Advanced practice nurse directed transitional care reduced readmission or death in elderly patients admitted to hospital with heart failure

Naylor MD, Brooten DA, Campbell RL, *et al.* Transitional care of older adults hospitalized with heart failure: a randomized, controlled trial. *J Am Geriatr Soc* 2004;**52**:675–84.

Q In elderly patients admitted to hospital with heart failure (HF), does a 3 month, comprehensive, transitional care intervention reduce readmissions and improve quality of life and functioning?

METHODS

Design: randomised controlled trial.

Allocation: {concealed}.*

Blinding: blinded {data collectors}.*

Follow up period: 1 year after index hospital admission.

Setting: 6 academic and community hospitals in Philadelphia, Pennsylvania, USA.

Patients: 239 English speaking patients ≥ 65 years of age (mean age 76 y, 57% women) who were admitted to hospital from home with HF, alert and oriented, reachable by telephone, and residing ≤ 60 miles from the admitting hospital. Exclusion criterion was end stage renal disease.

Intervention: advanced practice nurse (APN) transitional care (TC) ($n = 118$) or usual care ($n = 121$). APN TC comprised (1) APN training by a multidisciplinary team; (2) Quality-Cost Model of APN Transitional Care management strategies (identification of patient and caregiver goals, individualised care plans, educational and behavioural strategies, coordination and continuity of care, and clinical services by expert nurses for high risk patients; and (3) APN implementation of an evidence based protocol designed for this patient group (APN visit within 24 h, at least daily visits during index hospital stay, ≥ 8 home visits plus additional visits as needed, and APN telephone availability 7 days/wk, 8 am to 8 pm, 8 am to 12 pm on weekends; if patients were readmitted, APNs resumed daily hospital visits). Usual care comprised HF management and discharge planning critical paths, liaison nurses to facilitate referrals to home care, comprehensive skilled home health services 7 days/wk (if referred), and 24 hour access to an on call registered nurse UK.

Outcomes: primary outcome was time to first readmission or death. Secondary outcomes included healthcare costs after the index hospital stay, quality of life, and functional status.

Patient follow up: 190 patients (79.5%) completed follow up (intention to treat analysis).

*Information provided by author.

MAIN RESULTS

At 1 year after the index admission, the APN TC group had a lower rate of hospital readmission or death than the usual care group (table); estimated median event free survival was higher in the APN TC group than the usual care group (241 v 131 d, $p = 0.026$). The APN TC group also had fewer overall readmissions (104 v 162, $p < 0.047$)

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and fewer comorbidity related readmissions (23 v 50, $p < 0.013$). The groups did not differ for quality of life or functional status at 1 year. Mean total costs (adjusted for unequal follow up) were lower in the APN TC group than the usual care group (\$7636 v \$12 481, estimated mean cost savings per patient \$4845, 95% CI \$1301 to \$8976).

CONCLUSIONS

In elderly patients admitted to hospital with heart failure, a 3 month, comprehensive, transitional care intervention directed by advanced practice nurses increased time to readmission or death, reduced readmissions, and reduced healthcare costs. Quality of life and functioning did not differ from usual care.

Advanced practice nurse transitional care (APN TC) v usual care for elderly patients admitted to hospital with heart failure*

Outcome at 1 year	APN TC	Usual care	RRR (95% CI)	NNT (CI)
First readmission or death	48%	61%	29% (7.3 to 47)	6 (4 to 23)

*Abbreviations defined in glossary; RRR, NNT, and CI calculated from control event rate and incidence density ratio and CI (multivariate Cox proportional hazards model) in article.

Commentary

The trial by Naylor *et al* provides evidence of the benefit of comprehensive discharge planning and post-discharge support for older patients with HF, a highly prevalent condition with substantial associated morbidity and mortality. The study is of good quality, and although follow up falls slightly below the generally accepted criterion of 80%, use of intention to treat analysis and equal attrition from the study groups increases our confidence in the findings.

A recent systematic review had comparable results for a range of similar interventions in this patient group,¹ although Naylor *et al* found improved outcomes for comorbid conditions specifically. Other studies have been unable to demonstrate such an effect, although similar trends have been found.^{2 3}

Extended post-discharge support for patients with HF should be implemented as a routine. Services should be established as a multidisciplinary endeavour, with consideration of the detail of implementation, in light of evidence that post-discharge support given in the form of increased clinic visits or telephone follow up may not be as effective.¹ Although cost savings, as shown by Naylor *et al*, are possible, fragmented healthcare systems may impede the development of these services by not reimbursing providers. Such disincentives will exist in any system where the focus for outcomes and resource allocation is on individual services rather than the effect of all services.

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1 Phillips CO, Wright SM, Kern DE, *et al.* *JAMA* 2004;**291**:1358–67.

2 Naylor MD, McCauley KM. *J Cardiovasc Nurs* 1999;**14**:44–54.

3 Rich MW, Beckham V, Wittenberg C, *et al.* *N Engl J Med* 1995;**333**:1190–5.