

Primary Care Outcomes in Patients Treated by Nurse Practitioners or Physicians: A Randomized Trial

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Context: Studies have suggested that the quality of primary care delivered by nurse practitioners is equal to that of physicians. However, these studies did not measure nurse practitioner practices that had the same degree of independence as the comparison physician practices, nor did previous studies provide direct comparison of outcomes for patients with nurse practitioner or physician providers.

Objective: To compare outcomes for patients randomly assigned to nurse practitioners or physicians for primary care follow-up and ongoing care after an emergency department or urgent care visit.

Design: Randomized trial conducted between August 1995 and October 1997, with patient interviews at 6 months after initial appointment and health services utilization data recorded at 6 months and 1 year after initial appointment.

Setting: Four community-based primary care clinics (17 physicians) and 1 primary care clinic (7 nurse practitioners) at an urban academic medical center.

Patients: Of 3397 adults originally screened, 1316 patients (mean age, 45.9 years; 76.8% female; 90.3% Hispanic) who had no regular source of care and kept their initial primary care appointment were enrolled and randomized with either a nurse practitioner (n = 806) or physician (n = 510).

Main Outcome Measures: Patient satisfaction after initial appointment (based on 15-item questionnaire); health status (Medical Outcomes Study Short-Form 36), satisfaction, and physiologic test results 6 months later; and service utilization (obtained from computer records) for 1 year after initial appointment, compared by type of provider.

Results: No significant differences were found in patients' health status (nurse practitioners vs physicians) at 6 months ($P = .92$). Physiologic test results for patients with diabetes ($P = .82$) or asthma ($P = .77$) were not different. For patients with hypertension, the diastolic value was statistically significantly lower for nurse practitioner patients (82 vs 85 mm Hg; $P = .04$). No significant differences were found in health services utilization after either 6 months or 1 year. There were no differences in satisfaction ratings following the initial appointment ($P = .88$ for overall satisfaction). Satisfaction ratings at 6 months differed for 1 of 4 dimensions measured (provider attributes), with physicians rated higher (4.2 vs 4.1 on a scale where 5 = excellent; $P = .05$).

Conclusions: In an ambulatory care situation in which patients were randomly assigned to either nurse practitioners or physicians, and where nurse practitioners had the same authority, responsibilities, productivity and administrative requirements, and patient population as primary care physicians, patients' outcomes were comparable.

Randomized controlled trial comparing cost effectiveness of general practitioners and nurse practitioners in primary care.

Venning P, Durie A, Roland M, Roberts C, Leese B.

BMJ. 2000 Apr 15;320(7241):1048-53.

OBJECTIVE: To compare the cost effectiveness of general practitioners and nurse practitioners as first point of contact in primary care. **DESIGN:** Multicentre randomized controlled trial of patients requesting an appointment the same day. **SETTING:** 20 general practices in England and Wales. **PARTICIPANTS:** 1716 patients were eligible for randomization, of whom 1316 agreed to randomization and 1303 subsequently attended the clinic. Data were available for analysis on 1292 patients (651 general practitioner consultations and 641 nurse practitioner consultations). **MAIN OUTCOME MEASURES:** Consultation process (length of consultation, examinations, prescriptions, referrals), patient satisfaction, health status, return clinic visits over two weeks, and costs. **RESULTS:** Nurse practitioner consultations were significantly longer than those of the general practitioners (11.57 v 7.28 min; adjusted difference 4.20, 95% confidence interval 2.98 to 5.41), and nurses carried out more tests (8.7% v 5.6% of patients; odds ratio 1.66, 95% confidence interval 1.04 to 2.66) and asked patients to return more often (37.2% v 24.8%; 1.93, 1.36 to 2.73). There was no significant difference in patterns of prescribing or health status outcome for the two groups. Patients were more satisfied with nurse practitioner consultations (mean score 4.40 v 4.24 for general practitioners; adjusted difference 0.18, 0.092 to 0.257). This difference remained after consultation length was controlled for. There was no significant difference in health service costs (nurse practitioner 18.11 pound sterling v general practitioner 20.70 pound sterling adjusted difference 2.33 pound sterling - 1.62 pound sterling to 6.28 pound sterling). **CONCLUSIONS:** The clinical care and health service costs of nurse practitioners and general practitioners were similar. If nurse practitioners were able to maintain the benefits while reducing their return consultation rate or shortening consultation times, they could be more cost effective than general practitioners.

Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors.

Horrocks S, Anderson E, Salisbury C.

BMJ. 2002 Apr 6;324(7341):819-23.

OBJECTIVE: To determine whether nurse practitioners can provide care at first point of contact equivalent to doctors in a primary care setting. **DESIGN:** Systematic review of randomized controlled trials and prospective observational studies. **Data sources:** Cochrane controlled trials register, specialist register of trials maintained by Cochrane Effective Practice and Organization of Care Group, Medline, Embase, CINAHL, science citation index, database of abstracts of reviews of effectiveness, national research register, hand searches, and published bibliographies. **Included studies:** Randomized controlled trials and prospective observational studies comparing nurse practitioners and doctors providing care at first point of contact for patients with

undifferentiated health problems in a primary care setting and providing data on one or more of the following outcomes: patient satisfaction, health status, costs, and process of care. RESULTS: 11 trials and 23 observational studies met all the inclusion criteria. Patients were more satisfied with care by a nurse practitioner (standardized mean difference 0.27, 95% confidence interval 0.07 to 0.47). No differences in health status were found. Nurse practitioners had longer consultations (weighted mean difference 3.67 minutes, 2.05 to 5.29) and made more investigations (odds ratio 1.22, 1.02 to 1.46) than did doctors. No differences were found in prescriptions, return consultations, or referrals. Quality of care was in some ways better for nurse practitioner consultations. CONCLUSION: Increasing availability of nurse practitioners in primary care is likely to lead to high levels of patient satisfaction and high quality care.

Randomized controlled trial of nurse practitioner versus general practitioner care for patients requesting "same day" consultations in primary care.

Kinnersley P, Anderson E, Parry K, Clement J, Archard L, Turton P, Stainthorpe A, Fraser A, Butler CC, Rogers C.

BMJ. 2000 Apr 15;320(7241):1043-8.

OBJECTIVE: To ascertain any differences between care from nurse practitioners and that from general practitioners for patients seeking "same day" consultations in primary care. DESIGN: Randomized controlled trial with patients allocated by one of two randomization schemes (by day or within day). SETTING: 10 general practices in south Wales and south west England. SUBJECTS: 1368 patients requesting same day consultations. MAIN OUTCOME MEASURES: Patient satisfaction, resolution of symptoms and concerns, care provided (prescriptions, investigations, referrals, recall, and length of consultation), information provided to patients, and patients' intentions for seeking care in the future. RESULTS: Generally patients consulting nurse practitioners were significantly more satisfied with their care, although for adults this difference was not observed in all practices. For children, the mean difference between general and nurse practitioner in percentage satisfaction score was -4.8 (95% confidence interval -6.8 to -2.8), and for adults the differences ranged from -8.8 (-13.6 to -3.9) to 3.8 (-3.3 to 10.8) across the practices. Resolution of symptoms and concerns did not differ between the two groups (odds ratio 1.2 (95% confidence interval 0.8 to 1.8) for symptoms and 1.03 (0.8 to 1.4) for concerns). The number of prescriptions issued, investigations ordered, referrals to secondary care, and reattendances were similar between the two groups. However, patients managed by nurse practitioners reported receiving significantly more information about their illnesses and, in all but one practice, their consultations were significantly longer. CONCLUSION: This study supports the wider acceptance of the role of nurse practitioners in providing care to patients requesting same day consultations.