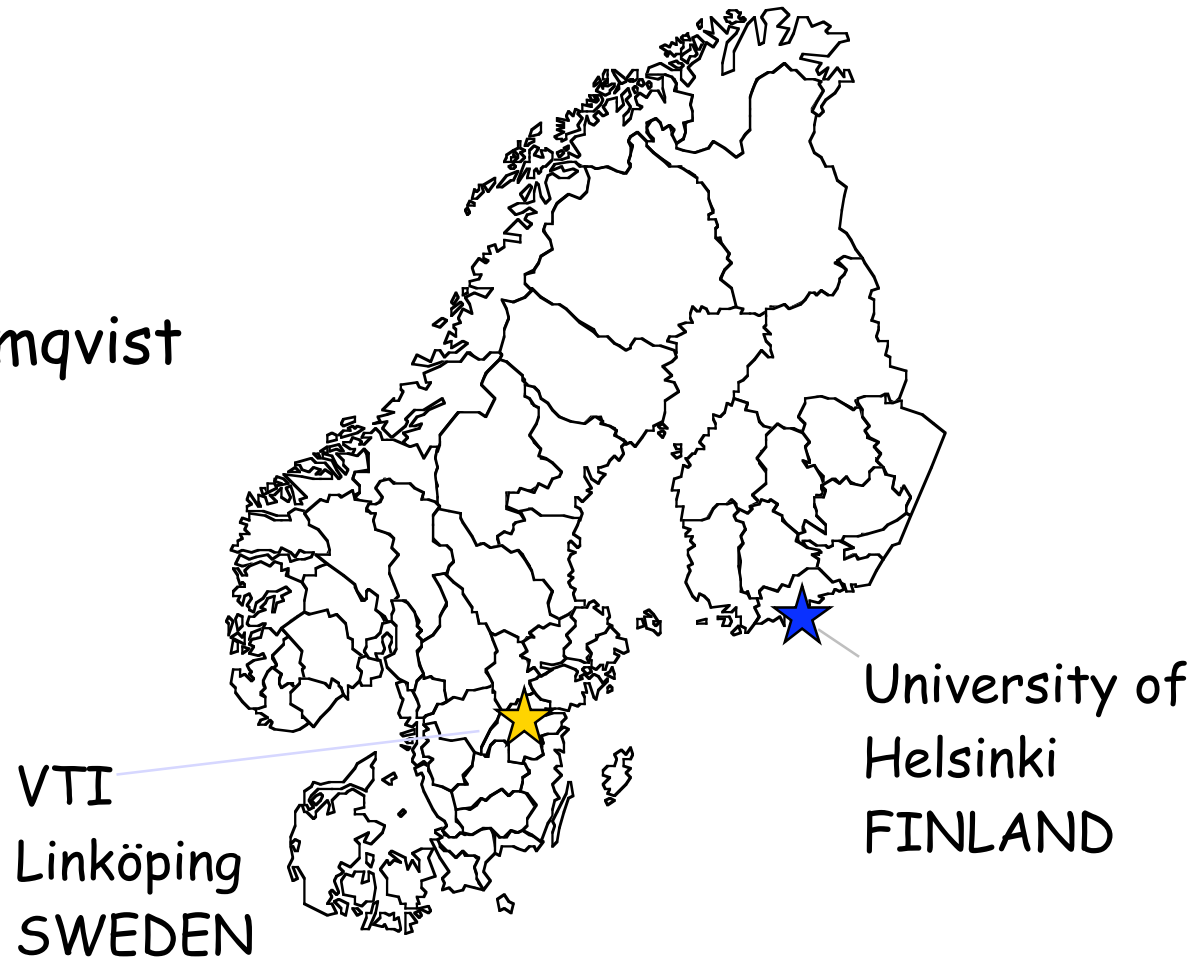


Older Drivers: A challenge or an opportunity?

Liisa Hakamies-Blomqvist

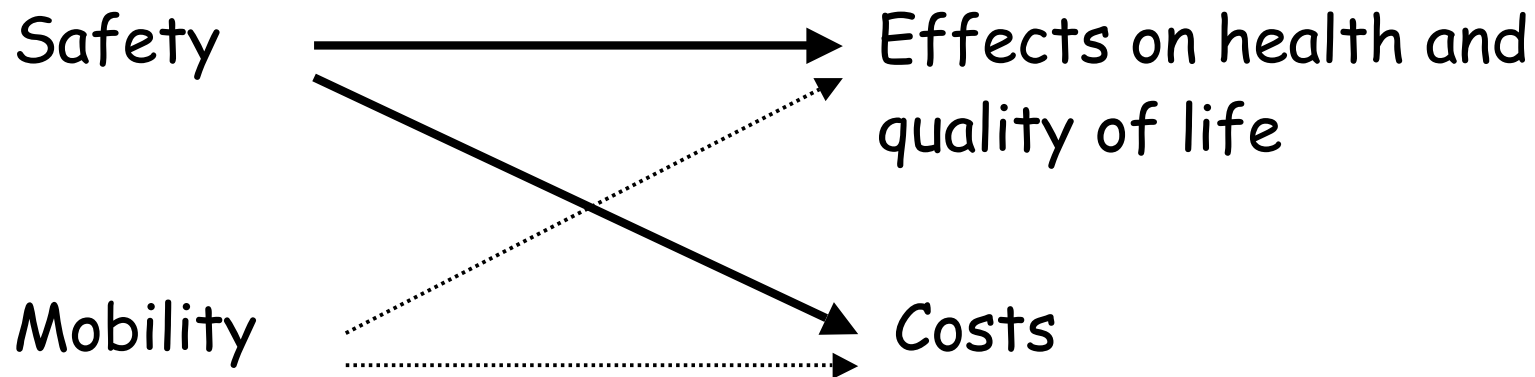
NordForsk, Oslo



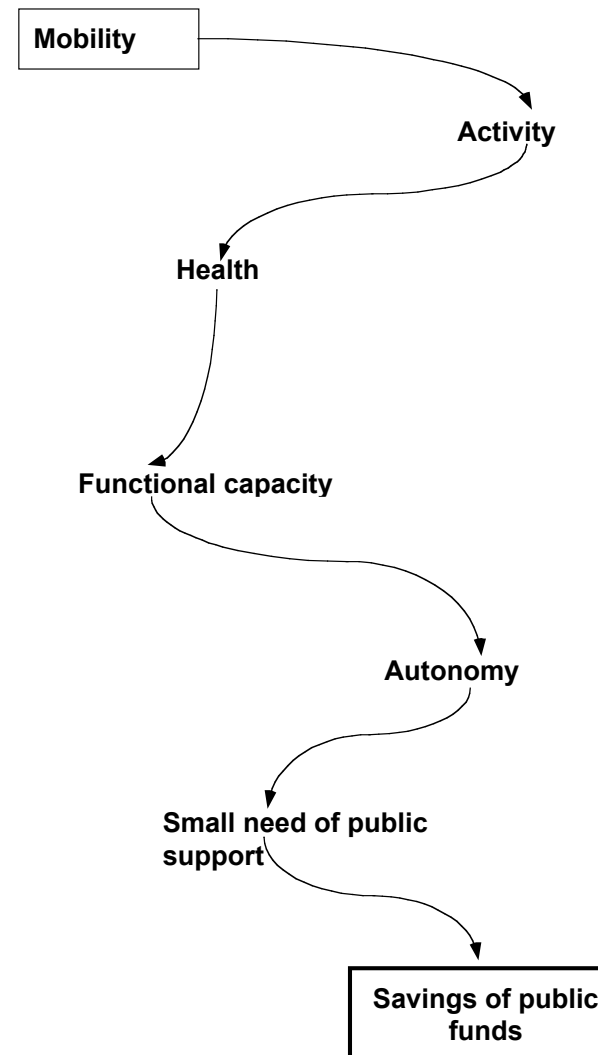
Outline

1. Ageing and transportation as a public health issue
2. Older driver risk -- what do crash data tell us
3. Future trends, conclusions and recommendations

Public health issues in aging and driving



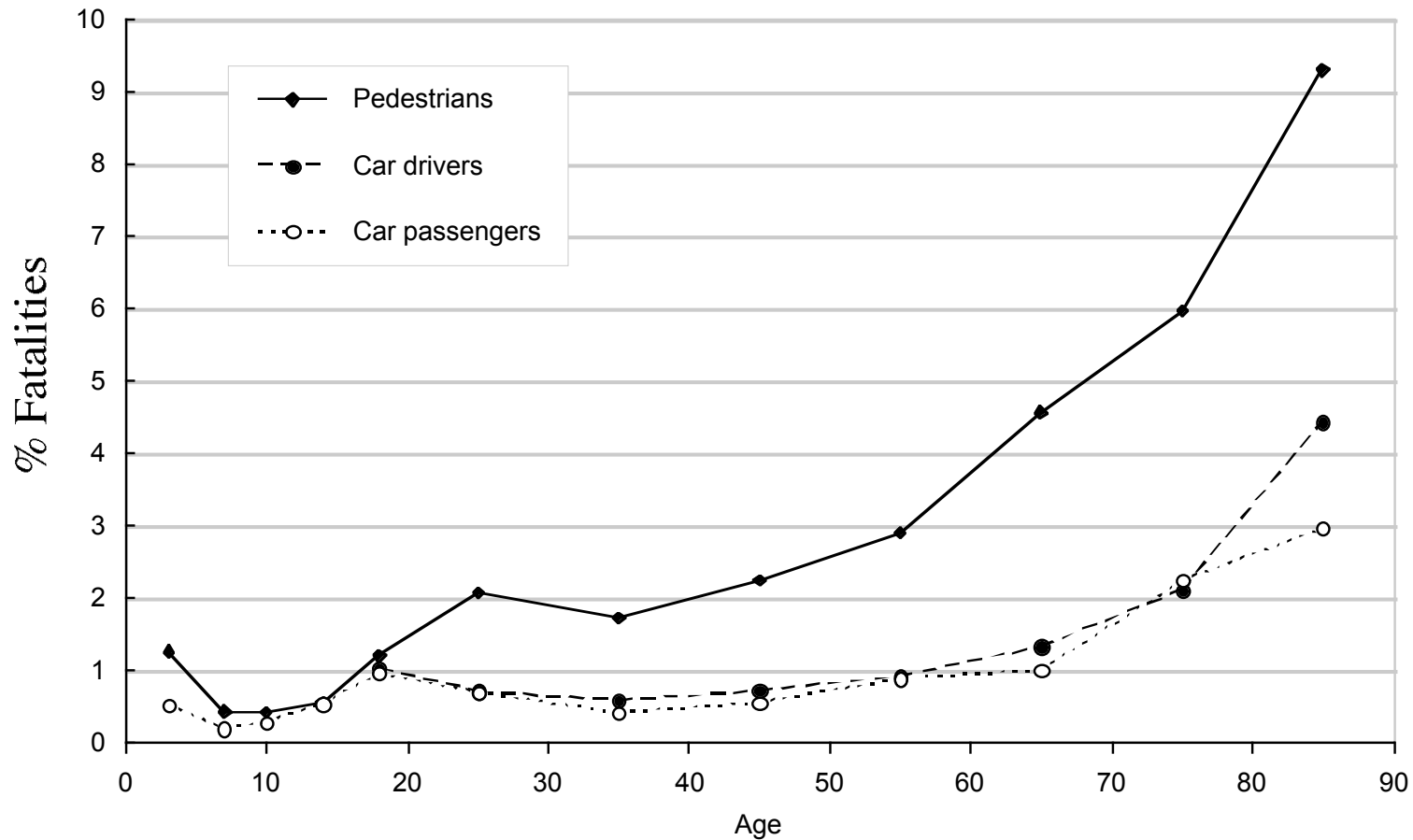
Mobility, health, and societal costs



Representation of Older People as Road Accident Casualties in Great Britain, 1998

Severity	Percentage of older road user casualties					
	All road users	Pedestrians	Bus passengers	Pedal cyclists	Car drivers	Car passengers
People aged 60+ 20.5 percent of the population						
Killed	25.4	46.6	52.9	19.6	20.6	24.4
Seriously injured	14.1	21.8	50.3	7.8	13.8	15.3
All severities	9.8	14.6	33.8	5.0	8.8	10.4
People aged 80+ 4.6 percent of the population						
Killed	8.2	19.0	23.5	1.3	5.6	6.2
Seriously injured	3.3	7.1	16.0	0.6	2.5	3.1
All severities	1.6	4.1	6.7	0.5	1.1	1.6

Fatality Ratio Percent of all Injuries by Age and Mode of Travel



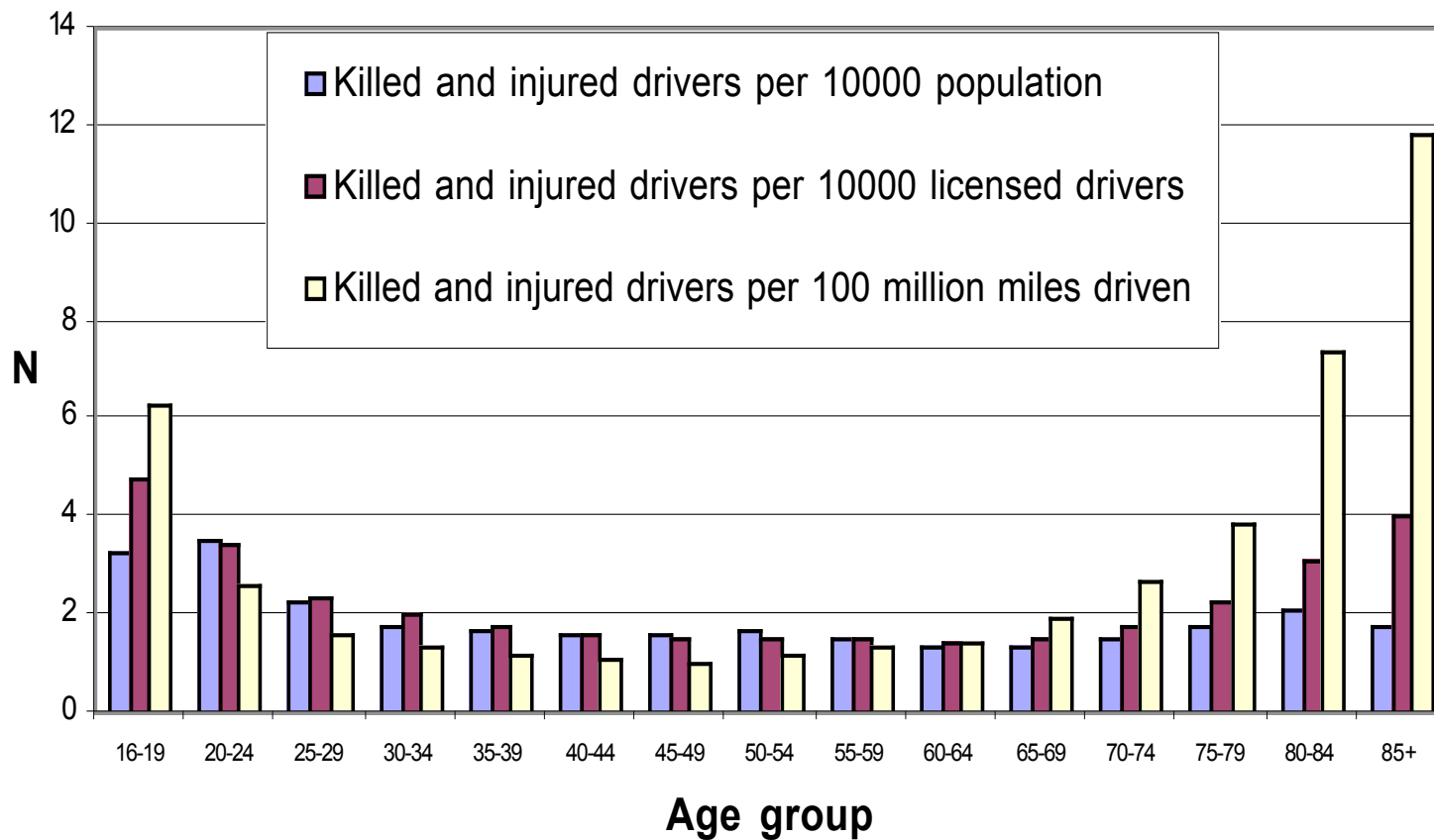
Safety problems of older persons in traffic

- Main source of concern: pedestrians
- Most important risk factor: physical frailty
- At risk, not risky

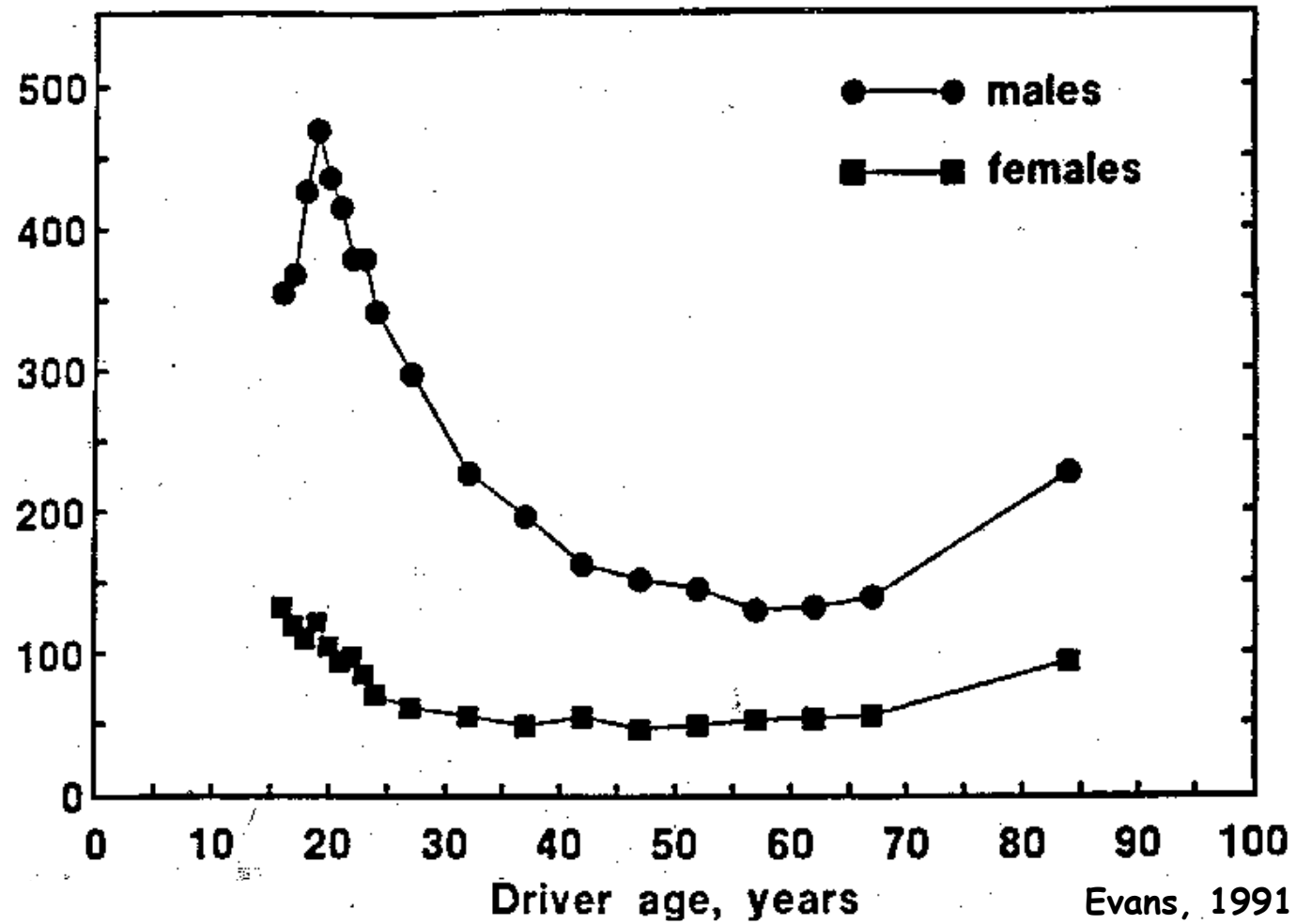
Estimating risk on the basis of crash statistics

$$\text{Risk} = \frac{\text{Accidents}}{\text{Exposure}}$$

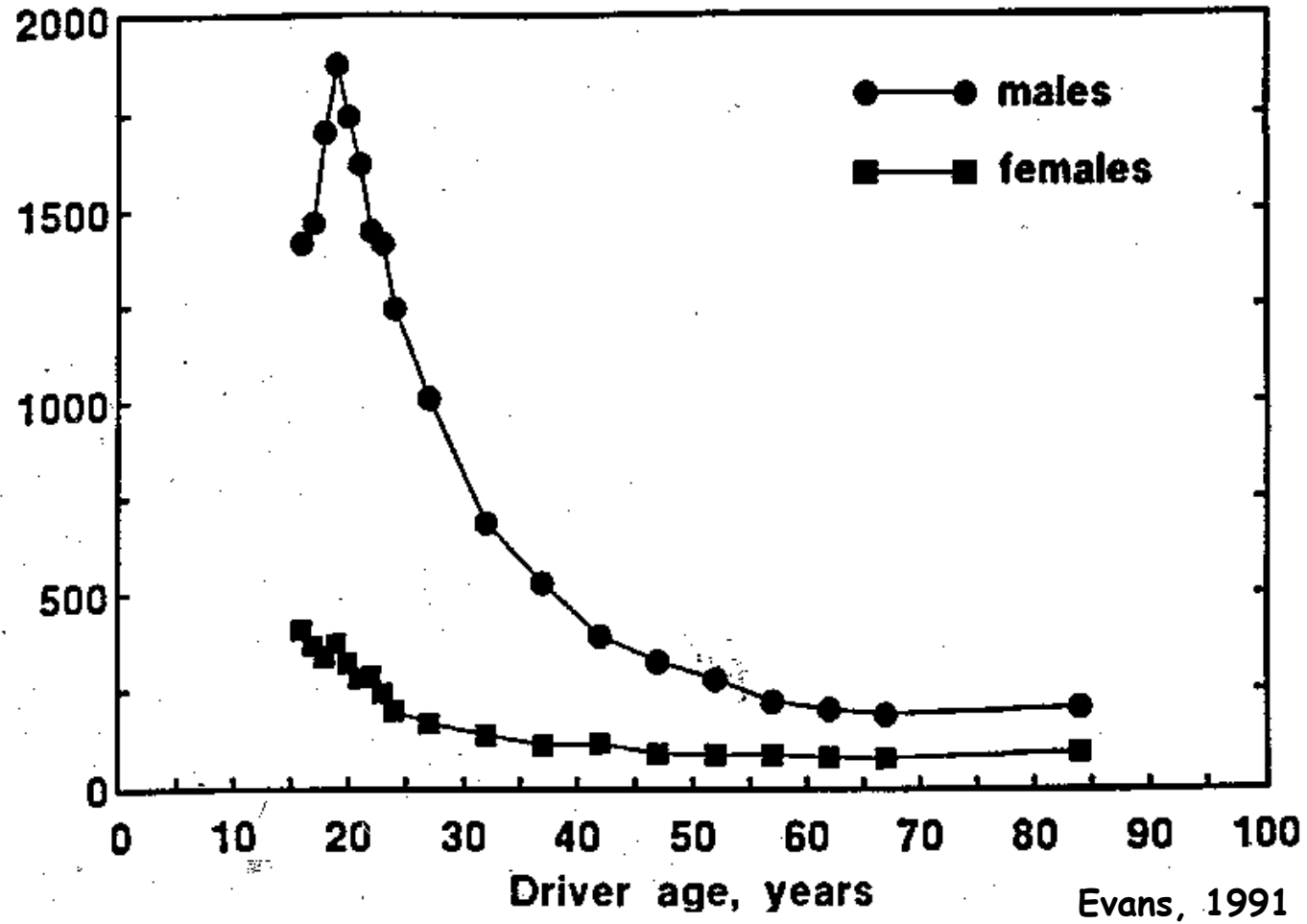
Driver fatalities and injuries by age related to population, number of driver licenses, and mileage driven (FARS 1997)



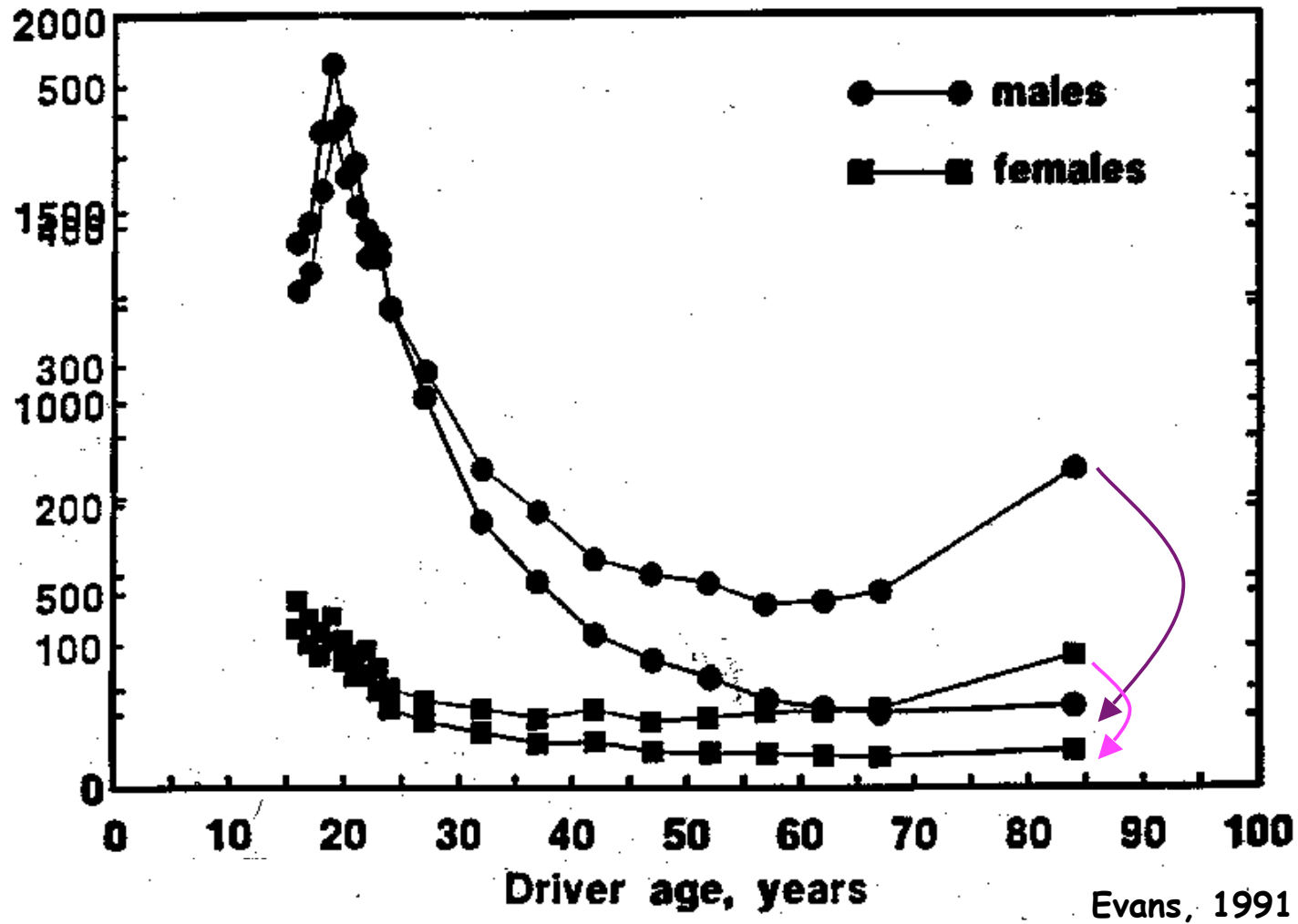
Driver fatalities per million licensed drivers



Severe crash involvements per million licensed drivers



Fatalities and severe crash involvements per million licensed drivers

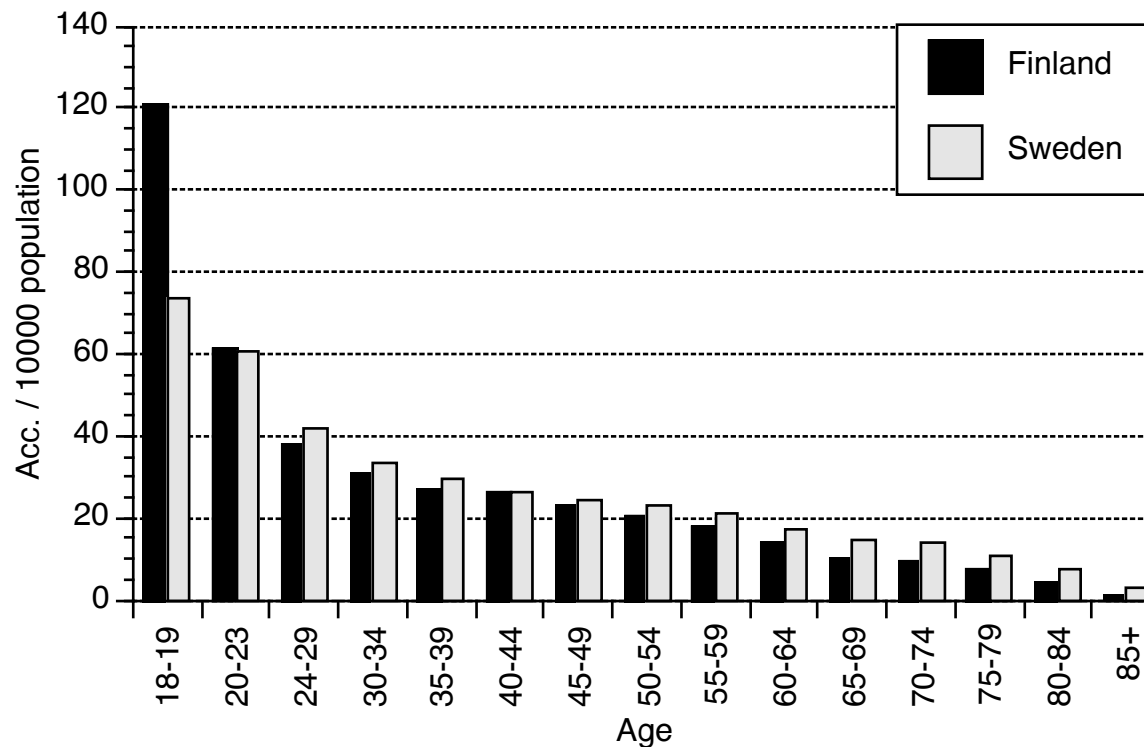


Further findings on frailty bias

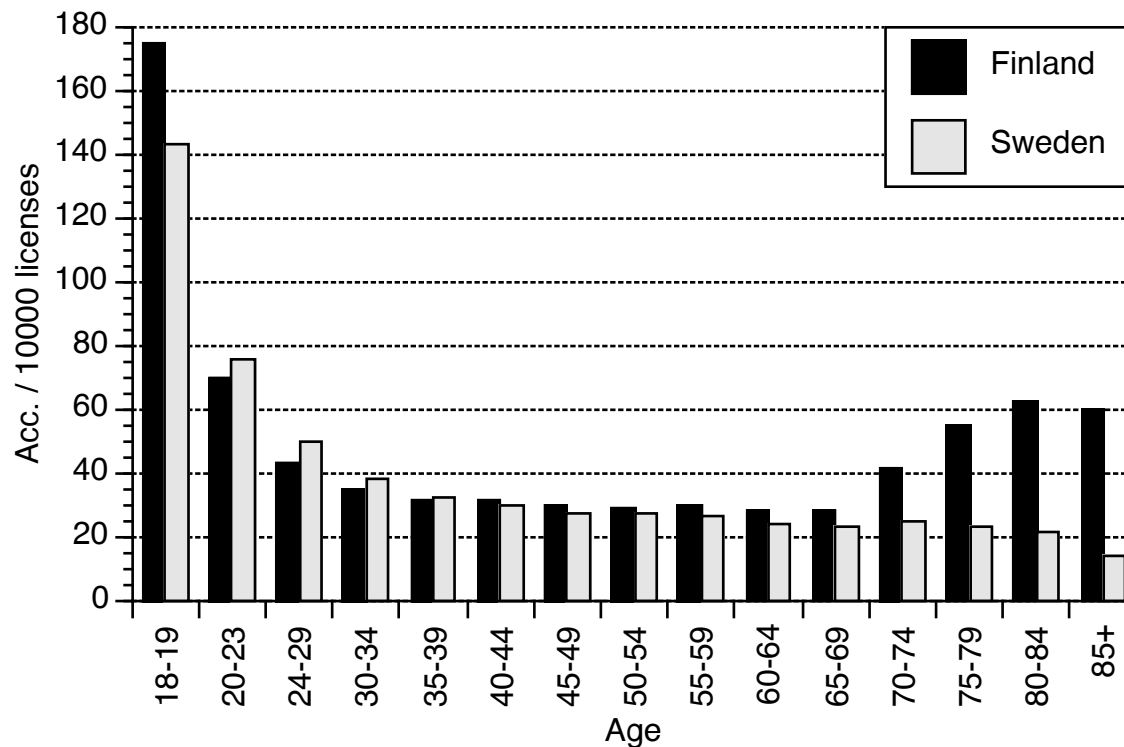
- Frailty is of over-riding importance in explaining the increased fatality risk per traveled km in older persons
- Young drivers die because of the excessive crash involvement, older drivers die because they are fragile

(see Li et al., 2003; Meuleners et al., 2006)

Drivers in police-reported private car accidents leading to personal injury per 10000 population in Sweden and in Finland in 1990



Drivers in police-reported private car accidents leading to personal injury per 10000 licenses in Sweden and in Finland in 1990



Low mileage bias: An example

Overall rates of acc/km: Older: 10.8, younger: 8.3

		Yearly driving exposure		
		≤3000 km	>3000 km ≤14000 km	>14000 km
Age				
26-40	n drivers	38	64	98
	Σ km/year	48350	543800	2502500
	mean km/driver/year	1272,48	8496,9	25535,7
	Σ acc*	3,5	8,0	14,5
	acc/1 million km	72.4	14,7	5.8
65+	n drivers	202	515	163
	Σ km/year	319253	4150568	3331418
	mean km/driver/year	1580,5	8059,3	20438,1
	Σ acc*	15,5	48,0	20,5
	acc/1 million km	48.6	11.6	6.2

Problems in estimating older drivers' risk

- Frailty bias
- Low mileage bias

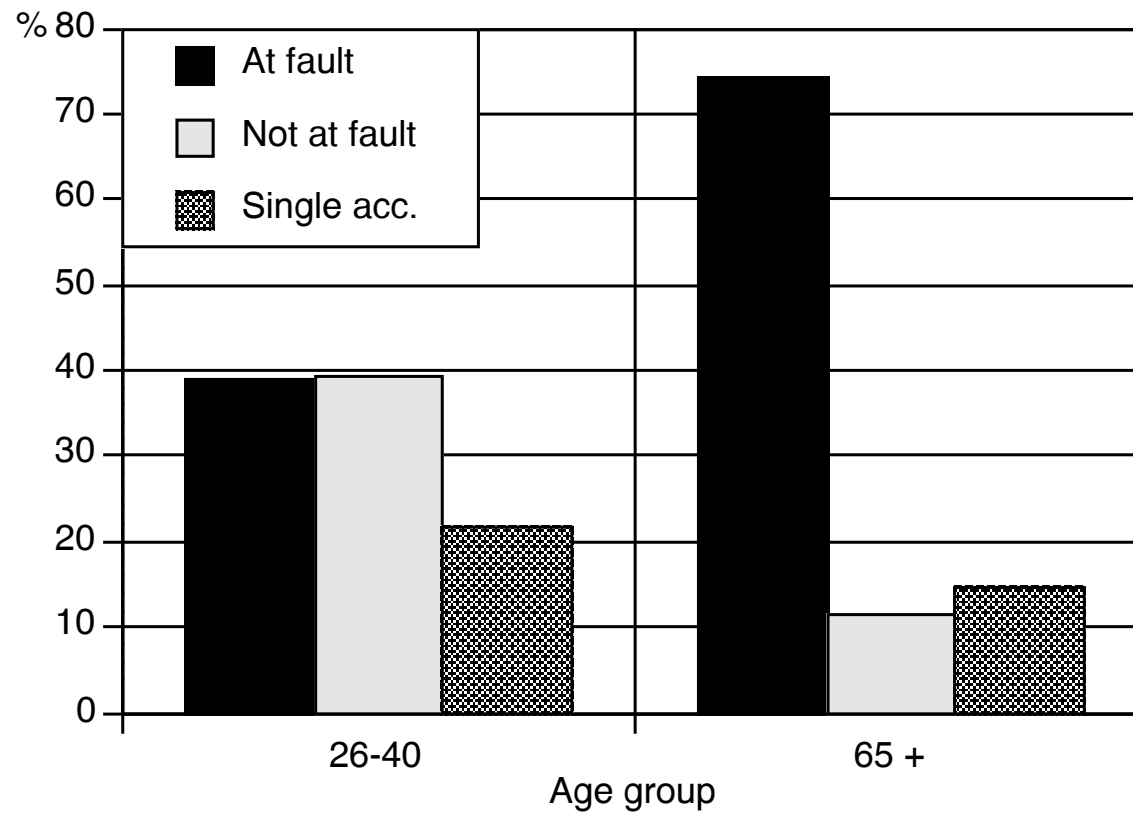


Overestimation
of risk

- Proportional comparisons fallacy

Proportions of drivers in single-vehicle accidents, at fault in collisions and not at fault in collisions

(Finnish RAIT data 1984-1989)



Age-related risk increase in drivers: What do we know?

- Increasing risk of injury and death? *Yes*
- Increasing risk of accidents? *Evidence not conclusive; in any case not very large*
- Different accident characteristics? *Yes; differences reflect both weaknesses and strengths*

Is screening an effective traffic safety measure?

- Average risk 1/20 000
- "High risk" 1/10 000
- Given perfect specificity and sensitivity,
preventing one accident costs the mobility of 9 999 safe older persons
- Conclusion: Risk increases have to be very large for screening to be safety-inducing on system level



"It is likely that most of the over-representation of older drivers is attributable to outcome severity and to differences in kinds of exposure, not to age-specific frequency of involvement. If so, the motivation for seeking remedy to older driver over-representation in measures aimed at reducing the frequency of involvement may be without foundation."

(Hauer, 2006)

Difficulties in predicting future developments

- Cohort effects
- Gender effects
- Time effects



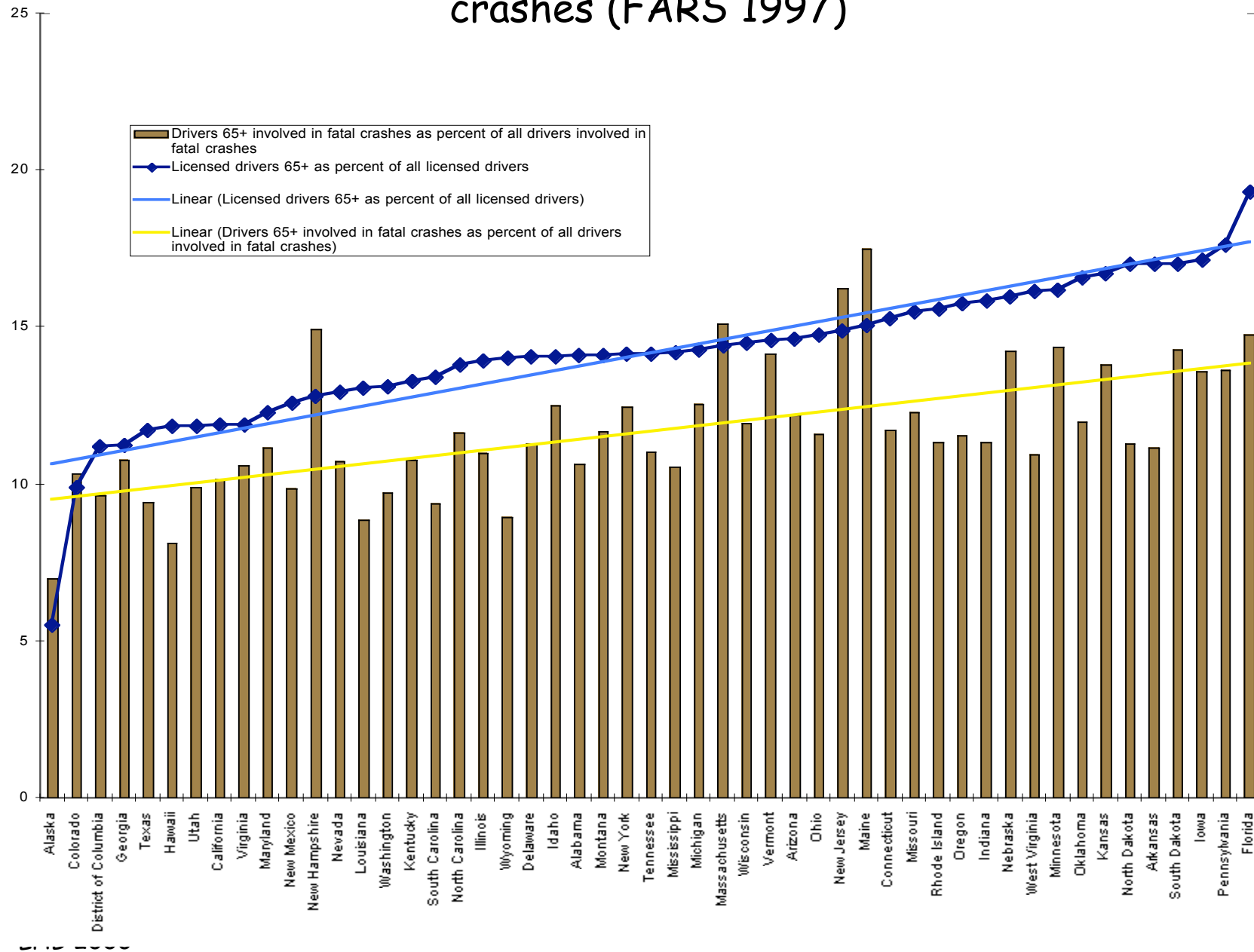
Babyboomers as future older road users

(preliminary findings from a VTI survey study)

Swedish license holders born in 1944:

- Rely heavily on private car driving for their daily travel
- Expect to be still driving at the age of 80
- Would consider driving cessation for health reasons only
- Regularly provide transport services to older relatives or friends

Share of drivers aged 65+ compared to their share of fatal crashes (FARS 1997)



Policy priorities (OECD, 2001)

1. Support and funding to enable lifelong mobility;
2. Support for older people to continue driving safely;
3. Provision of suitable transport alternatives to the private car;
4. Involvement of older people in policy development;
5. Safer vehicles for older people;
6. Development of safer roads;
7. Appropriate land-use practices;
8. Educational campaigns to ensure maximum mobility and safety for older people

Recommendations: How to make it happen

- Well-informed policy makers working with a sound problem definition
- Broad collaboration between different areas of policy making
- Involving the "target"
- Engaging new actors