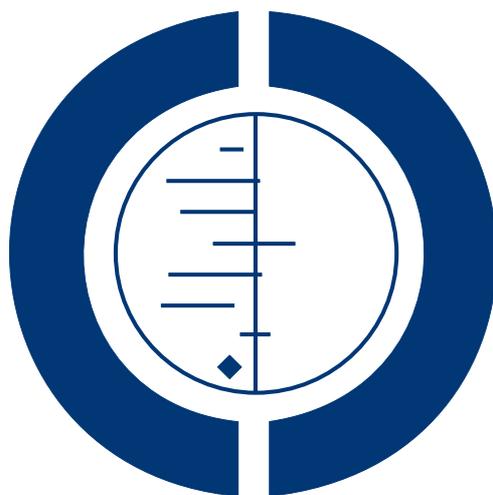


# Substitution of doctors by nurses in primary care (Review)

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[Intervention Review]

## Substitution of doctors by nurses in primary care

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### ABSTRACT

#### Background

Demand for primary care services has increased in developed countries due to population ageing, rising patient expectations, and reforms that shift care from hospitals to the community. At the same time, the supply of physicians is constrained and there is increasing pressure to contain costs. Shifting care from physicians to nurses is one possible response to these challenges. The expectation is that nurse-doctor substitution will reduce cost and physician workload while maintaining quality of care.

#### Objectives

Our aim was to evaluate the impact of doctor-nurse substitution in primary care on patient outcomes, process of care, and resource utilisation including cost. Patient outcomes included: morbidity; mortality; satisfaction; compliance; and preference. Process of care outcomes included: practitioner adherence to clinical guidelines; standards or quality of care; and practitioner health care activity (e.g. provision of advice). Resource utilisation was assessed by: frequency and length of consultations; return visits; prescriptions; tests and investigations; referral to other services; and direct or indirect costs.

#### Search strategy

The following databases were searched for the period 1966 to 2002: Medline; Cinahl; Bids, Embase; Social Science Citation Index; British Nursing Index; HMIC; EPOC Register; and Cochrane Controlled Trial Register. Search terms specified the setting (primary care), professional (nurse), study design (randomised controlled trial, controlled before-and-after-study, interrupted time series), and subject (e.g. skill mix).

#### Selection criteria

Studies were included if nurses were compared to doctors providing a similar primary health care service (excluding accident and emergency services). Primary care doctors included: general practitioners, family physicians, paediatricians, general internists or geriatricians. Primary care nurses included: practice nurses, nurse practitioners, clinical nurse specialists, or advanced practice nurses.

#### Data collection and analysis

Study selection and data extraction was conducted independently by two reviewers with differences resolved through discussion. Meta-analysis was applied to outcomes for which there was adequate reporting of intervention effects from at least three randomised controlled trials. Semi-quantitative methods were used to synthesise other outcomes.

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## **Main results**

4253 articles were screened of which 25 articles, relating to 16 studies, met our inclusion criteria. In seven studies the nurse assumed responsibility for first contact and ongoing care for all presenting patients. The outcomes investigated varied across studies so limiting the opportunity for data synthesis. In general, no appreciable differences were found between doctors and nurses in health outcomes for patients, process of care, resource utilisation or cost.

In five studies the nurse assumed responsibility for first contact care for patients wanting urgent consultations during office hours or out-of-hours. Patient health outcomes were similar for nurses and doctors but patient satisfaction was higher with nurse-led care. Nurses tended to provide longer consultations, give more information to patients and recall patients more frequently than did doctors. The impact on physician workload and direct cost of care was variable.

In four studies the nurse took responsibility for the ongoing management of patients with particular chronic conditions. The outcomes investigated varied across studies so limiting the opportunity for data synthesis. In general, no appreciable differences were found between doctors and nurses in health outcomes for patients, process of care, resource utilisation or cost.

## **Authors' conclusions**

The findings suggest that appropriately trained nurses can produce as high quality care as primary care doctors and achieve as good health outcomes for patients. However, this conclusion should be viewed with caution given that only one study was powered to assess equivalence of care, many studies had methodological limitations, and patient follow-up was generally 12 months or less.

While doctor-nurse substitution has the potential to reduce doctors' workload and direct healthcare costs, achieving such reductions depends on the particular context of care. Doctors' workload may remain unchanged either because nurses are deployed to meet previously unmet patient need or because nurses generate demand for care where previously there was none. Savings in cost depend on the magnitude of the salary differential between doctors and nurses, and may be offset by the lower productivity of nurses compared to doctors.

## **PLAIN LANGUAGE SUMMARY**

**In primary care, it appears that appropriately trained nurses can produce as high quality care and achieve as good health outcomes for patients as doctors. However, the research available is quite limited.**

Many countries have sought to shift the provision of primary care from doctors to nurses in order to reduce the demand for doctors and improve healthcare efficiency. The expectation is that nurses working as substitutes can provide as high quality care as doctors at lower cost. This review found that quality of care is similar for nurses and doctors but it is not known if it decreases the doctor's workload. Nurses tend to provide more health advice and achieve higher levels of patient satisfaction compared with doctors. Even though using nurses may save salary costs, nurses may order more tests and use other services which may decrease the cost savings of using nurses instead of doctors.