Accepted Manuscript

Physician associates in primary health care in England: A challenge to professional boundaries?

Vari M. Drennan, Jonathon Gabe, Mary Halter, Simon de Lusignan, Ros Levenson

PII: S0277-9536(17)30201-0

DOI: 10.1016/j.socscimed.2017.03.045

Reference: SSM 11141

To appear in: *Social Science & Medicine*

Received Date: 5 July 2016

Revised Date: 17 March 2017

Accepted Date: 22 March 2017

Please cite this article as: Drennan, V.M., Gabe, J., Halter, M., de Lusignan, S., Levenson, R., Physician associates in primary health care in England: A challenge to professional boundaries?, *Social Science & Medicine* (2017), doi: 10.1016/j.socscimed.2017.03.045.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Physician Associates in primary health care in England: a challenge to professional boundaries?

Authors

Vari M Drennan, [a]

Jonathon Gabe, [b]

Mary Halter, [a]

Simon de Lusignan [c]

Ros Levenson [d]

a Faculty of Health, Social Care and Education, Kingston University and St. George's University of London, Cranmer Terrace, London, SW17 0RE, UK maryhalter@sgul .kingston.ac.uk

b Centre for Criminology & Sociology, Royal Holloway, University of London , Egham Hill, Egham Surrey, TW20 0EX, UK j.gabe@rhul.ac.uk

c Department of Clinical and Experimental Medicine, University of Surrey, Guildford, Surrey, GU2 7PX, UK s.lusignan@surrey.ac.uk

d independent researcher , London, UK roslevenson@gmail.com

Corresponding author Vari M Drennan , Email v.drennan@sgul.kingston.ac.uk tel +442087252339

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

1 # Physician Associates in primary health care in England: a challenge to
2 professional boundaries?

3 ## Abstract

4 Like other health care systems, the National Health Service (NHS) in England has looked to new
5 staffing configurations faced with medical staff shortages and rising costs. One solution has been to
6 employ physician associates (PAs). PAs are trained in the medical model to assess, diagnose and
7 commence treatment under the supervision of a physician. This paper explores the perceived effects
8 on professional boundaries and relationships of introducing this completely new professional group. It
9 draws on data from a study, completed in 2014, which examined the contribution of PAs working in
10 general practice. Data were gathered at macro, meso and micro levels of the health care system. At the
11 macro and meso level data were from policy documents, interviews with civil servants , senior
12 members of national medical and nursing organisations, as well as regional level NHS managers (
13 n=25). At the micro level data came from interviews with General Practitioners, nurse practitioners
14 and practice staff (n=30) as well as observation of clinical and professional meetings. Analysis was
15 both inductive and also framed by the existing theories of a dynamic system of professions. It is
16 argued that professional boundaries become malleable and subject to negotiation at the micro level of
17 service delivery. Stratification within professional groups created differing responses between those
18 working at macro, meso and micro levels of the system; from acceptance to hostility in the face of a
19 new and potentially competing, occupational group. Overarching this state agency was the
20 requirement to underpin legislatively the shifts in jurisdictional boundaries, such as prescribing
21 required for vertical substitution for some of the work of doctors.

22

23 ## Keywords

24 England, health professions, physician associates, physician assistants, primary care, professional
25 boundaries.

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

26 **Introduction**

27

28 A new health professional group, physician assistants, is developing in many countries around the
29 world (Hooker et al. 2007). In the United Kingdom (UK), where they are now known as physician
30 associates, this new group has been growing over the past ten years (Ross et al. 2012). They are a type
31 of mid-level or non-physician advanced practitioner (World Health Organisation [WHO] 2008).
32 Given that the UK already has a well-developed panoply of health professions, recognised by the state
33 and employed in the National Health Service (NHS), it raises questions as to how a new professional
34 group fits with other already established professions? What are the work practices the jurisdictional
35 boundaries and the occupational relationships of this new profession in relation to the other
36 established professions? This paper explores these questions from a study of the contribution of
37 physician associates in general practice in England, from which issues of patient outcomes, patient
38 safety and costs have been reported elsewhere (Drennan et al 2015) . Our inquiry, reported here, is
39 framed by theories of dynamic systems of health care professions, which we outline first before
40 describing our methods and presenting our findings.

41 *Shifting boundaries between health care professions*

42 Middle and high income health care systems are characterised by complex delivery models provided
43 by teams with overlaps in the roles of different occupations (Ono et al 2013). Managers in all health
44 care systems have sought flexibility between occupational groups and the use of subordinate,
45 technical posts to address issues of workforce shortage, cost containment and increase productivity
46 (Buchan and Dal Poz 2002). However, health professions are part of an inter-dependent system
47 (Abbott 1988) in which the activities and developments of one occupational group impact on others
48 and are tied up with issues of power, status and control. Accomplishing professional status is a
49 strategy of limiting entry to and defending jurisdictional boundaries supported by state legislation to
50 ensure the highest financial and social rewards; with medicine as the most successful exemplar
51 (Larkin 1983).

52 Abbott (1988) suggests that professions are shaped by three types of interaction: contests for
53 jurisdiction between professions (inter-professional), the stratification and creation of hierarchies

54 within a profession (intra-professional) and the influence of societal changes and state agency. He
55 offers a range of possible settlements to jurisdictional disputes between groups. These include: the
56 legal right of only one group to perform certain tasks, the subordination of another group, splitting the
57 jurisdiction into two parts, and advisory control over the tasks of others. He argues that subordination
58 without contest is common below dominant professions and cites physician assistants as one example
59 of a group to have emerged in this way (p 83). Nancarrow and Borthwick (2005) have elaborated on
60 ways to conceptualise shifts in boundaries. They suggest that *intra*-professional jurisdictional shifts
61 can be viewed as either diversification or specialisation. Empirical studies of intra-professional shifts
62 within medicine in the UK, promoted by state policy, while demonstrating specialisation, have
63 demonstrated continued forms of stratification into elite and other groups (MacDonald et al 2009,
64 Martin et al. 2009).. Nancarrow and Borthwick (2005) conceptualise *inter*-professional shifts as
65 vertical or horizontal substitution between occupations. Vertical substitution is the substitution by
66 occupations for others above them in a hierarchical pyramid, with attendant acquisition of some of the
67 status or reward of the higher order group. Horizontal shifts are between occupations at the same level
68 within the hierarchical pyramid and consequently do not confer higher status or reward
69 Major system level shifts in jurisdiction between established professions are best exemplified by the
70 legislated authorisation of nurses in some countries to prescribe medicines, which has intra country
71 variation, reflecting differences in macro level settlements between the professions of medicine and
72 nursing (Kroezen et al 2012). Linked with this jurisdictional settlement has been the extent to which
73 advanced nurse practitioner (ANP) roles have developed in primary care (Delamaire and Lafortune
74 2010). ANPs are one type of mid-level non-physician clinicians who undertake some of the activities
75 of doctors (World Health Organisation 2008). At the micro level there have been many studies of
76 attempted changes between the work of doctors and nurses in hospital settings with evidence of
77 enforced, accepted, contested, and negotiated boundaries (see for example Allen 2001). Within
78 primary care, studies have been reported in Canada, the US and the UK in which GPs were concerned
79 about the jurisdiction of ANPs (Schadewaldt et al. 2013). These concerns included: the extent of
80 ANPs' capabilities, the level of training, the scope of responsibility, the impact on GPs' supervisory
81 workload, inefficiencies in dealing with patient work flow and threats to the employment of doctors.

ACCEPTED MANUSCRIPT

82 More positive views were reported in studies in which doctors had worked with ANPs (Schadewaldt
83 et al. 2013).

84 The evidence above is drawn from studies of shifting work roles and jurisdiction between *existing*
85 health care occupations rather than the introduction of a *novel* health care occupational group. The
86 introduction of physician associates within the UK NHS offers the opportunity to investigate the ways
87 in which existing professional groups perceive shifts in work roles, jurisdictional boundaries and
88 relationships when a completely new occupational group is introduced.

89 Physician assistants (PAs), as physician associates were first called, were introduced in the 1960s in
90 the US by physicians in response to primary care medical shortages and uneven access to healthcare
91 (Mittman et al 2002). PAs were designed to be legally dependent on medicine i.e. a subordinate
92 group (Sadler et al 1975). A sociologically informed analysis of publications concerning PAs
93 demonstrated the evolutionary processes from a designed programme of education to a PA occupation
94 (Schneller 1976). Schneller argued that PAs '"*challenged the task, status and prestige of other*
95 *paramedical personnel*" (1976 p465) and reported confrontation with the nursing profession. Today
96 PAs in the US "provide healthcare services typically performed by a physician, under the supervision
97 of a physician. Conduct complete physicals, provide treatment, and counsel patients. May, in some
98 cases, prescribe medication. Must graduate from an accredited educational program for physician
99 assistants" (The Occupational Information Network 2016). They have to be registered in the state they
100 work in, each of which has separate regulations and limitations on their prescribing authority
101 (American Academy of Physician Assistants 2016). Over the last two decades other countries such as
102 Australia, Canada, India, Kenya, the Netherlands, Saudi Arabia, South Africa and the United
103 Kingdom have been introducing and developing PAs in their health care workforce to varying degrees
104 (Hooker et al. 2007). In the UK PAs have been suggested as one solution to workforce shortages in
105 general practice. General practices are small to medium size businesses owned by GP partners who
106 receive NHS contracts to provide primary health care (NHS Employers et al. 2016). Occasionally
107 practice managers, and more rarely nurses, are partners too (Queens Nursing Institute 2016). Partners
108 in the general practice make the decisions about staffing and the division of labour.

109

ACCEPTED MANUSCRIPT

110 Within a wider study of PAs in general practice in England (Drennan et al. 2014) we investigated the
111 question: what are the jurisdictional boundaries and relationships of a newly introduced occupational
112 group into health care services, both at the system and workplace level?

113 Methods

114 Using a broadly interpretivist approach (Crotty 1998), a mixed qualitative methodology was used to
115 encompass macro, meso and micro levels of the health care system. Data collection was in
116 overlapping phases to contribute iteratively to the overall analysis. Data were gathered and analysed at
117 the different levels, and then synthesised using the theoretical frame of shifting professional
118 boundaries. .At the macro level, a document and text analysis (Silverman 2011) informed semi-
119 structured interviews with a purposive sample of key macro and meso level stakeholders (Patton
120 2002). This, in turn, informed semi-structured interviews with staff at the micro level of general
121 practice.

122 The macro level document and text analysis drew on published (electronic or print) UK policies,
123 reports, opinion pieces and response letters from the 1980s to March 2013. They were identified
124 through: journal database searches (reported in Drennan et. al. 2014), repeated internet searches using
125 the Google™ search engine, repeated scanning of UK government websites, and follow up of cited
126 sources. Search terms related to the topic of interest e.g. health care workforce. A data extraction
127 form was used systematically to categorise types of evidence, opinion and policy on physician
128 assistants/associates. This was undertaken by two researchers independently and any difference in
129 view resolved through discussion. A narrative synthesis was developed in discussion with the wider
130 research team.

131 At the macro and meso level, a purposive sampling framework was devised of national and regional
132 government, professional and patient organisations with an interest in the health care workforce,
133 including primary care. Fifty senior individuals in these organisations were identified from public
134 websites and published documents. They were approached to participate in face to face or telephone
135 (their choice), semi-structured, interviews (Patton 2002) or if unavailable to suggest someone else in
136 the organisation to be approached.

137 At the micro level, a purposive sampling frame was devised to identify a range of staff (GPs, practice
138 managers, nurse practitioners or nurses, PAs and receptionists) working in 11 general practices
139 participating in the wider study (Drennan et. al. 2015). Six of these general practices employed PAs
140 and five did not; forty eight staff members were invited to participate in interviews. The PA
141 employing general practices were in rural, suburban and inner city areas and the non-PA employing
142 practices were matched to these in setting and size. Interviews (25 at the macro and meso levels and
143 39 at the micro level) were conducted by three researchers using topic guides. Theses topic guides,
144 which were informed by the theoretical framing and the documentary analysis, explored areas such as:
145 perceived factors supporting or inhibiting the development of the PA occupational group and their
146 employment in general practice, the relationships between PAs and other groups, and the work they
147 and other occupational groups undertook in general practice. Interviews were undertaken in 2011 and
148 2012, and duration ranged from 20 minutes to an hour. Reflective techniques were used in the
149 interview so that the researcher checked and had validated their understanding of the interviewees'
150 viewpoint (Patton 2002). All interviews were digitally recorded with permission, transcribed and
151 made anonymous in electronic versions. Data were managed through secure, shared electronic folders
152 between team members. The analytic process involved familiarisation through reading and re-
153 reading, and then coding thematically against a framework derived from the theories and literature
154 (Ritchie and Spencer 1994) as well as from the data. The final narrative synthesis was informed by the
155 theoretical framing and through constant comparison discussions with the larger research team.
156 The study received ethical review from an NHS Research Ethics Committee.

157 Findings

158 We present evidence from the macro and meso level before turning to the micro level of general
159 practice.

160 Perspectives at the macro level : the state and professional organisations

161 The documentary analysis identified that the early 2000s saw significant shortages in doctors and
162 nurses in the UK, prompting the Department of Health (DH) to develop new roles through its
163 Changing Workforce Programme (NHS Modernisation Agency 2007). The American model of

164 physician assistant was one of these. The extent of the macro –level support for the PA role was
165 demonstrated through government funding for two large scale pilot projects in which US trained PAs
166 were employed in primary and secondary care in England (between 2002 and 2005) and in Scotland (
167 between 2005 and2008). The evaluations reported that PAs were well received by patients, accepted
168 by other professionals and were safe in practice (Woodin et al 2005, Farmer et al. 2011). Our analysis
169 of the 63 published opinions about PAs, contemporary with the English pilot, demonstrated a more
170 varied set of opinions. While senior officials in the Department of Health offered positive views,
171 leading figures in national medical and nursing professional organisations stated they were opposed to
172 the introduction of this new group as in this example citing leaders of two national nursing
173 organisations: the Community Practitioner and Health Visitor Association (CPHVA) and the Royal
174 College of Nursing (RCN).

175 "*The RCN is also worried about the potential impact of this medical role [physician*
176 *assistant] on the nursing profession. …….Mr Jones* [CPHVA director] *argues that the best*
177 *solution to the GP shortage is continuing to develop highly skilled nurses, a view supported*
178 *by Ms MacLaine* [RCN]. '*NPs* [nurse practitioners], *with appropriate underpinning*
179 *education, don't need to be supervised – they're highly competent. NPs are bicultural in that*
180 *they have a way of approaching patients, which comes from their nursing background, but*
181 *have developed medical knowledge and skills. They are completely different from medical*
182 *assistants,' says Ms MacLaine.*" Anon Independent Nurse 2005

183 Other reasons found in the published commentaries for opposing the introduction of PAs included: the
184 transferability of a US model to a UK setting; confusion for the public; concern that PAs were not
185 cost-effective in general practice; and a viewpoint that nurses and ANPs fulfilled this role in the UK
186 health-care workforce and offered greater value to patients. Despite the negative commentaries from
187 leaders of the medical profession during this period, it was also evident that a small number of GPs
188 were employing PAs in order to meet patient demand and government set targets on patient access
189 times and in the face of GP and nurse workforce shortages (Drennan et al. 2011).

190 Policy documents demonstrated that the Department of Health continued to support the introduction
191 of this new occupational group until the mid to late 2000s. Senior officials worked with the Royal

ACCEPTED MANUSCRIPT

192 Colleges of Physicians and of General Practitioners to publish a competency and curriculum
193 framework for PA education at post-graduate level, modelled closely on that of the US (DH et. al
194 2006). This was used by medical and allied health professional academics, with the support of
195 regional NHS managers, to establish the first English PA courses (Ross et. al 2012).

196 However by the end of the decade this macro level support was no longer evident. Our analysis of
197 English government policy on the NHS and workforce (n= 20) in the period of our wider study (2010-
198 2014) found a complete absence of reference to PAs. In addition PAs were not included in the state
199 regulation processes for health professions One consequence of this is that PA jurisdiction in the UK
200 was and is curtailed as without state regulation it cannot be included in the legal statutes which
201 permits nurses and other health professionals, with additional qualifications, to prescribe medicines
202 or order ionising radiation.

203 We now present the evidence at the macro and meso level from the perspectives of different
204 occupational groups: managers (civil servants and regional NHS managers), doctors and nurses.

205 **Perspectives at the macro and meso level: managers, doctors and nurses**

206 The managers emphasised the need for a cost efficient workforce to meet increased future demands on
207 the health services. They talked of the need for '*flexible working*' and "*blurred boundaries between*
208 *roles*' indicating a view of vertically shifting jurisdictions between occupations (Nancarrow and
209 Borthwick 2002). Their discourse reflected the language of the new public management in respect of
210 the discipline and promotion of parsimony in resource allocation (Osbourne and McLouglin 2002).

211 "*So from a workforce perspective, we're acutely aware there should be a much greater role*
212 *for skill extensions, role extension, role substitution, all of that is going to become necessary.*
213 *The budgetary position isn't going away…… There is no way we can medicalise our way out*
214 *of meeting the needs of an aging population.*" Participant 2- manager.

215 Most managers were neutral in their views about PAs, wanting more evidence that PAs in the UK
216 setting were a cost efficient occupational group in comparison to other regulated professions who
217 might substitute for doctors. This was particularly evident from those regional managers responsible
218 for allocating NHS finance to health professional education as directed by NHS employers. Without
219 central government directives they reported no particular impetus to support the development of a PA

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

220 workforce. In this they illustrated the agency of the state in supporting occupations to achieve closure
221 and status (Freidson 1985). They commented on the lack of visible macro level support as an
222 explanation for their view that a PA workforce was unlikely to be established within the English NHS.
223 *"I think the whole thing around PAs and new roles, the countries where it's succeeded is*
224 *other countries where there's been government backing, that's unfortunate that in England,*
225 *that backing hasn't been prevalent and that's why we're struggling*". Participant 13, manager.
226 The lack of state regulation for PAs was thought to make them less cost effective and consequently
227 less desirable to employers as substitutes for doctors, in comparison to nurses and pharmacists with
228 authority to prescribe medicines. Many participants went on to refer to the dynamic tensions between
229 health professions (Abbott 1988) suggesting that perceptions of limited cost effectiveness increased in
230 the face of resistance to their employment by the medical profession.
231 "*Of course, you know that there is a pushback against Physicians Assistants, that there are*
232 *people, medics in particular, who are very anti and hostile and just see it as nothing but a*
233 *threat*." Participant 2, manager.
234 The views provided by the doctors varied according to their roles. Those in leadership positions in the
235 profession (Royal Colleges, Medical Education, and Department of Health) supported vertical
236 substitution as a way to protect medical training and specialisation. They were neutral as to which
237 occupational group(s) should support doctors but they wanted staff that could contribute to the
238 medical workflow in an efficient manner rather than increase medical workloads.
239 "*If we look at the medical side of it, what the impact of European Working Times Directive is*
240 [a European Union direction to member states that the maximum hours worked in a week is
241 48 ,which came fully into effect for junior doctors in the UK in 2009, British Medical
242 Association 2016], *we've got much fewer hours to train doctors……. that's going to, you*
243 *know, really put a problem on the service because you know people have relied on these*
244 *trainees* [doctors] *, …… that sort of* [workforce] *resource is not going to be there …those*
245 *functions are going to have to be transferred to another resource and that could be*
246 *physicians' assistants, it could be advanced nurse practitioners."* Participant 7, doctor in
247 national role for medical education.

248 While we were unable to secure interviews with national leaders of the junior doctors (i.e. qualified
249 doctors in grades below a consultant), published commentaries by junior doctors contemporary to the
250 time of the study were found to be mainly negative, arguing that PAs were a managerialist, cost
251 saving strategy which threatened the future employment of doctors and the profession as a whole.

252 *"The implication that a two year postgraduate degree teaching a 'medical model of thinking'*
253 *will prepare someone to work at the level of senior house officer is a laughable one. ……..*
254 *And do you know how much they cost? A brief look at the job adverts show that they are*
255 *employed on the band 8a or b in Agenda for Change* [a senior clinical ,usually managerial,
256 part of clinical pay scale for nurses and allied health professionals as nationally agreed and
257 used in the NHS, NHS Staff Council 2016]. *That is much more than the starting salary of an*
258 *SAS* [Staff Grade, Specialty and Associate Specialist] *doctor who will require much higher*
259 *level of clinical competence and responsibility. Value for money? I think not………But by the*
260 *time the profession ...realises the threat, it may be too late. And it is the responsibility of the*
261 *senior doctors to save the NHS from these half cooked, gap fillers with no accountability. But*
262 *is someone listening? "(Sajayan 2010)*

263 The nurse participants also varied in their views about physician associates. Those nurses at the macro
264 level had often held senior management roles in the NHS. This was reflected in a discourse of
265 managerialism (Osborne and McLaughlin 2002) in arguing for a cost efficient workforce that included
266 PA type roles. They rehearsed similar reasons to the managers for why the NHS workforce had to
267 change. However their arguments were also couched in terms of protecting registered nurse time to
268 undertake *nursing* work rather than *medical* work. In this they were also arguing for the defence of
269 nursing work from the encroachment of support roles.

270 "*I think the expectation will be it will be nurses* [to cover the reduction in working time of
271 doctors in training] *because medicine tends to assume that nurses will pick up the slack.*
272 *……The focus will be on technical skills….. Now, I'm not saying that the work isn't entirely*
273 *legitimate work but I do think that nursing will have to look very clearly about redefining*
274 *where the role is because the temptation will be for the caring, compassion, fundamental*

275 *skills of nursing to be completely devolved to other worker, principally unregulated*
276 *healthcare support workers."* Participant 1, Nurse Leader.
277 Those participants representing nurses at the macro level who were in active clinical roles such as
278 ANPs were more resistant to a new occupational group. They argued that nurses were the best
279 occupational group to provide vertical substitution for doctors. They contended that NHS finance for
280 professional development would most effectively be used in skilling up nurses as an existing
281 workforce for whom there was evidence to support their value in general practice rather than an
282 untried, untested new occupational group.
283 "*Why would you want physician assistants if we can get that* [the mid-level role] *and more*
284 *from an advanced nurse practitioner?"* Participant 11, nurse leader and advanced nurse
285 practitioner
286 In summary, our evidence from the macro and meso level of the health care system demonstrates the
287 importance of state agency for the growth or otherwise of this new health profession, reflecting
288 Abbott's (1998) third type of interaction shaping professions. The arguments identified here in
289 support of PAs were largely managerial, reflecting the tenets of new public management (Osbourne
290 and McLaughlin 2002) and those against largely professional or occupational role protection. The
291 degree of neutrality or degree of resistance to PAs by the participants from the nursing and medical
292 professions varied according to their positions within the profession suggesting stratification, internal
293 to the profession, shaped their perspectives. We turn now to consider the perspectives of those
294 working at the micro –level within the general practices.

295 **Micro level – the general practice perspective**

296 We report on four thematic areas: decisions about staffing, jurisdictional boundaries of the PAs,
297 responses to the vertical substitution for doctors, and boundaries and relationships.

298 *Decisions about staffing: the views of GPs and practice managers*

299 Most of the GPs and the practice managers who employed PAs described how they had decided to
300 employ them after failing to attract any doctors or nurse practitioners to their vacancies i.e. it was a
301 decision of necessity. PAs had not been these GPs' first choice to recruit. Some practices had been
302 assisted by the local NHS commissioning organisation in recruiting US PAs. One GP had been

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

303 employing US PAs for a number of years as his preferred staffing model. The PAs were recruited to
304 substitute for doctors in attending patients with appointments in same day or urgent sessions.
305 The GPs were clinician-managers (Fulop 2012), or more accurately clinician-business owners and
306 their discourse on staffing decisions reflected these two perspectives. All of the GPs and some of the
307 practice managers described staffing decisions in terms of cost efficiency. The GPs discussed this in
308 terms of ensuring the most efficient process of clinical decision making about patients' problems,
309 which minimised risk of medical error and also minimised double handling of patients for the same
310 problem.
311 All of the GPs employed staff other than doctors to do clinical work i.e. providing vertical substitution
312 for the doctors (Nancarrow and Borthwick 2002). However, they were divided in their views of the
313 boundaries of their own and others' work. There were those who were not employing or intending to
314 employ any mid-level practitioners. They viewed the medical role as attending all patients to make
315 decisions and diagnosis, and then delegating tasks from that process to other staff in their team.
316 "*Health care assistants can do the blood pressures etc. …. But this middle area, Nurse*
317 *Practitioner level, we think* [the GPs] *can do it more efficiently, quicker.*" GP, 8.
318 The second group of GPs were either employing mid-level practitioners or wanted to employ staff
319 able to work at this level. In their reasoning for staffing decisions, they reflected on the type of
320 patient care required and workload in their practices. They considered that the GP role was one of
321 specialism, attending mainly to the most complex or medically acutely ill patients. In order to
322 maintain their professional boundary as a specialist, they required a team of differently clinically
323 skilled staff ;with some competent to make medical decisions about the less complex patients i.e.
324 those with minor self-limiting problems and others to be competent to undertake delegated tasks such
325 as phlebotomy.
326 "*With doctors* [GPs] *having to deal with more complex items that they didn't have to before ,*
327 *it's* [having a PA or nurse practitioner] *to free up doctor time so you deal with the complex*
328 *not the routine sore throats."* GP, 6.

329 These divergent views of GPs as generalists or specialists have been reported before (Martin et al
330 2009) and there is ongoing debate about how best to organize the primary care work flow and staffing
331 to best effect (see for example Iliffe 2008).

332 *Jurisdictional boundaries of the PAs*

333 The jurisdictional boundaries of the work of the PAs were set by the GP partners. This was reported
334 to be based on clinical competence and the degree of medical risk the presenting patient group or
335 condition posed.

336 "*So he* [the PA] *sees a surgery of patients, morning and afternoon on four days of the week,*
337 *which are almost entirely unselected. We have selected out our under-one-year-olds because*
338 *he's not trained for those.*" GP, 1.

339 Some of the practice managers described initial uncertainties about specific tasks, for example
340 whether the PA could sign medical certificates of sickness, and that they with the GP had had to make
341 decisions about these types of task to inform the work of the PA. The GPs as clinician employers
342 provided a very different type of jurisdictional settlement between occupational groups with that
343 described in hospitals, for example by Allen (2001).

344 The PAs described boundaries to their knowledge and competence. They also described, as did the
345 GPs and practice managers, how trust was gained in the competence of the PAs over time, leading to
346 the PAs expanding their jurisdictional boundaries to new types of patient or clinical activities.

347 "*OK, so initially she was mainly seeing walk-ins … As time progressed she also took on more*
348 *responsibility with chronic patients and in particular she took on … COPD* [Chronic
349 obstructive pulmonary disease] *and asthma reviews, learnt how to do them, …. co-ordinated*
350 *the care as well as the service*."GP, 10.

351 Many of the GPs and practice managers commented that the lack of authority to prescribe potentially
352 made the PAs less efficient and therefore more costly than nurse practitioners with prescribing
353 authority. GPs and PAs devised systems which minimised the disruption and time for doctors to sign
354 all prescriptions and radiograph requests. These "work arounds" or light touch supervision processes
355 were only agreed once the GP trusted the clinical competence and safety of the PA.

ACCEPTED MANUSCRIPT

356 *"When I first qualified, I mean, and also when any new doctor starts, there'll be a period*
357 *where when they're signing my prescription, you would tend to give them a lot more*
358 *information about what you're doing, … because they've got to learn to trust you ….and then*
359 *once the relationship has developed I tend to notice that they don't question as much, so it's*
360 *just about building up a trust and an understanding of your competencies."* PA, 10.

361 It was evident that the establishment of individual trust outflanked externally set jurisdictions. Trust is
362 a multi-layered concept characterised by both cognitive elements and affective dimensions (Calnan
363 and Rowe 2007). The interlinking of professional competence and trust building over time has been
364 noted before in a study of primary care doctors and nurses (Pullon 2009).

365 The PAs and others reported that they had moved to work in areas left vacant through the absence of
366 doctors or nurses or where there was demand for additional staffing. The PAs undertook both
367 substitution vertically for the activities of the doctor but also horizontally for the work of the nurses:

368 *"I'm very flexible with my working, so, like today, I was doing the Warfarin* [an oral anti-
369 coagulant used in the prevention of blood clots and requires regular blood tests] *clinic but I*
370 *was also flitting in and out of the on-call session and taking some patients off the doctors,*
371 *doing all of the telephone triaging, helping the nurse practitioner as well……doing a bit of*
372 *everything really, and just helping everybody out.*" PA, 6.

373 *Responses to the vertical substitution for doctors*

374 Overall other professionals and services were reported to accept the substitution of the doctor by the
375 PA. However, it was not universal acceptance. Some GPs and practice managers reported initial
376 refusal by secondary care consultants and the ambulance transport service to accept PA referrals. The
377 reluctance of others in the health care system to accept jurisdictional changes from GPs to others has
378 been noted before (Delamaire and Lafortune 2010).

379 Patients on the whole were reported to view the substitution of the GP by a PA as acceptable although
380 as we report else where there was sometimes a lack of transparency to and understanding by patients
381 as to what type of professional they were consulting (Halter et al. 2017). There were some who were
382 reported by receptionists to prefer to see a doctor.

ACCEPTED MANUSCRIPT

383 *"I would say 'we've got a 9.40'* [appointment] with [name of PA]*'and they say 'Oh who is*
384 *that?' and then you say 'he's our Physician Assistant and he's covered by a doctor'. And it's*
385 *'Yeah OK' or 'well no I'd rather see a doctor'.* Receptionist, 1.

386 Some participants reported patients who expressed a preference to consult the PA rather than the GP.
387 We report elsewhere the patients' views (Halter et al. 2017) which reflect the contingent nature of the
388 patients' preferences.

389 *Boundaries and relationships*

390 GPs and practice managers reported that prior to employing the PA they prepared other practice staff
391 in order to pre-empt any inter-professional difficulties, particularly with the nursing staff. Only one
392 practice reported a nurse who was openly resistant and left the practice to work elsewhere. Overall,
393 while nurses were reported and described themselves as being '*apprehensive* ' and '*worried for their*
394 *jobs'* when the PAs first started, the subsequent working relationships were described as good. This
395 process of resistance to accommodation at the team level reflects that described by Abbott (1988).
396 Practice managers considered any resistance from nurses to new PA members of the team had
397 dissipated very quickly in the face of the reality of managing the workload. Some nurses stated that
398 while they could do some of the work the PA was doing, the inclusion of the PA in the team allowed
399 them to focus their time on the areas they were most expert or interested in.

400 Contrasts were made between the PA and nurse practitioner roles, with the PAs reported by doctors
401 and practice managers as having wider range of competencies (although overlap was also reported),
402 requiring less supervision and being more willing to take their own decisions.

403 *"Nurses' decision-level-making skills are much lower*[than PAs]*….I have worked with nurse*
404 *practitioners, and they are great with the case mix I've seen them with, but actually, I've*
405 *never seen them with anything complex and my PA could knock spots off them."* GP, 5.

406 One GP commented that PAs differed from nurse practitioners in her practice in that PAs made their
407 own referrals to hospital, whereas nurses would refer patients to the GP to make the referral. Nurses
408 too were reported to identify differences in the ways in which PAs worked compared to them as
409 illustrated here:

ACCEPTED MANUSCRIPT

410 *"I think the nurses found it very difficult because nurses work very strictly to protocols, if they*
411 *hadn't had the training, if they haven't been signed off they won't do it, and I think they saw*
412 [the PA] *doing things that they wouldn't have been comfortable with and they were …'ooh,*
413 *should she be doing that, is she allowed to do that?' ."* Practice manager, 6.

414 Nurses, practice managers and receptionists reported consulting PAs on matters when they could not
415 either find a doctor available or found it easier to approach the PA rather than the doctor, as in this
416 example:

417 *"I think she definitely bridges the gaps* [between doctors' and nurses' work] *quite a lot and I*
418 *can certainly ask, I maybe wouldn't feel as silly asking her some of the questions that I might*
419 *feel a bit silly asking a doctor."* Practice manager, 6.

420 Many participants considered the PAs as an occupation that spanned the boundaries of medicine and
421 nursing. While the role of boundary spanning in inter-organisational relationships has been explored
422 extensively (see for example Williams 2002) we have not identified discussion of this within
423 individual health care teams before. Some of the nurses reported this boundary spanning as the reason
424 they considered the PAs not to be a threat to nurses in general practice.

425 *"Because their roles are different, they are very, entirely different from nurse's role; they've*
426 *got bit of nurse and bit of doctor so they're no threat to any nurses."* Nurse, 10.

427 A number of the practice managers and nurses reflected on which professional group the PAs
428 belonged to in general practices, deciding they were "*part of the doctors' team rather than the*
429 *nurses*". Practice manager 2.

430 In summary, evidence from the micro level presents the employment of PAs by GPs as clinician-
431 managers as a largely pragmatic ,managerial response to medical and nursing shortages as opposed to
432 active support for a new profession. However GPs were split on their views about whether any
433 advanced level clinical professional should be undertaking part of their medical work, reflecting a
434 wider debate within medicine as to the nature and status of general practitioner work (Iliffe 2008,
435 Calnan and Gage 2009). The differences commented on between ANPs and PAs may reflect different
436 professional socialisation and orientation as PAs are explicitly trained in a medical model (DH 2006).

437 It may also reflect the absence in the UK of any national credentialed use of the title nurse practitioner
438 (DH 2010) unlike PAs (DH 2006).

439 Discussion and concluding comments

440 This paper provides empirical evidence of the response of health professions at the macro, meso and
441 micro level in England to the introduction of a new professional group. The study has limitations, for
442 example while the purposive sampling framework at the macro level included qualified doctors in
443 training we were not able to secure those interviews and at the micro level we omitted GPs in training.
444 However, the breadth of the sample, the spread across different parts of England for the micro level
445 work and the use of combined qualitative methodologies mitigated these limitations to some extent.
446 The findings can be understood in terms of Abbott's (1988) theory of a dynamic system of health
447 professions in which individual professions are shaped by three types of interaction. For physician
448 associates, as a new profession, we observed two of these: the influence of *inter*-professional
449 interactions and the impact of state agency but not *intra*-professional influences.
450 With regard to inter-professional interactions, PAs were developed as a group subordinate to
451 medicine. However, at all levels of the system, we found the extent to which PAs were accepted as a
452 new profession without contest by doctors differed between different types or strata of the profession.
453 Medicine was divided between: the professional leaders who supported mid-level practitioner
454 development as one way to protect specialism and training of consultants , the junior ranks in training
455 who opposed mid-level practitioner development and were concerned about future jobs, and the
456 medical small business owners (the GPs. This last group, as clinician-managers, were divided as to
457 whether mid-level practitioner substitution for some medical work was cost effective for patient work
458 flows or not. In this, we offer new empirical evidence of the intra-professional divisions within
459 medicine and particularly within general practice (Calnan and Gabe 2009).
460 Similarly in the profession of nursing at all levels of the system we found differences in the degree of
461 contest or acceptance. Profession leaders offered neutral viewpoints to a new profession couched in
462 terms of managerialism and also in defence of nurses' work boundaries against the shedding of
463 medical work. The accommodation by the practice nurses to the new PAs may reflect perceptions of

464 being able to focus on 'nursing' work or may be the consequence of working in small organisations
465 where the workload is increasing in the face of an aging population. In contrast, the leaders of ANPs
466 expressed greater opposition in defence of both job opportunities and also NHS education funding for
467 ANPs. In this regard we offer new empirical evidence of the stratification within nursing between the
468 managers, the professionalists and generalists as observed originally by Habenstein and Christ (1955)
469 and elaborated by others since (see for example Carpenter 1977).

470 At the micro level of inter-professional interaction, PAs substituted vertically for doctors and
471 horizontally for nurses. This raises the question as to whether this was evidence of expansionism by a
472 profession (Abbott 1998) or merely a reflection of working in a small organisation with few staffing
473 options. Further investigation is required to answer these questions, perhaps in contrast to larger
474 health care settings such as hospitals. The substitution for two professional groups has not previously
475 been observed in studies of occupational substitution (Schadewaldt et al. 2013, King et al. 2015);
476 whether it is a feature of PAs in particular or of any novel health occupational group requires further
477 study.

478 The observation of PAs as boundary spanning medical and nursing teams raises the question as to
479 whether this is a facet of all types of mid-level and advanced clinical practitioners or whether it is
480 particular to the PA occupation and requires further enquiry. The viewpoint that PAs were seen by
481 others as part of the medical team may not hold true in different settings or in settings where many
482 PAs work and this benefit from further examination.

483 We found accommodation rather than occupational resistance at the micro level. Our evidence
484 contrasts with that offered in other studies reporting resistance at the workplace to horizontal
485 substitution (see for example Timmons and Tanner 2004). One potential explanation is that the
486 context for this study is small to medium size health care businesses employing a limited number of
487 clinical staff who have to work together to meet workload demands in contrast to a hospital
488 employing thousands of staff.

489 The discourse of cost effectiveness and managerialism (Osbourn and McLaughlin 2002) in decisions
490 about workforce development and staffing was evident both from the managers and those in elite
491 strata of the professions. An important issue for those making resource decisions at macro and micro

ACCEPTED MANUSCRIPT

492 levels of the publically funded health care system was the PAs' lack of jurisdictional authority to
493 prescribe and order ionising radiation ultimately made them less cost effective than other professional
494 groups with that authority. This issue reflects Abbott's third type of interaction– that of state agency.
495 For PAs, there was evidence of state agency, in the context of severe medical and nursing shortages,
496 in funding demonstration projects and publishing a competency and curriculum statement agreed by
497 two medical speciality colleges. However, as these shortages dissipated, there was no state action to
498 ensure PAs were included in state regulatory processes. That the general practices employed PAs
499 without the jurisdictional authority to prescribe demonstrated pragmatism in the face of GP and
500 practice nurse shortages (Hunt 2015). Systems were set up in each practice to make the PAs as
501 efficient as possible. One explanation for the success of these systems was trust in individual PAs. At
502 the micro level the study demonstrated how trust within small teams outflanked externally set
503 jurisdictional boundaries and finding that has been observed between GPs and nurses observed before
504 (Pullon 2008)

505 The macro-level evidence suggested that as a profession PAs in England were not likely to thrive
506 without some state intervention and support which was not apparent in 2013. This situation changed
507 in 2014 with the Department of Health stating that PAs were one of the workforce solutions to
508 problems within general practice (BBC 2014) with 1000 PAs to be trained and made available to
509 general practice by 2020 (Hunt 2015). In 2016 the more stated funded workforce solutions for
510 general practice were announced including: piloting medical assistant roles, employing clinical
511 pharmacists and training more nurses for general practice (DH 2016). However the issue of PA
512 prescribing remains unaddressed in the UK, in contrast to nursing for which it is well established
513 (House of Commons 2016). The introduction of PAs as a new health profession in English primary
514 care remains an unfolding story in which the influences of civil servants, professional organisations
515 and professionals play a part as does the pragmatism and preferences of clinician –manager
516 employers.

517

518 **Acknowledgements**

ACCEPTED MANUSCRIPT

519 This paper presents independent research funded by the National Institute for Health Research
520 (NIHR) Health Service & Delivery Research programme (study number 09/1801/1066). The views
521 and opinions expressed by authors in this publication are those of the authors and do not necessarily
522 reflect those of the NHS, the NIHR, NETSCC, the HS&DR programme or the Department of Health.

523 We thank the patients, general practitioners, physician associates and practice staff whose
524 involvement made this study possible. We also acknowledge the wider research team, Sally Brearley,
525 Wilfred Caneiro , Louise Joly, Robert Grant , & Heather Gage who contributed overall .

526

527

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

528 **References**

529

530 Anon. Physician Assistants: opportunity or duplication? Independent Nurse 2005. DOI:
531 http://dx.doi.org/10.12968/indn.2005.1.10.73793
532
533
534 Abbott A. The System of Professions – a Study of the Division of Expert Labour. London: University
535 of Chicago Press. 1988
536
537 Allen, D. Narrating nursing jurisdiction: 'atrocity stories' and 'boundary work', Symbolic Interaction,
538 2001 , 24:75–103.
539
540 American Academy of Physician Assistants State Laws and Regulations 2016 . Accessed 13-05-2016
541 at https://www.aapa.org/career/state-licensing-requirements/
542
543 BBC News. NHS plans rapid expansion of 'doctor's assistant' jobs. 21st August 2014. Accessed 13-
544 06-2016 http://www.bbc.co.uk/news/health-28902132
545
546 British Medical Association . What is the European Working Time Directive? 2016. Accessed last on
547 17-03-2017 at https://www.bma.org.uk/advice/employment/working-hours/ewtd
548
549 Buchan J, Dal Poz MR. Skill mix in the health care workforce: reviewing the evidence. Bulletin of the
550 World Health Organization. 2002 , 80:575-80.
551
552 Calnan M and Gabe J. The re-stratification of primary care: a sociological analysis . p56-79 in Calnan
553 M and Gabe J . The new sociology of the health service. London Routledge. 2009.
554

555 Carpenter, M. “The new managerialism and professionalism in nursing”, in Stacey, M., Reid, M.,
556 Heath, C. and Dingwall, R. (Eds), Health and the Division of Labour, Croom Helm, London. 1977
557
558 Crotty M. The Foundations of Social Research. London: Sage Publications. 1998
559
560 Delamaire, M. and Lafortune G. Nurses in Advanced Roles.OECD Health Working Papers, No. 54,
561 OECD Publishing.2010 . Accessed 13-06-2016 at http://dx.doi.org/10.1787/5kmbrcfms5g7-en
562
563 Department of Health. The Competence and Curriculum Framework for the Physician Assistant.
564 London: Department of Health; 2006. Accessed 6-5-2016 at
565 http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/publicationsandstatistics/publications
566 /publicationspolicyandguidance/dh_4139317
567
568 Drennan V, Halter M, Levenson R, Tye C. Physician assistants in English general practice: a
569 qualitative study of the employers' viewpoint. J Health Serv Res Policy 2011;16:75–
570 80.http://dx.doi.org/10.1258/jhsrp.2010.010061
571
572 Drennan V, Halter M, Brearley S, Carneiro W, Gabe J, Gage H, et al. Investigating the contribution of
573 physician assistants to primary care in England: a mixed-methods study. Health Serv Deliv Res
574 2014;2(16) http://dx.doi.org/10.3310/hsdr02160
575
576 Drennan VM, Halter M, Joly L, Gage H, Grant RL, Gabe J, Brearley S, Carneiro W, de Lusignan S.
577 Physician associates and GPs in primary care: a comparison. Br J Gen Pract. 2015 May;65(634):e344-
578 50. doi: 10.3399/bjgp15X684877.
579
580 Farmer J, Currie M, Hyman J, West C, Arnott N. Evaluation of physician assistants in National Health
581 Service Scotland. Scott Med J. 2011 Aug;56(3):130-4. doi: 10.1258/smj.2011.011109.
582

ACCEPTED MANUSCRIPT

583 Freidson, E. The reorganisation of the medical profession. Medical Care Review, 1985. 42, 11–35.

584

585 Fulop, L. Leadership, clinician managers and a thing called "hybridity". Journal of Health
586 Organization and Management. 2012. 26:578-604.

587

588 Halter M , Drennan VM , Gabe J , Joly L, de Lusignan S , Gage H. The patients' perspective of
589 physician associates in primary care in England: a qualitative study. Health Expectations 2017
590 accepted in press DOI: 10.1111/hex.12542

591

592 Habenstein RW, Christ EA . Professionalizer, Traditionalizer, Utilizer: An Interpretive Study of the
593 Work of the General Duty Nurse. Columbia, Mo.: University of Missouri, 1955.

594

595 Hooker RS, Hogan K, Leeker E. The globalization of the physician assistant profession. J Physician
596 Assist Educ 2007; 18:76–85.

597

598 House of Commons Health Committee. Education, Training and Workforce Planning: First Report of
599 Session 2012–13. London: The Stationery Office; 2012.

600

601 House of Commons Health Committee. Primary care. 2016. Accessed 18-06-2016
602 http://www.publications.parliament.uk/pa/cm201516/cmselect/cmhealth/408/40802.htm

603

604 Hunt J. New Deal for General Practice. 2015. Accessed 13-06-2016
605 https://www.gov.uk/government/speeches/new-deal-for-general-practice

606

607 Iliffe S. From general practice to primary care: the industrialisation of family medicine. Oxford :
608 Oxford University Press 2008.

609

ACCEPTED MANUSCRIPT

610 King O, Nancarrow SA, Borthwick AM, Grace S. Contested professional role boundaries in health
611 care: a systematic review of the literature. Journal of Foot and Ankle Research. 2015 Feb 5;8(1):2.
612
613 Kroezen M, Francke AL, Groenewegen PP, van Dijk L. Nurse prescribing of medicines in Western
614 European and Anglo-Saxon countries. International Journal of Nursing Studies. 2012. 49:1002-12.
615
616 Larkin, G. Occupational monopoly and modern medicine. London, England: Tavistock. 1983
617
618 Martin G, Currie G, Finn R. Reconfiguring or reproducing intraprofessional boundaries? Soc Sci
619 Med. 2009;68:1191–8.
620
621 McDonald R, Checkland K, Harrison S, Coleman A. Rethinking collegiality: restratification in
622 English general medical practice 2004–2008. Social Sci.Med. 2009 . 68:1199-205.
623
624 Mittman DE, Cawley JF, Fenn WH. Physician assistants in the United States. BMJ 2002 325:485-487.
625
626 Nancarrow SA, Borthwick AM. Dynamic professional boundaries in the healthcare workforce.
627 Sociology of Health & Illness. 2005. 27:897-919.
628
629 NHS Employers, NHS England, British Medical Association . 2016/17 General Medical Services
630 (GMS) contract. 2016. Accessed 13-05-2016 at
631 http://www.nhsemployers.org/~/media/Employers/Documents/Primary%20care%20contracts/GMS/2
632 016-17%20GMS%20guidance.pdf
633
634 NHS England. General Practice Forward View. 2016 Accessed 13-06-2016
635 https://www.england.nhs.uk/ourwork/gpfv/
636

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

637 NHS Modernisation Agency. Workforce themes: Introduction to Role Re-Design. 2007 Accessed 13-
638 06-2016 at
639 http://collections.europarchive.org/tna/20070306013213/http:/www.wise.nhs.uk/cmsWISE/Workforce
640 +Themes/Using_Task_Skills_Effectively/roleredesign/Introduction/Introduction.htm
641
642 NHS Staff Council. NHS Terms and Conditions of Service Handbook. 2016. Accessed last on 04-
643 03-2017 at http://www.nhsemployers.org/your-workforce/pay-and-reward/nhs-terms-and-conditions
644
645 The Occupational Information Network (O*NET USA). Summary Report for 29-107.00 Physician
646 assistants. 2015. Last accessed at 13-05-2016 http://www.onetonline.org/link/summary/29-1071.00
647
648 Ono, T, Lafortune G, Schoenstein M.Health Workforce Planning in OECD Countries. OECD Health
649 Working Papers, No. 62, OECD Publishing. Accessed 13-06-16
650 http://dx.doi.org/10.1787/5k44t787zcwb-en
651
652 Osborne SP, McLaughlin K. The new public management in context. P7-14 in McLaughlin K,
653 Osbourne SP and Ferlie E eds. New public management. London: Routledge 2002:.
654
655 Patton M. Qualitative Research and Evaluation Methods . Thousand Oaks Calif: Sage 2002.
656
657 Pullon S. Competence, respect and trust: Key features of successful interprofessional nurse-doctor
658 relationships. Journal of Interprofessional Care. 2008:22:133-47.
659
660 The Queen's Nursing Institute. 2016. General Practice Nursing in the 21st Century. Accessed 13-05-
661 2016 http://qni.org.uk/docs/1%20FOR%20WEB%20GPN%2021%20Century%20Report.pdf
662
663 Ritchie, J. Spencer, L. Qualitative data analysis for applied policy research. pp.173-
664 194 in A.Bryman and R. G. Burgess [eds.] Analyzing Qualitative Data, Oxon:Routledge.1994,

665

666 Ross N, Parle J, Begg P, Kuhns D. The case for the physician assistant. Clin Med. 2012 .12:200-6.

667

668 Sadler AM, Sadler BL, Bliss AA. The Physician's Assistant--today and tomorrow. 2nd Ed. Ballinger

669 Publishing Company; Cambridge Mass. 1975.

670

671 Sajayan A. Rapid response to BMJ article on physician assistants 24/05/2010 . Accessed 13-06-2016

672 http://careers.bmj.com/careers/advice/view-rapid-responses.html?id=20001023

673

674 Schneller, ES. The Design and Evolution of the Physician's Assistant. Work and Occupations 1976. 4

675 : 455-478.

676

677 Schadewaldt V, McInnes E, Hiller JE, Gardner A. Views and experiences of nurse practitioners and

678 medical practitioners with collaborative practice in primary health care–an integrative review. BMC

679 Family Practice. 2013;14:132. DOI: 10.1186/1471-2296-14-132

680

681 Silverman D. Interpreting Qualitative Data. 4th edn. London: Sage Publications; 2011.

682

683 Timmons, S, Tanner, J.A. disputed occupational boundary: operating theatre nurses and operating

684 department practitioners. Sociology of Health & Illness, 2004. 26 :645-666.

685

686

687 Williams, P. The Competent Boundary Spanner. Public Administration 2002. 80: 103–124. doi:

688 10.1111/1467-9299.00296

689

690 World Health Organisation. Task shifting: rational redistribution of tasks among health workforce

691 teams - global recommendations and guidelines. Geneva: World Health Organisation; 2008.

692

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

693 Woodin J, McLeod H, McManus R, Jelphs K. Evaluation of US-trained Physician Assistants Working
694 in the NHS in England. Birmingham: University of Birmingham; 2005. Accessed 13-5-2016 at
695 http://www.birmingham.ac.uk/Documents/college-social-sciences/social-
696 policy/HSMC/publications/2005/Evaluation-of-US-trained-Physician-Assistants.pdf

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

Physician Associates in primary health care in England: a challenge to professional boundaries?

Acknowledgements

This paper presents independent research funded by the National Institute for Health Research (NIHR) Health Service & Delivery Research programme (study number 09/1801/1066). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HS&DR programme or the Department of Health.

We thank the patients, general practitioners, physician associates and practice staff whose involvement made this study possible. We also acknowledge the wider research team, Sally Brearley, Wilfred Caneiro , Louise Joly, Robert Grant , & Heather Gage who contributed overall .

Authors

Vari M Drennan, [a]

Jonathon Gabe, [b]

Mary Halter, [a]

Simon de Lusignan [c]

Ros Levenson [d]

a Faculty of Health, Social Care and Education, Kingston University and St. George's University of London, Cranmer Terrace, London, SW17 0RE, UK maryhalter@sgul .kingston.ac.uk

b Centre for Criminology & Sociology, Royal Holloway, University of London , Egham Hill, Egham Surrey, TW20 0EX, UK j.gabe@rhul.ac.uk

c Department of Clinical and Experimental Medicine, University of Surrey, Guildford, Surrey, GU2 7PX, UK s.lusignan@surrey.ac.uk

d independent researcher , London, UK roslevenson@gmail.com

Corresponding author Vari M Drennan , Email v.drennan@sgul.kingston.ac.uk tel +442087252339

ACCEPTED MANUSCRIPT

ACCEPTED MANUSCRIPT

Physician Associates in primary health care in England: a challenge to professional boundaries?

Research highlights

- Physician associates are a new profession within the English health care system.
- We investigated role boundaries and relationships at macro, meso and micro levels
- At the micro level PAs substituted vertically and horizontally for others
- Intra-profession stratification was evident in differing opinions to PAs
- State agency i.e. legislation is needed for efficient vertical substitution

ACCEPTED MANUSCRIPT