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Review

Hospital to community transitional care by nurse practitioners: A systematic review of cost-effectiveness

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ABSTRACT

Objectives: To determine the cost-effectiveness of nurse practitioners delivering transitional care.
Design: Systematic review of randomised controlled trials.
Data sources: Ten electronic databases, bibliographies, hand-searches, study authors, and websites.
Review methods: We included randomised controlled trials that compared formally trained nurse practitioners to usual care and measured health system outcomes. Two reviewers independently screened articles and assessed study quality using the Cochrane Risk of Bias and the Quality of Health Economic Studies tools. We pooled data for similar outcomes and applied the Grading of Recommendations Assessment, Development and Evaluation tool to rate the quality of evidence for each outcome.
Results: Five trials met the inclusion criteria. One evaluated one alternative provider nurse practitioner (154 patients) and four evaluated six complementary provider nurse practitioners (1017 patients). Two were at low and three at high risk of bias and all had weak economic analyses. The alternative provider nurse practitioner had similar patient outcomes and resource use to the physician (low quality). Complementary provider nurse practitioners scored similarly to the control group in patient outcomes

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except for anxiety in rehabilitation patients (MD: −15.7, 95%CI: −20.73 to −10.67, $p < 0.001$) (very low quality) and patient satisfaction after an abdominal hysterectomy (MD: 14, 95%CI: 3.5–24.5, $p < 0.01$) (low quality), both favouring nurse practitioner care. Meta-analyses of index re-hospitalisation up to 42 days ($n = 766$, pooled relative risk (RR): 0.69, 95%CI: 0.34–1.43, $I^2 = 0\%$) and any re-hospitalisation up to 180 days ($n = 800$, pooled RR: 0.87, 95%CI: 0.69–1.09, $I^2 = 32\%$) were inconclusive (low quality). Complementary provider nurse practitioners significantly reduced index re-hospitalisation over 90 days (RR: 0.55, 95%CI: 0.32–0.94, $p = 0.03$) and 180 days (RR: 0.62, 95%CI: 0.40–0.95, $p = 0.03$) in complex care patients (both low quality) and they significantly reduced the number and duration of rehabilitation patient-to-staff consultation calls ($p < 0.05$).

Conclusions: Given the low quality evidence, weak economic analyses, small sample sizes, and small number of nurse practitioners evaluated in each study, evidence of the cost-effectiveness of nurse practitioner-transitional care is inconclusive and further research is needed.

What is already known about the topic?

- Numerous systematic reviews have shown that nurse practitioners are safe and effective healthcare providers.
- With the emphasis on containing healthcare budgets, there is increasing pressure to reduce hospital lengths of stay and re-admissions.
- Transitional care is the delivery of services designed to ensure healthcare continuity, avoid poor patient outcomes, and promote the safe and timely transfer of patients from hospital to community.

What this paper adds

- Five randomised controlled trials of nurse practitioners delivering transitional care that included health system outcomes were identified.
- One trial evaluated the alternative provider nurse practitioner in transitional care and found similar patient outcomes and resource use to the physician (low quality evidence).
- Four trials evaluated the complementary provider nurse practitioner in transitional care and found some evidence of reduced re-hospitalisations (low quality evidence).
- Given the low quality evidence, weak economic analyses, small sample sizes, and small number of nurse practitioners evaluated in each study, evidence of the cost-effectiveness of nurse practitioner-transitional care is inconclusive and further research is needed.

1. Introduction

The transition from hospital to home or other care settings can be a challenging and confusing journey for patients and their families. With ever-shorter hospital stays and growing complexity of post-discharge care, the transition process is increasingly important. Transitional care has been defined as "a broad range of time-limited services designed to ensure healthcare continuity, avoid preventable poor outcomes among at-risk populations, and promote the safe and timely transfer of patients from one level of care to another or from one type of setting to another" (Naylor et al., 2011, p. 747). Transitional services may include: developing an individualised needs-based comprehensive discharge plan, connecting patients and outpatient providers, providing educational and behavioural interventions, managing symptoms and providing direct patient care, monitoring patients and caregivers regularly through home visits and/or telephone contact, providing counselling and self-care instruction, and reviewing and managing medications (Naylor et al., 2011).

Hospitals are experiencing increasing pressure from payers to reduce the length of stay. Internationally, transitional programmes associated with early discharge from hospital are a common strategy to shorten length of stay, improve the transition to home or other care settings for patients and families, and reduce emergency department visits and 30-day re-admissions following discharge (OECD, 2011).

Two types of advanced practice nurses deliver or manage transitional care: clinical nurse specialists and nurse practitioners. This paper summarises randomised controlled trials (RCTs) that have specifically evaluated nurse practitioners in a transitional care role. Nurse practitioners are registered nurses who possess additional education, usually at the graduate level, to autonomously perform assessments, order diagnostic tests, diagnose, prescribe medications and treatments, and perform procedures, as authorised by legislation and their regulatory scope of practice (International Council of Nurses, 2009). Nurse practitioners work in alternative or complementary roles. In an alternative role, nurse practitioners provide services similar to those for whom they are substituting, often physicians (Laurant et al., 2009). In complementary roles, nurse practitioners provide services that complement or augment existing services. The alternative role is usually designed to lower cost or address labour force shortages while preserving the quality of care; the complementary role is intended to improve the quality of care and/or reduce costs (Laurant et al., 2005).

We conducted a multi-component systematic review of RCTs entitled, *A systematic review of the cost-effectiveness of nurse practitioners and clinical nurse*