

Review: Home visiting with multidimensional assessment and multiple visits is effective in low-risk elderly persons

Stuck AE, Egger M, Hammer A, Minder CE, Beck JC. Home visits to prevent nursing home admission and functional decline in elderly people. Systematic review and meta-regression analysis. *JAMA*. 2002 Feb 27;287:1022-8.

QUESTION

In elderly persons, 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 randomized trials of the effects of preventive in-home visits in elderly persons (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 randomization, 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 admis-

sions (Table). Analysis stratified by the number of follow-up visits found reduced nursing-home admissions in programs 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 program involved multidimensional assessment, home-visiting programs reduced functional decline more than did control interventions only in programs with multidimensional assessment (6 trials, $n = 4061$)* (Table). When trials were stratified by control-group mortality rates, home-visiting programs improved functioning more than did control interventions only in persons 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-visitation programs 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 persons.

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 Ziegler, Bern, Switzerland. E-mail andreas.stuck@spitalbern.ch.

*Information provided by author.

Preventive home visits vs control interventions for elderly persons†

Outcomes	RRR (95% CI)	Typical NNT (CI)
Nursing-home admission SG: > 9 follow-up visits	10% (-2 to 20) 34% (8 to 52)	Not significant 43 (18 to 204)‡
Functional status decline SG: Multidimensional assessment SG: Lower mortality risk (3.4% to 5.8%)	6% (-6 to 17) 24% (9 to 36) 22% (5 to 36)	Not significant 15 (8 to 143)‡ {12 (7 to 45)}‡
Mortality SG: Mean age 72.7 to 77.5 y	9% (-1 to 19) 24% (12 to 35)	Not significant 24 (14 to 95)‡

†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.

COMMENTARY

Clinicians are uncertain about the efficacy of geriatric evaluation and management (GEM) because of the mixed results of controlled trials and the difficulties in interpreting them. GEM largely has been a “black box” owing to a lack of standardization 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 done by Stuck and colleagues, 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 (1). In contrast, GEM that targets hospitalized elderly persons, even with extended follow-up in a GEM clinic, does not seem to have a sustained benefit on functional status (2). Although

time-intensive, GEM may be cost-effective under a single-payer health care 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” (3) and the Veterans Administration criteria (4) represent short, validated instruments that identify patients appropriate for GEM referral.

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

References

- Boult C, Boult LB, Morishita L, et al. *J Am Geriatr Soc*. 2001;49:351-9.
- Cohen HJ, Feussner JR, Weinberger M, et al. *N Engl J Med*. 2002;346:905-12.
- Boult L, Boult C, Pirie P, Pacala JT. *J Am Geriatr Soc*. 1994;42:707-11.
- Winograd CH, Lindenberger EC, Chavez CM, et al. *J Am Geriatr Soc*. 1997;45:604-9.