



## Accidental falls in elderly

A systematic review of the cost-effectiveness of preventive measures and an economic analysis

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### Brief topic overview



- Accidental falls is a big escalating **public health problem** – because people's increasing length of life leads to an increasing exposure to risky situations in fragile people
- Subsequent injuries **reduces quality of life** and **incurs great costs** for society
- Many falls and related injuries **can be avoided** by **preventative interventions**



## Outline

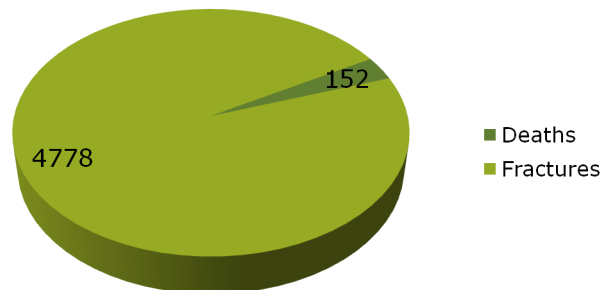
- How big is the problem?
- How much does it cost?
- Which interventions are cost-effective?
- What can be gained by implementing cost-effective interventions?
- Summary



## How big is the problem?

Falls and subsequent injuries are a major cause of immobility, morbidity and mortality

**Number of deaths and fractures due to falls per million inhabitants and year**

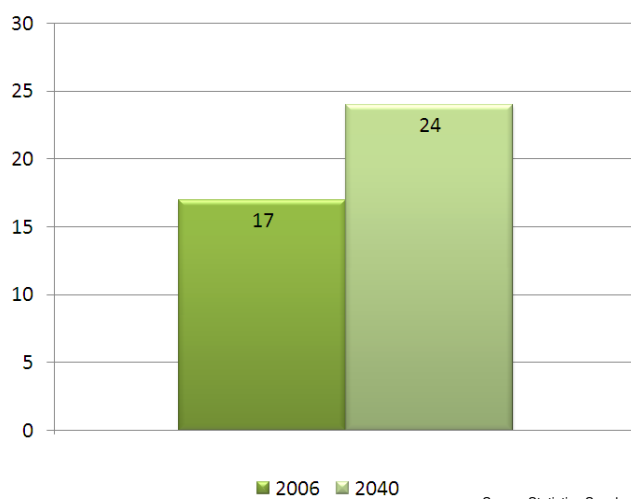


## How big is the problem?

- In Sweden, more than **three times as many elderly dies** due to falls compared with all traffic deaths each year
- **Escalating** public health problem – demographic changes



Share of 65+ in population, Sweden



## How much does it cost?

# Different costs

Other

Direct

QoL

Production loss\*

Health care

\* If health care system accepts this calculation – ethical guidelines

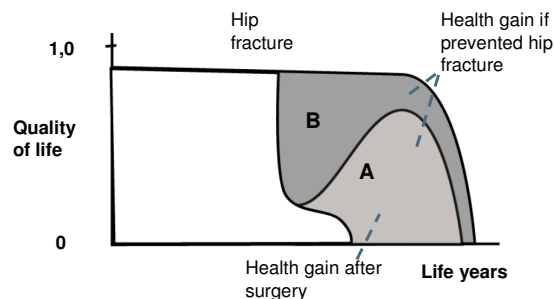


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## Quality of life, QALY:s Quality Adjusted Life Years

- QALY:s is a measure that encompasses both life years and quality of life, and thus takes both measures into account



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## What is the value of a QALY?

- Difficult to value but important – one scale makes it easier to compare between interventions
- Varies between method of measurement and between countries
- In a Swedish context others have argued for a value of about 88 000 \$/QALY\*

\* Borgström et. al and Persson et. al.



## How much does it cost?

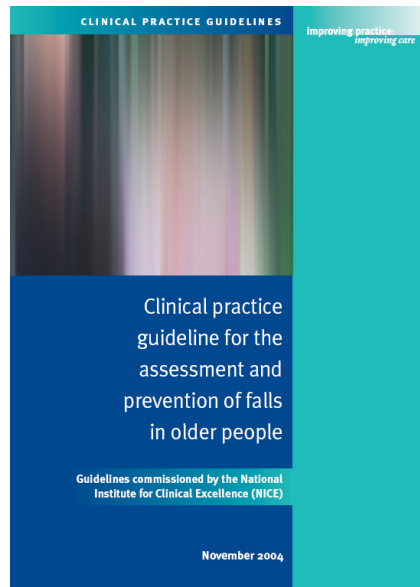
	Direct costs, millions \$/ 10 million	Cost of deterioration in quality of life	Percentage of total costs
Fatalities	10	630*	31 %
Serious injuries	690	690	68 %
Minor injuries	30	0	1 %
<b>Total</b>	<b>720</b>	<b>1 330</b>	<b>2 050</b>

\*Discounted by 3%



## Which interventions are cost-effective?

- A systematic review of reviews was conducted to search for evidence of the cost-effectiveness of fall prevention interventions
- Only reviews, meta-analyses and clinical guidelines were eligible for inclusion to get an overview
- Only found one – a NICE report



Author	Intervention	Costs included	Cost per person	Age group	Cost effectiveness
Salkeld	Home hazard	All costs associated with the intervention. Treatment costs.	A\$ 98 730 SEK	65+	A\$ 4986 per fall prevented <b>37 109 SEK</b>
Tinetti Rizzo	Multifactorial	Costs for intervention only. Treatment costs.	\$ 891 6 788 SEK	70+	\$ 2 150 <b>16 381 SEK</b>
Smith	Home hazard model	All costs.	A\$172 1 268 SEK	75+	A\$ 1 721 <b>12 700 SEK</b>
Robertson	Home-based exercise	All costs associated with the intervention. Treatment costs.	NZ\$ 432 2 633 SEK	75+	NZ\$ 1 803 per fall prevented <b>10 993 SEK</b>
Robertson	Home-based exercise	All costs associated with the intervention. Treatment costs.	NZ\$ 418 2 548 SEK	80+	NZ\$ 1 519 per fall prevented <b>9 259 SEK</b>
Buchner	Centre-based exercise	Not reported. Treatment costs.	N/A	68-85	N/A
Schnelle	Exercise and incontinence care	Not stated. Treatment costs.	N/A	80+ in residential care	N/A



## Which interventions are cost-effective?

- In general, interventions targeted towards high-risk individuals seems to show better cost-effectiveness
- That may seem obvious but it could be the case that identifying high-risk individuals is more costly than the gain.




## Which interventions are cost-effective?

- Difficult to say – we need to know how much a prevented fall is worth
- Depends on probabilities of death and different injuries
- Lack of evidence – only a few studies with limited information



## What can be gained by implementing cost-effective interventions?

- Obviously, health care costs could be saved and deterioration in quality of life could be avoided
-  More health for the same amount



## Summary

- Big escalating public health problem
- Scarce resources – important with cost-effective interventions
- Evidence of effective interventions exist. However, evidence of the cost-effectiveness of interventions is limited
- Modelling could be a way forward



**Thank you for your  
attention!**



**Diagrammatic representation of the Markov Model**

States of the model are represented by the ovals, transitions between states represented by the arrows

