

Investigating the contribution of physician assistants to primary care in England: a mixed-methods study

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Scientific summary

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Scientific summary

Background

Primary health care has a pivotal role in the NHS that is changing in response to demographic shifts, technological changes and fiscal constraints. Predicted pressures on the medical and nursing workforce raise questions as to the most effective, efficient and acceptable staffing configurations. Physician assistants (PAs) are mid-level practitioners trained in a medical model to undertake physical examinations, investigations, diagnosis and treatment, and to prescribe within their scope of practice as agreed with their supervising doctor. The role has a 40-year history in the USA. A promising evaluation of American PAs in a variety of health-care facilities in England in 2006 led to a national curriculum and competency framework, agreed by the Department of Health and the Royal Colleges of Physicians and General Practitioners (GPs). Students joining the 2-year postgraduate course are typically science graduates. In 2009, the first English-trained PAs graduated. Scotland has also now established a PA course. PAs in the UK are not regulated, although they have a voluntary national register, and cannot prescribe medication. A small number of general practices in England have employed PAs but in 2009 there was limited evidence as to the contribution of PAs in the NHS general practice setting.

Objectives

This study aimed to investigate the contribution of PAs to the delivery of patient care in primary care services in England. The research questions addressed were:

1. How are PAs deployed in general practice and what is the impact of including PAs in general practice teams on the patients' experiences and outcomes?
2. What is the impact of including the PAs in general practice teams on the organisation of general practice, the working practices of other professionals, relationships with these professionals and the practice costs?
3. What factors support or inhibit the inclusion of PAs as part of English general practice teams at the local and macro level?

Methods

This was a mixed-methods study with two phases of enquiry: (1) at the macro and meso levels of the health-care system and (2) at the micro level.

The macro and meso levels of the health-care system

A rapid review of empirical evidence of the contribution of PAs to primary care was undertaken. A documentary analysis was conducted of published commentaries and of UK workforce policy. A scoping survey, using semi-structured interviews, was undertaken of key informants in professional bodies, NHS workforce planning organisations, patient organisations, higher education institutions and commissioning bodies in England and Wales. An online anonymous survey was used to identify deployment of PAs in primary care and volunteers for phase 2.

The micro-level investigation through comparative case studies

The comparative case study design sought six general practices employing PAs and six not employing PAs, matched by practice size, sociodemographics and health economy setting. Multiple methods were used to collect data. GPs, PAs, nurses and administrative practice staff were interviewed. In designated surgeries,

adult patients attending for same-day appointments were offered a validated, anonymous survey with a unique study identifier (study ID), and those in PA practices were invited for interview. The anonymous patient record, with a study ID, was extracted for all patients attending these surgeries together with any record of primary care attendance within the following 2 weeks. The primary outcome was rate of reconsultation within 2 weeks for the same problem. The patient records of those reconsulting for the same problem within 2 weeks were reviewed. With permission, consultations were videoed and analysed using a validated tool for assessing GP competency. An economic analysis was conducted at two levels: practice team configurations and costs; and patient-level comparison of the contribution and costs of GP and PA consultations.

Emerging findings were tested with advisory group members, patient and public involvement group, and participants of both phases.

Results

Phase 1: the macro and meso levels

The rapid review found 49 published studies, mainly from the USA, which showed growth in PA numbers in primary care settings over 40 years but weak evidence for their impact on the process of care, patient outcomes or costs. The analysis of the interviews in the scoping survey found that the majority offered a positive or, at worst, neutral view of the contribution that PAs could make as mid-level professionals in the NHS. A similar finding emerged from the analysis of published commentaries. PAs were, however, absent from English health workforce and education planning documents at national and regional levels. Only one mention of them was found in a Welsh policy document for rural primary care. In contrast, the NHS in Scotland had policy and plans to develop a PA workforce.

The online survey of PAs working in primary care in England had an estimated response rate of 64% from 16 PAs working in primary care. Half were graduates of English universities. The PAs reported that the majority of their time and effort was deployed in providing same-day appointments with patients. A range of other activities were reported, including chronic disease management, home visits, cryotherapy, teaching, clinical audit and supervision of other staff such as health-care assistants.

Phase 2: the micro level of comparative case study design

From the 45 professional interviews, five sets of work diaries and observations in practices and clinical meetings, it was evident that PAs were deployed to complement the work of the GPs. They were a flexible resource and could also cover the work of the nurses when absences required it. The PAs mainly provided clinician time in same-day appointments, with the expectation that the PA would behave as a doctor for their patient case mix and within their competency as agreed by their supervising doctor. They were allocated either longer appointment slots or the same length of time as GPs but with free appointment slots for conferring with a GP. Some work changed over time with the expertise of the PA and the requirements of the practice. Some were deployed to activities that were incentivised nationally and locally to support the policies of more services closer to home and more preventative work in primary care, for example insertions of intradermal, long-acting contraceptives.

Of the 539 respondents to the patient satisfaction survey, the majority reported high levels of satisfaction with no significant difference between those consulting PAs or GPs [odds ratio (OR) 1.00, 95% confidence interval (CI) 0.42 to 2.36, $p = 0.99$]. The majority of respondents who had consulted a PA said that they would be very satisfied (62%) or satisfied (28.3%) to consult a PA again. Thirty-four patients gave interviews. While most participants expressed a high degree of satisfaction with and confidence in PAs (often in relation to the supervision by a doctor or their trust in the practice), some expressed the need to

fully understand this new-to-the-UK role, to have choice in whom to consult and to ensure continuity in their relationship with their clinician.

From the analysis of the 2086 anonymous patient records, it was found that PAs were consulted by a wide range of patients but, in comparison with those of the GPs, the patients were younger, had fewer indicators of ongoing multiple chronic conditions and were presenting that day with less medically acute/complex problems. Once adjusted for clustering at practice level, patient age, PA study condition classification and other covariates of relevance, there was no difference between PAs and GPs in the rate of procedures undertaken (rate ratio 0.85, 95% CI 0.34 to 2.15, $p = 0.734$), diagnostic tests ordered (rate ratio 1.08, 95% CI 0.89 to 1.30, $p = 0.439$), referrals to secondary care (rate ratio 0.95, 95% CI 0.63 to 1.43, $p = 0.797$) or prescriptions issued (rate ratio 0.87, 95% CI 0.87 to 1.53, $p = 0.309$). PAs were significantly more likely to document general advice (OR 3.30, 95% CI 1.689 to 6.4532, $p < 0.001$).

Thirty-two per cent of the patients attended the surgery again within 2 weeks. Of the primary outcome measure, there was no difference between those consulting PAs or GPs in the rate of reconsultation with the same problem at the practice or an urgent care facility within 2 weeks (rate ratio 1.314, 95% CI 0.843 to 2.049, $p = 0.228$) or for the same or a linked problem (rate ratio 1.240, 95% CI 0.861 to 1.78, $p = 0.247$).

Blinded to whether the clinician was a GP or a PA, a panel of experienced GPs reviewing records of patients ($n = 475$) reconsulting for the same problem judged the documented activities in the initial consultation to be appropriate in 80% of PA records and 50% of GP records. The GP reviewers could not easily identify whether the clinician was a GP or PA from the records, correctly classifying 40% of PA consultations and 76% of GP consultations. Video observations of PA consultations were judged by the panel of GPs to be competent, with scores between 40% and 60% for the dimensions of interview/history taking, physical examination, patient management, problem solving, behaviour/relationship with patients and anticipatory care. Across all the dimensions of competence, PAs scored significantly lower than the GPs they were compared with [median overall percentage for GPs 58.6%, for PAs 47%, Mann–Whitney U -test (two-tailed), $p = 0.012$].

Staffing configurations varied within and between the groups of practices that did and did not employ PAs. The average cost per patient ranged from £146 to £176 in practices employing PAs and from £68 to £405 in those not employing PAs. The proportion of GPs who were salaried (as opposed to partners) was higher in practices employing PAs than in practices without PAs. After adjusting for covariates, the average patient consultation with a PA was 5.8 minutes longer than with a GP (95% CI -7.1 to -2.46 ; $p < 0.001$). Consultation costs were £34.36 for GPs and £28.14 for PAs. However, costs could not be apportioned to interruptions to GPs for conferring or signatures for prescriptions, and do not take account of the time GPs spend on supervising and training PAs.

Discussion

The deployment of PAs in primary care to mainly same-day patient appointments has been reported before. This is the first UK report that PAs are deployed to complement the work of GPs in seeing younger patients with fewer indicators of comorbidity and fewer medically acute problems on the day. In addition, this is the first report of PA work in the UK into clinical activities that support ambulatory care outside hospitals and in health promotion, as incentivised for general practice by local and national contracts. The lack of current regulation and authority to prescribe was viewed as problematic by many stakeholders and practice employers.

Physician assistants were found to be acceptable to professionals, managers, commissioners and patients. The patient survey reported high levels of satisfaction, as found in other national surveys, and no difference in ratings between those consulting PAs or GPs. Patient interviews revealed, as in other studies, positive views but also the need to ensure that patients understand the exact nature of this new-to-the-UK role and continue to be offered a choice of clinician. Continuity of clinician was important to those with multiple and ongoing problems, as has been noted before.

The PAs were judged by GPs, through observations of consultations, to be competent and, through review of records of reconsulting patients, to be more likely than GPs to document appropriate clinical activities.

The impact of PA consultations on the wider health system was the same as GP consultations for the same patient case mix. We report for the first time, to our knowledge, that there is no significant difference in reconsultation rate for the same problem or rates of process outcomes (procedures, referrals for diagnostic tests or to other professionals, issuing of prescriptions) between patients who have consulted a PA or GP, when adjusted for covariates of relevance.

We report, for the first time, average length of PA same-day appointment consultations in the English general practice setting as significantly longer than that of a GP. Although we were not able to cost the supervising of a PA for GPs, we report for the first time that consultation costs were £6.22 lower with a PA than with a GP.

It was evident from the interviews that GPs as clinical employers had varied views as to whether or not the use of mid-level practitioners was efficient in clinical care in comparison with a doctor. This related to both speed of consultation and ability to complete all associated tasks rather than refer on to the GP. For those not employing PAs, this was often based on evidence or experience with nurse practitioners (NPs). For those employing PAs, this related to the deployment of the PA to maximise productivity in same-day appointment surgeries (e.g. length of appointment times given) as well as other activities that added value to the services offered and practice income. All views were also tempered by the availability or lack of GPs, experienced practice nurses and NPs in the local labour market.

The introduction and adoption of any health-care innovation is influenced by sociopolitical and organisation factors and personal and peer influences, as well as characteristics of the innovation itself. The extent to which PAs are available in the English primary care labour market is dependent on their featuring in the NHS national, regional and local workforce education plans and policies. These were documents in which they did not feature at the time of the study. The modelling and costing of including PAs in workforce plans was outside the scope of this study and requires further investigation.

Limitations

This mixed-methods, multilevel study had both strengths and limitations. The conduct of comparative case study element was different from planned, in part a result of changes required by the ethics committee, but also shaped by the capacity of general practices, as small organisations, to undertake research. This resulted, in some instances, in not all data being available, for example missing work diaries.

Conclusions

Physician assistants were found to be acceptable, effective and efficient in complementing the work of GPs. PAs provide a flexible addition to the primary care workforce. They offer another labour pool, with a shorter training period than GPs or NPs, to consider in health service workforce and education planning at local, regional and national levels. However, in order to maximise the contribution of PAs in primary care settings, consideration needs to be given to the appropriate level of regulation and the potential for authority to prescribe medicines. Further research is required as to the contribution PAs could make in other first-contact, primary care services.

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