

Lessons from home care trials

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Lessons learned from research on preventive home visits over past 15 yrs

- 1989 Santa Monica project (USA)
- 1995 EIGER project (Switzerland)
- 2002 Systematic analysis preventive home visits
- 2004 A computer-based approach (HRA-O)
- 2004 Education of primary care professionals (DK)
- ongoing: The MRC trial 2004 (UK)
- Lessons

1989: Santa Monica project

1984: Hendriksen et al., BMJ 1984;289:1522

Preventive home visits: hospital admissions ↓

1984: Rubenstein et al., NEJM 1984;311:1664

CGA unit: mortality ↓; functional status ↑

Hypothesis: Preventive home visits combined with MGAs (multidimensional geriatric assessments) prevents functional status decline and reduces nursing home admissions

1989: Santa Monica project: design

Population: Community-dwelling persons 75 years and older, exclusion of severely disabled

Randomization intervention versus control group

Intervention: Yearly MGA, 3 years, 3-monthly follow-up visits, case discussion with geriatricians, empowerment

Primary outcomes: Functional status and long-term nursing home admissions

1989: Santa Monica project: results

Nursing home admission

4% vs. 10% OR: 0.4 (95% CI: 0.2-0.9)

Dependent on assistance in BADL

12% vs. 22% OR 0.4 (95% CI: 0.2-0.8)

Use of in-home care management services

20% vs. 17% n.s.

(Stuck AE et al., NEJM 1995;333:1184)

1989: Santa Monica project: The process of care: problems

On average, 19.2 different problems identified per subject over the three-year period

Percentage with additional problem

medical	yr. 2: 88%,	yr. 3: 89%
functional	21%,	15%
mental health	14%	9%
social/ environm.	38%	27%

(Alessi CA et al., JAGS 1997;45:1044-50)

1989: Santa Monica project:

The process of care: recommendations

On average, 28.8 recommendations were given per subject over the three-year period

Percentage distribution

self care activity	51%
referral to physician	29%
r. to other health care professional	20%

Number of recommendations per year:

yr. 1: 10.3, yr. 2:11.9, yr. 3: 12.2

1989: Santa Monica project: What we learned

High potential (decrease of nursing home use due to prevention or delay of functional status decline)

Process of care: repeated assessments because:

- new problems over time
- persistence

Costs: \$6000 health care costs per disability-free life gained

Better effects in persons with relativ. good function

1995: The EIGER project

Background: The Santa Monica project

Several new trials of preventive home visits
(including three trials with negative outcomes)

Swiss National Research Program on Aging

Hypothesis: The Santa Monica model works in
other health care environment, these preventive
home visits are more effective in persons with
relatively good health (i.e., low risk for nursing
home admission)

1995: The EIGER project: design

Population: Community-dwelling persons 75 years and older, exclusion of severely disabled

Stratified randomization intervention versus control group according to risk status

Intervention: Yearly MGAs, 2 years, 3-monthly follow-up visits, case discussion with geriatricians, empowerment

Primary outcomes: Functional status and long-term nursing home admissions

1995: The EIGER project: intervention

Average number of new problems identified in first 9 months of project

region A (nurse A) 8.4 ± 3.3 problems

region B (nurse B) 8.2 ± 3.7 problems

region C (nurse C) 5.7 ± 2.3 problems

($p < 0.001$)

no difference in base-line characteristics between subjects of three project areas

1995: The EIGER project: results

Project areas A and B:

High risk: no effect

Low risk: BADL 3% vs. 12 % (OR 0.2; 0.03-0.7)

favorable effects on IADL/ nursing home admissions
(yr 1 net 400\$ additional cost, yr 3 net 1400\$ savings)

Project area C:

High risk: no effect, increased rate of nursing home ad.

Low risk: no effect

(Stuck AE et al., Arch Int Med 2000; 160:977-86)

1995: The EIGER project: results

Overall 491 refusers to participate compared with 527 participating controls

No relevant differences at base-line

- age in years: 81.8 ± 4.4 vs. 81.6 ± 4.6
- % female 73.1% vs. 73.1%
- % fair/poor health 36.6% vs. 32.7%

1995: The EIGER project: 5-year
mortality of refusers

1995: The EIGER project: 5-year mortality of refusers

Overall 491 refusers to participate compared with 527 participating controls

Follow-up mortality: HR 1.5 (1.2-1.9)
subgroups:

- “too sick” mortality $\uparrow\uparrow$ (HR=4.9)
- “too healthy”: mortality =, nursing home \downarrow
- “not interested”: mortality \uparrow (HR=1.7), physician contact \downarrow
- “other reasons” mortality \uparrow (HR=1.7)

(Minder CE et al., Am J Publ Health, 2002;92:445)

1995: The EIGER project

What we learned

Favorable effects in persons with relatively good health

Health visitor's performance in conducting the home visits are related to effects

Main reasons for non-participants in these programs (about one third of population)
perceived cost and benefit from participating
too healthy, too sick, the no interest group

(Minder CE et al., Am J Publ Health, 2002;92:445)

2000: Systematic analysis: preventive home visits

Systematic analysis of randomized
controlled studies of preventive home
visits

Discordant effects. Majority of studies
show no favorable effects

van Haastregt JCM et al. BMJ 2000;321:994-998.

MGA for frail older persons: meta-analysis (Lancet 1993)

28 controlled studies in frail older persons, pooled effects for:

- Inpatient geriatric evaluation and management units
- Hospital-home assessment programs
- Outpatient assessment programs
- Inpatient consultation services
- Home assessment programs

(Stuck, Siu, Wieland, Adams, Rubenstein, Lancet 1993)

2002: New systematic analysis:
hypotheses

2002: New systematic analysis: hypotheses

Lesson learned: “home assessment studies”
(pooling or vote counting misleading)

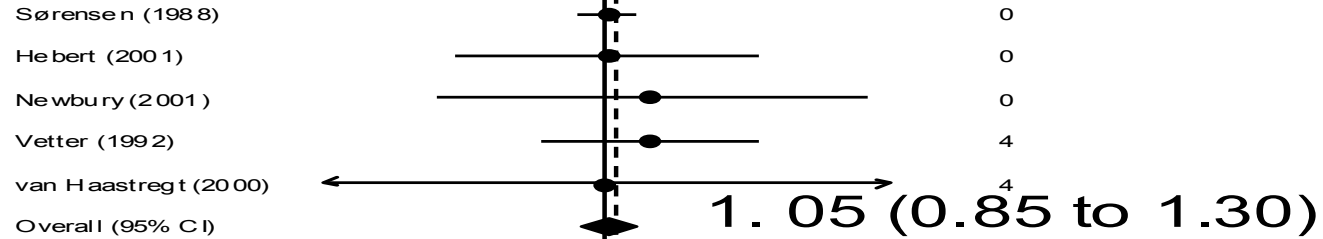
Hypothesis: main differences in intervention
process between studies relevant for outcomes

- preventive home visits vs. care coordination
- multidimensional geriatric evaluation yes/no
- long-term intervention follow-up
- targeting to persons at low risk

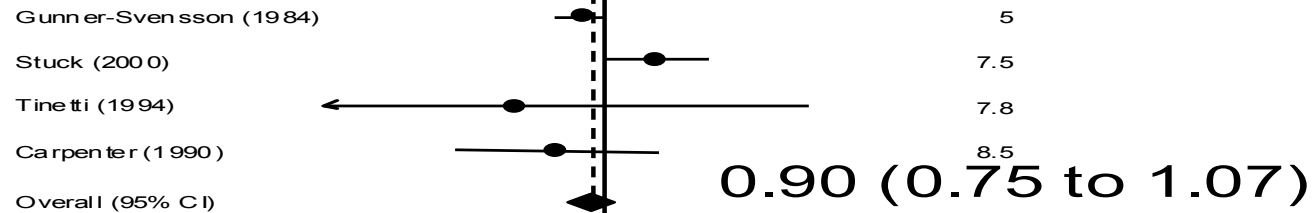
(Stuck AE et al, JAMA 2002; 287:1022).

Risk of nursing home admission

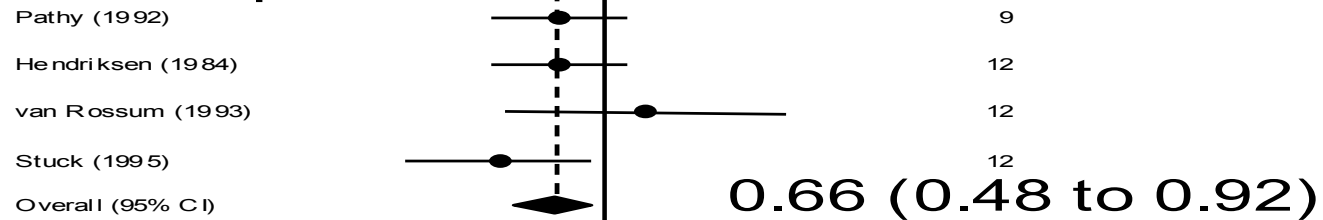
0 to 4 follow up visits



5 to < 9 follow up visits



> 9 follow up visits



0.1 0.2 0.5 1 2 5 10

Risk ratio

Risk of functional status decline

No multidimensional assessment and follow up

Vetter Gwent (1984)
Vetter Powys (1984)
Sørensen (1988)
Carpenter (1990)
McEwan (1990)
Vetter (1992)
Clarke (1992)
Pathy (1992)
van Rossum (1993)
Newbury (2001)
Overall (95% CI)

Multidimensional assessment and follow up

Fabacher (1994)
Tineti (1994)
Stuck (1995)
Stuck (2000)
van Haastregt (2000)
Hebert (2001)
Overall (95% CI)

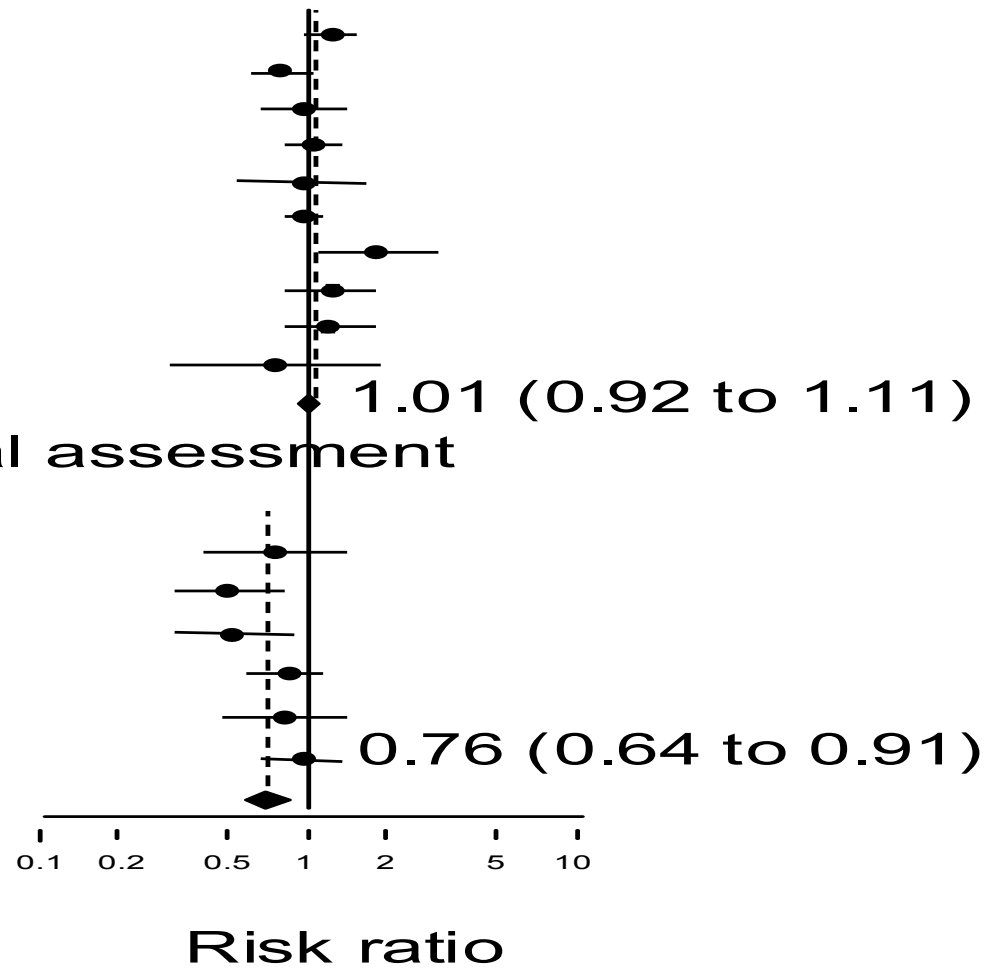


Figure 3, Stuck et al., JAMA 2002

2002: Systematic analysis: What we learned

Meta-regression analysis suggests correlation
between intervention characteristic and effect

Key elements:

- multidimensional assessment
- long-term follow-up
- probably persons at low risk
- not measured: performance of visitors/ centers

(Stuck AE et al, JAMA 2002; 287:1022).

2004: A computer-based approach: Health Risk Appraisal for older persons

- identification of modifiable risk factors for functional status decline
- individualised feed-back recommendations to reduce these risks
- studies show favourable impact on health behaviour and risk factors in older persons in programs with reinforcement of recommendations

2004: The HRA-O system

- Self-administered questionnaire (32 pages)
- Software program to generate:
 - Individualised personal health profile report
 - Summary report for health care provider
 - Database for analyses
- To be combined with method for reinforcement, e.g. group sessions, home visits

2004: PRO-AGE study: intervention

General practitioner send HRA-O questionnaire to all his/her patients aged ≥ 65 yrs.

Older persons receive individualised health profile report

Based on summary report home general practitioner reinforces recommendation based on regional health care system (individual or group)

- Germany: combined with group sessions
- London: no additional intervention
- Switzerland: combined with preventive home visits

2004: PRO-AGE study:

What we learned from this study

Effects of HRA-O combined with reinforcement (home visits/ group sessions): improvement of uptake of preventive care and health behaviour

In younger cohorts: effects on nursing home admissions and decline in basic ADLs cannot be shown in usual samples

Empowerment of older persons with instrument for self-administration is feasible

2004: Education of primary care professionals (DK)

Education of primary care professionals

5788 home-dwelling 75- and 80-year old persons, living in 34 Danish municipalities

All older persons are offered home visits (national program)

Randomization of matched municipalities

Outcome: functional ability

2004: Education of primary care professionals (DK): Key points

- multidimensional evaluation (including medical)
- focus on early signs of disability
- empowerment
- emphasize physical activity
- focus on geriatric problems
- inform about local services
- encourage follow-up
- good communication

2004: Education of primary care professionals (DK): Results

- Functional ability in women:
OR 1.26 (1.08-1.47)
- Functional ability in men
OR 1.04 (0.85-1.21)
- unexplained higher mortality in women
intervention group compared to controls
(HR:1.46)

2004: Education of primary care professionals (DK)

What we learned

- Hypothesis: Different effects in women as compared to men?

Ongoing: The MRC trial of assessment and management of older people in the community

Recruitment of 106 practices and 33'000 older people

Cluster randomized factorial trial

Factor 1: Universal assessment versus targeted

Factor 2: Follow-up with multidisciplinary geriatric team vs. general practice team

Outcomes: Mortality, institutional admission, hospital admission, quality of life

(Fletcher AE et al., BMC Health Services Research, 2002; 2:21)

Ongoing: The MRC trial
What will learn from this trial?

Ongoing: The MRC trial

What we will learn from this trial

Effects of very large trial

Effects of a single universal assessment (vs. targeted assessment)

Effects of a follow-up by geriatrics as compared to primary care

If positive: Affordable and feasible system for implementation in UK

If negative: Evaluate findings

Discussion: The role of CCT according to the MRC guidelines

A framework for development and evaluation
of CCTs for complex interventions to
improve health (http://www.mrc.ac.uk/pdf-mrc_cpr.pdf)

Theory: Pre-clinical

Modelling: Phase I

Exploratory trial: Phase II

CCT (Clinical Controlled Trial): Phase III

Long-term implementation: Phase IV

What we learned

MGA has potential for secondary and primary prevention in relatively healthy older people

Effective MGA is related with repeated administration and long-term follow-up/management

Key elements: Patient empowerment, professional performance (assessment, priority setting, implementation)

Underlying instruments might be similar, but organization/ management differs

Lessons for practice

- target the type/ organization/ instruments of MGA to the group of older persons
- ensure integration into regional health and social care system
- initial investment needed, longer term overall savings realistic, emphasize overall benefit and process measures (appropriate care: avoid overuse and underuse)

Some ongoing activities of Geriatrics Bern

- research: evaluate PRO-AGE experience including research on individual risk factors (how to assess, how to modify)
- prevention: develop evidence-based tool for efficient appropriate care of primary care practitioners and for empowerment of older persons
- MGA: University-based model/ teaching/ course (e.g., clinical skills training on MGA for all medical students)