

A home-based intervention reduced the frequency of hospital readmissions and out-of-hospital deaths after discharge

Stewart S, Pearson S, Luke CG, Horowitz JD. **Effects of home-based intervention on unplanned readmissions and out-of-hospital deaths.** *J Am Geriatr Soc.* 1998 Feb;46:174-80.

Question

In patients who are discharged from the hospital, can a home-based intervention (HBI) reduce the frequency of unplanned readmissions and out-of-hospital deaths at 6 months?

Design

Randomized controlled trial with 6-month follow-up.

Setting

A tertiary referral hospital in Adelaide, South Australia, Australia.

Patients

4100 patients were screened over 12 months; 22% met eligibility criteria. 762 medical and surgical inpatients (mean age 66 y, 50% women) who had been prescribed medication for a chronic condition and were about to be discharged home agreed to participate in the study. Exclusion criteria were terminal malignant conditions or residence outside the hospital catchment area. Patients at high risk for readmission had several of the following risk factors: ≥ 60 years of age, had received ≥ 2 prescription medications, had

Commentary

The study by Stewart and colleagues is exciting because the intervention was shown to reduce unplanned readmissions, a major component of health care costs. When patients are discharged from the hospital, their number of medications may increase by 50% since admission (1). Thus, it is not surprising that these investigators and others (2-4) found $\geq 44\%$ of recently discharged patients to be noncompliant and 96% of patients to have inadequate knowledge about their treatment status.

The intervention is efficiently targeted. The authors used risk factors to select the population, made home visits only to high-risk patients, and provided specific interventions only for those identified as noncompliant at the home visit. Many previous unsuccessful interventions to reduce unplanned readmissions were not directed to a specific population and problem.

an unplanned hospital admission within the previous 6 months, lived alone, and had limited English language skills.

Intervention

Patients were allocated to an HBI ($n = 381$) or usual care (UC) ($n = 381$). HBI consisted of counseling for all patients before discharge. After discharge, high-risk HBI patients were visited at home by the study nurse and pharmacist. Patients ($n = 314$) who showed poor medication compliance at the home visit received more intensive intervention. Patients in the UC group received discharge planning and visited their primary care physician within 2 weeks of discharge.

Main outcome measure

Combined rate of unplanned hospital readmissions and out-of-hospital deaths.

Main results

The mean number of prescribed medications at discharge was 4.8 in the HBI group and 4.7 in the UC group. No difference existed in the number of patients who had

the combined end point of hospital admission and out-of-hospital death (0.30) (Table), but the combined end point occurred less often in the HBI group than in the UC group (155 vs 217 readmissions and deaths, $P < 0.001$). Fewer unplanned readmissions ($P = 0.022$) and out-of-hospital deaths (1 vs 20, $P < 0.001$) occurred in the HBI group than in the UC group.

Conclusions

A home-based intervention after hospital discharge led to fewer deaths and hospital readmissions combined than usual care. No difference existed between treatments in the number of patients who died or were readmitted to the hospital.

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Home-based intervention vs usual care after hospital discharge*

Outcome at 6 mo	Home-based intervention	Usual care	RRR (95% CI)	NNT
Patients with out-of-hospital deaths and readmissions	27%	31%	11% (-11 to 289)	Not significant

*Abbreviations defined in Glossary; RRR, NNT, and CI calculated from data in article.

Questions, some raised by the authors, still remain. It is unclear why the intervention reduced the number of readmissions but not the percentage of patients readmitted. The reduction in multiple readmissions, particularly in patients with congestive heart failure or chronic airway disease, may be related to fewer problems with medications, but we do not know whether medication compliance was improved (the authors had reasons not to measure this after the intervention).

Finally, can the intervention be implemented in other settings with similarly impressive outcomes? Should high-risk patients be assessed for medication compliance before discharge from the hospital? As the population ages, medication compliance will become a growing problem. It is hoped that this report will stimulate investigators and

managed care organizations to attempt to reproduce these results in other settings. The intervention seems to have substantial potential for reducing both morbidity and costs.

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