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Building the evidence base – 10 Years of Physician Assistant/Associate Research in England: a special article

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Conflicts of Interests

None to declare

Introduction

This paper describes a ten-year journey of one research group in helping to build the research evidence base for physician assistants, (PAs), known as physician associates in the United Kingdom [UK] in the National Health Service (NHS) in England. It draws out some key issues which may be of interest to those developing PA research programmes in different specialties and different countries.

Physician assistants in the UK – the beginnings

All health care systems are challenged to meet the triple aim¹ of “improving the experience of care, improving the health of populations, and reducing per capita costs of health care” p 759. The UK NHS, a tax funded health service free to all at the point of care, has been developing new roles as part of the solution to these challenges as well as addressing medical shortages. In the early 2000s NHS organisations recruited PAs from the US to work in primary care, emergency departments and some acute specialities. Evaluations concluded that the PAs were well received by patients and professionals, were clinically safe and an asset to services (England, 2002-2005, ² and Scotland, 2005-2008 ³). The UK Association of PAs (UKAPA) was formed in 2005 and a national PA curriculum published in 2006 ⁴. By 2008/9 three UK Universities were offering post graduate PA courses: one of these was St. George’s University of London in the south east of England.

Investigating physician assistants as a workforce innovation in the UK

As health service researchers at St. George’s University of London who were investigating health workforce innovations, we were invited by the medical and PA faculty for the PA programme there to evaluate the PA course, reporting internally on the student PAs’ and supervisors’ experiences. In this and subsequent studies, we drew on theories of the adoption of innovation ⁵ and Donabedian ⁶ on judging quality in health care. Donabedian describes dimensions of effectiveness, acceptability, efficiency, access and equity (fairness) as important criteria. In the early days our studies were supported by PA faculty as advisors; the research team holding the position of objective observers. In looking at the potential employers of the graduate PAs we investigated who the English employers of PAs were and why. We found small numbers of American trained PAs employed by general practitioners (GPs, known as family physicians in the United States, US) ⁷. We reported that the PAs were mainly attending same day or urgent appointment patients and that the GPs had multiple reasons for employing PAs. These reasons included: shortages of doctors and nurses and challenges in meeting patient demand. However, the lack of state regulation (the UK licensing process for health professionals) was seen as a problem. At the same time other descriptions of the spread of PAs in England were beginning to be published by PA faculty ^{8,9}.

Research into the contribution of PAs in primary care in England

A funding call for research which addressed managers’ and commissioners’ questions on innovation and sustainability of the primary care workforce from the National Institute for Health Research (NIHR) allowed us to capitalise on our published research so far. We built an experienced multi-professional research team,

which included an academic GP, health economist, sociologist, statistician and patient representative, with an advisory board including PA faculty and practising PAs associated with the two PA programmes running at the time. We drew on their expertise to craft a strong research protocol with accurate costings which was successfully funded in open national competition and awarded £449,294.85 (US\$ 582,465.82).

This study included: a survey of PAs in general practice¹⁰, a systematic review of the evidence on PAs working in primary care (1950 to 2010)¹¹, a policy review and interviews at national and local levels¹² and a prospective comparative study of PA and GP consultations with patients.¹³ The latter was an observational study of 2086 patient records, with a contemporaneous patient survey for a sub sample, presenting at same-day appointments in 12 general practices in England, six employing PA/s, and six not, in matched practices. We adapted a classification system for the patients and found overall that PAs attended significantly more patients presenting for 'minor problems or symptoms' and less often for 'chronic' problems than GPs.¹⁴ In our adjusted analysis we found no significant differences in the rates of re-consultation (rate ratio [RR] 1.24, 95% confidence interval [CI] 0.86 to 1.79, P = 0.25) as a proxy for clinical safety. There were no differences in rates of diagnostic tests ordered (RR 1.08, 95% CI 0.89 to 1.30, P = 0.44), referrals (RR 0.95, 95% CI 0.63 to 1.43, P = 0.80), or prescriptions issued (RR 1.16, 95% CI 0.87 to 1.53, P = 0.31); that is the costs to the wider health care system were the same.¹⁵ A sub sample of PA and GP records was reviewed by independent GPs (blinded to the attending clinician), as were video recordings of GP and PAs consultations¹⁵, in which PAs' consultations were judged appropriate, competent and safe¹². We found no difference in patient satisfaction (odds ratio [OR] 1.00, 95% CI = 0.42 to 2.36, P = 0.99) but in accompanying interviews of a sub sample of patients we found there was some misunderstanding of what a PA was¹⁶. The adjusted average PA consultation was 5.8 minutes longer than the GP consultation (95% CI = 2.46 to 7.1; P<0.001); cost per consultation was GBP £6.22, (US\$ 10.15) lower (95% CI = -7.61 to -2.46, P<0.001), although we were not able to account for GP supervisory time¹³. Of 319 patients, who had no experience of a PA, 26.1% reported they were very willing or willing to consult a PA instead of a GP¹⁷. We reported GPs' and managers' views that the regulation of PAs in the UK, with attendant authority to prescribe medicines, required attention if PAs were to be fully utilised^{13,17}.

The impact of the PAs in primary care research

Dissemination of the study to different audiences and in multiple formats was important. Aside from the multiple publications in journals, briefing summaries were sent to interested UK government agencies bodies in early 2014. One of these agencies, the Centre for Workforce Intelligence, was examining the growing problem of GP shortages and cited the research on safety, acceptability and cost effectiveness in its recommendations to government to consider PAs as one of the solutions to ameliorate GP shortages¹⁸. Their 2014 report recommended public funds were used to support PA education and increase numbers¹⁸. The same year government announced public funds to support PA education so 1000 would graduate by 2020. In 2018 Health Education England (HEE, the government body

responsible for health workforce planning), reported 600 PA graduates and 1,600 students in 35 Universities ¹⁹, a rapid expansion recently reported by PA faculty ²⁰.

A parliamentary investigation into the current state of primary care and its workforce created the opportunity to summarise and present our research to the legislature. Many organisations such as the Faculty for Physician Associates (FPA, established in 2014) submitted evidence. As independent researchers, we submitted our findings on the positive contribution PAs made to general practice and the need for regulation of the profession²¹. These were points we re-iterated, as did many others, to the public consultation by the Department of Health on the regulation of PAs; the consultation's risk assessment reports cited our research ²². The UK government has since decided to regulate the PA profession, with the General Medical Council as regulator ²³.

Investigating the PA contribution in secondary care services

From 2012, the annual FPA census was reporting increasing numbers of PAs working in acute care. Research was being published describing secondary care doctors' perspectives on the new role ²⁴. Another NIHR funding call on service organisation and delivery in 2014 allowed us to apply with a proposal for a new PA study, set in secondary care. In an open national competition we were awarded £483,779.00 (US\$ 627,171). Some challenges in undertaking the research included recruiting hospitals willing to work with us and employing PAs in the specialties that we planned to investigate. The changing employment patterns of PAs at this time and the willingness (or otherwise) of hospitals to provide data and access to patients for follow up resulted in the protocol being changed twice, in close discussion with the funder. The research was published in 2019 ²⁵. We undertook a systematic review of the contribution of PAs in the specialities in which they were most frequently employed in the UK ²⁶, explored the employers' perspective ²⁷, and the team structures PAs were working in ²⁸. Our detailed work in six hospitals provided qualitative evidence that PAs were acceptable, appropriate and safe members of the medical/surgical teams ²⁹. They were reported and observed to positively contribute to: continuity within their medical/surgical team, patient experience and flow, inducting new junior doctors, supporting the medical/surgical teams' workload, which released doctors for more complex patients and their training. Quantitative data to support these views were not readily available. Our pragmatic comparison of PAs and doctors in training in the emergency department reported no difference in patient outcomes or measures of patient safety. The lack of regulation and attendant lack of authority to prescribe was seen as a problem. Patients and relatives described PAs positively but most did not understand who and what a PA was, often mistaking them for doctors ²⁵.

We have also bid in open competition for specific service evaluations involving PAs as these give us the opportunity to investigate the innovation of PAs in new settings or with different experience. One of these was the evaluation the National Physician Associates Expansion Programme (NPAEP) which recruited experienced US-trained PAs to work for two years in English hospitals that had no exposure to PAs. PAs were members of the advisory group both to the programme and the evaluation. We

reported the positive contribution of the experienced PAs to the services³⁰. We also reported the change over time in the hospitals from little consideration of employing PAs to actively recruiting UK-trained PAs and offering student PA placements³⁰. Patient interviews indicated that PAs stood out for their communication skills, although confusion about their role persisted³¹. This is an issue that we have taken forward in a new pilot intervention study with PAs as co-researchers.

It is evident that there is growing appetite to employ PAs in hospitals in the UK. The evidence we have published to date is being widely used by the HEE and NHS organisations. We continue to disseminate our findings to different audiences through a variety of ways.

Next steps in PA UK research

The 50th year celebration of the PA profession meant US PA researchers could reflect on their changing research questions³². PA research from the Netherlands leads the way in addressing these types of questions using robustly designed prospective comparative studies³³.

For those PAs interested in policy and workforce research questions, our journey offers some insights: starting from the small and descriptive, taking the research questions forward into the next study, building multidisciplinary teams and networks, collaborating with PA faculty, capitalising on funding opportunities, disseminating findings to multiple audiences – including to policy makers in formats that speak directly to their concerns. Our research has always included patient representatives as co-researchers and now we also have PAs as co-researchers in studies, moving us forward from their previous roles as advisors or participants. The growth of the UK PA researchers was demonstrated in the PA think tank meeting in London in 2018 on designing a research agenda for the coming decade. We look forward to the growth of PA research by PAs and other opportunities for cross country research, such as through the European PA Collaboration (<https://www.europa-c.info/#!>).

References

1. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff (Millwood)*. 2008;27(3):759-769. doi: 10.1377/hlthaff.27.3.759
2. Woodin J, McLeod H, McManus R et al. Evaluation of US-trained Physician Assistants Working in the NHS in England. Final Report. Birmingham: University of Birmingham; 2005. Accessed last July 2019 at <https://www.birmingham.ac.uk/Documents/college-social-sciences/social-policy/HSMC/publications/2005/Evaluation-of-US-trained-Physician-Assistants.pdf>
3. Farmer J, Currie M, Hyman J et al. Evaluation of physician assistants in National Health Service Scotland. *Scott Med J* 2011; 56:130–4. doi.org/10.1258/smj.2011.011109

4. Department of Health, Royal College of General Practitioners, Royal college of Physicians. The Competence and Curriculum Framework for the Physician Assistant. London: Department of Health; 2006.
5. Greenhalgh T, Robert G, Macfarlane F et al. Diffusion of innovations in service organizations: systematic review and recommendations. *The Milbank Quarterly*. 2004 Dec;82(4):581-629. DOI: 10.1111/j.0887-378X.2004.00325.x
6. Donabedian A. The definition of quality and approaches to its assessment. Ann Arbor, Michigan: Health Administration Press, 1980.
7. Authors 1 – GP interviews
8. Ritsema TS, Paterson KE Physician assistants in the United Kingdom: an initial profile of the profession. *JAAPA*. 2011 (10):60.
9. Ross N, Parle J, Begg P, Kuhns D. The case for the physician assistant. *Clin Med (Lond)*. 2012 (3):200-6.
10. Authors 2 – PA survey
11. Authors 3 – systematic review
12. Authors 4 – policy review and national interviews
13. Authors 5 - prospective comparative study
14. Authors 6 – adapted patient classification
15. Authors 7 – video recordings
16. Authors 8 – patient interviews
17. Authors 9 – overall report
18. Centre for Workforce Intelligence. In-depth review of the general practitioner workforce. July 2014 Last accessed July 2019 on the DH website [<https://www.gov.uk/government/publications/in-depth-review-of-the-general-practitioner-workforce>]
19. Health Education England. Annual Report and Accounts 2018-19. Accessed last August 2019 at <https://www.gov.uk/government/publications/health-education-england-annual-report-and-accounts-2018-to-2019>
20. Ritsema TS, Roberts KA, Watkins JS. Explosive Growth in British Physician Associate Education Since 2008. *J Physician Assist Educ*. 2019 (1):57-60. doi: 10.1097/JPA.000000000000233.
21. House of Commons Health Select Committee, Primary care Fourth Report of Session 2015–16 HC 408. 2016. House of Commons: London, UK . Accessed last August 2019 <https://publications.parliament.uk/pa/cm201516/cmselect/cmhealth/408/40802.htm>.
22. Health Education England. An assessment of the four medical associate professions (MAPs). Accessed last August 2019 <https://www.gov.uk/government/consultations/regulating-medical-associate-professions-in-the-uk>
23. General Medical Council. GMC to regulate two new associates roles. Press release 18-July-2019. Accessed last July 2019 at <https://www.gmc-uk.org/news/news-archive/gmc-to-regulate-two-new-associates-roles---pas-and-aas>

24. Williams LE, Ritsema TS. Satisfaction of doctors with the role of physician associates. *Clin Med (Lond)*. 2014 Apr;14(2):113-6. doi: 10.7861/clinmedicine.14-2-113.
25. Authors 10 Report
26. Authors 11 Systematic review
27. Authors 12 Medical Director survey
28. Authors 13 PA survey
29. Authors 14 Hospital study
30. Authors 15 – NPAEP paper
31. Authors 16 – Patient perspective
32. Dehn RW, Everett CM, Hooker RS. Research on the PA profession: The medical model shifts. *JAAPA*. 2017 May;30(5):33-42. doi: 10.1097/01.JAA.0000515548.76484.39.
33. Timmermans MJC, van Vught AJAH, Peters YAS et al. The impact of the implementation of physician assistants in inpatient care: A multicenter matched-controlled study. *PLoS One*. 2017;12(8):e0178212. doi: 10.1371/journal.pone.0178212.