The STRADA database: improving serious injury data collection in Sweden

Marie Skyving
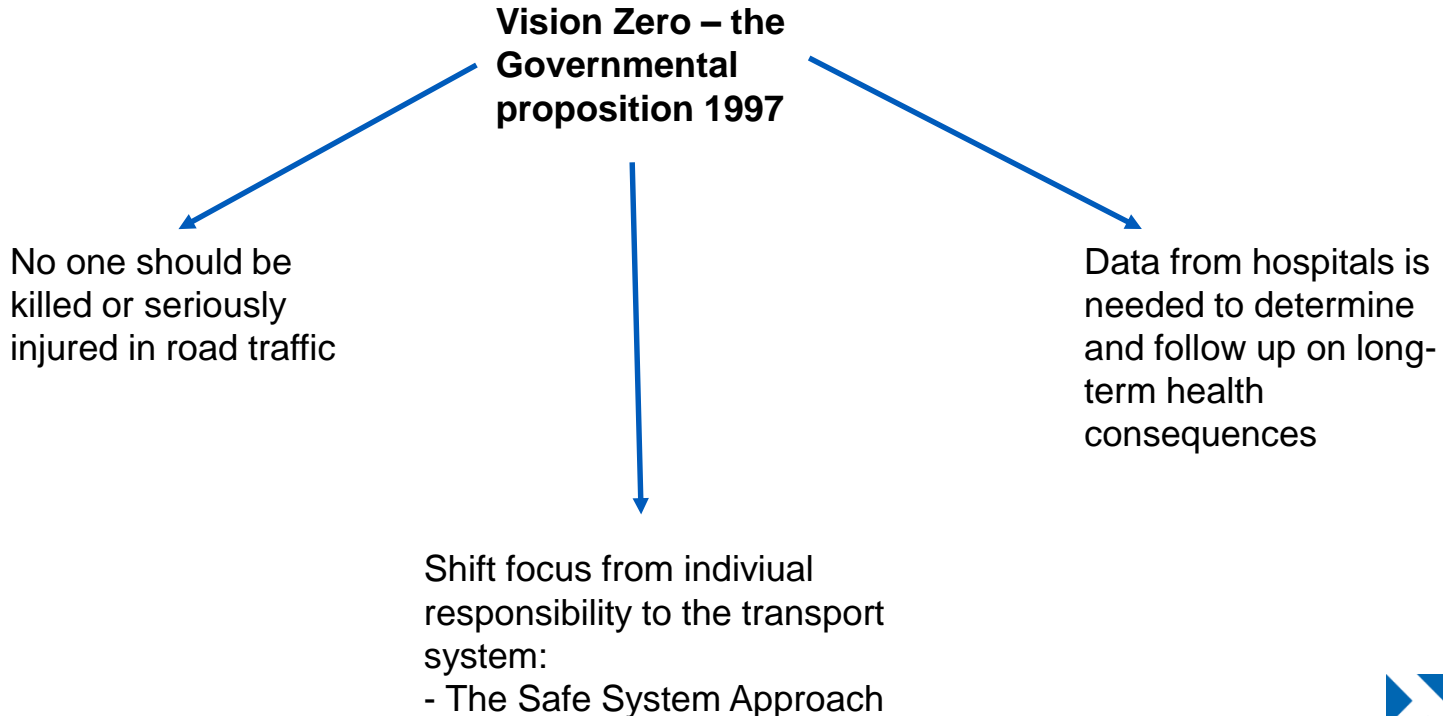
Road Safety Analyst

PIN Talk – Reducing serious injuries on European roads, Madrid, 3 June 2025

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Content

- The Road Safety Journey - Where it all started

- The new information system STRADA (Swedish Traffic Accident Data Aquisition)

- Management by Objectives and Road Safety Performance Indicators (RSPI:s)

- Current and future challenges for serious injury reporting

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The Road Safety Journey - Where it all started

Vision Zero – the Governmental proposition 1997

No one should be killed or seriously injured in road traffic

Shift focus from indiviual responsibility to the transport system:
- The Safe System Approach

Data from hospitals is needed to determine and follow up on long-term health consequences

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The birth of STRADA (Swedish Traffic Accident Data Aquisition)

- The new information system including and combining police data on accidents and hospital data on persons injured in traffic

The police reports:
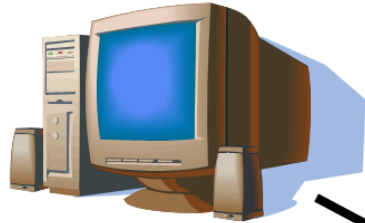All accidents in road traffic where at least one person was injured

The hospitals report:
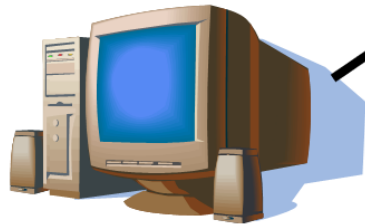All persons seeking care at the emergency department as a consequence of a road traffic accident

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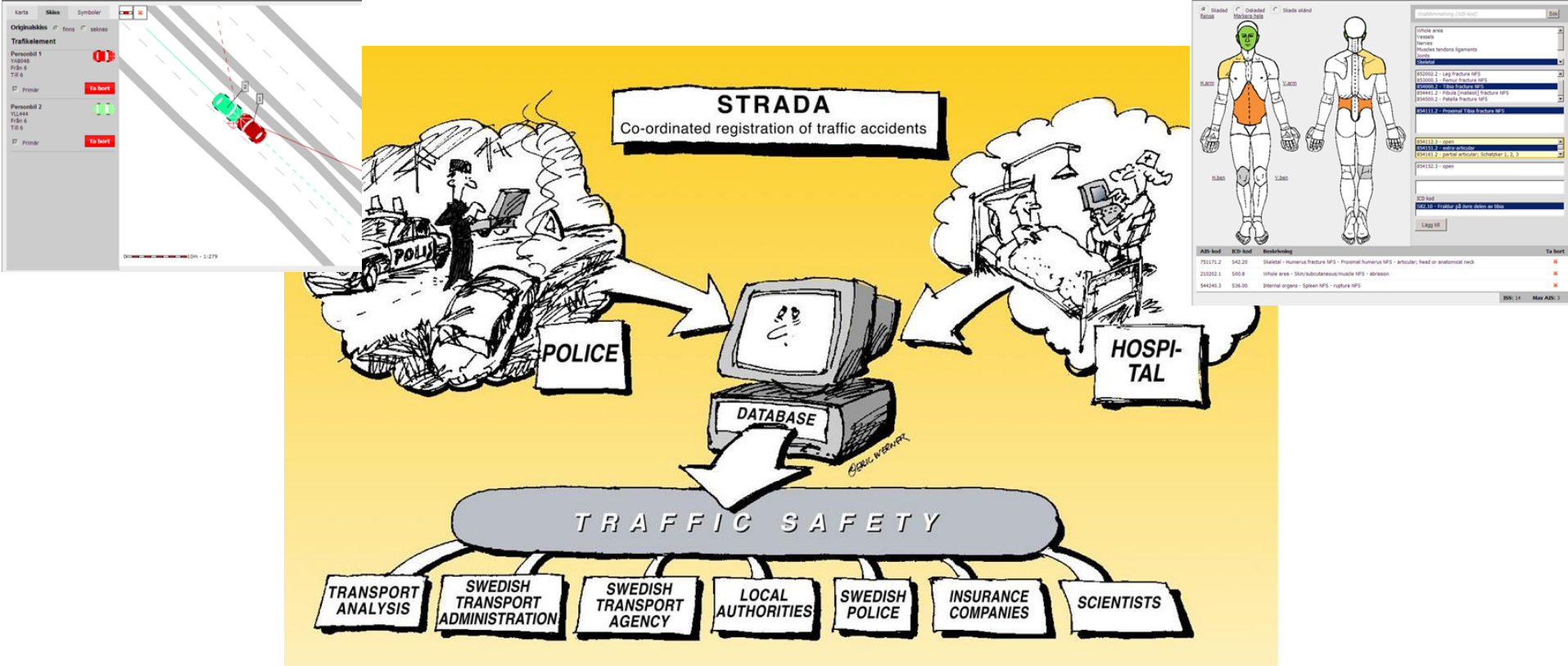
STRADA enables road safety on local, regional and national level

STRADA data flow chart

Data input

Hospitals

Police

STRADA 1

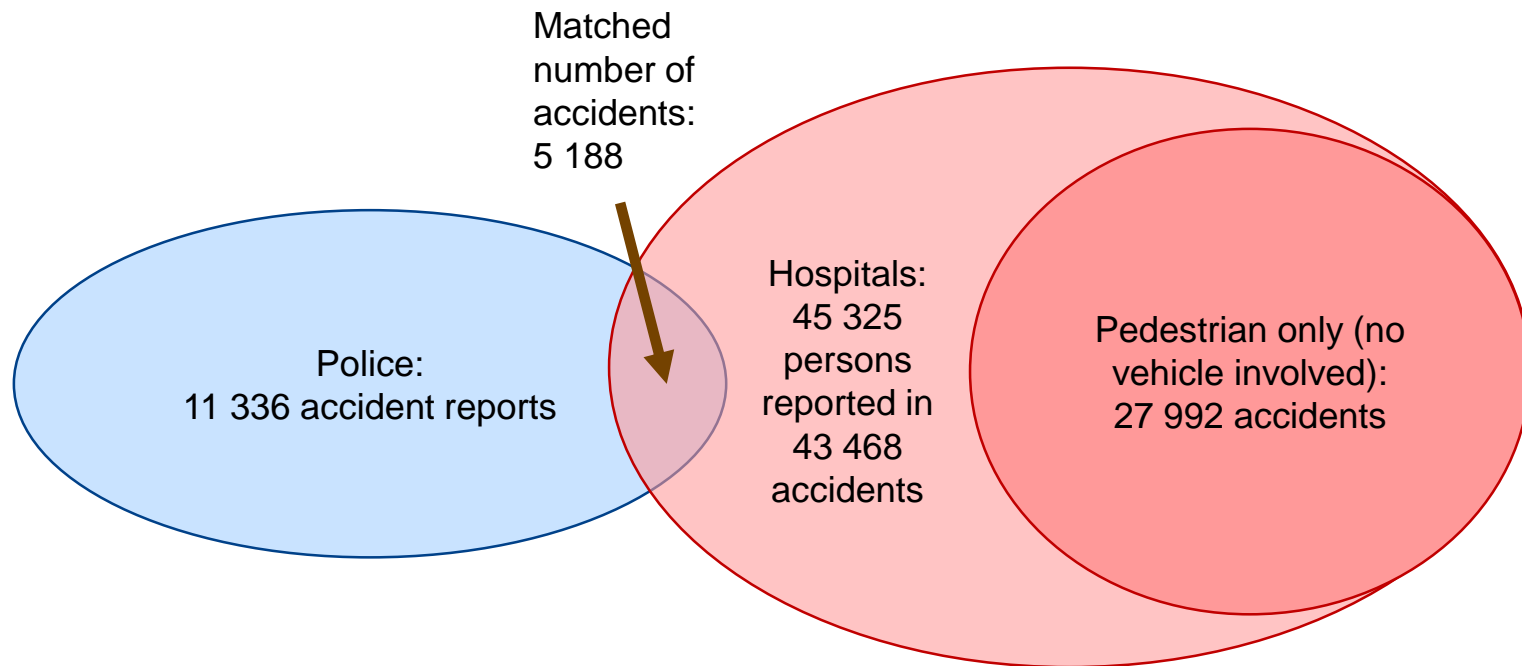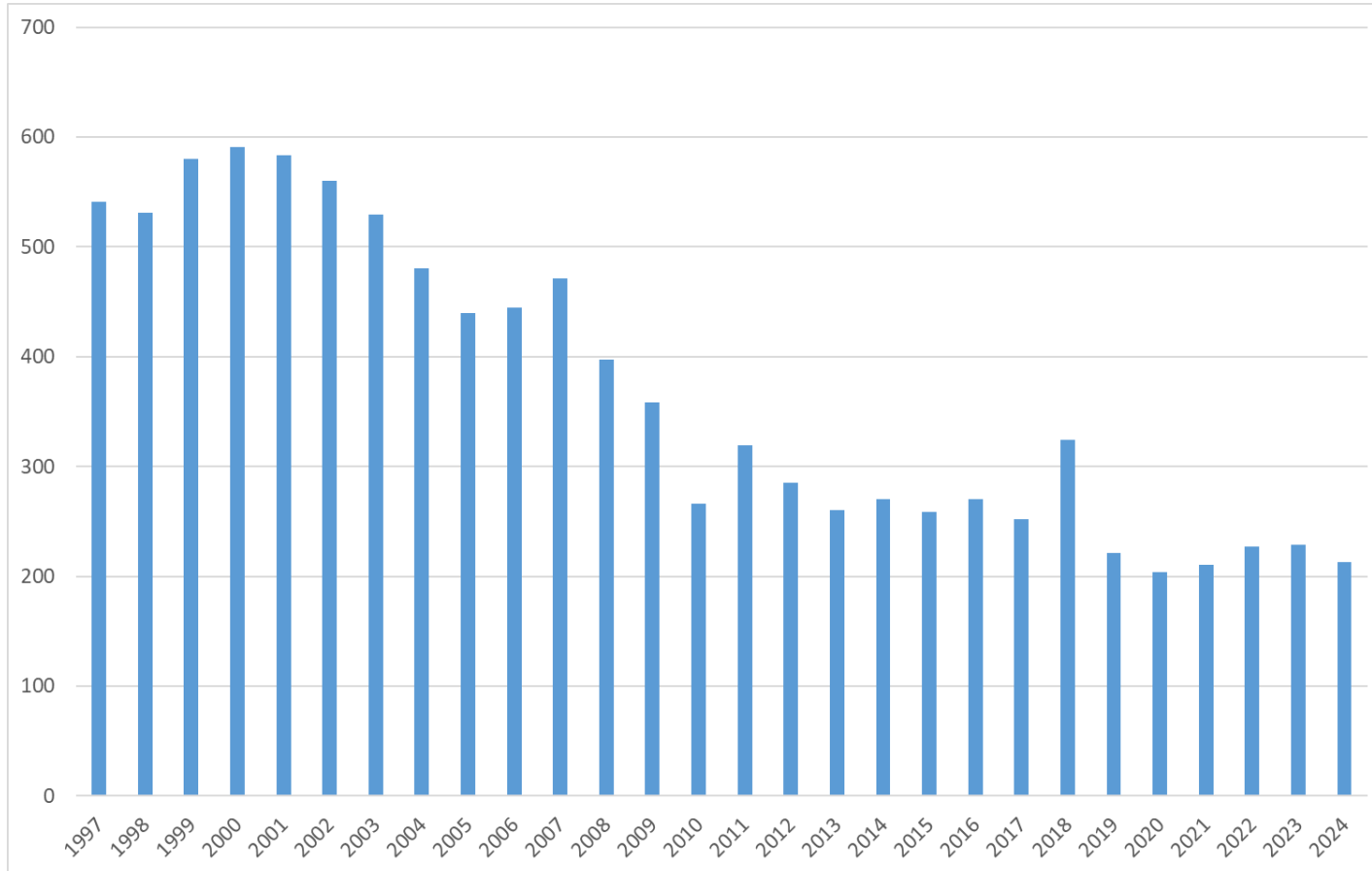STRADA 2

data de-identification

Anonymous data output

Proportion of reports in Sweden 2024

Matched number of accidents: 5 188

Police: 11 336 accident reports

Hospitals: 45 325 persons reported in 43 468 accidents

Pedestrian only (no vehicle involved): 27 992 accidents
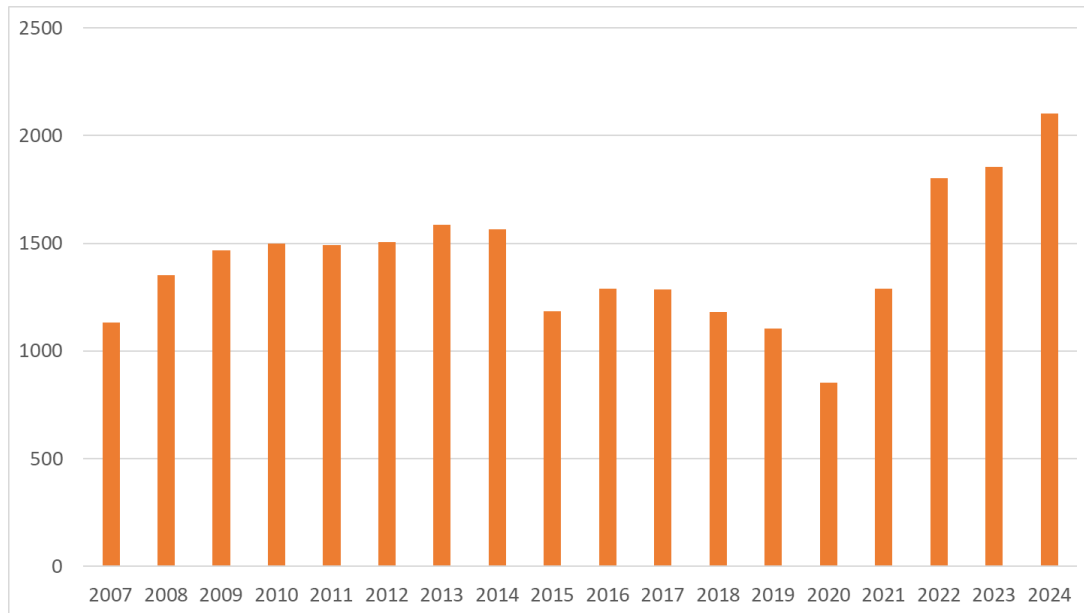
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Road fatalities in Sweden since 1997

Persons with MAIS3+ injuries, Sweden 2007-2024

Fluctuations due to:

- National coverage (70+ hospitals) achieved in 2016

- The pandemic start 2020

- The STRADA act 2021

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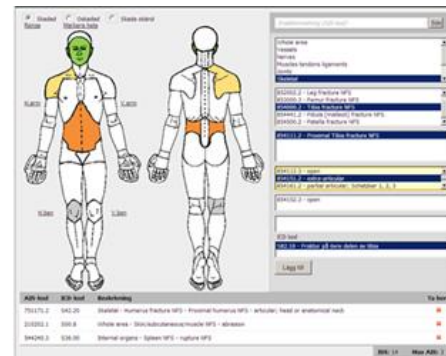
Serious injury reporting MAIS3+

- Two main ways to obtain number of seriously injured according to EU definition MAIS3+

    - Direct coding using Abbrievated Injury Scale (AIS)

    - Using existing hospital discharge data in ICD codes, translated into AIS codes

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Serious injury reporting MAIS3+

- STRADA collects data using the Abbrievated Injury Scale coding system

  – One AIS code per injury sustained

  – AIS severity obtained per every injury

  – Base for MAIS3+

  – Can be calculated into other measures like the Injury Severity Score to account for the person's injury severity

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Advantages using AIS direct coding

- Possible to follow up long-term consequences

  – The Swedish definition in the Vision Zero proposition:

    "a person who does not fully recover from their injury"

- Trained staff reports AIS-codes, no mapping from ICD is needed

- All injured patients are recorded, not only in-patients (10% of MAIS3+ patients in STRADA are not admitted)

The challenges of serious injury follow-up using AIS coding – some examples

- Underreporting

  - Hospitals prioritize patients, not data collection

  - Organizational changes at the hospitals affects the routine of data collection

  - Change of staff – need for replacement

- If there is a need for informed consent from patients may influence

  - The STRADA act in place June 2021

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Data collection at hospitals - The STRADA act (2021:319)

- Up until May 2021, data collection at hospitals was volountary

  – Based on agreements between the hospital and the Swedish Transport Agency

  – National coverage since 2016

- Since June 2021, hospitals are obliged to report road traffic injuries

  – Informed consent no longer needed

  – Resulted in an increase of seriously injured (MAIS3+)
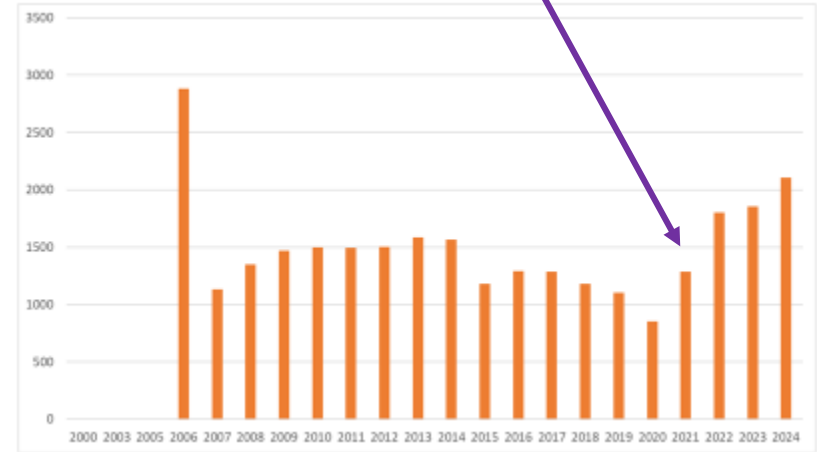
Management by Objectives and Road Safety Performance Indicators (RSPI:s)

Outcome indicators – national goals

Indicator	Baseline (2017-2019)	2024	Objective 2030	In line with neccesary development
Number of fatalities	266	213	133	No
Number of seriously injured	3 700	4 600	2 800	No

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Management by Objectives and Road Safety Performance Indicators (RSPI:s)

System RSPI:s

- Safe national roads
- Safe municipal roads
- Safe vehicles
- Safe pedestrian and bicycle crossings
- Systematic work for safe walking and cycling

Road user RSPI:s

- Compliance with speed limits
- Sober drivers
- Seat belt use
- Helmet use
- Safe passenger cars
- Increased rule compliance among motorcyclist

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Current and future challenges for MAIS3+ and serious injury data collection

- Continuity
  - Stable data collection routines at the hospitals

With high quality data and by working together we can achieve road safety success
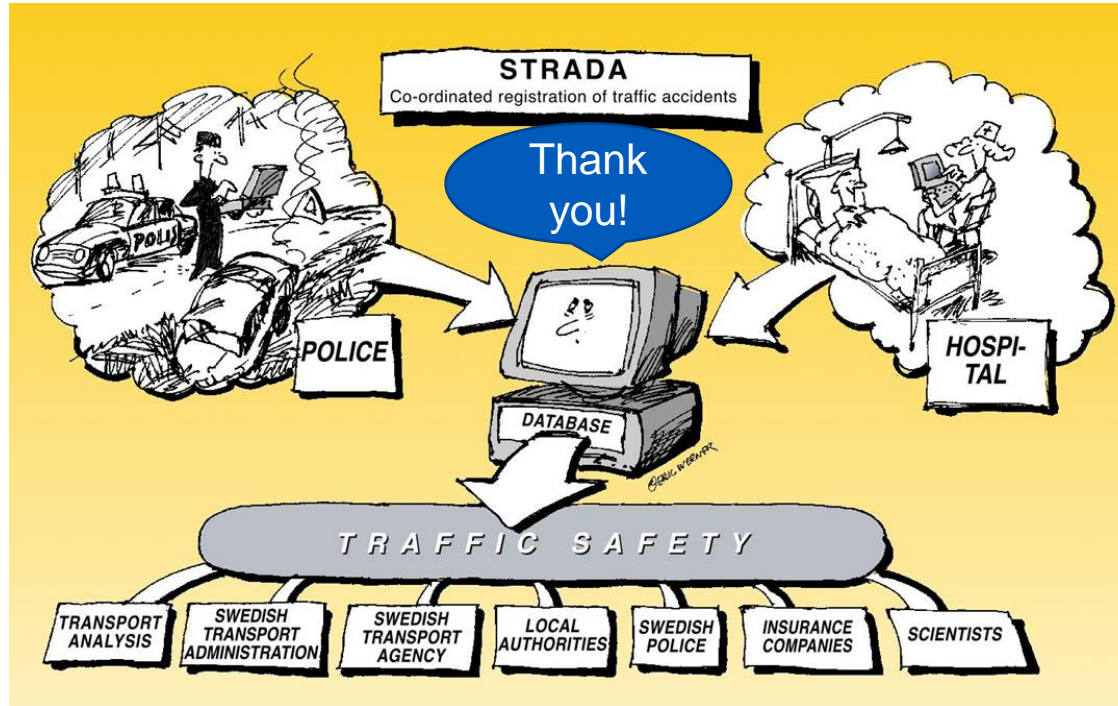
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