

## **Non-Physician Clinicians in the UK**

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As in other developed countries, the UK healthcare system faces a number of challenges. The complexity of medicine is increasing; consumer expectations are rising; many populations have inadequate access to services, notably those in deprived inner city areas; the supply of physicians and nurses is constrained; and there is increasing pressure to constrain costs. Workforce ‘modernisation’ is a key part of the strategy for addressing these challenges (Dept Health 1998). Traditional job demarcations, conventional team structures, and the established boundaries between community, hospital and social care are being challenged and redesigned around the needs of patients. The development of non-physician clinicians is one part of this broader strategy for improving workforce performance.

Non-physician clinicians have been defined as health professionals who provide services that would otherwise be provided by physicians. They work in collaboration with physicians, or under the supervision of physicians, to enhance the quality, range and/or quantity of medical services. The expectation is that non-physician clinicians –

- can safely provide an array of services that would otherwise be provided by physicians so reducing the demand for physicians;
- can be educated and trained more quickly and less expensively than physicians so reducing costs;
- are more willing than physicians to work in medically under-served areas so improving access to care.

While there are no accurate data, the strong impression is that the numbers of non-physician clinicians have increased rapidly in the UK throughout the past decade.

This paper aims to -

1. Describe the main types of non-physician clinician in the UK workforce;
2. Summarise research into the impact of non-physician clinicians on costs, quality, and patient satisfaction;
3. Identify the unintended consequences of changing workforce configuration;
4. Consider what factors affect the feasibility and sustainability of expanding the numbers of non-physician clinicians;
5. Discuss the implications for physician workforce planning and policy.

### **Description**

The National Health Service (NHS) of England employs an estimated 837,200 staff. A further 27,843 general medical practitioners (GPs) independently contract with the NHS to provide family health services. (See table) Non-physician clinicians are thought to be well represented in the workforce. In most clinical areas, there are nurse

practitioners, advanced practice nurses, and/or clinical nurse specialists who provide care that would otherwise be undertaken by physicians. However there are no formal or agreed levels of competency, educational requirements, or licensing criteria underpinning these roles. In consequence there is no centralised information on the numbers, types or distribution of such staff. Midwives are the sole type of non-physician clinician to be formally recognised and licensed in the UK.

### NHS Staff in England 2001<sup>3</sup>

		<i>whole time equivalents</i>	
Doctors & dentists, excluding GPs			64,060
General practitioners (GPs)			27,843
Total medical staff			91,903
Nurses - qualified	Consultants	130	
	Managers	5,230	
	Midwives	18,050	
	Health visitors	10,190	
	District nurses	10,730	
	Others	221,350	
	Total		266,170 <sup>1</sup>
Nurses - unqualified	Nursery nurse	2,820	
	Assistant/auxiliary	89,060	
	Total		92,190 <sup>1</sup>
General practice: practice nurses			11,163 <sup>2</sup>
Total nursing staff, excluding practice nurses			358,360

1. Totals may not equal the sum of component parts due to rounding and the inclusion of unclassifiable staff.
2. Headcount – whole time equivalents unavailable
3. Source: general practice statistics drawn Department of Health 2002a; other statistics drawn from Department of Health 2002b.

### **Midwives**

Midwives are the principal providers of antenatal, intrapartum and postnatal care in normal pregnancy. They are the senior/lead health professional present at 70% of births and attend 99% of births. Obstetricians take the lead in managing high risk pregnancies and provide medical back-up to midwives in the event that an unforeseen complication arises during birth. Midwives are trained at degree or diploma level (i.e. 3-4 years university education); qualified nurses may undertake an additional 18 months of university training to register as midwives. The Nursing and Midwifery Council (formerly UKCC) licenses and regulates both midwives and nurses.

### **Nurses**

Registered nurses are trained at diploma or degree level (i.e. 3-4 years university education). The Nursing and Midwifery Council (NMC) of England has identified

two levels of practice for nurses beyond basic registration: specialist and advanced. The term 'specialist' refers to nurses who have specialised in particular areas of clinical care. All will have undertaken post-registration training in their specialist area; some will hold masters degrees. The impetus for role development has been to improve the quality of (nursing) care to patients. The term 'advanced' generally refers to a higher level of practice than specialist - although some, including the UKCC/NMC, question this hierarchical interpretation. Nurse practitioners are one type of advanced practice nurse. Advanced practice nurses will have undertaken specialised post-registration training and most will hold a postgraduate (masters) degree. Role development is focused on 'autonomous' working by nurses to enhance, or sometimes replace, services that would otherwise be provided by physicians. Neither 'specialist' nor 'advanced' practice has been clearly defined in terms of role definition or educational requirements, leading to considerable ambiguity and overlap (Ormond-Walsh and Newham 2001; Daly and Carnwell 2003).

The situation has been made more complex by the NMC decision in 2002 to introduce 'higher level practice' (UKCC 2002). While higher level practice is intended to be the apex of development for nurses, it is unclear to what extent this replaces, or further develops, the advanced practice role (Daly and Carnwell 2003). 'Consultant' nurses (see Table 1), introduced in 1999 to enhance the career structure for nurses (Department of Health 1999), are expected to meet the criteria for higher level practice but may not be the only the nurses to do so.

A survey of 490 NHS Trusts, conducted in 1996, found that 87% of trusts employed clinical nurse specialists (3191 nurses in total) while 36% employed advanced practice nurses (316 nurses in total) (McGee and Castledine 1999). The most common areas of work for clinical nurse specialists were cancer (Macmillian nurses), diabetes, health visiting, and mental health. The most common areas of work for advanced practice nurses were accident and emergency, mental health, ophthalmology and orthopaedics.

A survey of major accident and emergency departments in the UK in 1996 showed that 93% employed emergency nurse practitioners (Tye et al 1998). In 84% of departments, nurse practitioners were allowed to order x-rays independently; in 36% to interpret radiographs; and in 54% to supply prescription-only drugs from an agree list. Cooper et al (2001) showed that emergency nurse practitioners in Scotland tended to be concentrated in smaller causality units, particularly those without full time medical staff.

### ***Other healthcare providers***

There are a number of other healthcare providers whose roles overlap those of physicians. Notable examples include primary care mental health counsellors and community pharmacists. An estimated 50% of general practices in England employ counsellors to treat patients with minor mental illness who would otherwise be managed by GPs alone (Mellor-Clark et al 1999). Community pharmacists are undergoing rapid role development to enable them to undertake a number of GP services, including medication review, repeat prescribing, and the management of minor illness (Department of Health 2000b). Role development has been driven by the need to improve the quality of primary care while relieving workload pressures on GPs who are in short supply.

In two areas, England is experimenting by importing new types of non-physician clinician to address problems of medical workforce shortages. One primary care NHS trust has hired two American-trained physician assistants to provide family health services (Department of Health Policy Division, personal communication). Two acute NHS trusts each plan to recruit European-trained anaesthetic nurse practitioners and a further 4 trusts plan to train their own nurse anaesthetists (Changing Workforce Programme of the NHS Modernisation Agency, personal communication). These initiatives are to be evaluated by the Department of Health to determine whether they should be extended more widely in the NHS.

### ***Prescribing privileges***

The extent to which nurses and other healthcare staff are able to act as physician substitutes or extenders has been curtailed by their prescribing privileges. Until recently non-physician clinicians had no, or severely restricted, rights to prescribe. From January 2003, these restrictions were relaxed enabling nurses, midwives and pharmacists to provide any licensed drug under appropriate medical supervision and, with appropriate training, to prescribe autonomously from an extended formulary of drugs (Department of Health 2002c). Of the 166,888 nurses and midwives on the UKCC/NUM register in 2000/1, 22,073 (13%) were registered prescribers (UKCC 2003).

### **Impact**

The introduction of non-physician clinicians to the healthcare workforce is primarily intended to enhance the effectiveness and/or efficiency of healthcare provision. But does it? To answer this question I have drawn upon two recent reviews of research. The first reports the findings of a systematic search for existing reviews of research into healthcare skill mix, conducted for the Department of Health in September 2002 (Sibbald, Shen and McBride in press). The second is a review of primary research into skill mix changes in general practice conducted for the European Health Observatories in September 2002 (Sibbald, Laurant and Scott in press).

The databases searched included: MEDLINE, CINAHL, PsychINFO, Cochrane Library, HMIC, Centre for Reviews and Dissemination, and Department of Health Research Findings Register. Search terms included keywords defining the type of publication, clinical area, type of health personnel and the focus of the article (role change, skill mix etc). Only English language publications were included. Two reviewers independently identified relevant publications, graded the quality of reviews, and extracted findings. The key findings are summarised below.

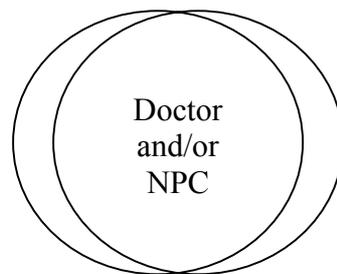
### ***Substitution***

The impetus to substitute non-medical practitioners arises from there being an insufficient supply of doctors to meet demand. In the UK, government policies introduced in 1990 and 2000 to improve the effectiveness and efficiency of the National Health Service (NHS) created an increased demand for medical labour that could not be met by the available workforce. Implementation of the 'New Deal' for junior doctors and the 'EU Working Time Directive' – both of which limit the working hours of healthcare staff – further exacerbate the problem of medical

workforce shortages, adding impetus to the need to find alternative care providers. A logical response to this problem is to extend the role of non-medical practitioners so enabling them to provide more of the services formerly provided by physicians alone. The aim is to achieve a situation in which the physician and non-physician may be deployed inter-changeably across as wide a range of services as possible (Figure 1).

Figure 1

Circles denote skills of doctors and non-physician clinicians (NPC)



### **Substitution**

The impact on patient health of substituting nurses for doctors in primary care has been relatively well researched. Systematic reviews of the available evidence suggest that nurses acting as doctor substitutes in the management of minor illness generally achieve as good health care outcomes as doctors and may have superior interpersonal skills (Brown and Grimes 1995; Horrocks et al 2002, McKenna 1995).

A systematic review of research into doctor-midwife substitution in the management of normal pregnancy suggests that health outcomes for patients are comparable but that midwives may use less technology and analgesia in intrapartum care (Brown and Grimes 1995). Midwives were reported to save costs in some studies but the evidence base was too weak to draw firm conclusions.

A review of the evidence underpinning doctor-nurse substitution in acute (hospital) care suggested that existing research was too weak to allow any firm conclusions to be drawn (Hodson 1998). While there is some evidence to suggest that nurse enhancement of physician care for diabetes may be associated with improved glycaemic control, the evidence base was again weak and cost effectiveness was not assessed (Renders et al 2002).

In the area of mental health, the substitution of counsellors for family doctors in the management of minor mental illness has been found to improve health outcomes for patients in the short term (3 months) but not the long term (6 months). No measurable differences in direct costs were found. Counsellors reduced psychotropic prescribing by doctors in the short term, but not the long term. Doctor consultation and referral rates for mental health were not reliably reduced. (Bower et al 2002; Bower and Sibbald 2002)

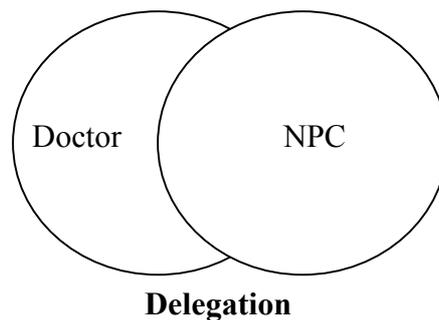
The evidence underpinning the substitution of physicians by pharmacists (Beney et al 2000) is too weak to allow any firm conclusions to be drawn.

### ***Delegation***

Rising demand and cost of care has increased interest in the possible economies to be made by shifting care from high cost practitioners, such as doctors, to low cost practitioners, such as nurses and technicians. Gains in efficiency are sought by breaking down traditional job demarcations so enabling staff to be deployed in ways that maximise use of their available skills. The intention is that doctors should disinvest in those activities that can be delegated to other staff and instead give their time to activities which only they can perform. As shown in Figure 2, the doctor's scope of practice then narrows.

Figure 2

Circles denote skills of doctors and non-physician clinicians (NPC)



Contrary to expectation, research suggests that using nurses instead of doctors does not necessarily reduce costs. As compared with doctors, nurses have longer consultation times, order more tests and investigations and may recall patients at a higher rate so eroding savings in salary costs (Venning et al 2000; Horrocks et al 2002). Salary differentials between (advanced practice) nurses and doctors may diminish over time which again erodes savings in salaries. From the perspective of the healthcare economy as a whole, it is generally cheaper to train nurses than it is to train doctors; but savings are again eroded because nurses tend to have lower lifetime workforce participation rates than doctors. The net saving to the state is therefore difficult to predict and may differ between countries and over time.

As noted above, no measurable differences in direct costs have been found when mental health counsellors are substituted for physicians (Bower et al 2002). The cost of substituting pharmacists for physicians has been inadequately researched (Beney et al 2000).

Doctors might use the time 'saved' by nurses and other non-physicians to treat more patients or to provide a higher level of service to the same number patients. The effectiveness and efficiency of the healthcare system as a whole will be improved only if doctors invest their 'saved' time in activities of greater value than those which were delegated to nurses (Richardson 1999). However, there is no good research into how doctors use time savings.

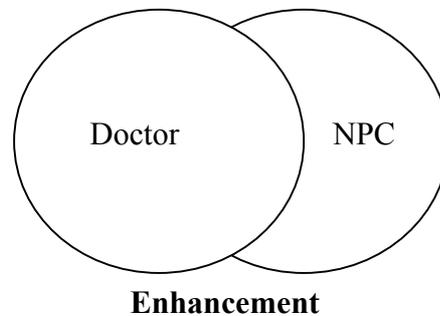
### ***Enhancement***

Non-physician practitioners may be used to enhance (add value to) physician services so improving the quality of care for patients. This is achieved by interdependent teamwork between a physician and a non-physician clinician whose skills

complement, rather than overlap, those of the physician. The physician continues to provide the same range of services as previously; by adding a non-physician, the range or scope of those services is increased (Figure 3).

Figure 3

Circles denote skills of doctors and non-physician clinicians (NPC)



Health promotion is one of the principal areas in which nurses working in extended roles are believed to have increased the range and quality of services available within UK primary care. In the majority of general practices, nurses are responsible for carrying out well-patient health checks and providing lifestyle and other interventions in accordance with agreed treatment guidelines (Atkin et al 1994). However, two large-scale randomised control trials have shown that the benefits to patients of such health promotion do not outweigh the costs (Family Heart Study Group 1994; OXCHECK Study Group 1995). The problem is not that nurses are unable to deliver high quality care, but that the treatments they have been asked to deliver are only marginally effective in improving health (Ebrahim and Davey Smith 2002).

The situation is more promising in the area of chronic disease management. Here there is good evidence from controlled trials that the treatments to be delivered by nurses are effective. Case studies show also that the quality of care delivered by nurses can be high (e.g. Charlton et al 1991). However surveys of nurses working in extended roles suggest that, in reality, many nurses are insufficiently well trained (Atkin et al 1994). More importantly there is a dearth of evidence about the overall cost-effectiveness of nurse-led chronic disease clinics (Scott et al 1998).

A key element in the effectiveness of chronic disease management lies in whether care is structured i.e. there is a patient call-recall system and protocol driven review. General practice diabetes clinics have been shown to provide as high quality care as hospital outpatient clinics when they are well structured (Griffin and Kinmonth 2002). In coronary heart care, structured care by nurses appears to be as effective as structured care by doctors (Moher et al 2001), and more effective than unstructured care by doctors (Campbell et al 1998).

The evidence base supporting extended nursing roles in the acute care sector is meagre both in its coverage of roles (only 4 roles have been subject to systematic review) and in the amount of original research identified by any one review (1-4 studies). Extended nurse roles include: nurse initiated thrombolysis (Smallwood and Chadwick 2000); nurses as patient educators in rehabilitation (Nolan et al 2001); and specialist home care support nurses for patients with chronic obstructive pulmonary

disease (Smith et al 2002) or multiple sclerosis (DeBroe et al 2001). Reported health gains for patients were modest in all cases. Cost-effectiveness was not assessed.

The evidence base relating to extended pharmacist roles is meagre in its coverage of roles (only 1 role was reviewed) but more robust in terms of the original research underpinning the review (16 studies) (Beney et al 2000). The findings suggested that medication review by pharmacists can improve patient health outcomes. One of 16 studies also showed gains in patients' quality of life. Cost-effectiveness, however, has not been evaluated.

### ***Patient preference***

Systematic reviews of doctor-nurse substitution suggest that patients tend to rate the interpersonal skills of nurses more highly than those of doctors. The reason for this is unclear and may relate to a number of factors, including nurses' gender, social status, and consultation length. The great majority of nurses are female and females are often regarded as more 'caring' than males (Gray 1982). Nurses tend to have a lower social status than doctors, making them more approachable. In addition, nurses tend to have longer consultation times than doctors and patient satisfaction tends to be higher with longer consultations (Freeman et al 2002). It may also be true that nurses, by virtue of their training, have better developed interpersonal skills than doctors.

High satisfaction with nurse care does not, however, mean that patients inevitably prefer nurses to doctors. Patient preferences in most studies are mixed with some patients preferring to see nurses while others prefer to see doctors (Kinnersley et al 2000; Shum et al 2000; Venning et al 2000). Preference may be partly related to the nature of the presenting problem. Research suggests that nurses may be preferred when the patient believes their problem to be 'minor' or 'routine' but that doctors are preferred when the problem is thought to 'serious' or 'difficult' (Drury 1988).

### **Unintended consequences**

#### ***Staff morale and workload***

Extending the role of non-physician clinicians into areas that were previously the province of physicians alone may create losers as well as winners. For example, GPs in England welcomed extended roles for nurses where these enabled doctors more easily to fulfil their contractual commitments to the NHS. This, however, conflicted with nurses' views that modifications to their role should be guided by concerns about developing nursing as an autonomous profession which is complementary, not subservient, to medicine and medical professionals (Atkin and Lunt 1996). Nurse-doctor substitution in hospital settings has similarly provoked opposition from some nurses who view it as a retrograde step in the development of nursing (Cahill 1996).

Task delegation from physicians to non-physician clinicians leaves physicians to manage the more complex patient problems which some may not welcome (Charles-Jones et al 2003).

Adding new activities to any clinician's role without disinvesting in other activities adds to workload. In the context of staff shortages, the reorganisation of work can

then lead to work intensification with staff working longer, more unsocial hours on a routine basis in order to fulfil new remits (Adams et al 2000; Leverment et al 1998).

### ***Coordination of care***

Larger team size is a logical consequence of integrating non-physician clinicians into the workforce. As the number of staff in a team increases so too do 'transaction costs'. Staff need to spend increasing amounts of time conferring with each other, decreasing the amount of time available for direct patient care. As team size increases, a critical point is reached where transaction costs outweigh the benefits of collaborative working (Barr 1995).

### ***Continuity of care***

Personal continuity of care is valued by both patients and healthcare staff, particularly for more serious, psychological or family issues (Schers et al 2002). There is evidence to suggest that, in some areas, personal continuity is associated with better health outcomes for patients (Freeman et al 2001). Larger team size is known to reduce personal continuity of care and patient satisfaction with access to their preferred care-giver (Wensing et al 2002). On the other hand, rapid access for acute problems may be better with larger teams (Wensing et al 2002).

## **Feasibility and Sustainability**

Substitution, delegation or enhancement of physician services by non-physician clinicians is feasible only if there are adequate numbers of appropriately trained non-physician clinicians.

### ***Workforce supply***

In the UK, nurses are the principal group from which non-physician clinicians are drawn and nurses are presently in short supply. If nurses move to undertake work formerly provided by doctors, then the work previously undertaken by these nurses needs to be provided by other nurses or nurse replacements (such as nursing auxiliaries or healthcare assistants). Thus task delegation downwards across the spectrum of staff requires expansion in the bottom layer of providers. Calpin-Davies (1999) estimated the workforce requirements needed to sustain such shifts in the NHS and concluded that there were insufficient numbers of available nurses.

Nurse shortages, however, may be more rapidly remedied than medical shortages. The UK government has introduced new policies to increase nurse numbers by training more nurses domestically, recruiting more nurses from abroad, and introducing strategies to enhance retention (e.g. flexible and family friendly working, and improved pay and career structures).

### ***Education and training***

Staff need to be trained to take on new or extended roles as non-physician clinicians. This requires agreement as to the educational standards needed for specific roles, capital investment in the development of appropriate courses to meet those standards, and time to train the necessary numbers of new clinicians. With the exception of midwives, there are no agreed standards of education or competencies for non-physician clinicians. Higher education providers are currently stretched in expanding

pre-registration training for doctors and nurses (Department of Health 2000a) which could limit their ability to respond rapidly to any large scale expansion of training for non-physician clinicians.

### ***Management***

Re-drawing the boundaries between professional groups is a major organisational challenge. Excellent human resource management skills are needed to manage the changes to staff roles, otherwise tensions between professional groups are likely to arise and thwart change. Where the intention is to delegate work from one professional to another, it is often the case that staff will fail to discontinue their 'old' ways of working leading to an overall increase in service capacity and costs. Managers need to plan the discontinuation of 'old' activities; identify the new activities that will take their place; and actively manage this process. Whether NHS managers are currently prepared to meet these challenges is questionable. The pace and scope of health service reform since 1990 have severely stretched NHS management capacity, raising questions about managers' ability to accommodate further change (Wilkin et al 2002).

### ***Cost***

Considerable capital investment is needed to support the transition in staff roles. Introducing non-physician clinicians to the workforce initially increases costs because staff need to be (re)trained and because 'new' ways of working are likely to expand faster than 'old' ways of working can be discontinued. It will not be until the longer term, where new tasks and roles are embedded within new jobs and institutions, and where training programmes are changed to reflect these new roles, that gains in efficiency may be forthcoming.

### **Policy Implications**

Policy makers need first to identify the problem they wish to solve by deploying a non-physician clinician. Is the primary need to improve quality, enhance efficiency, or address national/local medical workforce shortages?

- If the aim is to improve quality, then the emphasis should be on training and deploying non-physician clinicians whose skills extend and complement, rather than duplicate, those of the physician.
- If the aim is to improve efficiency, then the focus should be on delegating work from physicians to (existing) non-physicians in order to eliminate role overlap and ensure staff make optimum use of their highest skill levels. If the time saved by physicians is invested in seeing more patients, then delegation may help to address medical workforce shortages.
- If the aim is to compensate for local shortages in the medical workforce (e.g. in remote rural or inner city areas) the preferred strategy is to deploy non-physician clinicians whose skills duplicate those of the physician. Task delegation from physicians to non-physicians is discouraged because duplication of effort is the objective of change.

In practice, these subtly different uses of non-physician clinicians become blurred with the result that non-physician clinicians may be deployed in ways that do not enable them to address the primary problem that motivated their introduction. In particular, the deployment of nurse practitioners to improve efficiency seems often to

fail because the nurses are used to duplicate rather than replace physician services. Better strategic management would help to address this issue.

As noted above, the cost of changing professionals' roles may be considerable, it takes time for the benefits to materialise, and there may be unintended adverse effects of change. A further concern, based on the experience of most countries, is that once a new type of non-physician clinician becomes established in the workforce, they cannot easily be withdrawn. For these reasons, it makes sense to consider alternative strategies before introducing new types of clinicians.

As part of the workforce modernisation strategy, the UK has introduced a 'skills escalator' (Department of Health 2000c). This specifies the educational requirements and competencies required for different job 'levels' from the most basic to the most advanced. With suitable training and development, staff may move from the bottom to the top of the 'escalator'. At the top level(s) certain types of non-medical staff (e.g. nurses) would have the necessary attributes to work as a non-physician clinician. In theory, this gives the healthcare system maximum flexibility to introduce (or discontinue), professional roles that are tailored to the needs of individual provider organisations and their local populations – without the need to develop wholly new types of staff.

A final consideration is that managers need good information on the likely costs, benefits, and unintended consequences of deploying non-physician clinicians. The evidence base available to inform decision-making is meagre and difficult to access. Most non-clinician physician roles have been under evaluated, particularly in terms of their cost-effectiveness. System-level impacts, including unintended consequences, have received little attention. The dearth of evidence makes new research necessary, and the findings from existing research need to be made more accessible.

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