Monitoring behaviour of older road users in Europe

ElderSafe

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The ElderSafe study objectives

• European Commission, DG-MOVE, 2015-2016
• Partners: Hasselt University (BE), NTUA (EL), LAB (FR), ERF (BE)

• Collect studies and policy documents in Member States and EEA countries and literature dealing with risk factors and best practices for the safety of elderly people

• Analyse main risk factors and best road safety measures in Member States, including measures addressed to older drivers

• Assess the benefits of ITS and technological countermeasures specifically aimed to reduce the risks identified as main risk factors

• Summarize and present recommendations for measures to be taken at EU level
Ageing populations, more road fatalities

- By 2050, approximately **28%** of the European population will be 65 years or older
- **More elderly** will actively participate in traffic
- Notable increase in **licensing rates and car access** in the older population during recent decades
- In 2050 **one road traffic fatality out of three** will be an older person.
Need for action and EC policy

• **Mobility** is a fundamental prerequisite for the quality of life of older persons

• The **mobility needs** of the elderly will grow in the future; they will transform from a minority group with special needs and habits to one of the largest road user groups.

• Efforts need to be made proactively to **provide comfortable, safe and lifelong mobility** for the future generations of elderly.

• The challenge lies in making the European **traffic safety policy** and the transportation system ‘silver proof’.
**Approach**

- **Risks identification and ranking**
  - Macroscopic level analysis
    - Identification of risks based on CARE data analysis and literature review
    - Specific risks per road user group (drivers, pedestrians etc.) based on literature review
  - In-depth analysis
    - Magnitude (estimation of population attributable risk)
    - Public perceptions on the problem (stakeholders’ survey)

- **Measures identification and ranking**
  - Top-down approach
    - Identification of measures matching the critical risks identified
  - Bottom-up approach
    - Review and ranking of impacts of all related measures (effectiveness, public support, cost, importance)

- **Synthesis**
  - Most promising measures for addressing most critical risks
  - Proposed regulatory and legislative tools
The risks elderly road users run

- Risk domains with highest impact and public support:
  - Fragility
  - Illnesses and functional limitations
  - Urban roads
  - Elderly pedestrians
  - Medication

- In-depth risk factor analysis
- Car occupants
  - older, used cars,
  - rural environments due to high speeds,
  - urban areas complexity,
  - intersections controlled by stop signs,
  - functionally impaired drivers,
  - driver error.

- Pedestrians
  - urban environments and intersections,
  - pedestrian crossings walk phases,
  - age-related physical declines
  - dark clothes.

- Cyclists
  - urban and rural areas,
  - intersections; turning left, giving right of way,
  - mixing cyclists with motorized traffic,
  - narrow cycle lanes,
  - age-related stability problems,
  - distraction,
  - higher speeds and weight of e-bikes
  - dark clothes.
Measures for the elderly

- **Infrastructure** interventions (25 areas of countermeasures, numerous specific)
- **Education & Training** (6 areas of countermeasures, numerous specific)
- **Licensing & Enforcement** (2 areas of countermeasures, numerous specific)
- **Vehicle** design and technologies (9 areas of countermeasures, 111 specific systems)

**Example: self-explaining and forgiving roads:**

- **Description:** Self-explaining roads seek to prevent driving errors, while forgiving roads minimize their consequences
- **Effectiveness:**
  - Physical dividers along centre lines very effective
  - Rumble strips significantly reduce run-off-road accidents
  - ‘Passively safe’ or ‘forgiving’ lighting columns: 8 times lower risk
  - Restraint mechanisms (e.g. wire barriers) extremely effective
- **Public support:** different stakeholders prefer different mix of measures
Most promising measures

• **Infrastructural interventions**
  • Reducing the speed of other traffic, lower design speeds
  • Use of protected-only operations at signalized intersections
  • Self-explaining roads

• **Education, training & awareness raising**
  • about age-related illnesses and medication, effect of functional limitations
  • self-evaluating and improving skills, focus on speed
  • increased vulnerability and the importance of using protection devices

• **Licensing & enforcement**
  • License restrictions and renewal policies: in-person renewal, vision test
  • Licensing screening and testing
  • Law enforcement roles

• **Intelligent Transportation Systems**
  • Active safety: Intelligent Speed Assistance, Active pedestrian protection system, Lane change assistant, Intersection control system
  • Passive safety: Safety belt & force limiter, Helmet, Frontal airbag, Seat belt reminder
Future challenges

• The **European and national policies** have a key role in guiding and regulating road design and vehicle standards, training and licensing for better protection of the elderly.

**Future research challenges**
• Stimulate the development and deployment of elderly-adapted Advanced Driver Assistance Systems (ADAS)
  • Are the elderly ready for using new vehicle technologies?
  • Are automated vehicles ("the ultimate ADAS") the answer for safe mobility of the elderly?

**Until then ... many current challenges remain**
• Lack of data on elderly exposure and behaviour
• Increase self-awareness and promote safe mobility
• Promote modern concepts of forgiving roads, shared space
• And of course, slow down traffic
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