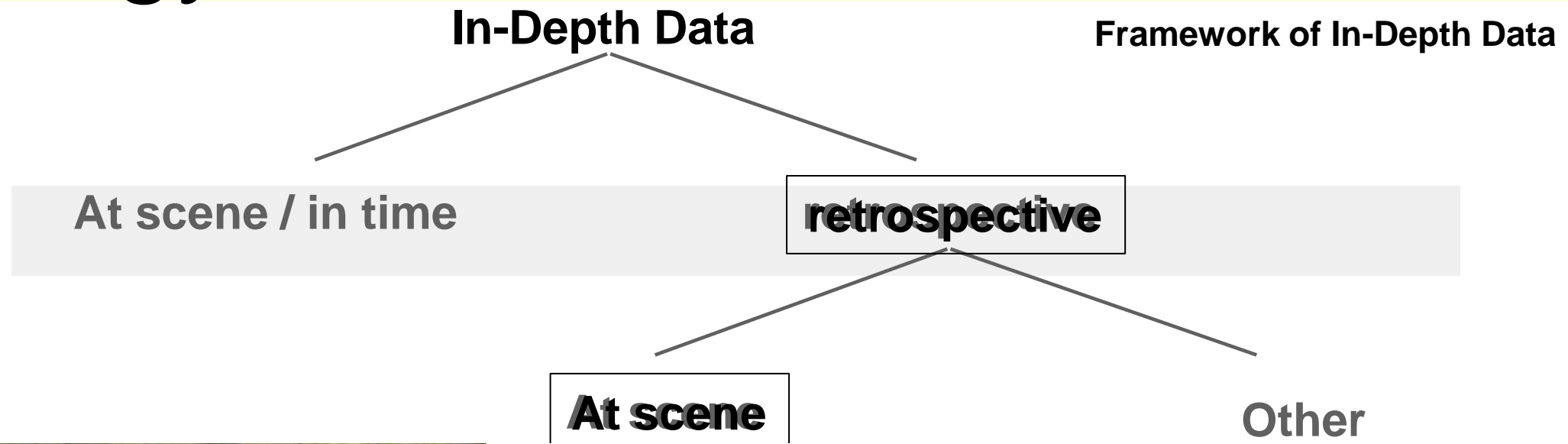
- Interview
- accident causation

} **accident**
causation
factors



GIDAS German In-Depth Accident Study

Methodology of Accident Research Unit





cases 1999-2009
n=27.286

reconstructed cases
n=25,423
participants
n=35,212

cars
n=21,761

without multiple coll.
n=16,667
without rollover (n=87)
n=16,580

collision partner
car (n=8,261)
object (n=924)
n=9,185

driver
n=8,937

seat belted car driver in car/object collision
n=7,601

Number of cases

1973 to 2013

Accidents

29.359

Vehicles

56.143

Persons

73.486

Casualties

39.532

Injuries

131.501

motorcycle n= 2,767

bicycle n= 5,221

pedestrian n= 2,479

others n= 80

unknown, missing n= 11

number of collisions (ANZKOLL)

none n= 334

>1 n= 4,757

unknown n= 3

collision partner

gross vehicle n= 639

bus, tram n= 169

motorcycle n= 1,640

bicycle n= 3,288

pedestrian n= 1,623

others n= 35

unknown, missing n= 1

seat belt usage (RHSBEN)

no belt n= 24

not used n= 360

unknown, missing n= 952

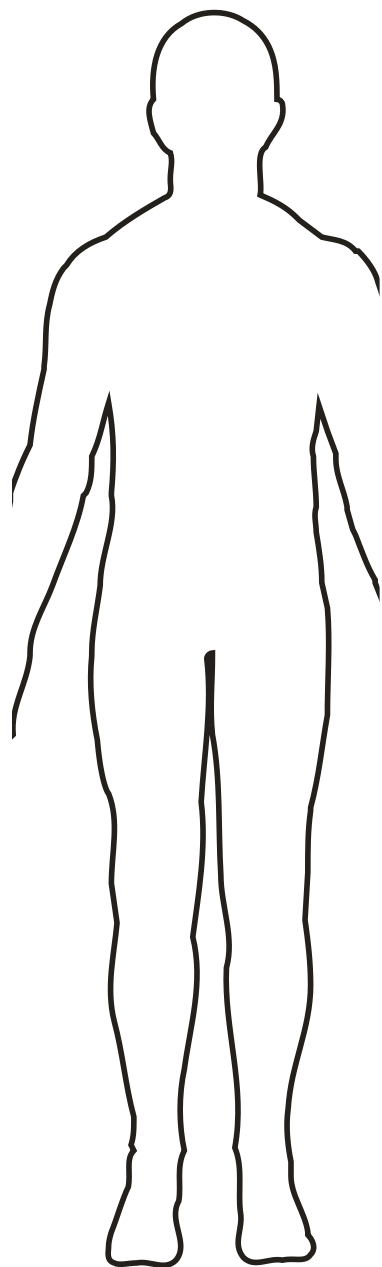
MHH

Medizinische Hochschule
Hannover



frequency of injuries by body regions

total 1999-2006 2007-2013



AIS 3+ only	total	car	LGV/HGV	motor- cycle	bicycle	pedes- trian
head	2,2% 1,6%	1,7% 0,9%	1,5% 1,9% ↑	2,8% 2,2%	2,4% 2,1%	4,6% 3,0%
neck	0,5% 0,2%	0,5% 0,2%	0,3% 0,2%	0,9% 0,3%	0,2% 0,2%	0,6% 0,4%
thorax	2,2% 2,0%	2,2% 1,9%	2,1% 2,8% ↑	3,3% 3,7% ↑	0,8% 1,2% ↑	3,8% 2,2%
upper extr.	0,6% 0,3%	0,4% 0,1%	0,8% 0,5%	1,3% 0,5%	0,5% 0,3%	1,5% 0,7%
ab- domen	0,7% 0,4%	0,7% 0,5%	0,3% 0,4% ↑	1,1% 0,7%	0,3% 0,3%	1,1% 0,3%
pelvis	0,5% 0,3%	0,4% 0,2%	0,4% 0,1%	1,1% 0,6%	0,1% 0,2% ↑	1,2% 1,0%
lower extr.	2,4% 1,5%	1,3% 0,6%	1,8% 2,1% ↑	6,8% 3,7%	1,5% 1,4%	6,3% 4,1%



predominant reduction

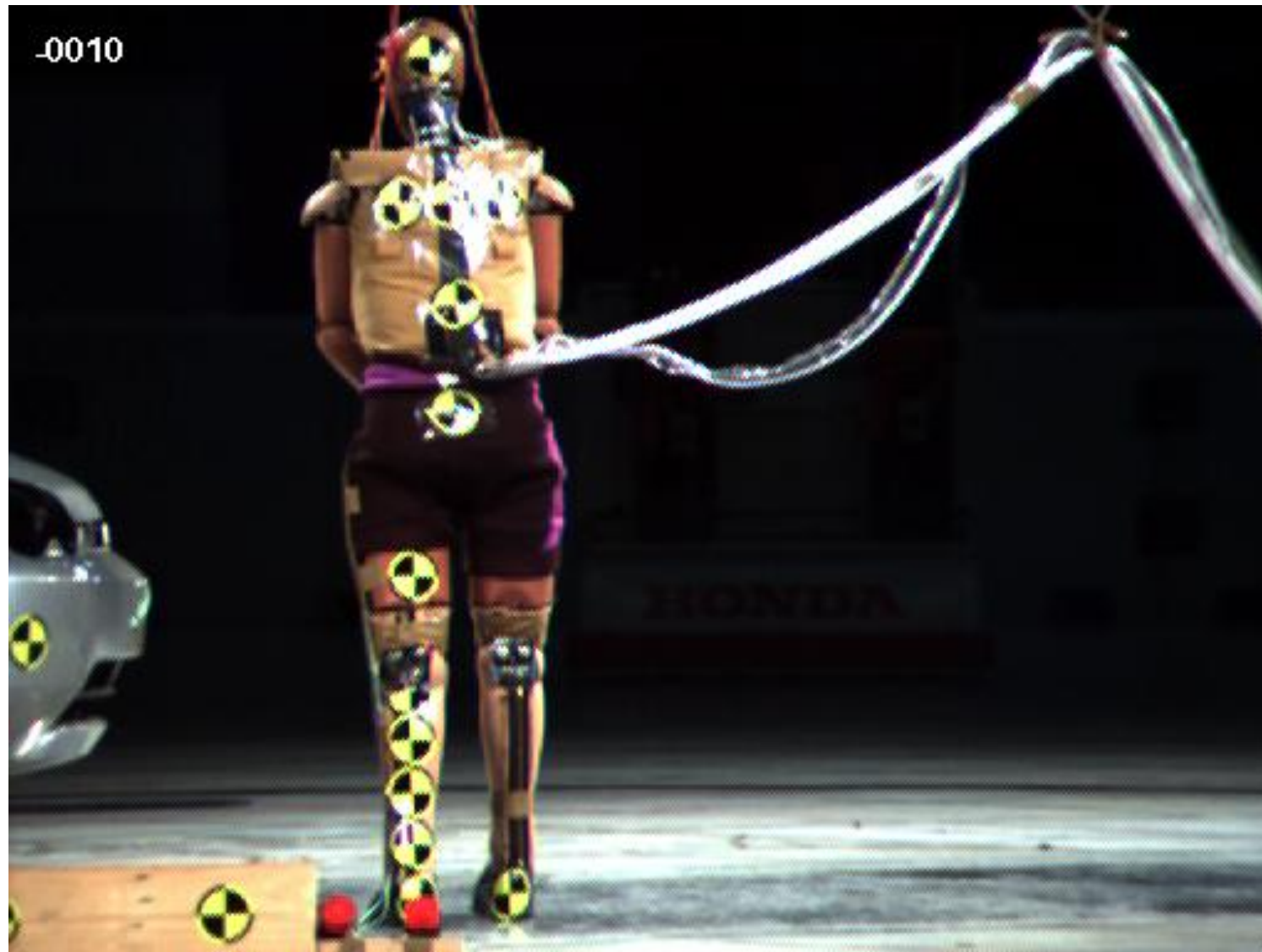
M-H

Medizinische Hochschule
Hannover

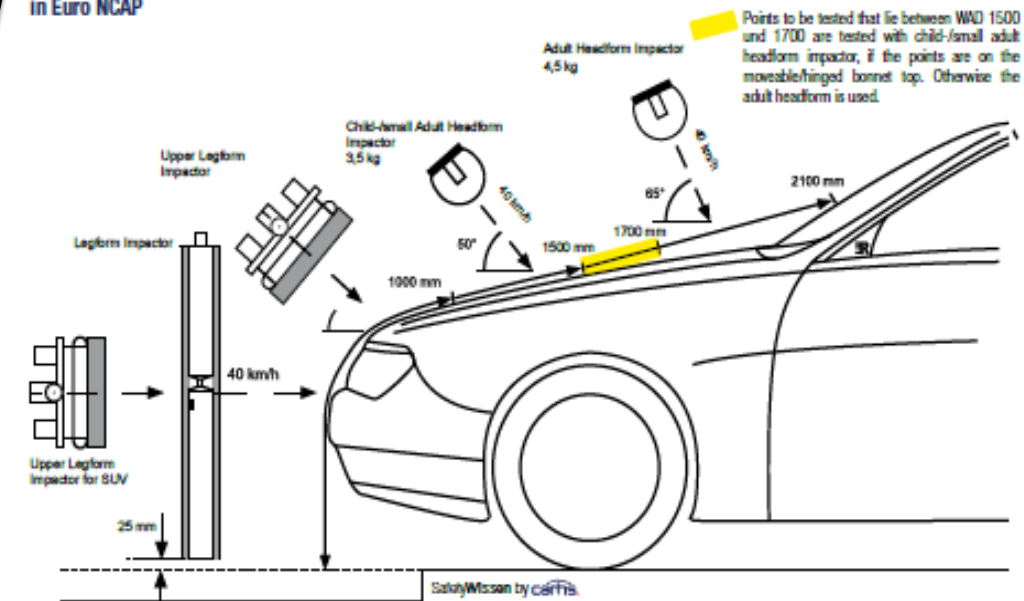


History of Traffic Safety

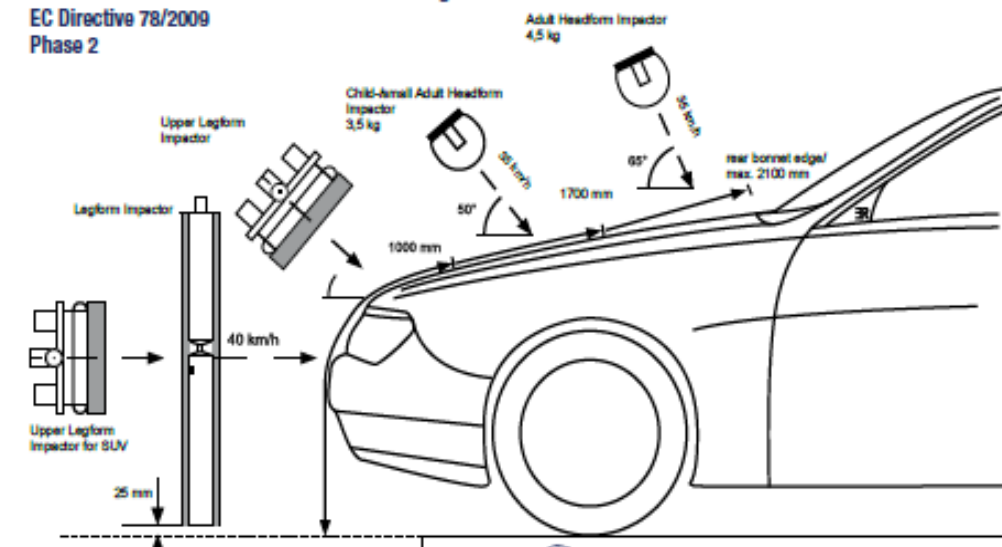
PEDESTRIAN



Pedestrian Protection Test Procedures in Euro NCAP



Pedestrian Protection Test Procedures according to EC Directive 78/2009 Phase 2





GIDAS German In-Depth Accident Study

pedestrian collided with car front - 70s



Opel Ascona frontal impact with pedestrian,
impact speed 45 kph,
 deformations frontedge,
 windscreen impact

pedestrian female, 48 years, MAIS 3

haematomas, lacerations (AIS 1)
 concussion of brain (AIS 2)
 dislocated lower leg fracture left (AIS 3)
 rupture of symphysis (AIS 2)

MAIS 3

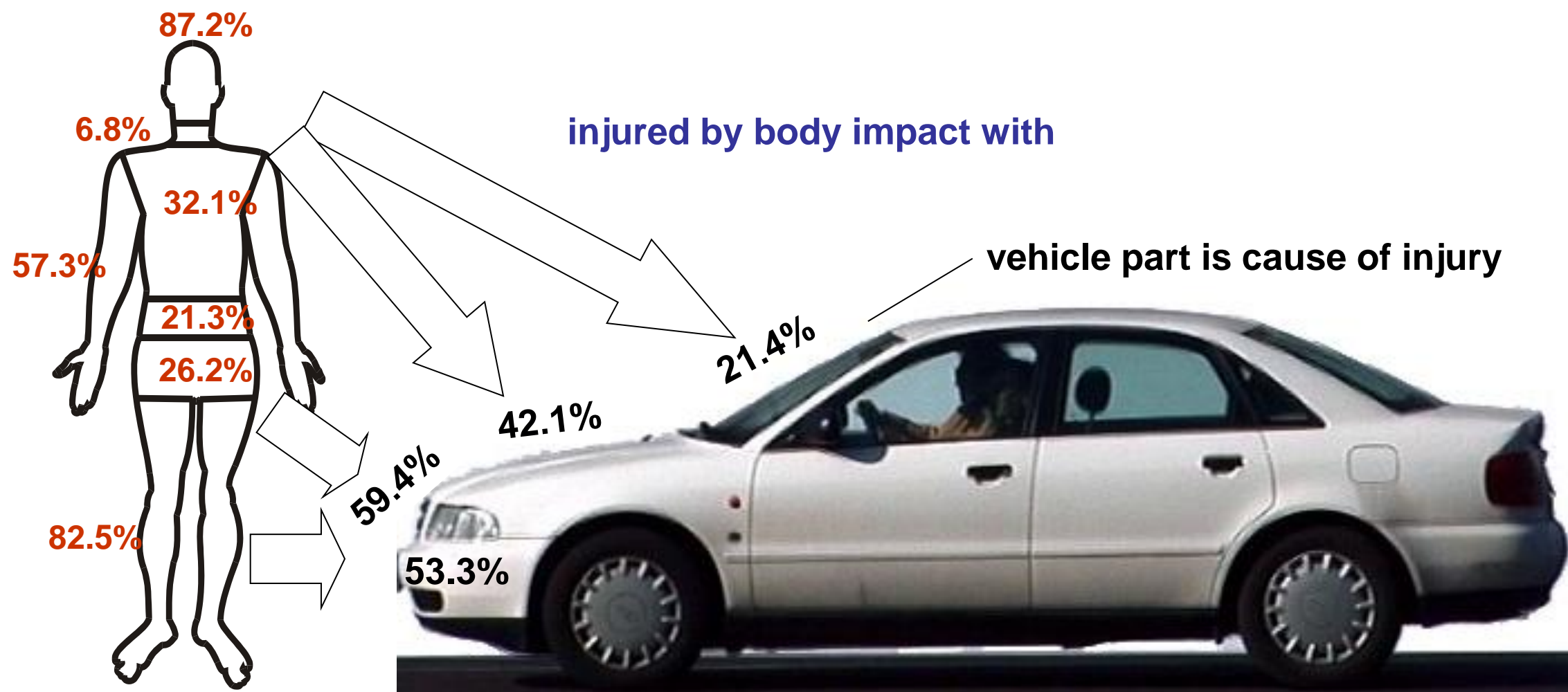


Medizinische Hochschule
 Hannover



pedestrian - collision with car - 70-s

frequencies of injured body regions



road surface 59.9%

total n = 392



GIDAS German In-Depth Accident Study

pedestrian - collision with car - 90s



1991-217



VW Jetta frontal collision with pedestrian,
impact speed 45 kph,
 impact right bumper and front hood

pedstrian female, 21 years, MAIS 2

- laceration forehead right (AIS 1)
- laceration right hand (AIS 1)
- laceration right knee (AIS 1)
- fracture left fibula (AIS 2)

MAIS 2

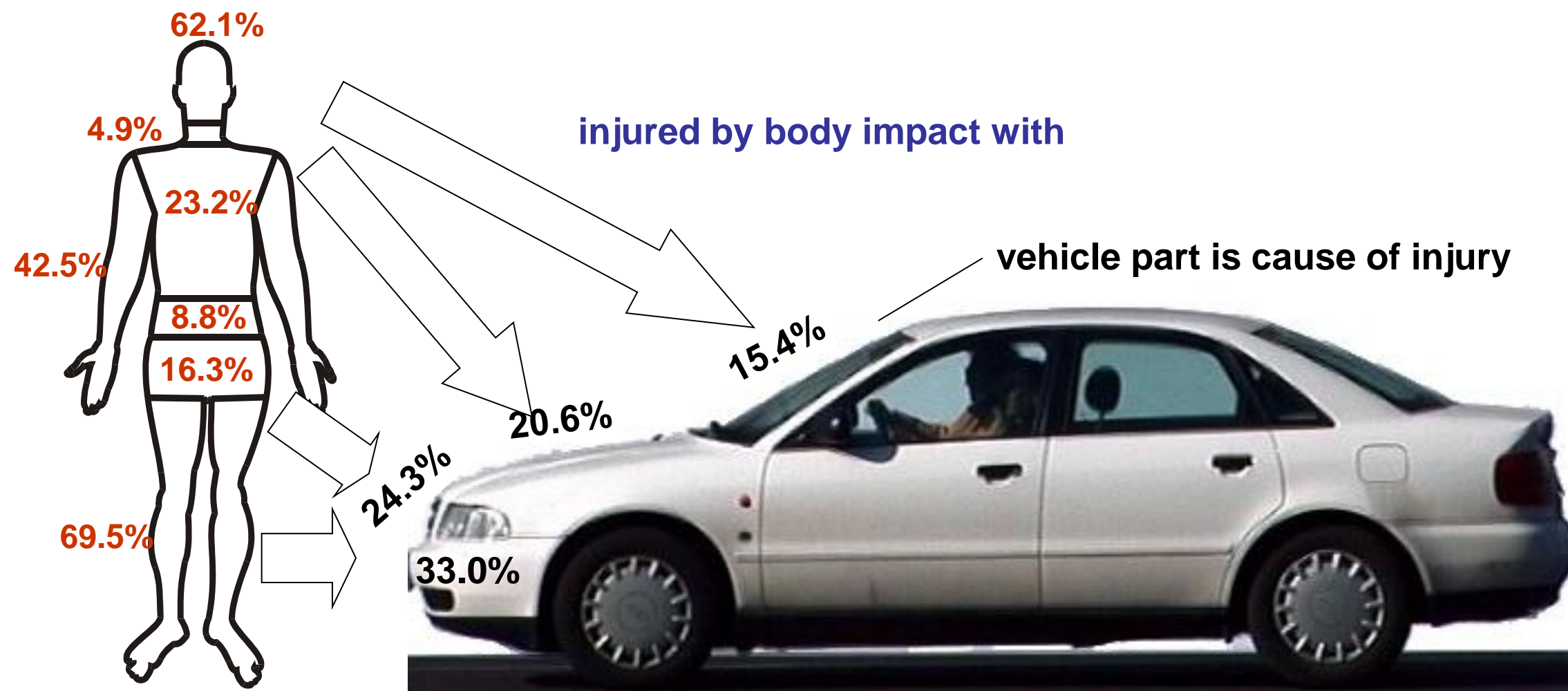


GIDAS

German In-Depth Accident Study

pedestrian - collision with car - 90s

frequencies of injured body regions



road surface 58.7%

total n = 1074



pedestrian - collision with car - present



Mazda frontal collision with pedestrian,
impact speed 45 kph,
deformations frontedge,
windscreen impact

pedestrian, male, 56 year, MAIS 1

haematomas and lacerations (AIS 1)

MAIS1



Technische Hochschule
Mittelhessen

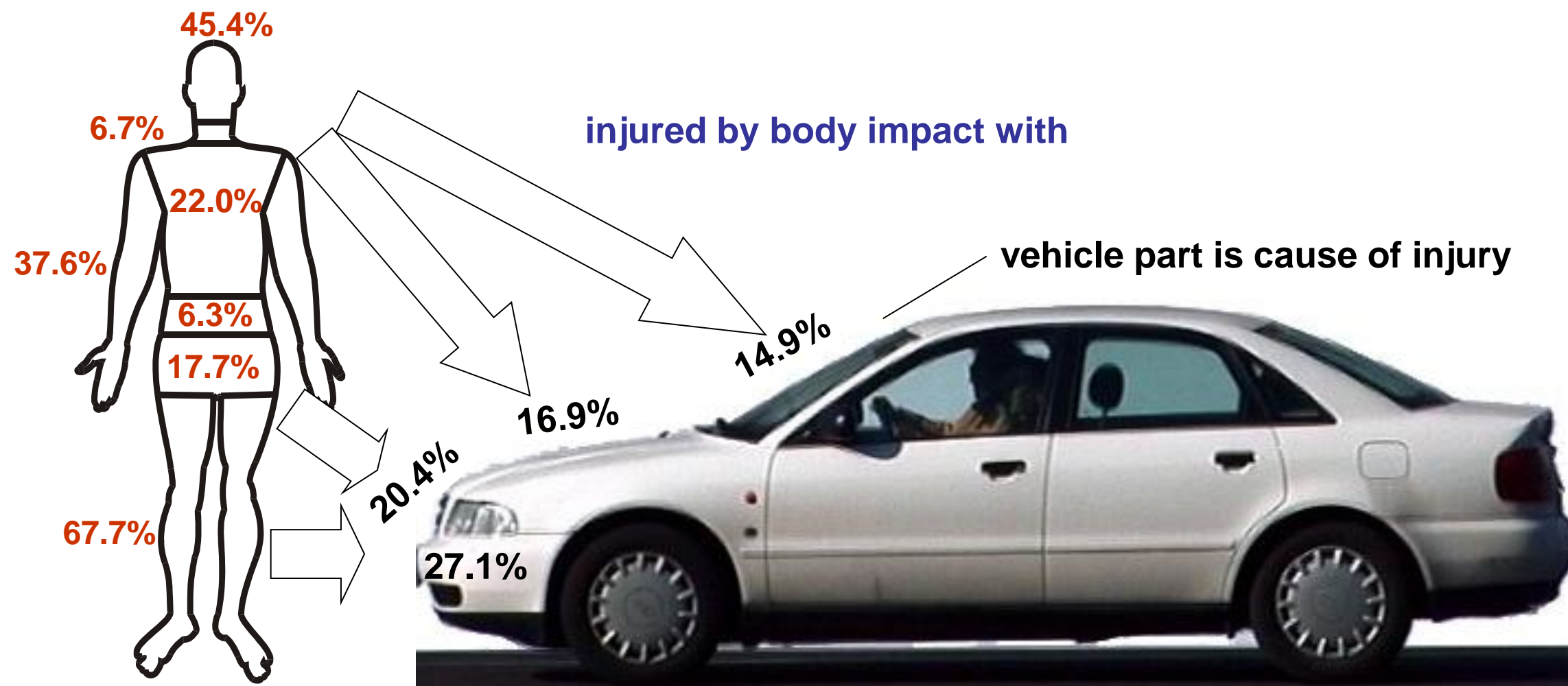


GIDAS

German In-Depth Accident Study

pedestrian - collision with car - present

frequencies of injured body regions



total n = 780

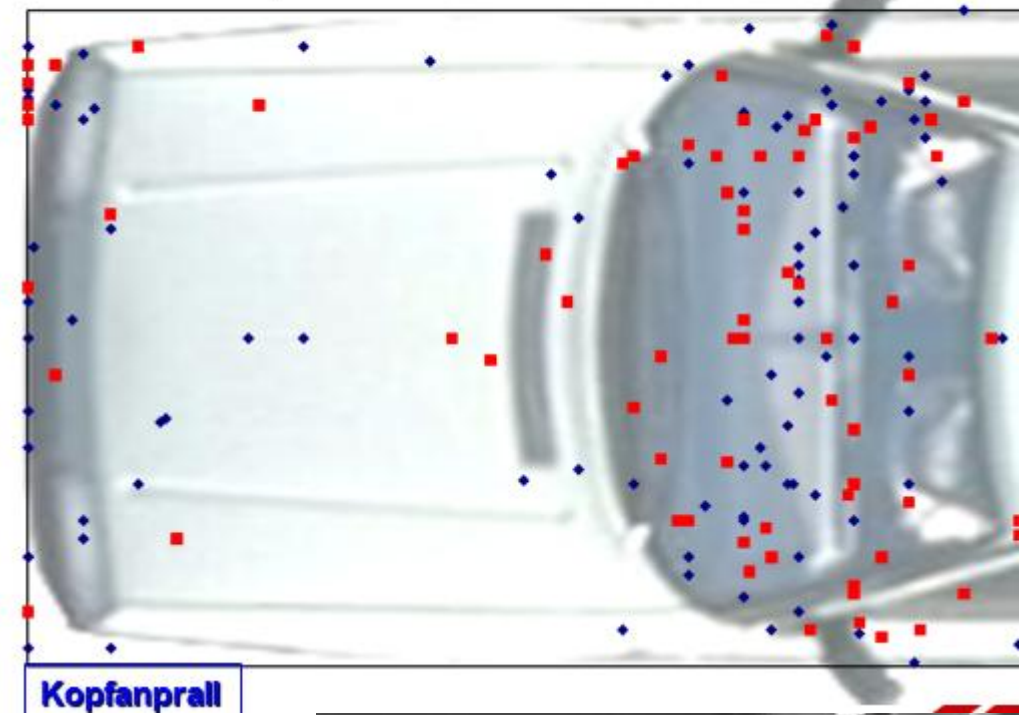
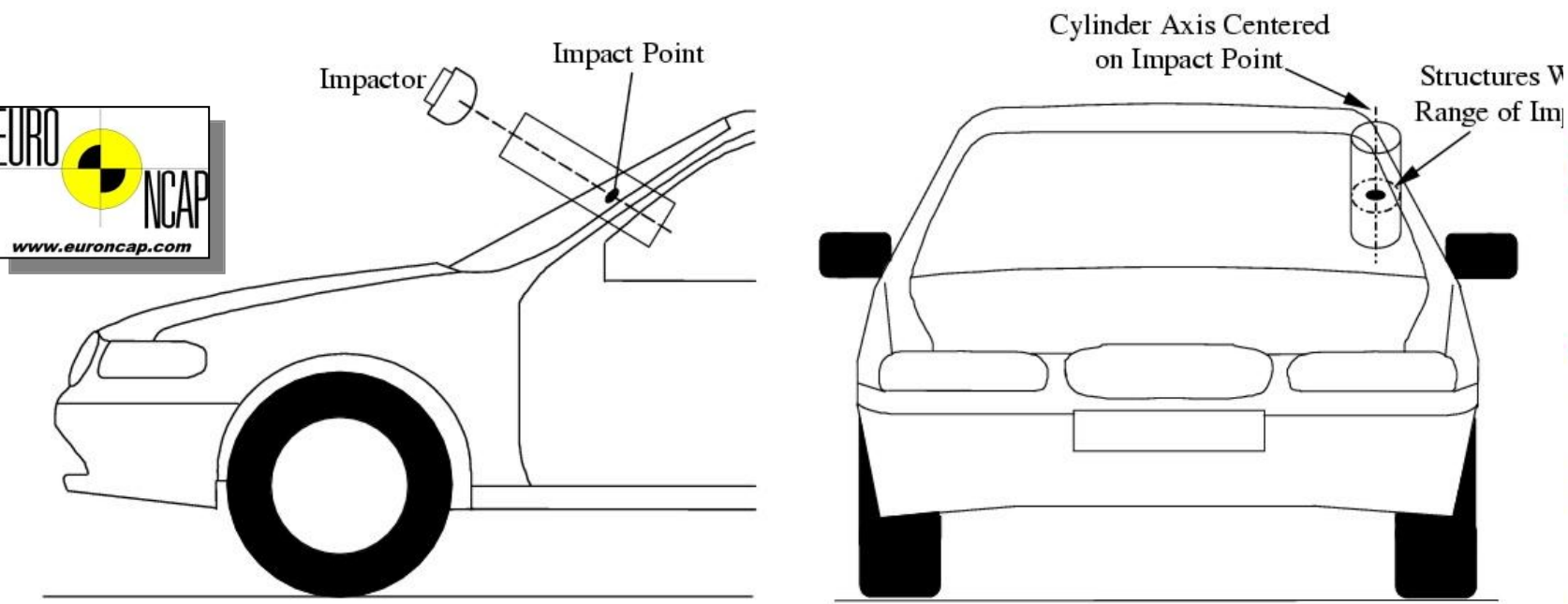


GIDAS

German In-Depth Accident Study

accident reality

♦ MAIS 1/2 (n=76) ■ MAIS 3+ (n=89)

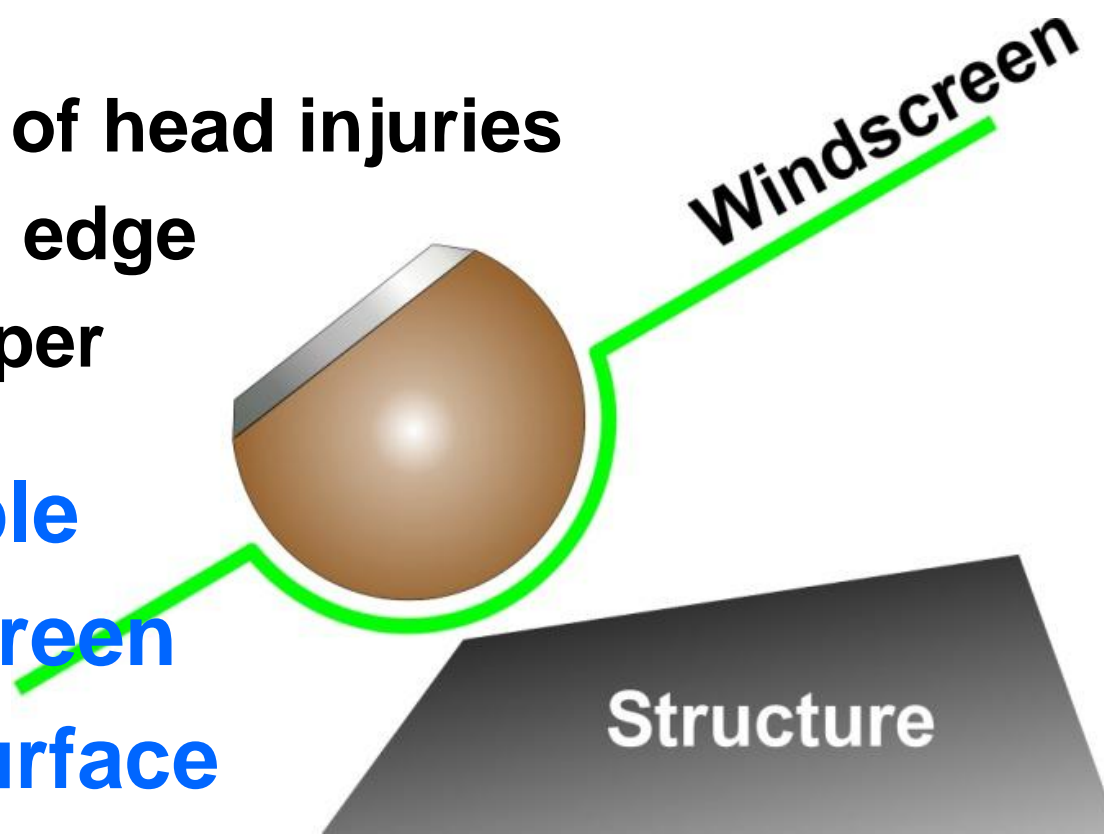


The current situation in real accidents

- reduction especially of head injuries
- less injuries by front edge
- less injuries by bumper

no changes noticeable

- injuries by windscreen
- injuries by road surface

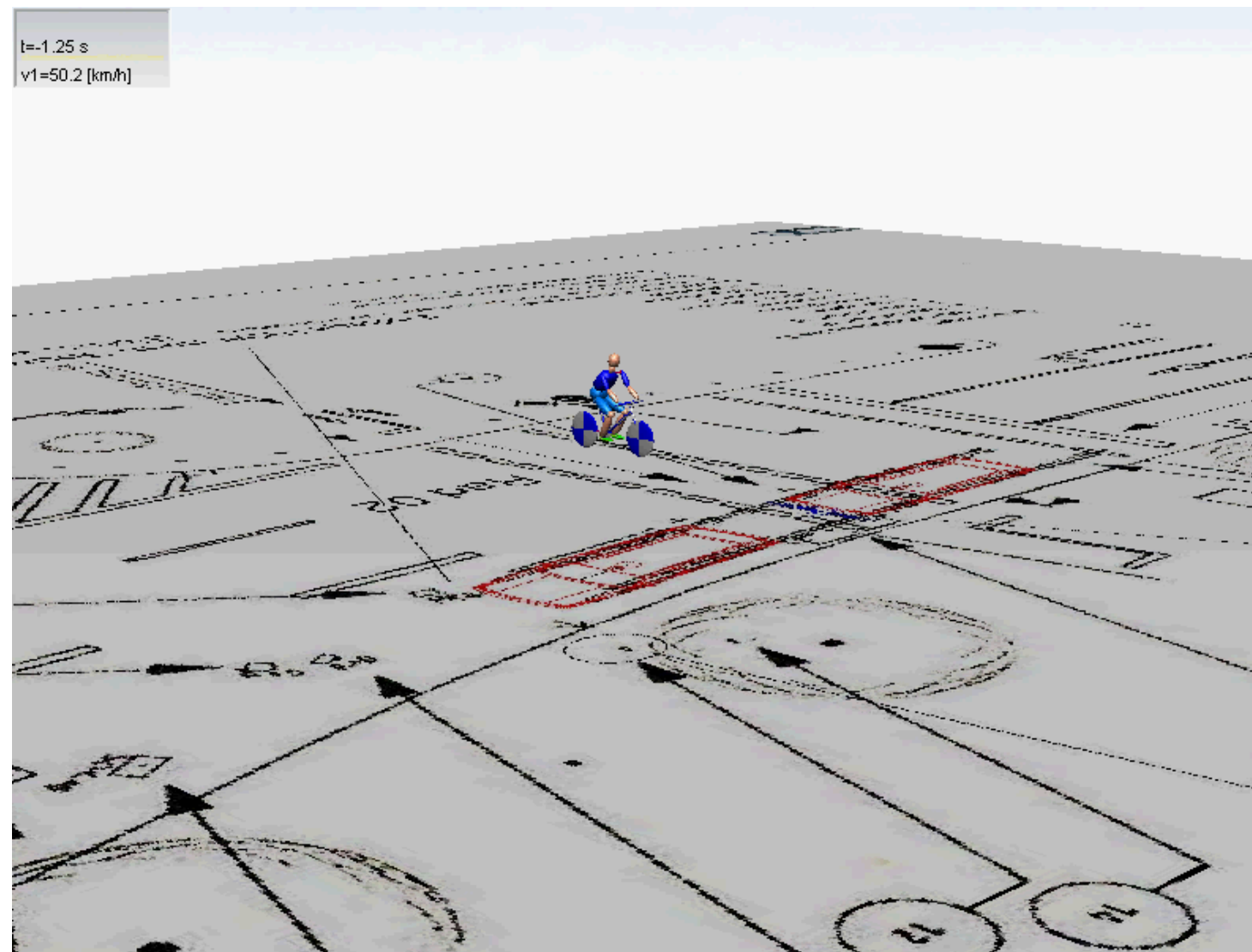


Hannover



History of Traffic Safety

BICYCLISTS



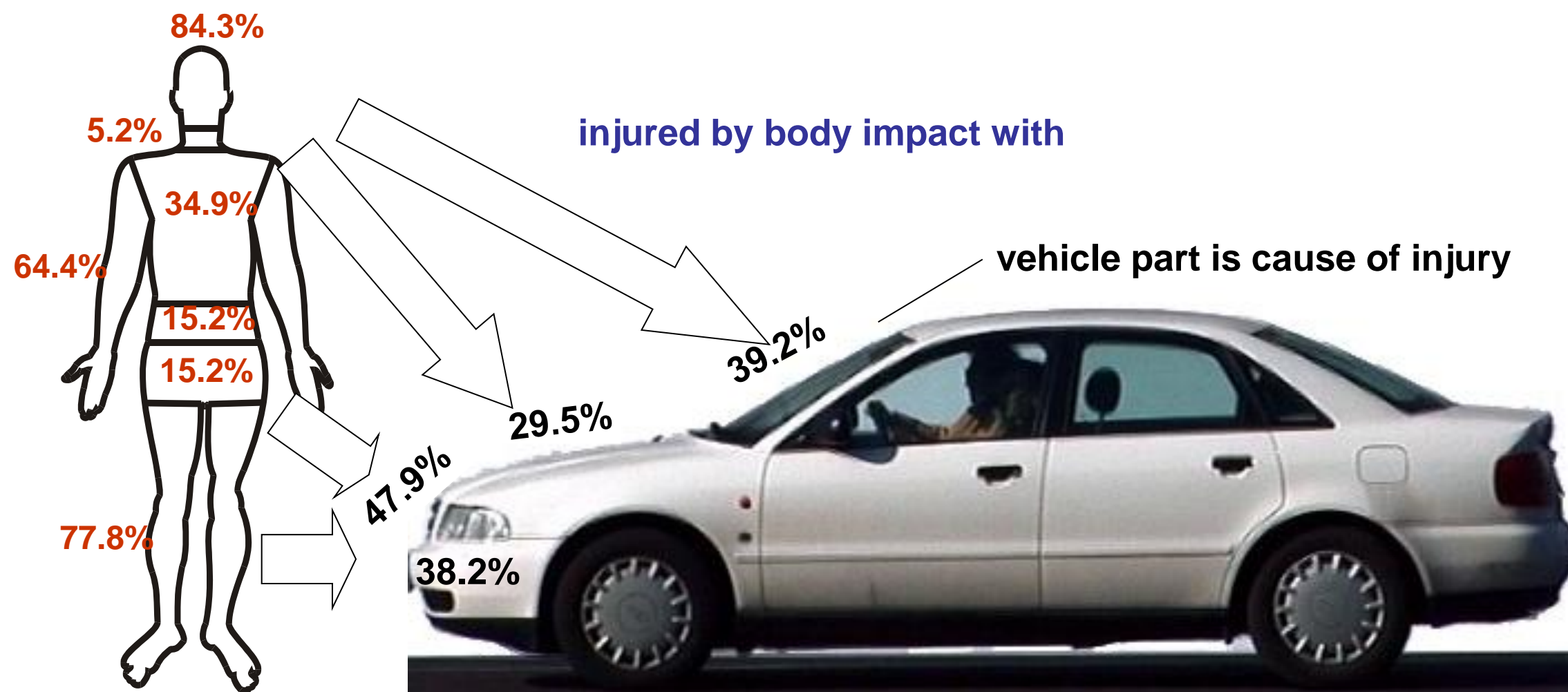


GIDAS

German In-Depth Accident Study

bicycle collision with car - 70s

frequencies of injured body regions



road surface 60.4%

total n = 217

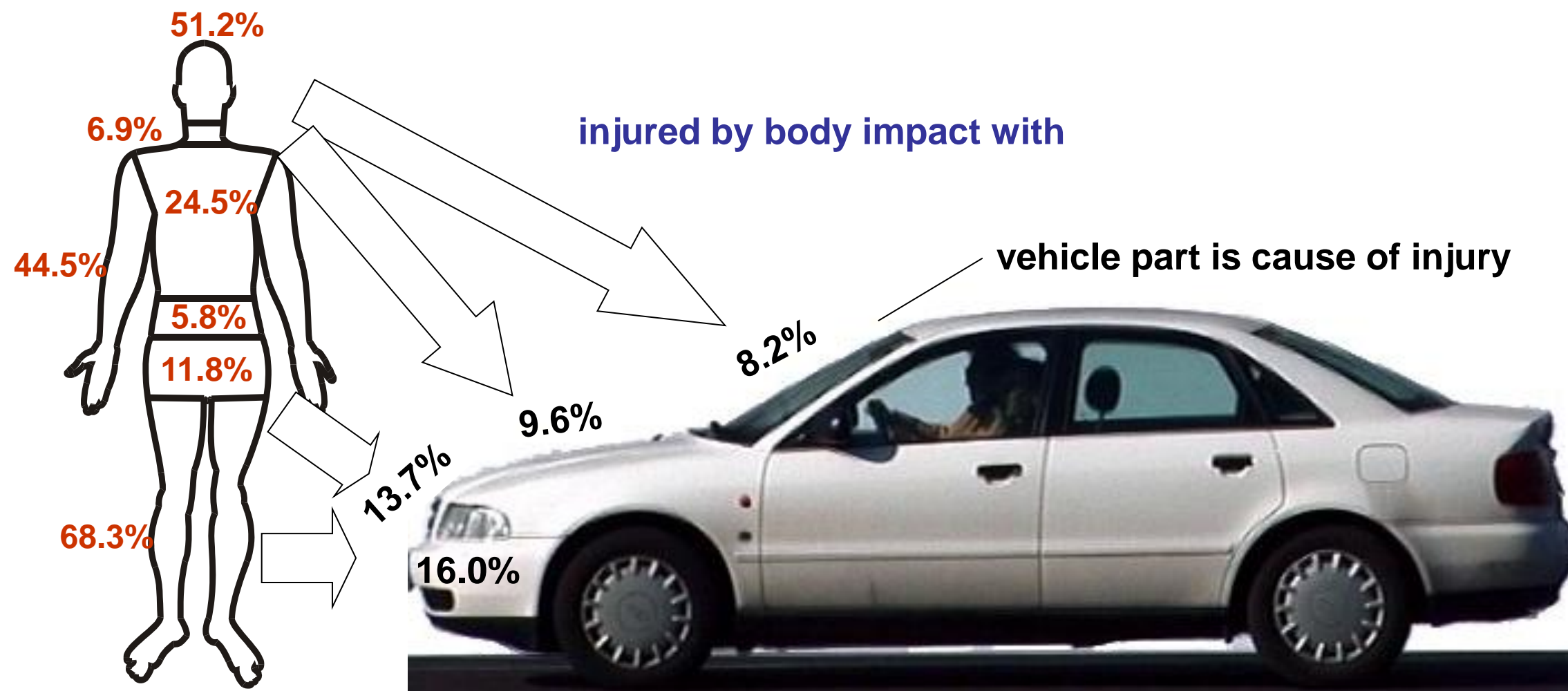


GIDAS

German In-Depth Accident Study

bicycle collision with car - 90s

frequencies of injured body regions



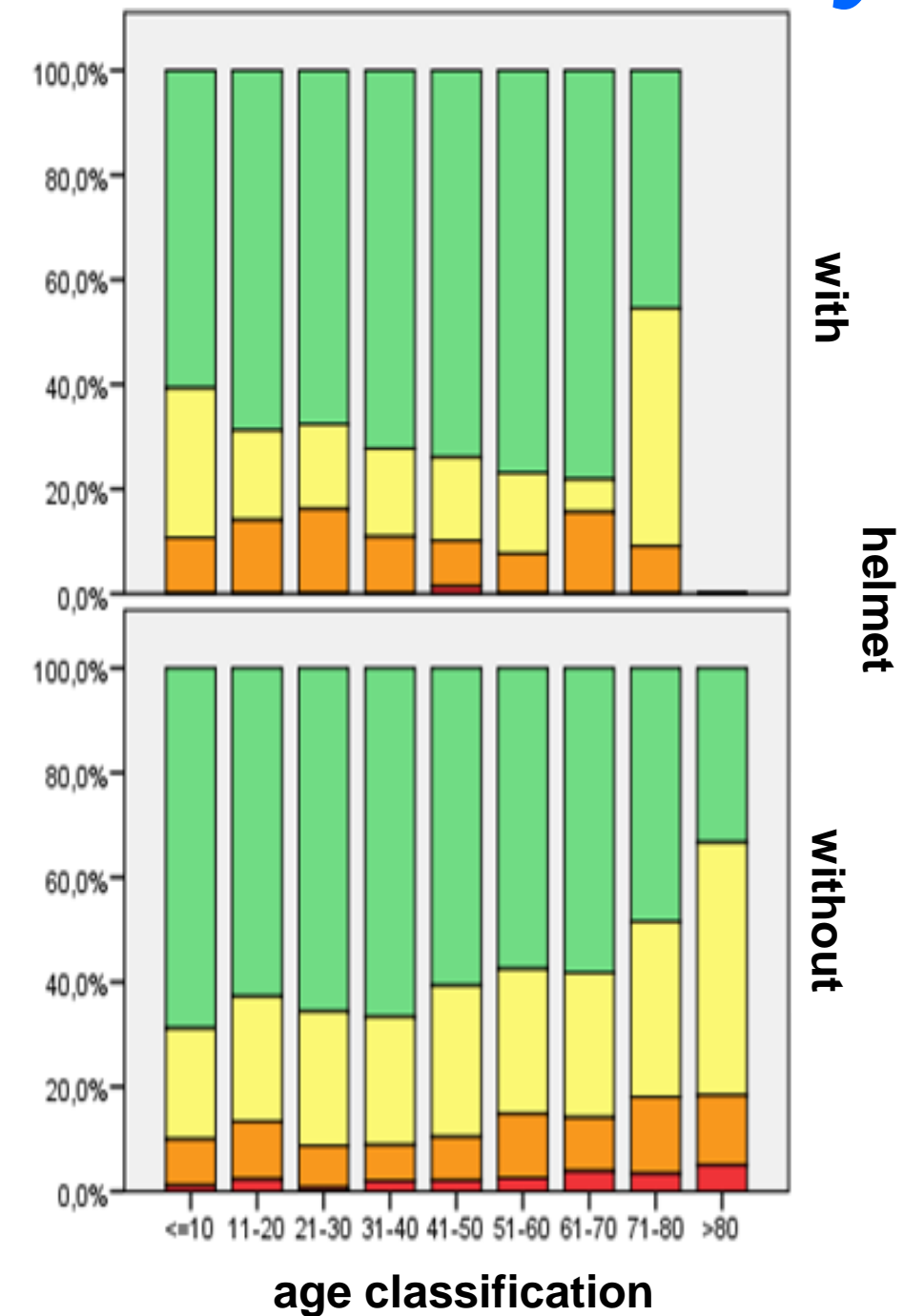
total n = 1614



- especially effective ***bicycle helmet increases safety***
for persons > 40 yearold

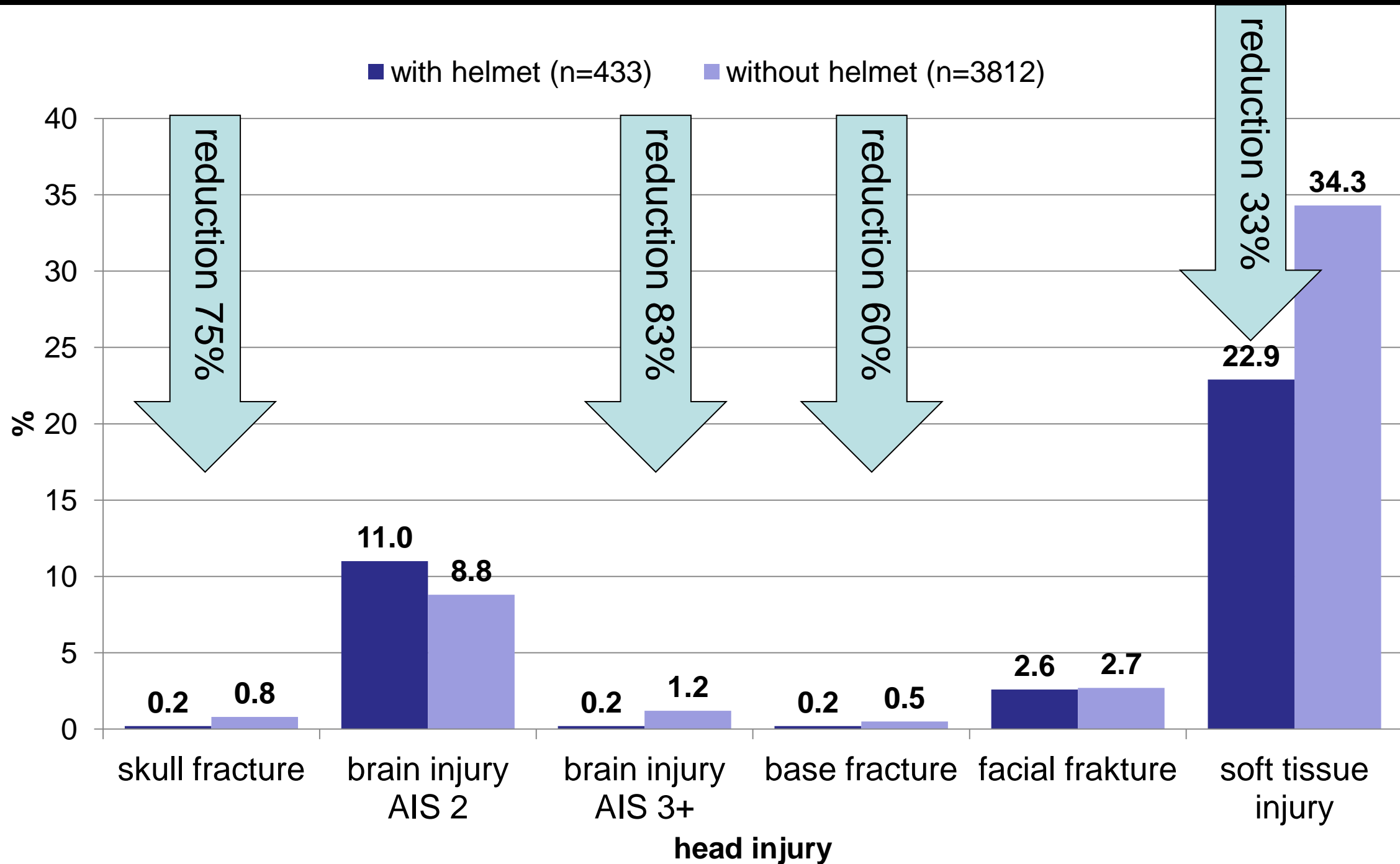


good protections against head injuries by bicycle helmets





Effectiveness of bicycle helmets



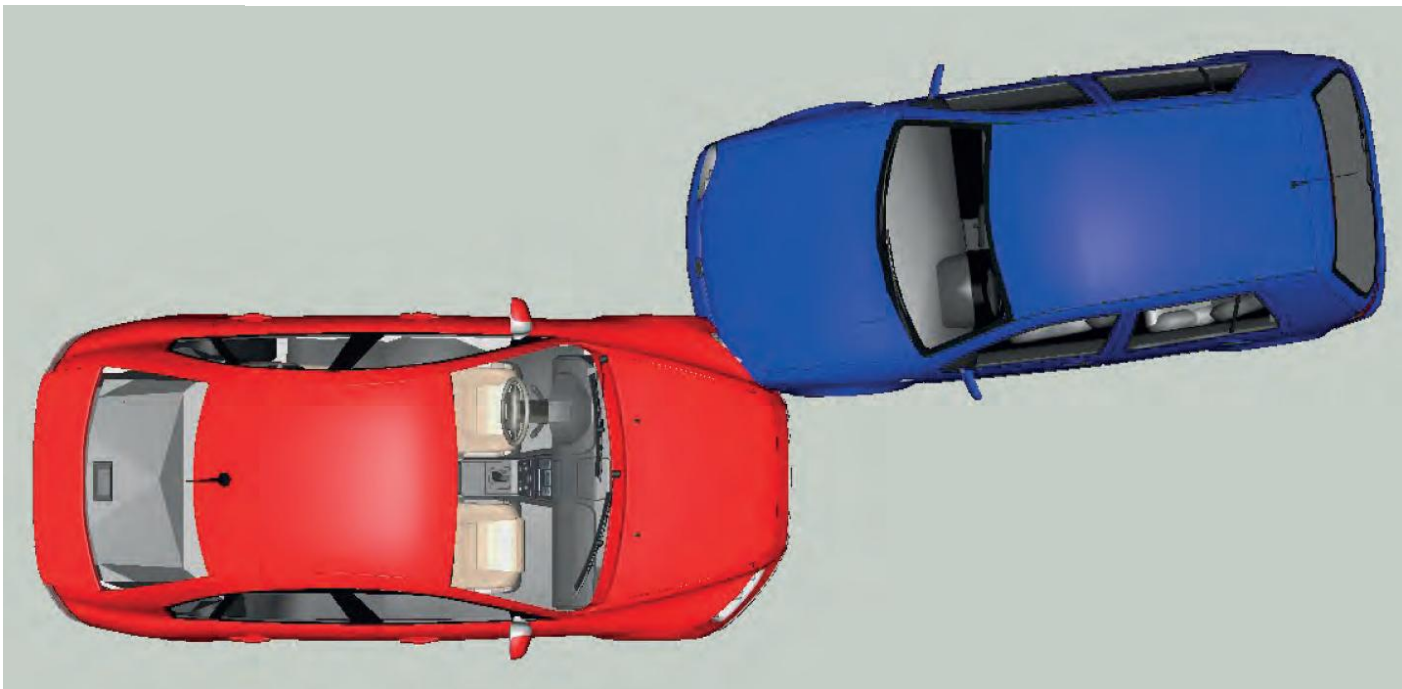


Conclusion

- **traffic safety can be measured with data from In-Depth-Accident-Studies!**
- Take into account of data on injuries
 - notice of data on injury causing parts, infrastructure, vehicles, speed,
 - notice of data on accident causation and driver behaviors
 - avoidance strategies of accidents



Small-overlap frontal impacts involving passenger cars in Germany



INSURANCE INSTITUTE
FOR HIGHWAY SAFETY

Response in short time to currently auftretenden requests

**< 25% Overlap 2,6 % of MAIS 3+
(< 4,9 % of all frontal collisions)**



GIDAS

German In-Depth Accident Study

Questionairing

- **ACAS**
- **A**ccident
Causation
Analysis
- **S**ystem

Otte et al *ESV 2009, 2013*

Vehicle 1 (Hyundai)



1 3 3 3

4



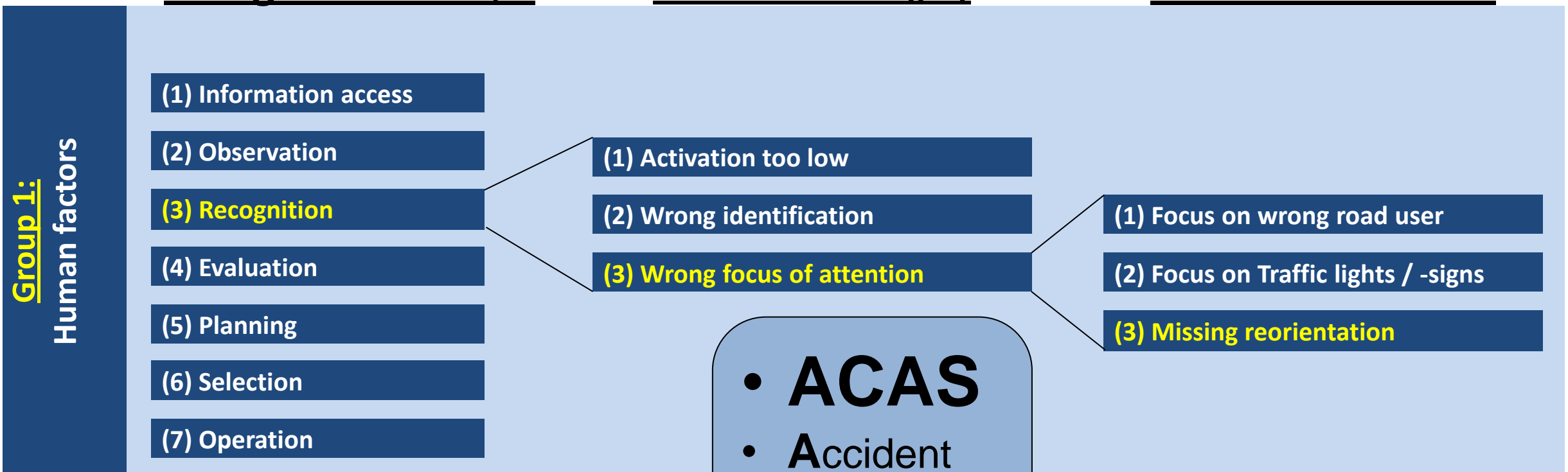
Driver forgot to re-check for oncoming traffic saw the gap between -vehicles



Categories of Group 1

Criteria of category

Indicators of criteria



Otte et al ESV 2013

Virtual Simulation of real accidents

Digitalisation of real accident scenes

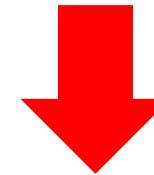


Need for In-Depth Data

European Commission
Road Safety Action Programme

EU safety target:
Reduce deaths by 50%
between 2011 and 2022

deaths



50 %

Macroscopic Data

CARE Database

- large accident numbers
- can indicate problem areas
- No detailed circumstances

➤ *Need for In-Depth data*

Microscopic Data

Detailed information on all aspects of
the accident

- STAIRS
- PENDANT
- RISER
- MAIDS
- CREST
- CHILD
- CASPER
- SafetyNet
- DaCoTa
-



MOBILITY AND TRANSPORT

Road Safety

European Commission > Transport > Road Safety > For the specialist

- HOME
- USERS
- TOPICS
- FOR THE SPECIALIST (ENGLISH ONLY)
- TAKE PART



European Road Safety Observatory



ERSO (the European Road Safety Observatory) has been first developed as a pilot stage during the period 2004 - 2008 within the RTD project SafetyNet. Since then, the content of ERSO has been integrated into the "Europa" Commission Road Safety website.

You will find in ERSO the following areas:



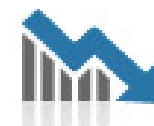
EU road safety policy : a comprehensive overview of European legislation, including when relevant the detail of national implementing legislation.



Road Safety knowledge base : high quality information, scientifically founded, easy to read and ready to use, on main road safety subjects.



Projects : an extensive list of EU-funded projects with the links to the projects websites, the main results and the links with the website of the project participants



Statistics : a compendium of reports, with CARE (the European road accidents data base) as the primary source.

DaCoTA - Results of Pan-European In-Depth Accident Investigation

- Partner from 19 European countries collaborated on a Europe-wide In-Depth pilot study

- DaCoTA has identified 9 existed + 7 new teams to collect accidents with the new European investigation system

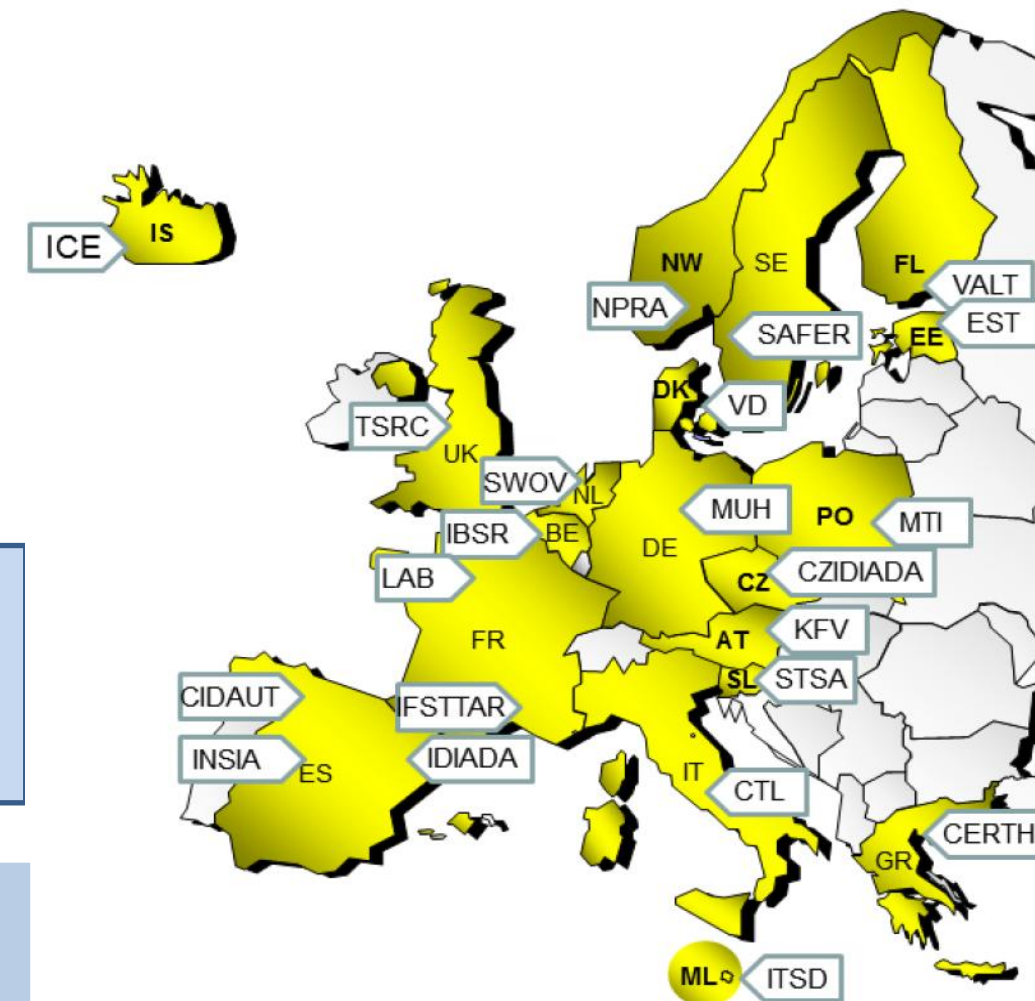
- 99 cases were investigated
- 77 cases were entered into a database
 - Majority of cases (46) were investigated on-scene

- The methods developed in this project have been proven functioning by the feedback from participating teams

Information on

- Accident 80
- Vehicles 600

- Road 110
- Road user 230
- Case analysis 140



Road Safety Basic Fact Sheets at the DaCoTA Road Safety System 2012



The 2012 Edition of the EU Road Safety Basic Fact Sheets is now available at the [DaCoTA Road Safety Knowledge System](#) as developed through a common methodology by the EU co-funded research projects [DaCoTA](#) and [SafetyNet](#), within the framework of developing and enhancing the [European Road Safety Observatory](#). The EU Road Safety Basic Fact Sheets are based on data from the [CARE Database](#) and consist of **summary and cross-country comparative tables, figures and maps on key road safety topics** for which data are available. [LINK](#)

The EU Road Safety Basic Fact Sheets cover the following topics:

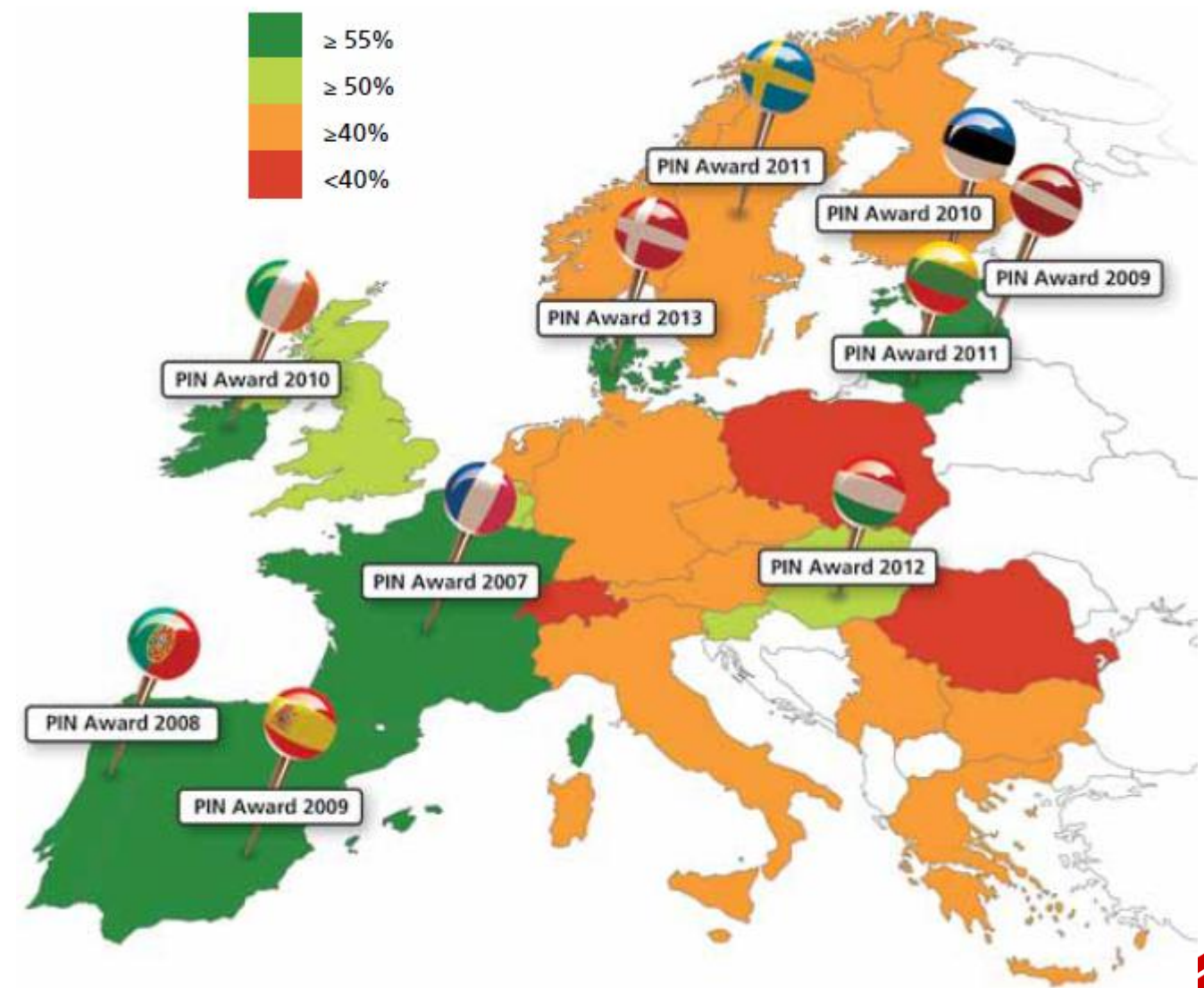
Road user and vehicle: [Children \(aged < 15\)](#), [Youngsters \(aged 15-17\)](#), [Young people \(aged 18-24\)](#), [Elderly \(aged > 64\)](#), [Pedestrians](#), [Cyclists](#), [Motorcycles and mopeds](#), [Car occupants](#), [Heavy goods vehicles and buses](#), [Gender](#)

Road environment: [Motorways](#), [Junctions](#), [Urban areas](#), [Roads outside urban areas](#), [Seasonality](#), [Single vehicle accidents](#)

The PIN program of ETSC

„Ranking road safety performance“

Another Data Source



Handicaps for In-Depth Accident Studies in Europe

- **access to site of accident for on-scene-studies**
 - **no or limited access of accident site by police**
- **data protection**
 - **different guidelines in different countries of EU**
 - **notified delicts must be registered to police**
 - **information can be confiscated**
- **no access to official data (police report)**
- **alerting in time not guaranteed**
- **access to medical data difficulty**
- **financing of research activities is limited the use of data by third parties**

Data protection is important !

- but

should be considered and opened for scientific research

personal data are required for

identification of involved traffic participants

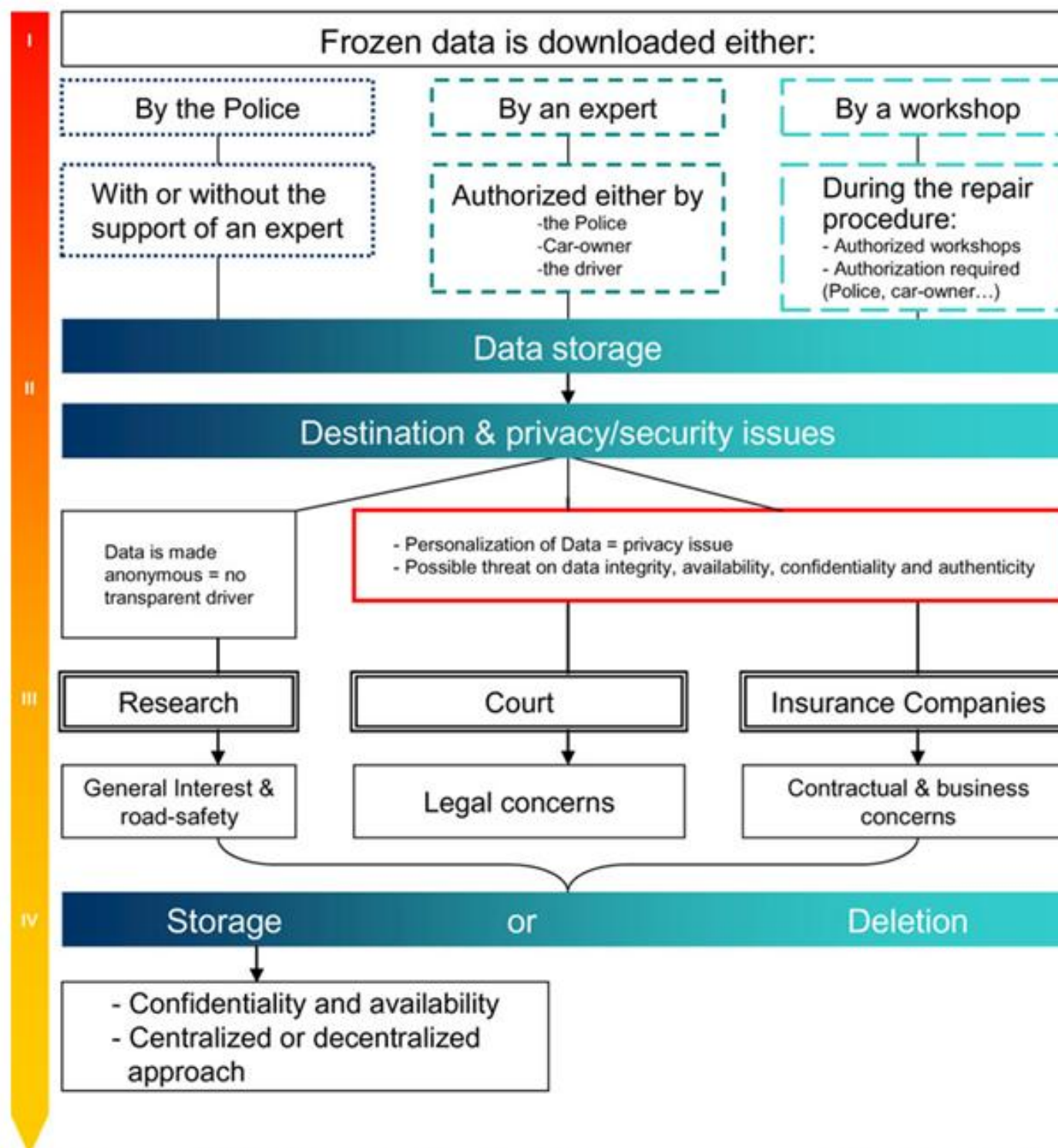
technical data of specified vehicle

details of collision

details of injuries

possibility to send questionnaires to involved persons

Potential Administrative Flow of EDR data



retisch könnte man personalisierte Daten nur bestimmten Stellen zur Verfügung stellen, doch wie wird dieser Prozess abgesichert?
: VERONICA II)

Event Data Recorder

1973 German Traffic Court Conf.

1994 GM equipped veh. with

„sensing-diagnostic modules EDR

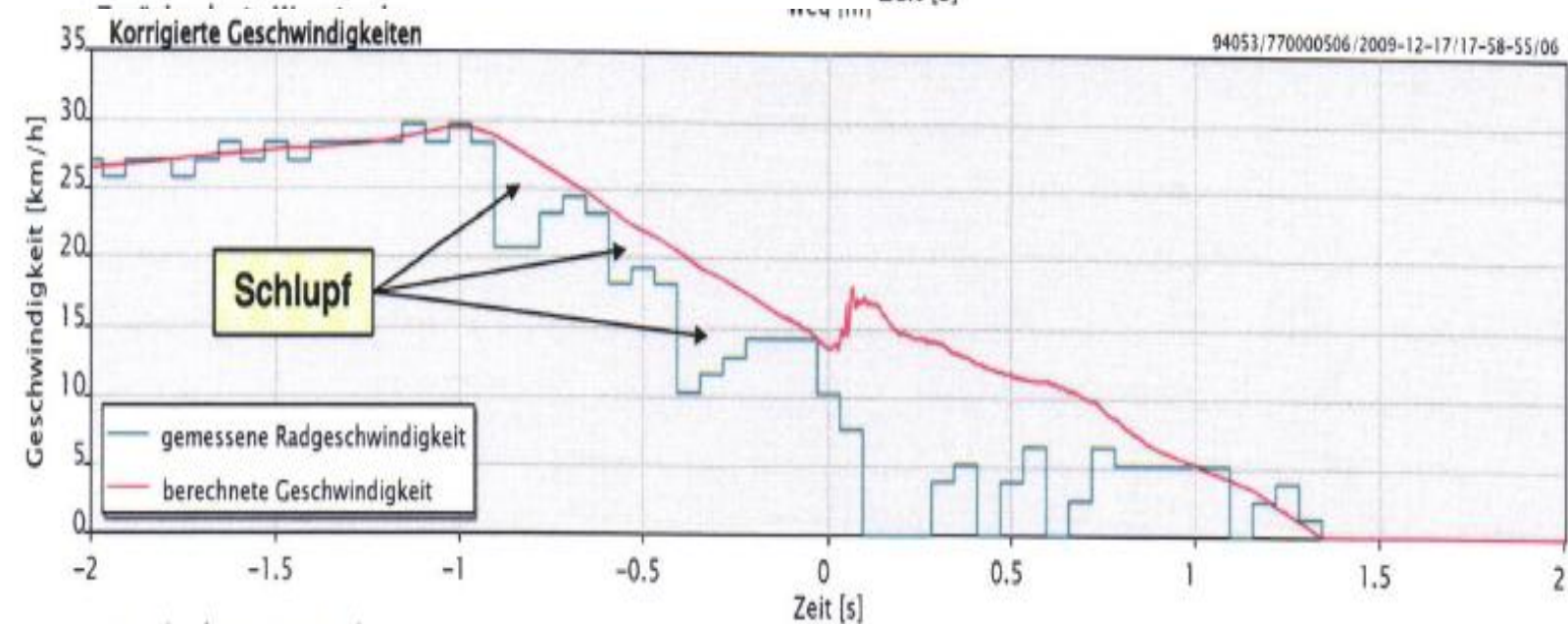
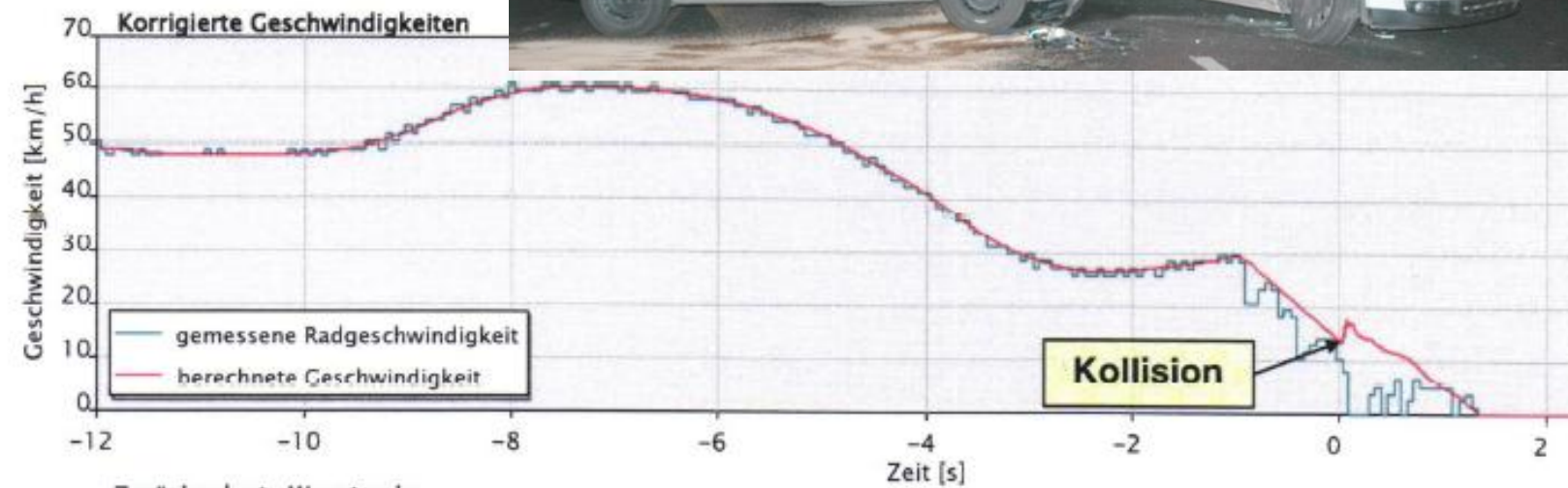
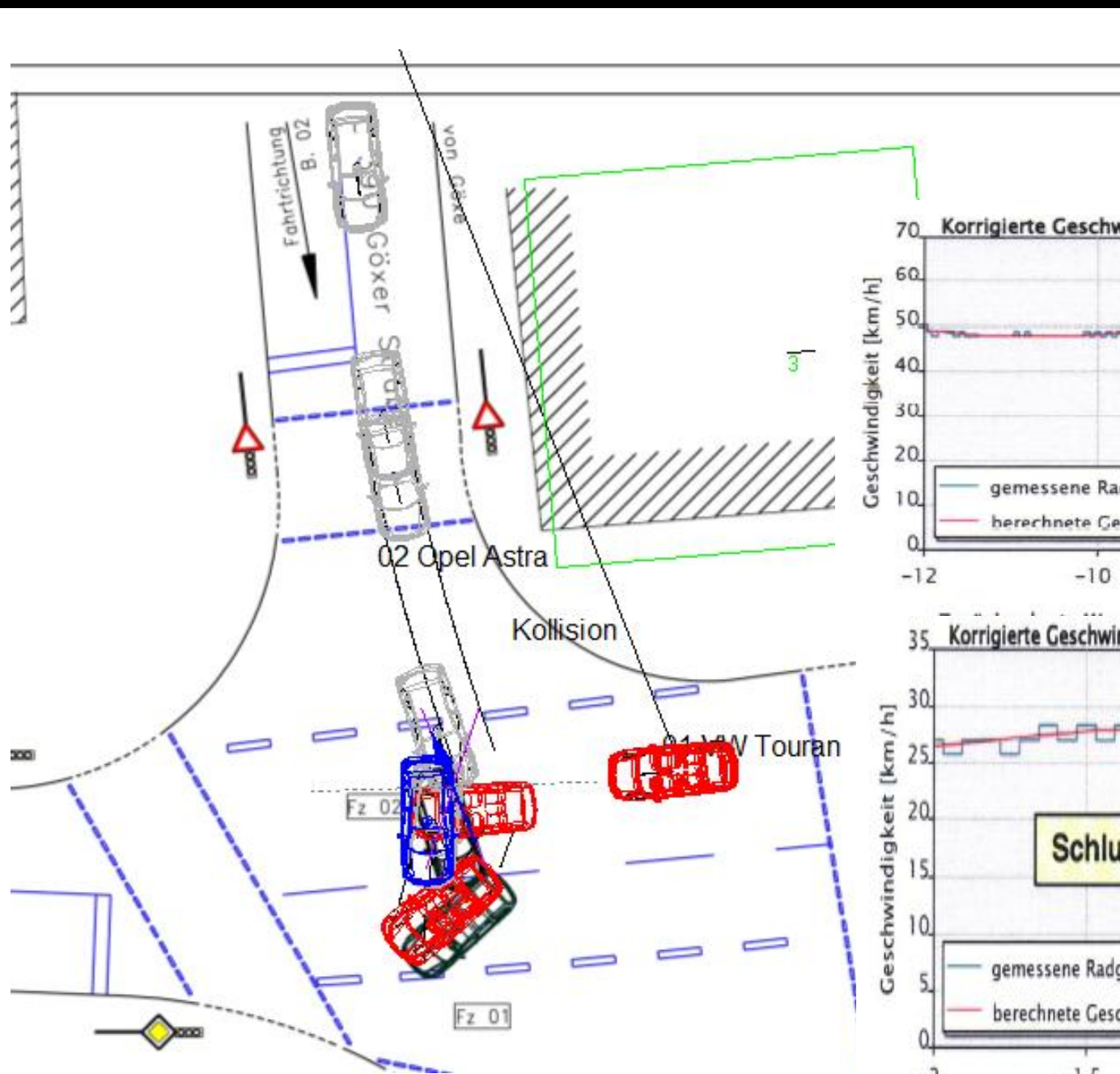
1997 FORD followed

2004 EU-VERONICA Projects started

2013 ?



Choice of correct deceleration with use of EDR



Result of reconstruction:
 vk Opel 44 kph
 vk NEF 14 kph

**Average deceleration evaluation
 emergency brake
 Measured on EDR 4,6 m/s²**

Analysis of PreCrash-Phase

Kind and process of driver assistant system

Driving direction of vehicle

Handling actions of driver

Storage time duration proposed
ca. 35 Sek. before and ca. 5 Sek. after Crash

***Event Data Recorder EDR
should be
Installed European-wide
in all Vehicles
for the Benefit of
Scientific Accident Research***

Event Data Recorder

1973 German Traffic Court Conf.
1994 GM equipped veh. with
„sensing-diagnostic modules EDR
1997 FORD followed
2004 EU-VERONICA Projects started

2015 ?



International Network On Data Sampling



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EU road safety policy : a comprehensive overview of European legislation, including when relevant the detail of national implementing legislation.



UNECE United Nations Economic Commission for Europe

Statistical Database

Sort by: [Title](#) | [Last modified](#) | [File name](#)

Road Traffic Accidents

Fatality or injury rates per million inhabitants by Country, Total Accidents and Time
 Number of injury accidents, killed and injured
 Road Accidents by Country, Accident Type, Location and Time
 Road Accidents by Country, Accident Type, Month and Time
 Road Traffic Accidents by Country, Accident Type, Day of Week and Time
 Road Accidents by Country, Accident Type, Light Condition and Time
 Road Traffic Accidents by Country, Accident Type, Road Condition and Time
 Road Traffic Accidents Involving Personal Injury by Country, Accident Type, Nature
 Road Accidents Involving One or More Persons under the Influence of Alcohol by Country
 Pedestrians and Drivers, under the Influence of Alcohol, Involved in Accidents by Country
 Number of casualties (=fatalities +injured) in road traffic accidents
 Distribution of fatalities in road traffic accidents by road users
 Drivers injured in road traffic accidents
 Drivers killed in Road traffic accidents
 Distribution of injured in road traffic accidents by road users
 Persons Killed or Injured in Road Traffic Accidents by Country, Category of User, Age
 Road Traffic Accidents in Built-up Areas Involving Personal Injury by Country, Accident Type
 Severity of road traffic accidents (fatalities per 1000 accidents)
 Number of fatalities per 100 000 passenger cars
 Number of injured per 100 000 passenger cars
 Injury accidents for Powered Two Wheelers

Languages

 English

 Русский

What's new?

Help us improve this database by taking our user survey - and receive a **FREE** publication!

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Links

Statistical Division
 Database Home
 About this database
 Glossary of terms

Data Locator

Search by theme for data from other international agencies

User

Email:

Log in

The World Bank


Home • Site Map • Index • FAQs • Contact Us

About Countries Data & Research Learning News Projects & Operations Publications

Topics

Global Road Safety Facility

Home > Topics > Transport > Global Road Safety Facility

Email 

Welcome to the Global Road Safety Facility

The Global Road Safety Facility (GRSF), a global partnership program administered by the World Bank, was established with a mission to help address the growing crisis of road traffic deaths and injuries in low- and middle-income countries. The Facility provides funding, knowledge, and technical assistance that enhance World Bank work in the transport sector and leverage road safety investments.

Overview »

Strategy

Programs

Donors


BLOG 2 of 4

Why Vehicle Safety Matters

GRSF Transport Specialist Dipan Bose explains why emerging countries must put vehicle safety at the forefront of their road safety agenda - and how development organizations can help.

+ MORE FEATURES

BY THE NUMBERS




Road Injury

#1 cause of death | ages 15-24

#2 cause of death | ages 25-39

Global Burden of Disease (2010)

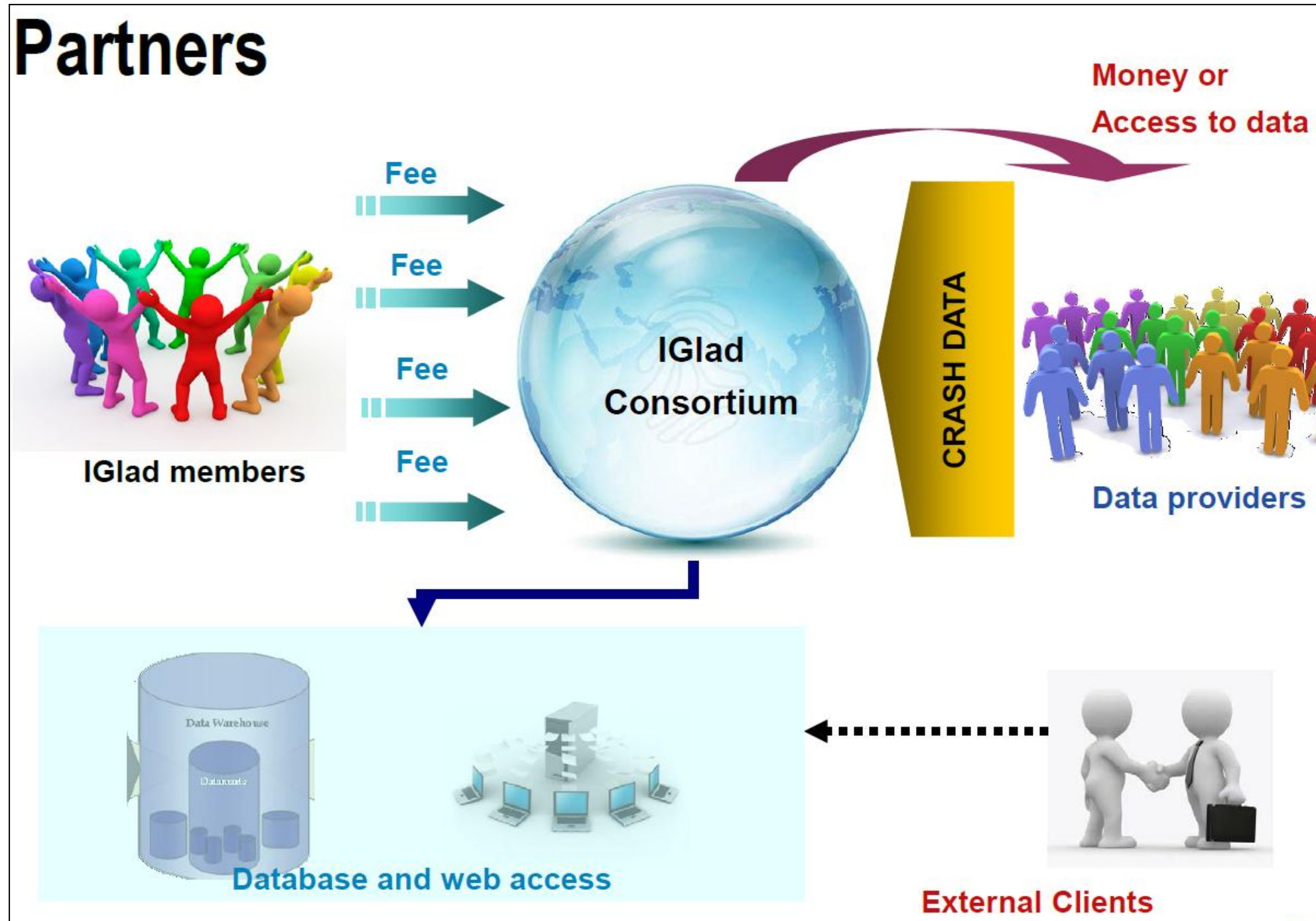
FEATURED



GLOBAL ROAD SAFETY FACILITY STRATEGIC PLAN 2013-2020

One step forward

IGLAD - *the Idea of a Common Network of In-Depth-Analysis* *Global Harmonisation of Accident Data*



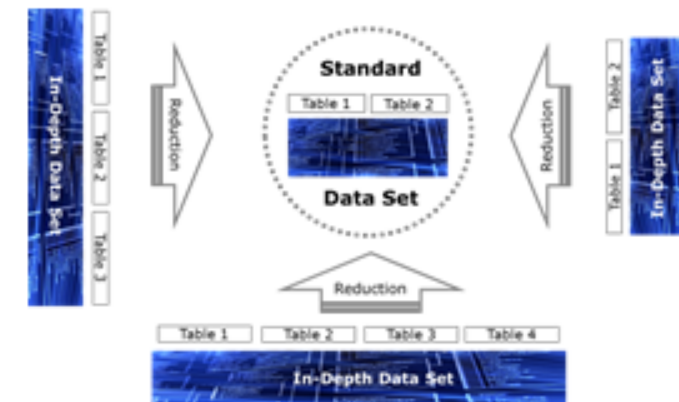


iGLAD Standardized Data Set

Problem: Global in-depth accident studies are not harmonized, making direct comparisons difficult.

Solution: Definition of a common standard accident data set.

Approach: Joint FIA/ ACEA project iGLAD supporting UN / EU action plans and “vision zero”.



Representative

- random/weighted sample with respect to national statistics.

With significant sample size

- at least 100 cases/year per investigation spot or country.

With comparable data

- match common coding standards and recode to standardized data scheme.

With certified consistent quality

- maintain a common data quality level between different countries.

Accident Data have to be documented in the future !

- Official Statistics
 - Hospital Documentations (Trauma-register)
 - Accident Research Units
- Consideration of Injury Severity
 - Include Injury Consequences
 - Consideration of Accident Causation

Local safety groups



ESN vs. EuroRAP



***The Road
as Influence Factor
for Traffic Accidents***

Proposal for effective data use

- **Expansion of data structure and harmonisation of national data for all EU countries**
- **More opening of data protection for scientific use on getting information on injuries, vehicle identification data and person questionnaires**
- **Access to existing data bases of road administration data**
- **Implementation of EDR in all vehicles for the use in forensic and scientific accident research**

Thank you for your Attention

Aknowlgement

- ***ETSC possibiltiy for the lecture***
- ***DVR support of experienced knowhow***
- ***BAST / FAT use of GIDAS data***