



Safety Performance Indicators: posters for the first SafetyNet Conference

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PU	Public	X
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Executive Summary

Work Package 3 of SafetyNet deals with Safety Performance Indicators. They measure the operational conditions of the road traffic system. Work Package 3 deals with seven topics: alcohol and drug use; speeds; protective systems; daytime running lights; vehicles; road; trauma management.

This deliverable concerns the contribution of Work Package 3 to the first SafetyNet conference, which was held in Prague on May 10 and 11, 2006. Each topic prepared a poster with an overview of the state-of-play. In this document, these posters are assembled.

Each topic has a preferred indicator, which can be used for measuring safety performance across countries. This indicator is accompanied by requirements that should be met by the data, in order to be able to calculate the indicator. For most tasks, values could be calculated for the indicators by using the available data. Data are not available for all countries and/or all topics.

Introduction

Work Package 3 of SafetyNet deals with Safety Performance Indicators. They measure the operational conditions of the road traffic system. They serve as tools to determine the road safety level, in addition to a count of crashes or injuries. Work Package 3 deals with seven topics: alcohol and drug use; speeds; protective systems; daytime running lights; vehicles; road; trauma management.

This deliverable concerns the contribution of Work Package 3 to the SafetyNet conference on May 10 and 11, 2006. Each topic prepared a poster with an overview of the state of play. In this document, these posters are assembled. The posters contain the following elements:

- The preferred indicator(s)
- Data requirements
- Some of the results so far.

Each topic has a preferred indicator, which can be used for measuring safety performance across countries. This preference follows from theoretical considerations and the current data availability. This indicator is accompanied by requirements that should be met by the data, in order to be able to calculate the indicator. For most tasks, values could be calculated for the indicators by using the available data (results).

Data are not available for all countries and/or all topics. A separate poster has been prepared to show the progress of the data collection for all topics.

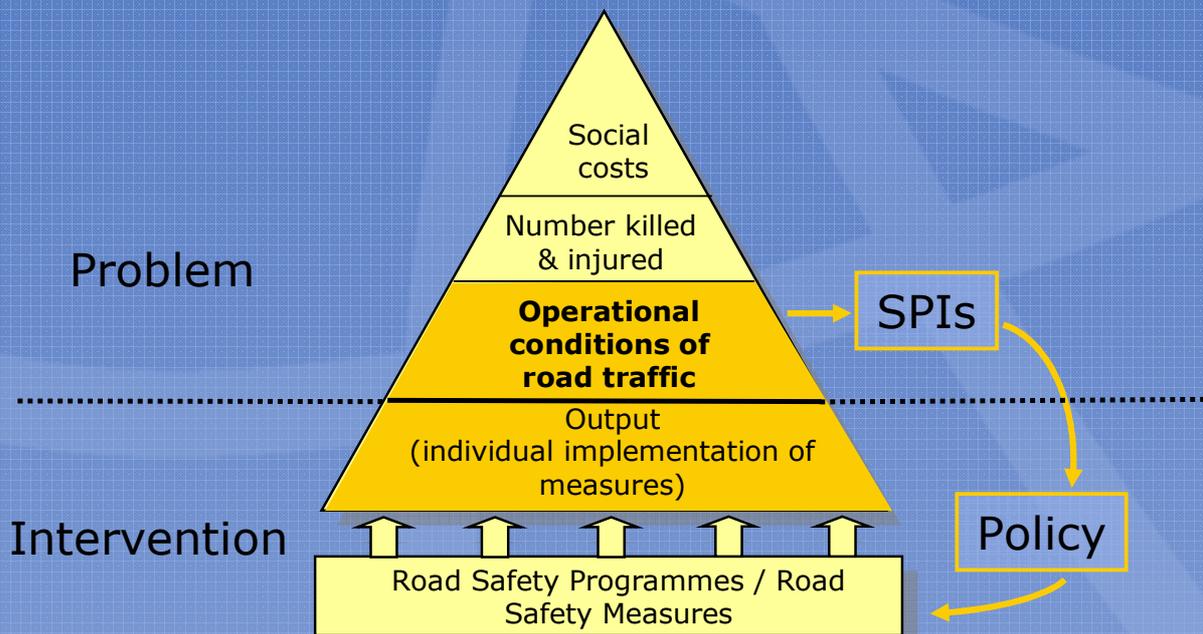
The posters have been used to show the work in WP3, in addition to a presentation of the WP leader. The posters provided the background for discussions on Safety performance indicators with conference attendants.



Safety Performance Indicators Methodology

What are SPIs?

SPIs are comprehensible tools to provide a better understanding of current safety conditions and to monitor the effect of policy interventions



Added value of SPIs

- Monitor safety of operational system
- Assess effect of measures

Practical application

Ideal SPI
versus
Realistic SPI

Data availability

Data quality

Comparability

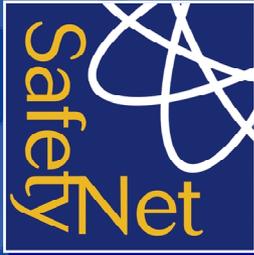
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Safety Performance Indicators

Alcohol and drugs

Preferred indicator

% of on-the-spot fatalities resulting from accidents involving at least one impaired active road user

If possible for different:

- road users
- drugs

Data requirements

Annual statistics:

- similar observation conditions ("on-the-spot", standardized blood analysis)
- all year
- whole country

Results

- No results as yet
- 10 countries provided some data
- Data insufficient to calculate indicator
- Indicator may be revised

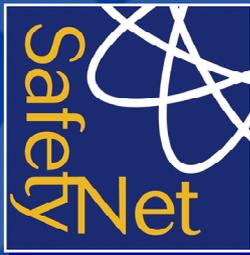
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Safety Performance Indicators

Speed

Preferred indicators

Average speed & standard deviation

Other good indicators

- % of offenders
- % 10 km/h over the limit
- Speed V85

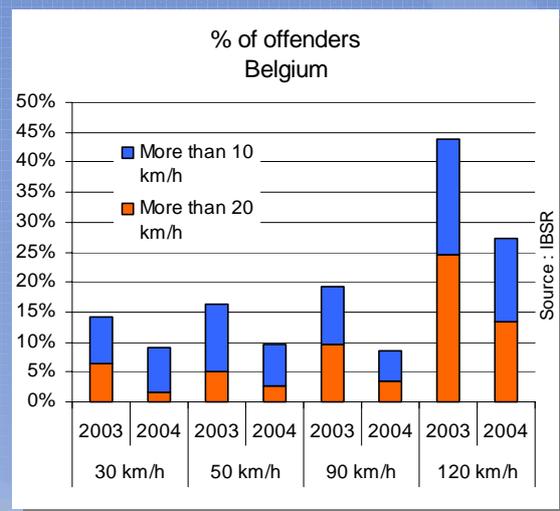
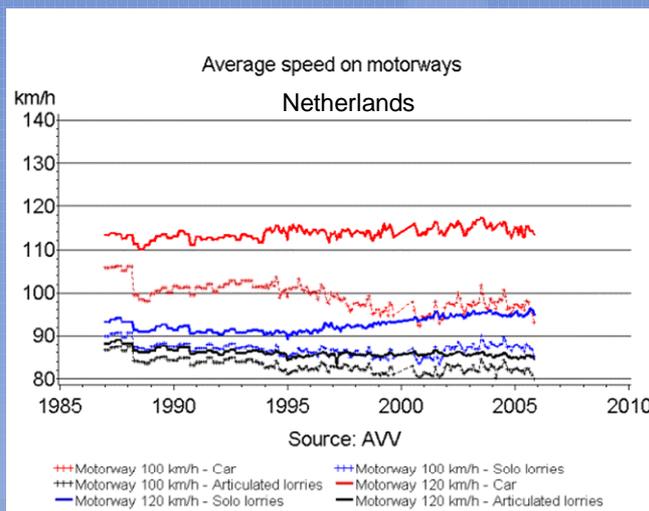
If possible for different:

- road categories
- vehicle types

Data requirements

- Regular
- Identical
- Reliable
- Unobtrusive
- Sampling design
- Error control
- Aggregation and weighing
- Objective & clear reporting

Results



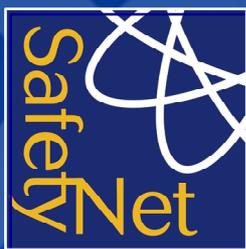
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Safety Performance Indicators

Protective systems

Preferred indicator

The percentage of road users using protective systems during daytime

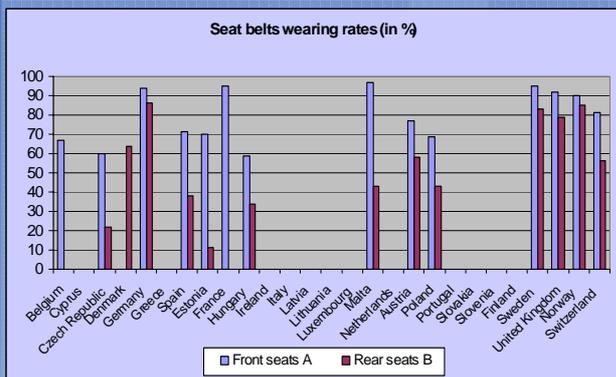
- Belts and Child restraint systems in vehicles
- Helmets for two-wheelers
- On all roads (motorways/ rural/ urban roads)

Data requirements

Observation survey:

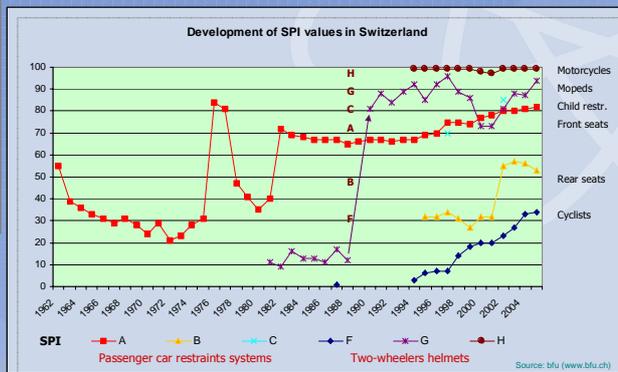
- annual
- probability based
- fulfilling defined survey conditions
- ideally also data from fatal accidents

Results



Comparison of seat belt wearing rates in different countries (front seats of cars and vans; comparable survey methods)

Development of protective system use in time



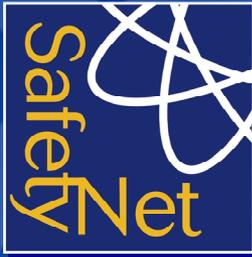
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Safety Performance Indicators

Daytime Running Lights

Preferred indicator

The percentage of vehicles using daytime running lights

If possible for different:

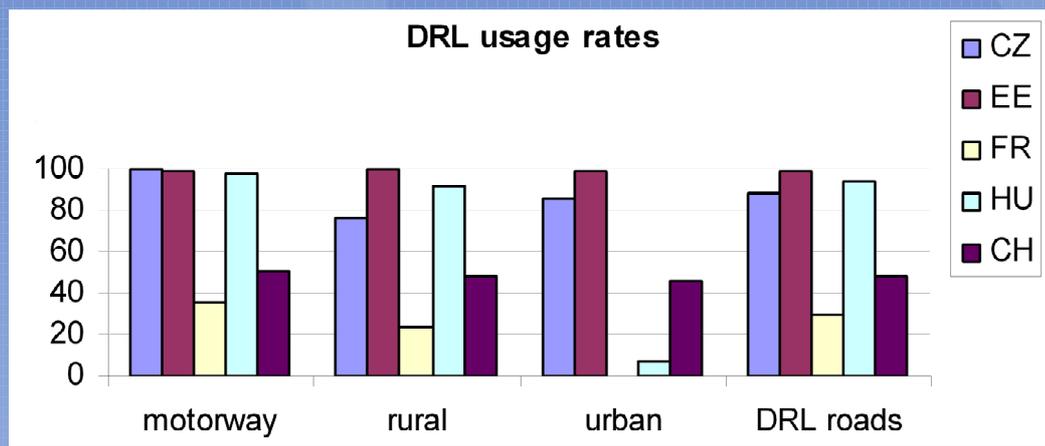
- road categories;
- vehicle types.

Data requirements

Annual survey:

- similar observation conditions (season, sites, counting procedure)
- in period when use of DRL is obligatory.
- on working days with good weather/visibility conditions
- on site where DRL use is obligatory

Results



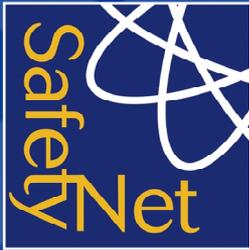
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Safety Performance Indicators

Vehicles – Passive Safety

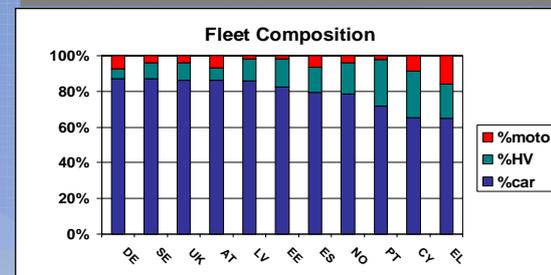
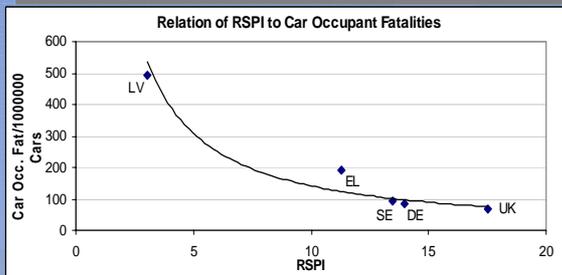
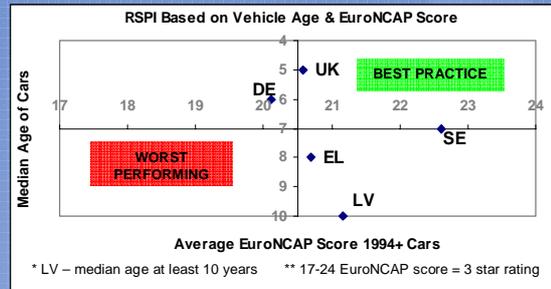
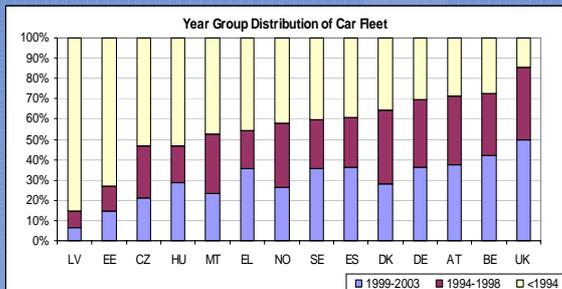
Preferred indicator

- **Crashworthiness of Passenger cars based on vehicle age and EuroNCAP score**
- **Fleet composition of different vehicle types**

Data requirements

- **Year of first registration**
- **Vehicle make**
- **Vehicle model**
- **Fleet composition**

Results



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Safety Performance Indicators

Roads

Preferred indicator

Road Network

- Share of road types
- Share of intersection types
- Intersection density

Road design

- Presence of road side barrier or wide obstacle-free zone
- Presence of median barrier or wide median
- Share of intersection types
- Presence of facilities for vulnerable road users

Data requirements

Road inventory database

- Representative part of network (in terms of fatality rates, and different road types)
- Uniform road type definition
- Uniform database
- Regular update

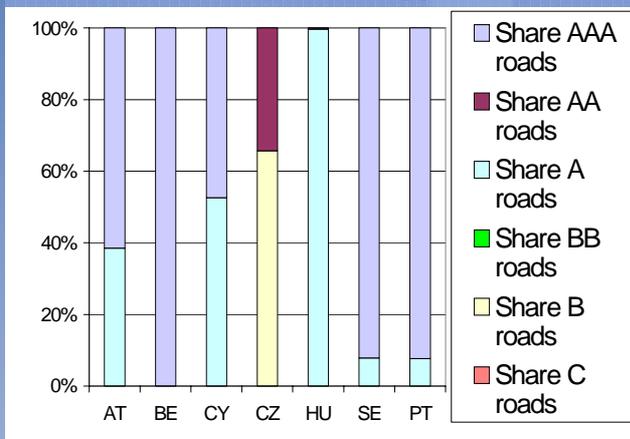
Results

Two examples concerning roads with a flow function

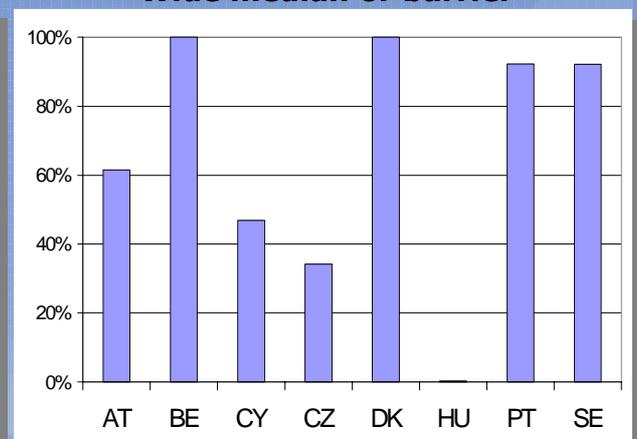
Connection type: urban centre 1 to urban centre 3

Number of inhabitants urban centre 1: 200.000-1.000.000, urban centre 2: 30.000-100.000

Network Share of road types



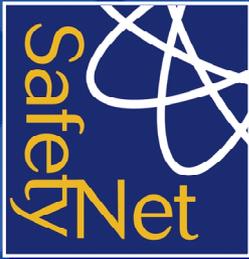
Road design Wide median or barrier



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Safety Performance Indicators

Trauma Management

Preferred indicators

Minimum set of SPIs (14)

Emergency Medical Services: Staff and equipment in service

- Rates of EMS stations per population and per rural road length
- Percentage of physicians and paramedics out of the total EMS staff, and rate of EMS staff per population
- Percentage of BLSU, MICU and helicopters/planes out of the total EMS units, and rates of EMS transportation units per population and per road length

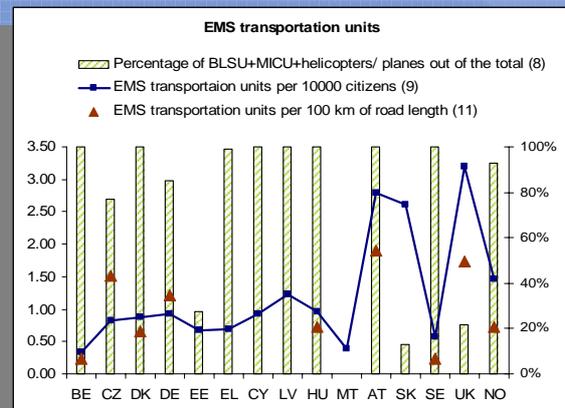
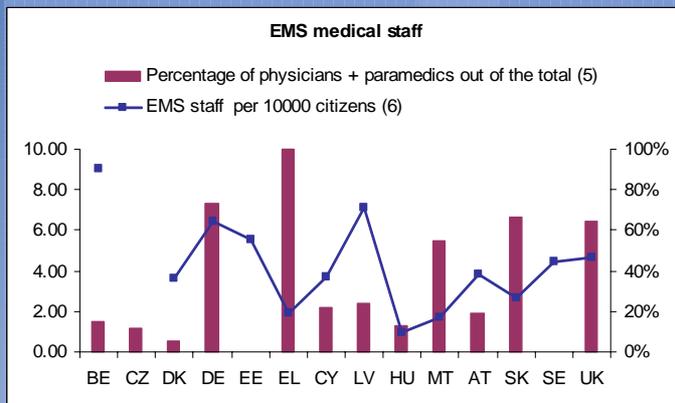
EMS: Time values of initial treatment

- The demand for a response time and percentage of EMS responses meeting the demand
- Average response time of EMS, min

Further medical treatment: facilities in service

- Percentage of beds in certified trauma centres and trauma departments of hospitals, and rate of total trauma beds per population

Examples



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Safety Performance Indicators

Trauma Management

Data requirements

Minimum data set (7)

- Total number of EMS stations
- Number of EMS staff in service, by categories
- Number of EMS transportation units in service, by categories
- The demand for a response time (min)
- Percentage of EMS responses meeting the demand
- Average response time of EMS (min)
- Total number of beds in permanent medical facilities, by categories

Annual figures, from national statistics

Final estimates of performance

Final estimates* of the trauma management systems' performance in 15 countries ⇒

H – high, RH - relatively high,
M – medium, RL – relatively low,
L – low

*by 3 methods of ranking

	Method 1	Method 2	Method 3
BE	RH	RH	RH
CZ	M	RH	RH
DK	M	M	M
DE	H	H	H
EE	M	RH	RH
EL	L	RL	RL
CY	RL	RL	RL
LV	RH	RH	RH
HU	RL	M	M
MT	RL	L	RL
AT	H	RH	M
SK	RL	RL	L
SE	L	L	L
UK	RH	M	RL
NO	M	M	M

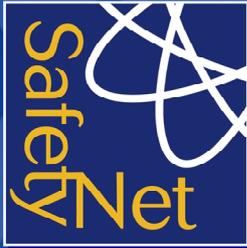
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Safety Performance Indicators

Data response overview

Protective systems

SPI can be calculated for:

- all indicators: DE, NO, CH
- some indicators: BE, CZ, DK, ES, EE, FR, HU, MT, NL, AT, PL, SE, UK
- for none: CY, GR, LT, PT

(information is available from 20 countries)

Speed

- countries with high quality national data: DK, NO, SE, UK
- some countries have different data, only available at state or regional level: NL, DE
- problem of EU comparability: level of aggregation and weighing procedures differ

(information is available from 19 countries)

Alcohol & drugs

Questionnaire + data received:

BE, DE, EE, EL, ES, LT, HU, MT, NL, AT, FI, SE

Questionnaire received:

CZ, FR, CY, PT, SK, CH

DRL

- Calculating preferred indicator possible for: CZ, EE, FR, HU, CH
- calculating whole set possible (roads & vehicles) for: CZ, CH

(information is available from 20 countries)

Passive safety

- Full data set received: DE, EL, ES, LV, HU, UK
- Further checks needed: BE, CZ, DK, EE, CY, MT, AT, PT, SE, NO, CH

(information is available from 17 countries)

Roads

- Calculating preferred road network indicator possible: BE, CY, CZ, DK, EL, HU, NL, AT, PT, SE, NO
- Calculation of all preferred Road Design indicators possible: BE, CZ, EL, ES, HU, NL, PT, SE
- Calculation of part of preferred Road Design indicator possible: CY, DK, AT, NO

(information is available from 11 countries)

Trauma management

Estimates of the trauma management systems' performance possible in 15 countries:

BE, CZ, DK, DE, EE, EL, CY, LV, HU, MT, AT, SK, SE, UK, NO.

(see also trauma management poster)

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