

Prevention of falls and injuries - Population approaches or individual approaches?

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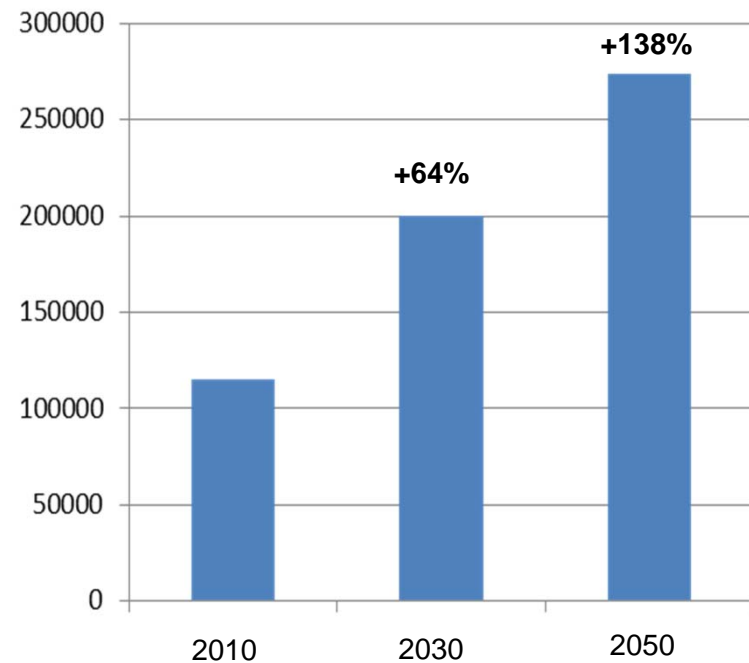
Glasgow, 19.11.2014



Perspective

- Expected increase of osteoporosis attributable fractures (and direct costs) between 2010 and 2050:
 - 2030: 64% (270%)
 - 2050: 138% (441%)

Number of osteoporosis attributable fractures



Bleibler, Rapp et al., Osteoporos Int 2012

Model calculation

- Expected increase of femoral fractures between 2014 and 2025 in Germany due to the demographic change:
 - 24%

Effect of fall prevention groups on the absolute number hip fractures in the population (model calculation)

1. present (2014)

Fall prevention exercise	Percentage of persons aged 70 to 89 years needed to participate in order to achieve the targeted reduction			
	Reduction in 2014 by			
	10%	15%	20%	25%
RR 0.39	20.9	31.3	41.8	52.2
Sensitivity analysis				
Lower boundary of 95 % CI: 0.22	16.3	24.5	32.7	40.8
Upper boundary of 95 % CI: 0.66	37.5	56.2	74.9	93.7

2. in the future (2025)

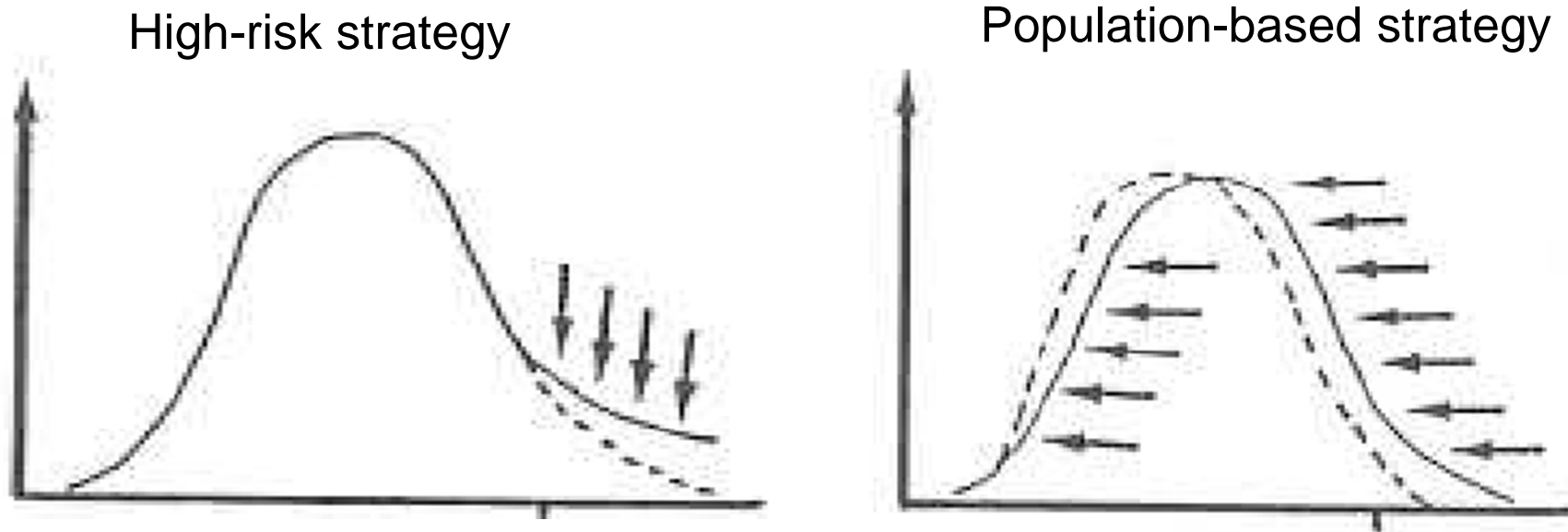
Fall prevention exercise	Percentage of persons aged 70 to 89 years needed to participate in order to achieve the targeted reduction			
	Reduction of expected increase between 2014 and 2025 to			
	15%	10%	5%	0%
RR 0.39	16.2	25.1	33.9	42.7
Sensitivity analysis				
Lower boundary of 95 % CI: 0.22	12.7	19.6	26.5	33.4
Upper boundary of 95 % CI: 0.66	29.1	44.9	60.8	76.6

Problems / Barriers

- high number of fall prevention groups and exercise instructors are needed
- participation rates are unrealistic
 - Motivation; perceived susceptibility and threat; self-efficacy; competing demands for preventive actions; labelling
 - Fun
- Adherence
 - high efforts to assure quality
- Success is only palliative and contemporary (people have to be convinced to participate year by year, generation by generation)
- Therefore: contribution to overall control may be only small

Additional approach

- Falls are a population-wide problem
- A population-wide problem needs population-based measures



G. Rose - shifting the population distribution of a **risk factor** prevents more burden of disease than targeting people at high risk

Population-based measures

- Measures should influence **risk factors** for falls...
 - muscle strength, balance, cognition, environmental hazards, drug prescription, ...
- Measures should ...
 - ...be focused on health promotion (shift from fall prevention to health promotion)
 - ...cover different domains of health (e.g. muscle strength, balance, endurance, ...)
 - ...fit in daily life
 - ...influence elderly people's attitude (e.g. concerning physical activity in old age)
 - ... change the environment
 - ...be sustainable

Examples – in theory

- Mass media programs for elderly people
 - Message: physical activity is normal, common, desirable also in high age; increases QoL; is fun
- Increase offerings for physical activity
 - One example: strength and balance training
- Environment
 - Make public space accessible/usable/safe
 - Barrier-free buildings
- Education
 - Training of students



Examples – in practice

- Cochrane Review
- Our projects
 - 1. ‚Schritt halten‘
 - 2. Fall prevention in nursing homes
 - 3. ‚Trittsicher‘ Project
 - 4. BZgA



Evidence from the literature

- Cochrane Review (McClure et al., 2005)
 - 6 publications
 - Reduction of injuries by 5-30%
- Tinetti et al., NEJM 2008: reduction of serious injuries and of use of medical services by 9 and 11%

Problems of evaluation

- Methodological limitations
 - Not randomised
 - Contamination / spill over effect
 - Some of the effects may be seen not before several years (e.g. teaching of medical students concerning the prescription of sedatives)
- For scientists: extremely high effort – low impact factor

1. Schritt halten Project

Website & Booklet
Printbroschüre with offerings for physical activity for older people

Teaching of exercise instructors

presentations



Posters



Use of the local mass media (print & radio)

Awareness day



Schritt halten Journal



Otago-Program



Booklet how to use public transport



Experiences / Results



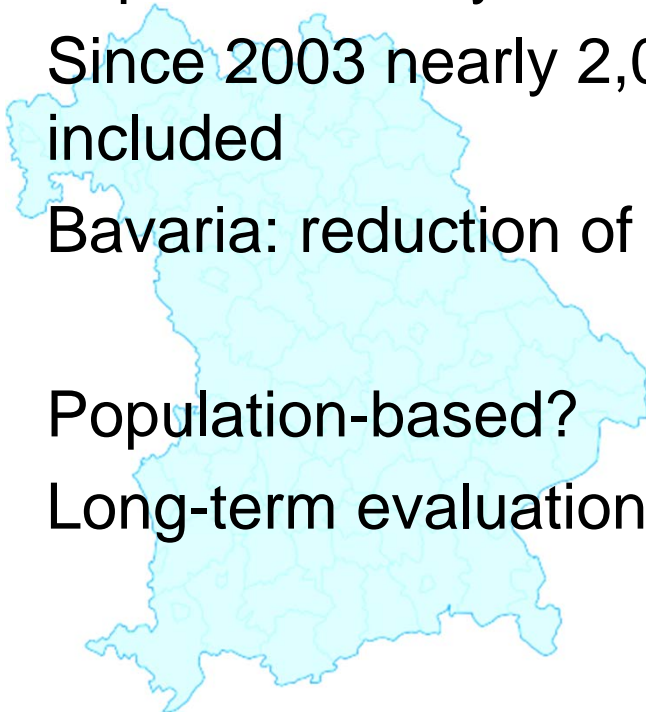
- Website (German / English)
 - Own strategies / interventions
 - Results, experiences
 - Further ideas
 - Materials
- Otago-Program: dissemination to other parts in Baden-Württemberg
- Other communities adopted ideas

<http://www.schritthalten.info>

The screenshot shows a web browser window displaying the website 'Schritt halten'. The page is titled 'aktiv älter werden in Reutlingen'. The navigation menu includes 'START', 'INFO', 'CONSTRUCTION KIT', and 'ARCHIVE & RESSOURCES'. The main content area is divided into 'TOPICS' and 'STRATEGIES & IDEAS'. Under 'TOPICS', there is a list of three items: 1. Exercise Classes, 2. Creating an environment that inspires physical activity and supports mobility, and 3. Awareness Raising. Under 'STRATEGIES & IDEAS', there are links for 'Schritt halten Strategies', 'Otago exercise program', 'Ideas & Exemplary Projects', and 'Preventive home visits'. The main text area is titled 'Handling the Construction Kit' and contains several paragraphs of text explaining the project's goals and implementation strategies.

2. Fall prevention in nursing homes

- Dissemination of a multifactorial fall prevention program to most of the nursing homes in
 - Baden-Württemberg (10.7 million inhabitants; 1200 care homes) – started 2003
 - Bavaria (12.5 million inhabitants; 1400 care homes) – started 2007
- Implemented by a health insurance company (AOK)
- Since 2003 nearly 2,000 nursing homes have been included
- Bavaria: reduction of hip fractures by 18%
- Population-based?
- Long-term evaluation 2015-2016



3. Fall prevention and bone health in rural areas



- Objective
 - Offer fall prevention exercise (in groups) and bone density measurements to high risk groups
- Target groups
 - People with a fracture history
 - Women aged 75- <80 years
- Regions
 - 47 districts in 5 federal states
 - Cluster-randomised implementation study
- Begin: 2015
- Population-based?



4. BZgA



- BZgA: Bundeszentrale für gesundheitliche Aufklärung - Federal Centre for Health Education
- Campaigns
 - HIV; Alcohol abuse of young people
- Next campaign: “Älter werden in Balance” – Aging in balance
 - Trailer
 - Support “Trittsicher”
 - **use and disseminate ProFouND materials**
 - Booklets, fact sheets



Conclusion

- High risk approaches and population-based approaches are complementary
- We need both approaches if we want to reduce the burden of falls and fall-related injuries

- Population-based approaches need
 - (Cooperation of) powerful organisations
 - Champions
 - Time has to be ripe