

Elderly driver safety in Switzerland – current reality and future perspectives

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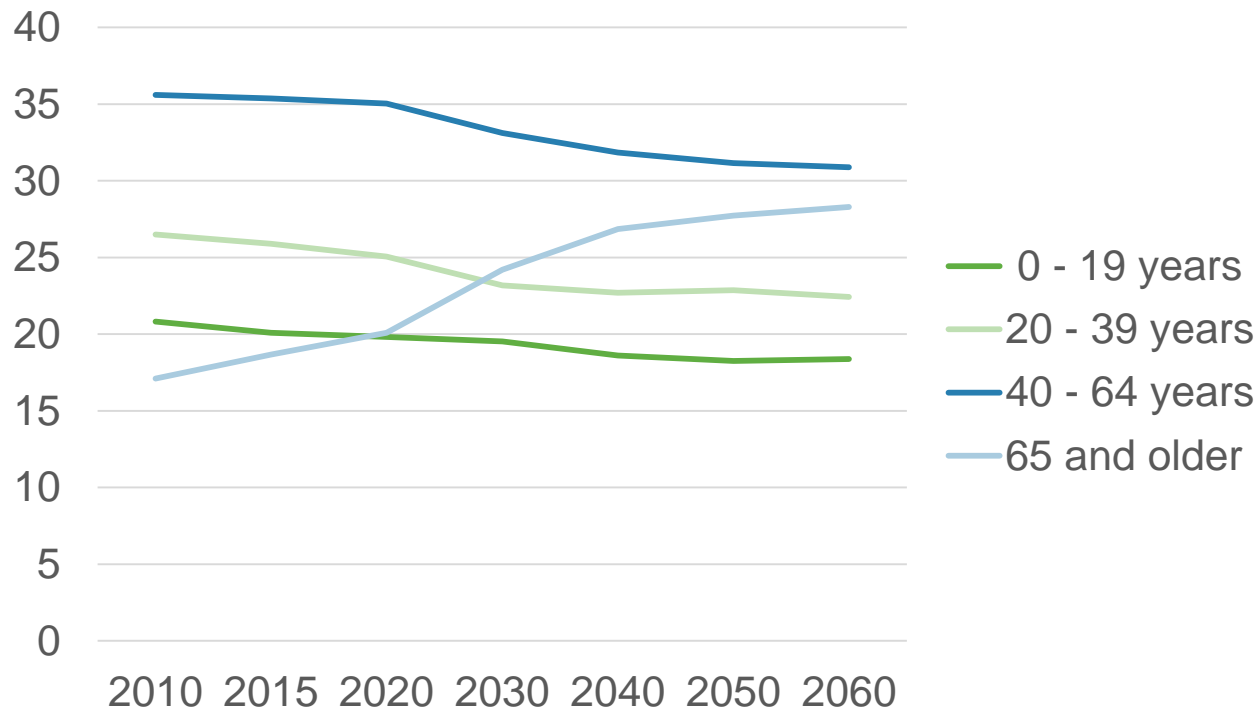
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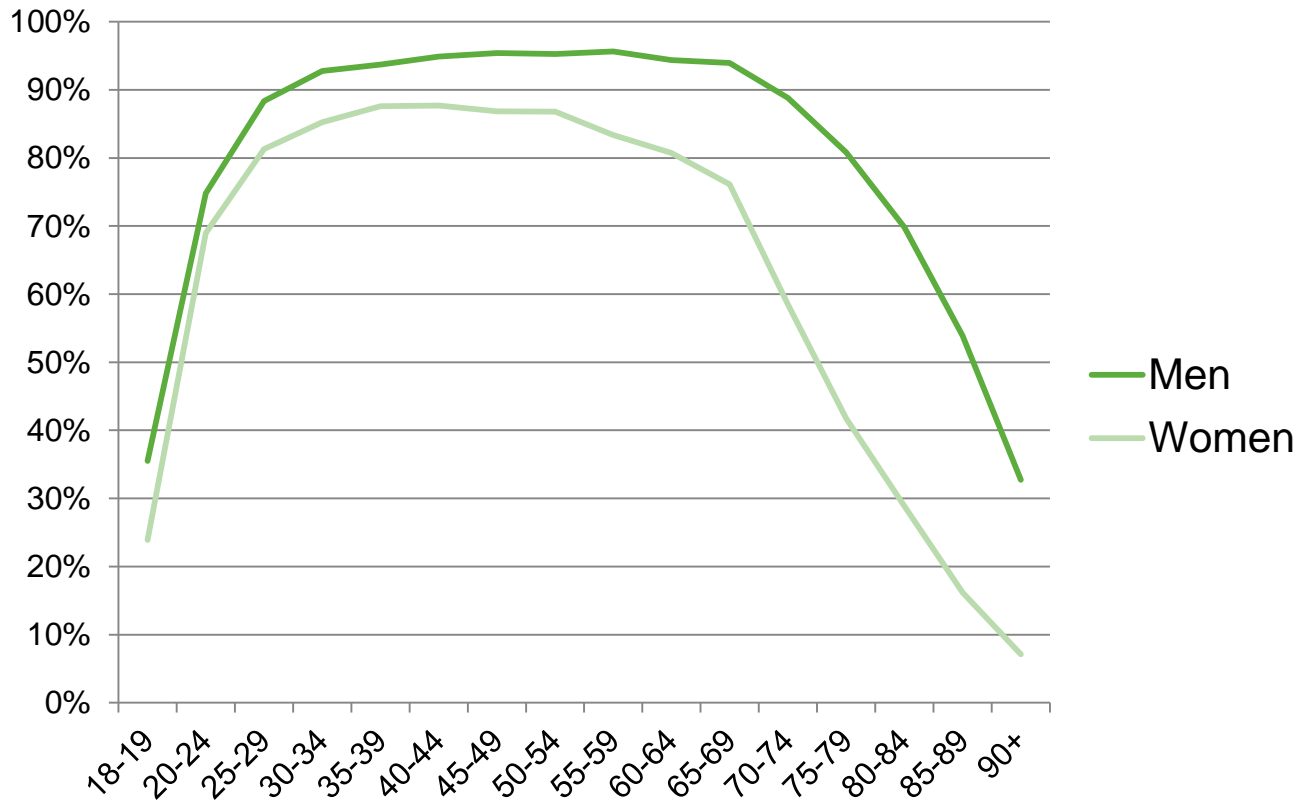
Number of elderly drivers will increase

- Number of elderly will increase by more than 50% until 2035
- Percentage in the total population will increase from 18 to 26%



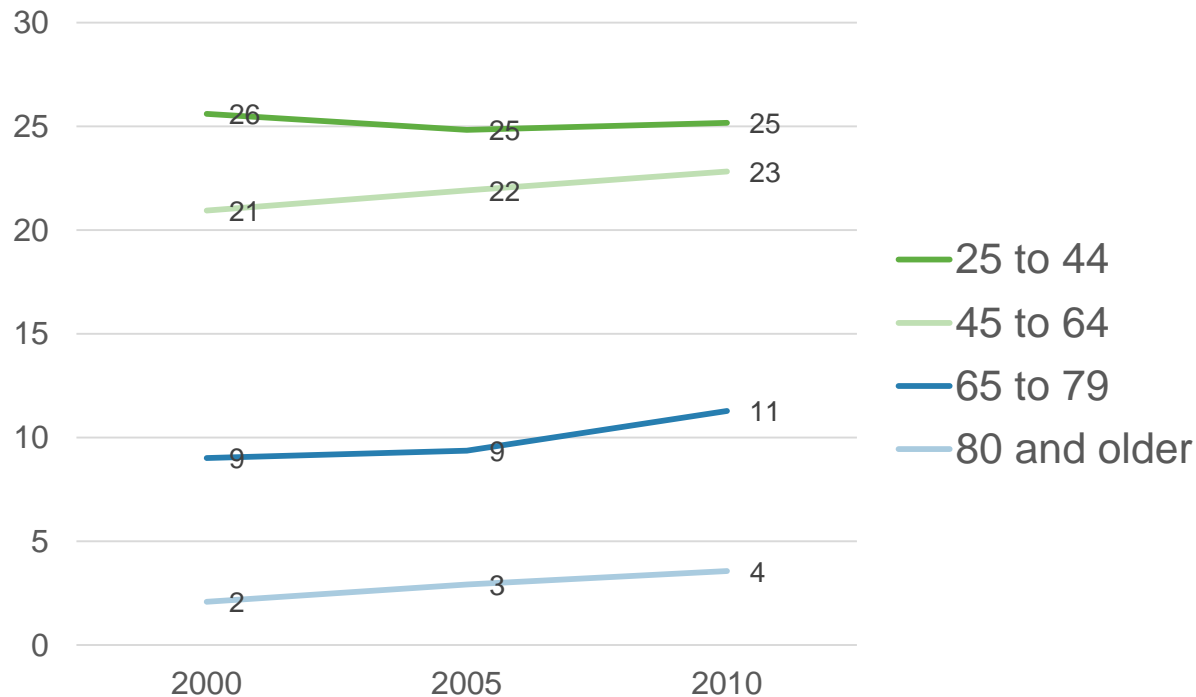
Number of elderly drivers will increase

- Licence possession rates will increase



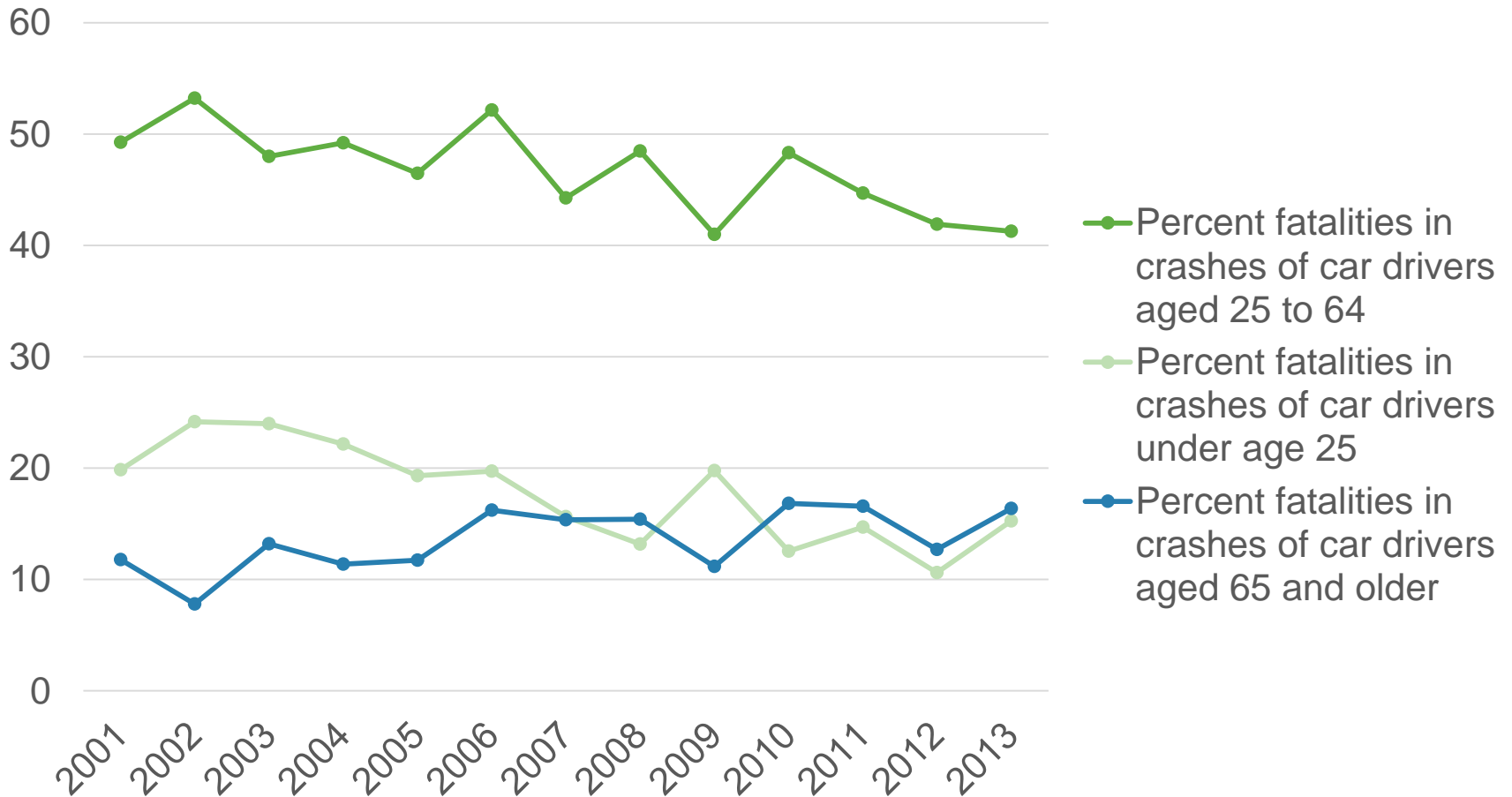
Number of elderly drivers will increase

- Kilometers driven are and will be increasing



Kilometers driven per day by those who do drive (Census by FOS)

Percent killed by age of car driver



Fatalities in older car drivers crashes

Ø 2011-2013	Killed
Total number of road fatalities	309

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Elderly car drivers cause about 12% of all fatalities.

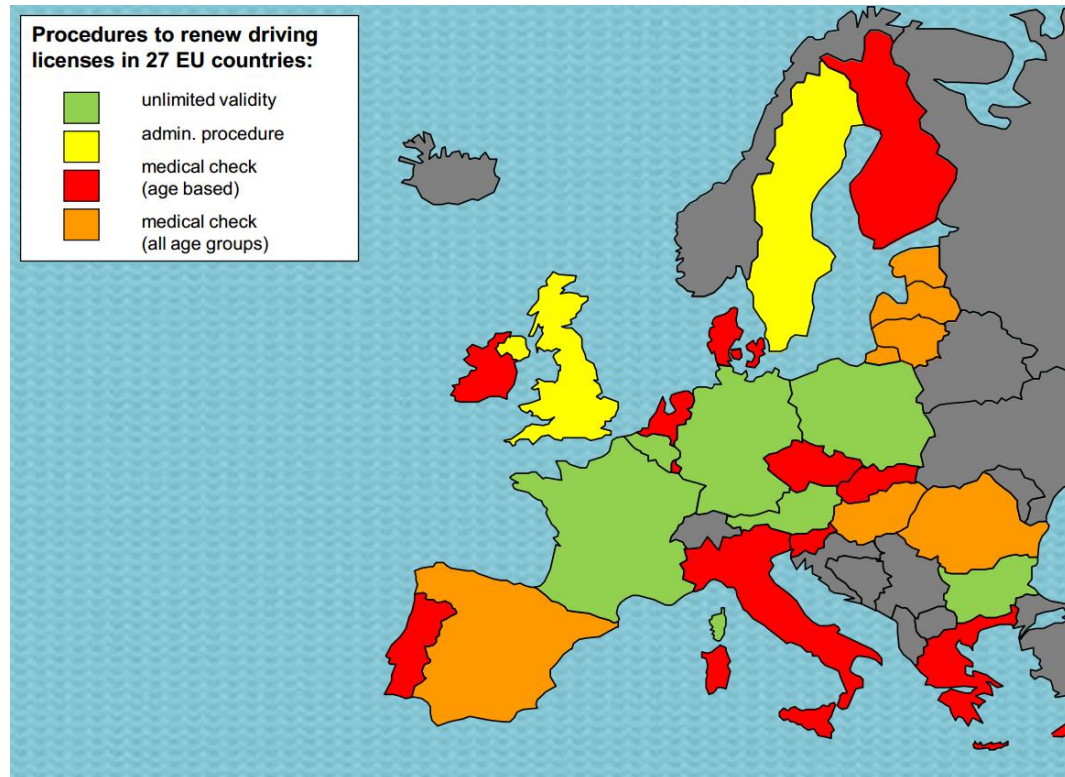
7 percentage points are the elderly at-fault drivers themselves

5 percentage points are other victims

Current reality in Switzerland

- Mandatory medical examination system beginning at age 70
- Repeated every two years
- Conducted by family practitioner
- Check whether medical minimum criteria are fulfilled
- Criteria only roughly defined (except for vision)
- Physician makes a recommendation (fit to drive, fit to drive with constraints, unfit to drive)
- Form is returned to road office
- Road office decides

Medical screening in Europe

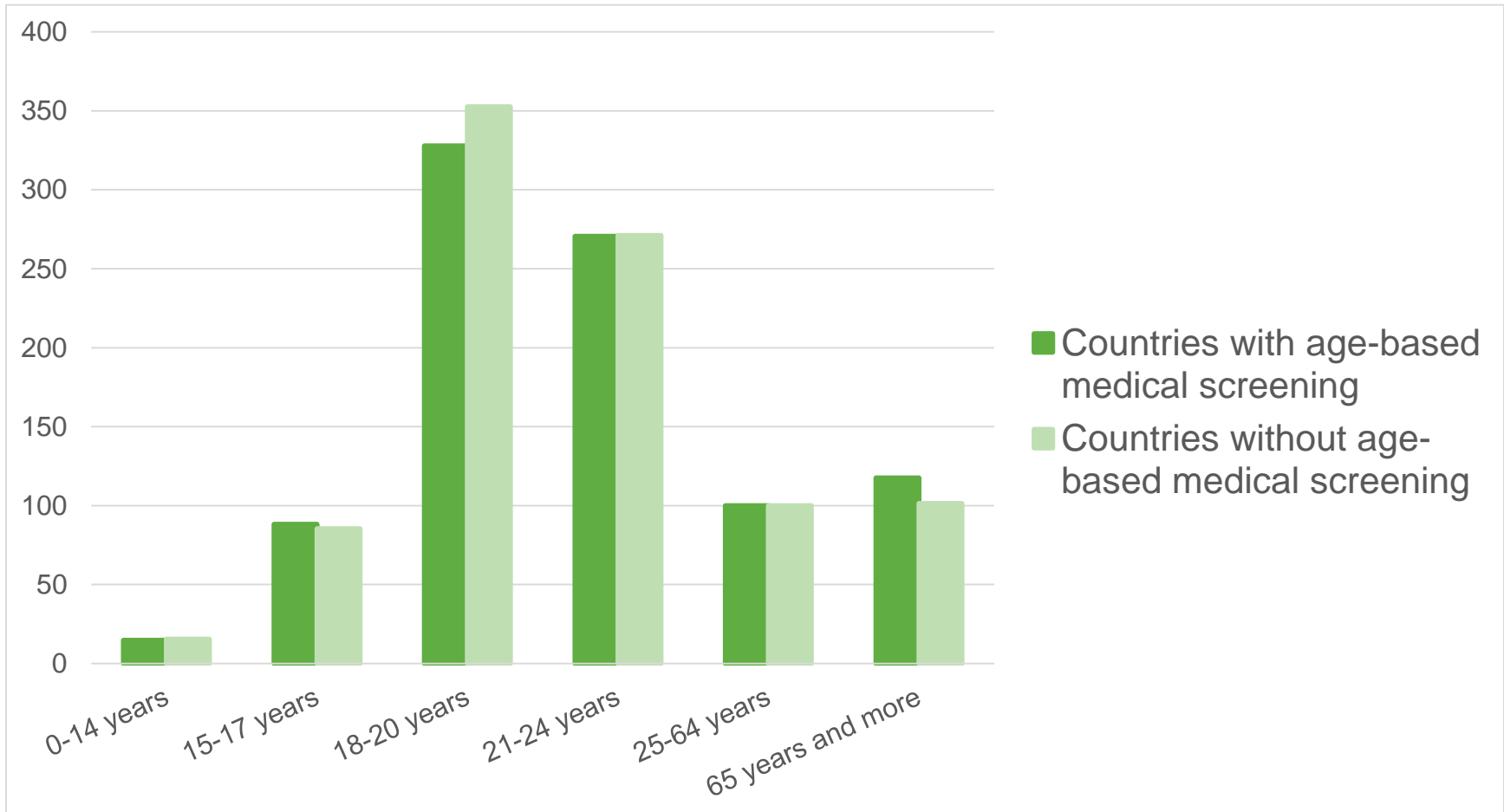


Siren, A. et al. (2013). Driver Licensing Legislation. CONSOL, Work Package 5.1.

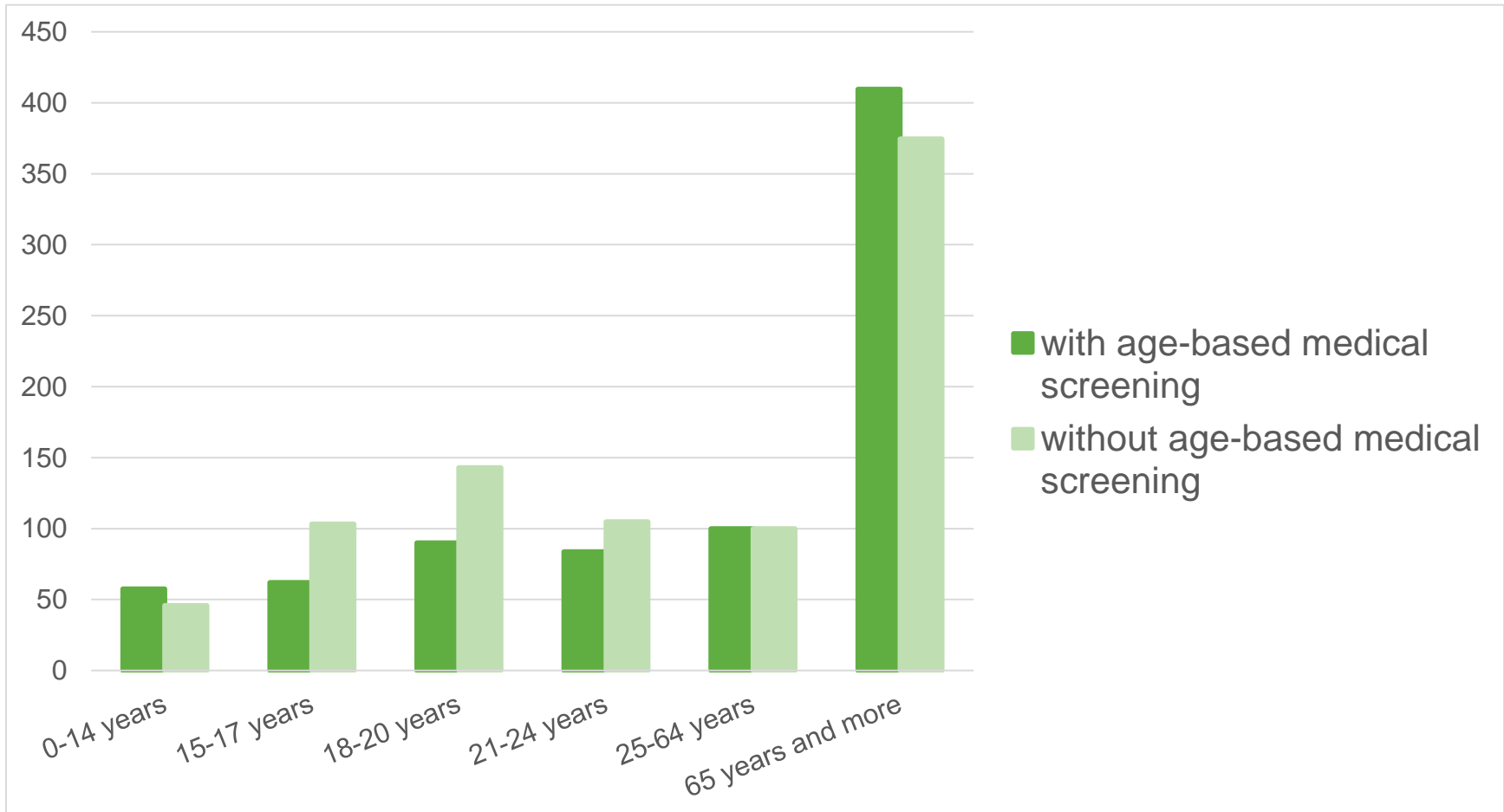
Final Report. Accessed 2.12.2014 at

http://www.consolproject.eu/attachments/article/16/CONSOL%20Report_WP5.1_final.pdf

Fatality rate of car occupants per mio inhabitants (indexed for age 25 to 64)



Fatality rate of pedestrians per mio inhabitants (indexed to age 25 to 64)



Future perspectives: medical examination

- Medical examination should be focussed better on medical conditions with increased crash risk and substantial prevalence
- Better education of physicians for the use of screening tests like the Mini Mental State Examination (MMSE)
- Focus of the medical examination should be on treatment, rehabilitation and auxiliary measures (like transport equipment modifications)
- More frequent issuing of limited licences (travel time, region) instead of licence withdrawal

Future perspectives: self assessment

- Medical examination serves the identification of medical problems
- What about normal age-related physical and cognitive changes?

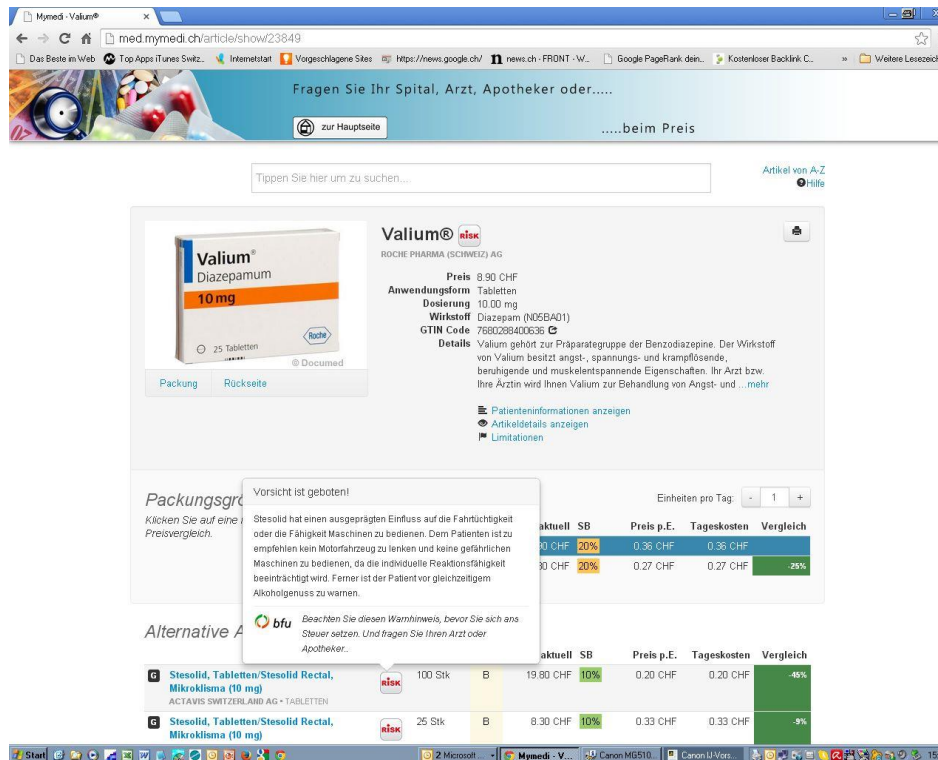
- Self-assessment instruments
 - raise awareness of own abilities and possible problems
 - provide feedback and advice
 - support self-regulation (up to voluntary driving cessation)
 - facilitate discussion with family members

Future perspectives: self-assessment

- Open questions:
 - Development and validation of self-assessment instruments (Lang, Parkes & Fernández Medina, 2013)
 - Predictive validity of self-assessment to self-regulation and road safety?
 - Dissemination? Beginning age? Periodicity?

Future perspectives: medication

- Psychoactive medications should get a closer look
- Dischinger et al. (2011) showed an exponential growth in crash risk



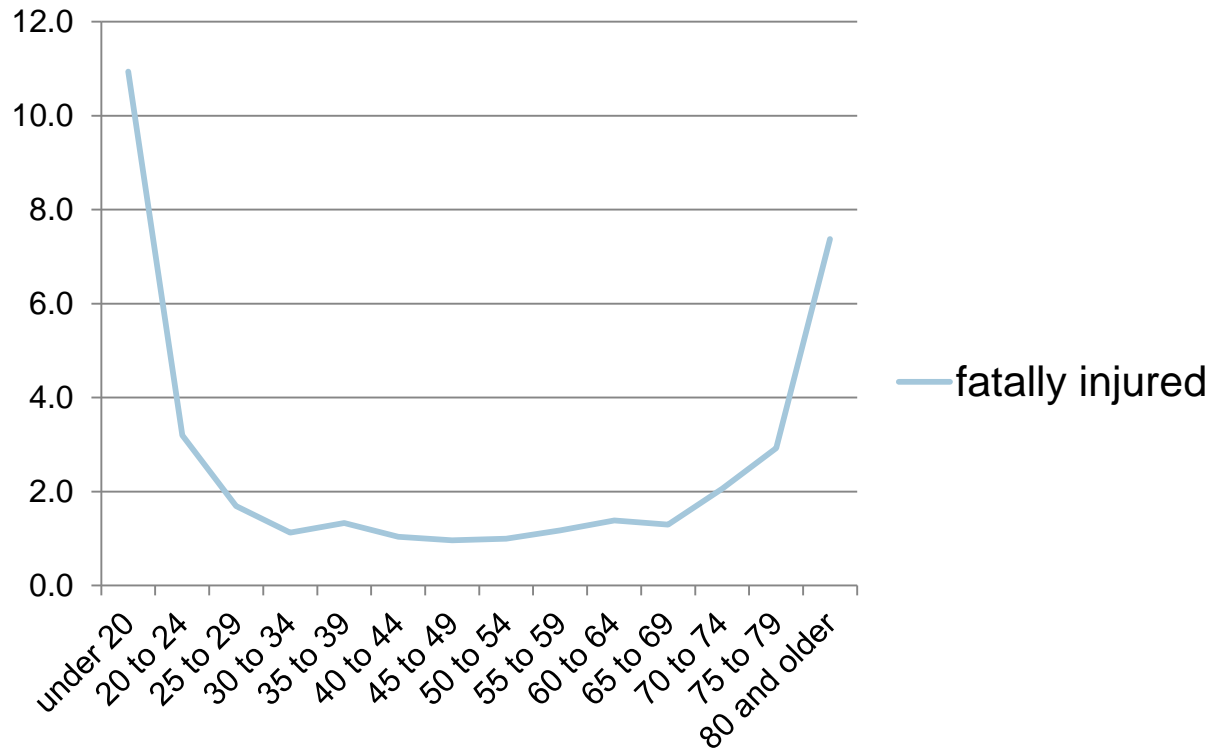
The screenshot shows a web browser window with the URL `med.mymedi.ch/article/show/23849`. The page title is "Fragen Sie Ihr Spital, Arzt, Apotheker oder.... beim Preis". Below the title is a search bar and a navigation menu. The main content area displays the product "Valium® (Diazepamum) 10 mg" by Roche Pharma (Schweiz) AG. The product details include:

- Preis: 8.90 CHF
- Anwendungsform: Tabletten
- Dosierung: 10.00 mg
- Wirkstoff: Diazepam (N05BA01)
- GTIN Code: 7680288400636

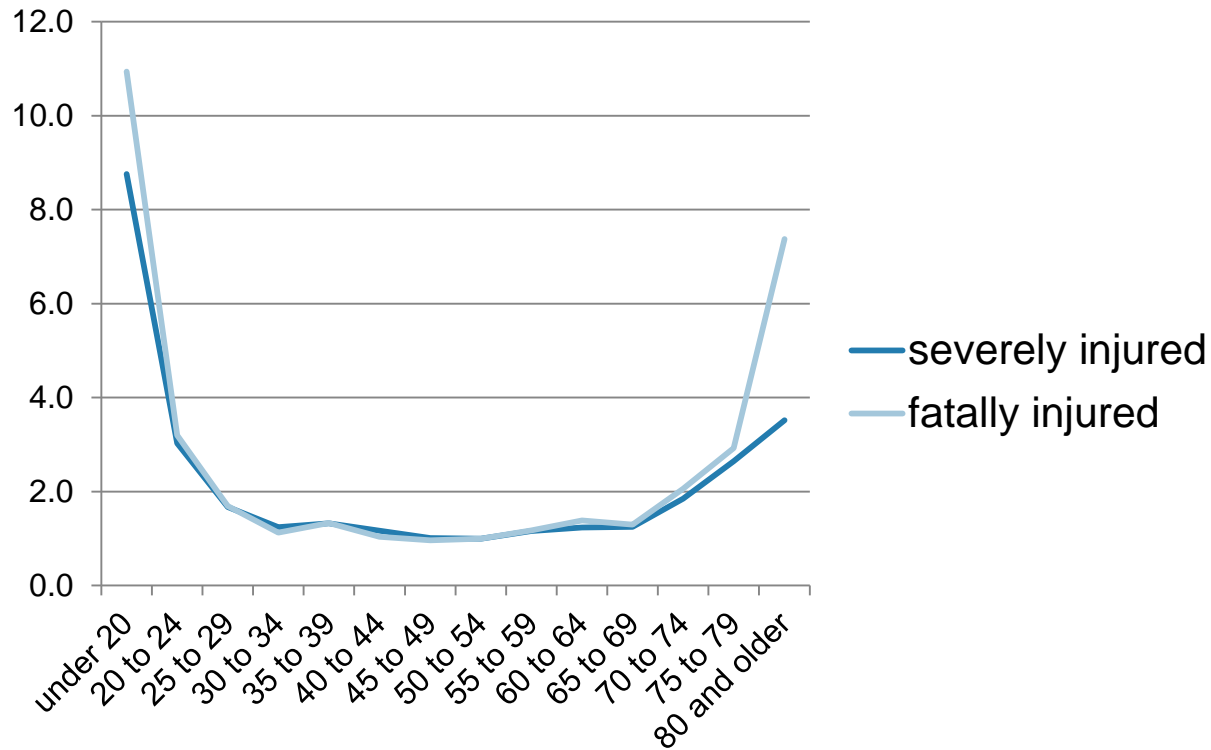
 A warning box is overlaid on the page, stating: "Vorsicht ist geboten! Stesolid hat einen ausgeprägten Einfluss auf die Fahrtüchtigkeit oder die Fähigkeit Maschinen zu bedienen. Dem Patienten ist zu empfehlen kein Motorfahrzeug zu lenken und keine gefährlichen Maschinen zu bedienen, da die individuelle Reaktionsfähigkeit beeinträchtigt wird. Ferner ist der Patient vor gleichzeitigem Alkoholgenuß zu warnen." Below the product details is a comparison table for "Stesolid, Tabletten/Stesolid Rectal, Mikrokisma (10 mg)" from Actavis Switzerland AG. The table compares the current price (aktuell) with the price at the pharmacy (p.E.) and the daily cost (Tageskosten).

aktuell	SB	Preis p.E.	Tageskosten	Vergleich	
10 CHF	20%	0.36 CHF	0.36 CHF		
30 CHF	20%	0.27 CHF	0.27 CHF	-25%	
100 Stk	B	19.90 CHF	0.20 CHF	0.20 CHF	-46%
25 Stk	B	8.30 CHF	0.33 CHF	0.33 CHF	-9%

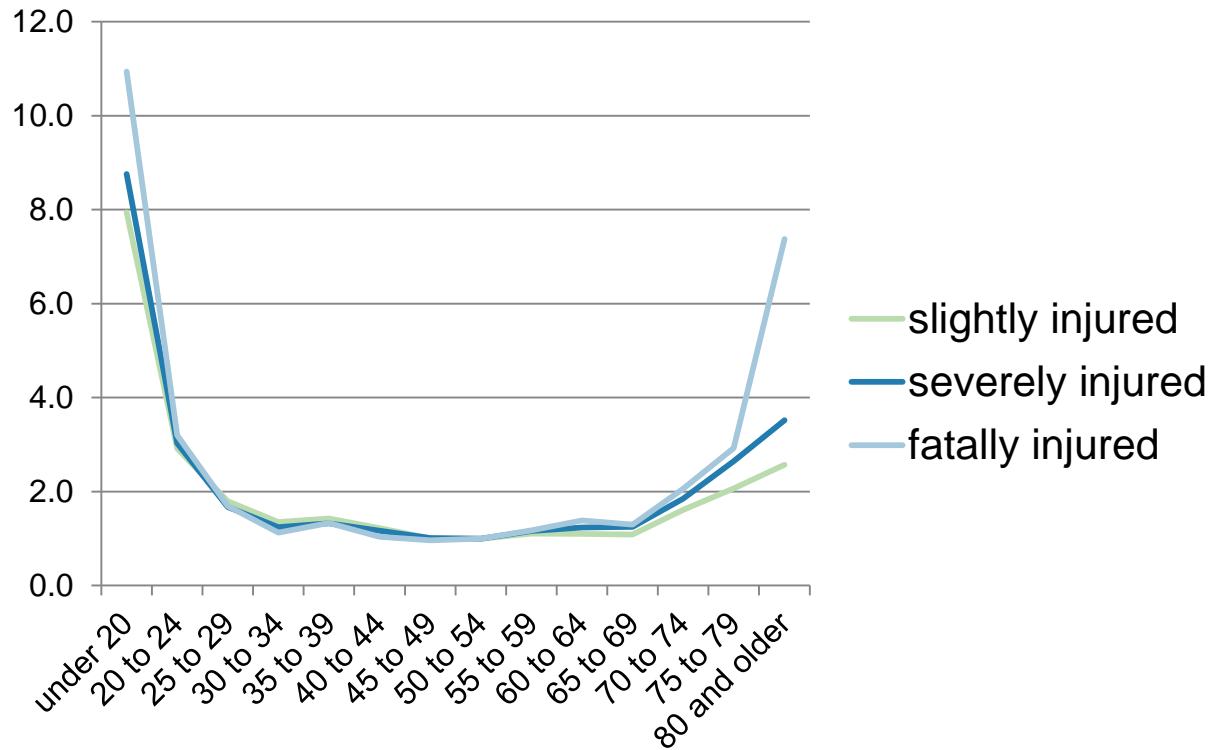
Future perspectives: frailty



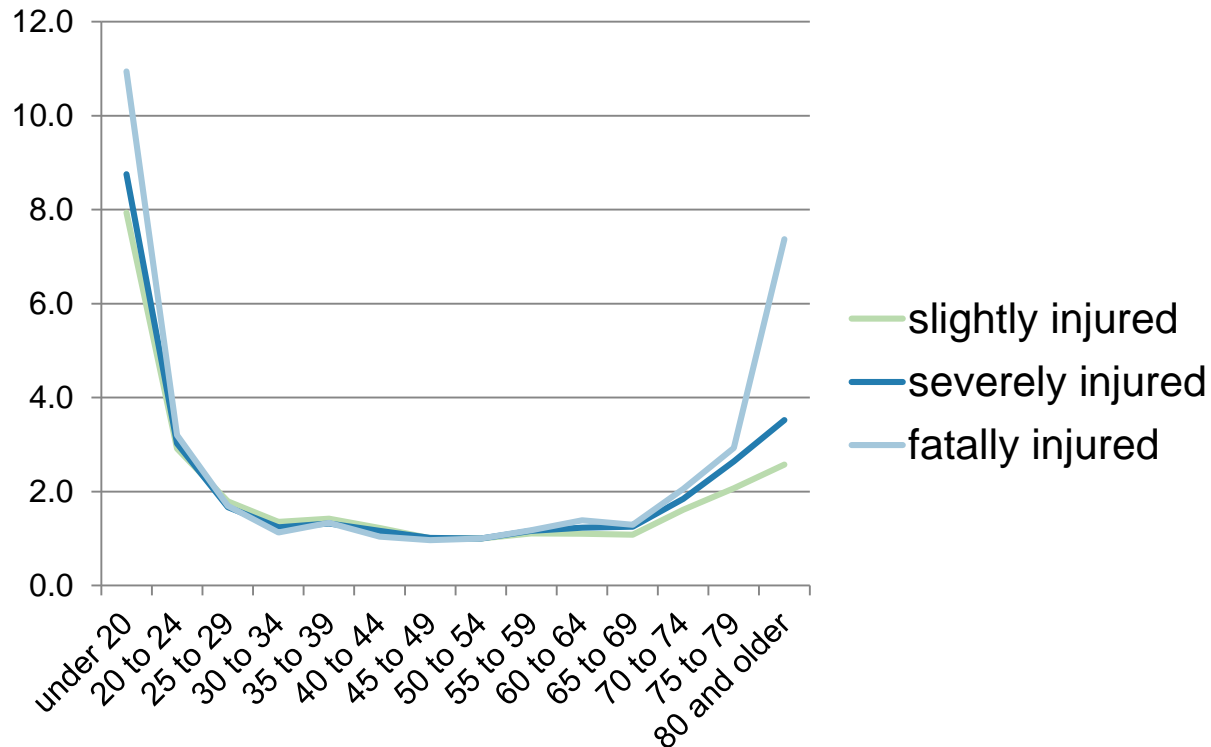
Future perspectives: frailty



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Future perspectives: frailty



Counteract frailty with cars with good crash test ratings and appropriate test dummies

Future perspectives: ADAS

- Advanced Driver Assistance System (ADAS) may be helpful for the elderly, especially in urban areas
- Brake Assistance, Forward Collision Warning, Parking Assistance, Lane Departure Warning ...
- Acceptance among the elderly is higher than among the younger

Conclusions

- The number and proportion of elderly drivers will increase
- ~10% of fatally injured and 6% of seriously injured persons were involved in crashes caused by older drivers
- Medical screening has to be carefully designed and conducted to increase road safety
- Self-assessments can complement the medical examination
- Psychoactive medication should be supervised better
- Active and passive safety systems will help the elderly driver

Active driving should be sustained as long as possible