Integrated methodology

<table>
<thead>
<tr>
<th>Arms</th>
<th>Method</th>
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</thead>
<tbody>
<tr>
<td>Assessing and monitoring safety situation</td>
<td>M</td>
</tr>
<tr>
<td>Identifying critical locations (black spots)</td>
<td>C</td>
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<tr>
<td>Assessing accident contributory factors</td>
<td>M</td>
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<tr>
<td>Assessing data quality/underreporting</td>
<td>C</td>
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<tr>
<td>Estimating accident costs</td>
<td>M</td>
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<tr>
<td>Before and after evaluation</td>
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</tbody>
</table>

- Under-reporting
- Hospital data!!! (obligatory by EU?)
- Single accidents
VRU SINGLE serious injury accidents, Malmö & Gothenburg (2010-2014)

- 89%
- 1%
- 11%

- both
- police only
- hospital only

3 important messages about VRUs

- Under-reporting
- Hospital data!! (obligatory by EU?)
- Single accidents

Surrogate measures of safety

Event-based exposure measures

Relevance

Frequency

Exposure
Event-based exposure measures

Crash models – safety-in-numbers

Crashes = aC \cdot V^{0.5} \cdot \text{CYCX}^{0.49} \cdot \text{other factors}

Crash model, Malmö

Conflict-crash correlations
Encounter-crash correlations

Conflicts as RISK measure

- Validation requires control for the exposure (encounters)

\[ \text{Conflicts} = e^a \cdot \text{Encounters}^b \cdot \sum_{i=1}^{n} \text{Countries}_i \]

'Country-factor'

Work in progress...

- motion prediction
- subjective vs. objective indicators
- Extreme value theory
Video analysis tools

Naturalistic studies