Review: home visiting with multidimensional assessment and multiple visits is effective in low risk elderly people


QUESTION: In elderly people, what are the effects of preventive home visits on nursing home admission, functional status, and mortality?

Data sources
Studies reported in English, French, German, Italian, and Spanish were identified by searching Medline, EMBASE/Excerpta Medica, PsycINFO (1985 to November 2001), the Cochrane Controlled Trials Register, conference proceedings, and specialty journals; reviewing bibliographies of earlier reviews and book chapters; and contacting experts.

Study selection
Studies were selected if they were randomised trials of the effects of preventive in-home visits in elderly people (mean age > 70 y) living in the community.

Data extraction
Data were extracted on the study population, characteristics of the intervention (multidimensional geriatric assessment, average number of home visits, and duration of intervention), and end points. Quality of individual trials was assessed (method of randomisation, blinding, and proportion of patients included in analyses).

Main results
18 trials (n=13 447, mean age at baseline 73 to 82 y) met the selection criteria. Meta-analysis of 13 trials (n=11 167) showed no difference between home visiting and the control intervention for nursing home admissions (table). Analysis stratified by the number of follow up visits found reduced nursing home admissions in programmes with > 9 follow up visits (4 trials, n=2291) (table).

Meta-analysis of 16 trials [n=8719]* showed no difference between home visiting and the control intervention for functional status (table). When trials were stratified according to whether the programme involved multidimensional assessment, home visiting programmes reduced functional decline more than did control interventions only in programmes with multidimensional assessment (6 trials, n=4061)* (table). When trials were stratified by control group mortality rates, home visiting programmes improved functioning more than did control interventions only in people with the lowest risk for mortality (5 trials, n=2340)* (table).

Meta-analysis of 18 trials (n=13 365) found no difference between home visiting and the control intervention for mortality (table); analysis stratified by age found that mortality was reduced only in the lowest age tertile (mean age 72.7 to 77.5 y) (6 trials, n=3044) (table).

Conclusion
Preventive home visit programmes that involve multidimensional geriatric assessment and 9 follow up visits reduce nursing home admissions, improve functional status in elderly people at lower risk for death, and reduce mortality in young-old people.

*Information provided by author.

COMMENTARY
Clinicians are uncertain about the efficacy of geriatric evaluation and management (GEM) because it is difficult to interpret findings of controlled trials and the difficulties in interpreting them. GEM largely has been a "black box" due to a lack of standardisation and few detailed descriptions of the process of assessment or the specific nature of the interventions. Researchers are also still puzzling over the optimal venue for GEM—home, clinic, or hospital. The subgroup analyses undertaken by Stuck et al., although potentially introducing bias, suggest features of GEM home visits that may improve functional outcomes when compared with usual care: multidimensional assessment (incorporating medical, functional, psychosocial, and environmental issues), extensive follow up, and targeting patients with good short term prognoses. These features apply to effective clinic based GEM. In contrast, GEM that targets elderly people who have been admitted to hospital, even with extended follow up in a GEM clinic, does not seem to have a sustained benefit on functional status. Although time intensive, GEM may be cost effective under a single-payer healthcare system because it reduces nursing home placement. Effective GEM models are impractical for primary care clinicians and should be implemented by a geriatrically trained team (with or without a geriatrician). The "Probability of repeated admission" (Pro) and the Veterans Administration criteria represent short, validated instruments that identify patients appropriate for GEM referral.

Calvin Hirsch, MD
University of California at Davis
Sacramento, California, USA


Clinical source: Outpatient geriatric evaluation and management (GEM). 1

Sources of funding:
Swiss National Science Foundation; Swiss Federal Office for Education and Research; Swiss Foundation for Health Promotion.

For correspondence:
Dr A E Stuck, Spital Bern, Bern, Switzerland. andreas.stuck@spitalbern.ch.

A modified version of this abstract also appears in Evidence-Based Nursing.

Preventive home visits v control interventions for elderly people†

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>RRR (95% CI)</th>
<th>Typical NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing home admission</td>
<td>10% (–2 to 20)</td>
<td>Not significant</td>
</tr>
<tr>
<td>SG: &gt; 9 follow up visits</td>
<td>34% (8 to 52)</td>
<td>43 (18 to 204)†</td>
</tr>
<tr>
<td>Functional status decline</td>
<td>6% (–6 to 17)</td>
<td>Not significant</td>
</tr>
<tr>
<td>SG: multidimensional assessment</td>
<td>24% (9 to 36)</td>
<td>15 (8 to 143)‡</td>
</tr>
<tr>
<td>SG: lower mortality risk</td>
<td>22% (5 to 36)</td>
<td>12 (7 to 45)‡</td>
</tr>
<tr>
<td>Mortality</td>
<td>9% (–1 to 19)</td>
<td>Not significant</td>
</tr>
<tr>
<td>SG: mean age 72.7 to 77.5 y</td>
<td>24% (12 to 35)</td>
<td>24 (14 to 105)</td>
</tr>
</tbody>
</table>

SG = subgroup analysis. Other abbreviations defined in glossary; RRR and CI calculated from data in article. (Analyses of typical NNTs based on a random effects model; analyses of RRRs based on a fixed effects model, except for the main analyses of functional status decline and mortality, where a random effects model was used.)

†Data provided by author.