

A systematic review of evidence about extended roles for allied health professionals

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Objective: Extending the role of allied health professionals has been promoted as a key component of developing a flexible health workforce. This review aimed to synthesize the evidence about the impact of these roles.

Methods: A systematic review of extended scope of practice in five groups: paramedics, physiotherapists, occupational therapists, radiographers, and speech and language therapists. The nature and effect of these roles on patients, health professionals and health services were examined. An inclusive approach to searching was used to maximize potential sources of interest including multiple databases, 'grey' literature and subject area experts. An expanded Cochrane Collaboration method was used in view of the anticipated lack of randomized controlled trials and heterogeneity of designs. Papers were only excluded after the search stage for lack of relevance.

Results: A total of 355 papers was identified as meeting relevance criteria and 21 studies progressed to full review and data extraction. The primary reason for exclusion from data extraction was that the study included neither qualitative nor quantitative data or because methodological flaws compromised data quality. It was not possible to evaluate any pooled effects as patient health outcomes were rarely considered.

Conclusions: A range of extended practice roles for allied health professionals have been promoted and are being undertaken, but their health outcomes have rarely been evaluated. There is also little evidence as to how best to introduce such roles, or how best to educate, support and mentor these practitioners.

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Introduction

Internationally, health services are increasingly faced with the need to ensure that professionals provide the most appropriate and timely care to patients. In addition, recent developments, such as the *New Deal* European Working Time Directive,¹ have resulted in reduced hours for junior medical staff. In the United Kingdom (UK), these challenges to health care have been met by efforts to 'modernize' services, including a specific focus on reconsidering the roles of non-medical members of the health care team. There has been an increasing drive towards the development of a 'flexible'

workforce, where different professions are able to take on each others' traditional tasks.² The UK National Health Service (NHS) has seen the creation of a host of new roles, including extended scope practitioners.

Information about nurses in extended roles has grown enormously over the last few years, albeit there is limited information on the effectiveness of these roles.^{3,4} Factors contributing to this role development have been identified including both drivers associated with service 'modernization' (service redesign, staff and skill shortages, new health care technologies, improvement in quality, and cost containment), and professional aspirations (such as increased job satisfaction, a sense of autonomy in practice, role and career development).^{5–8}

Role enhancement has also been promoted by governments for allied health professionals (AHPs).^{2,9,10} However, evidence about the nature and impact of these roles is crucial if we are to ensure the benefits of such practice are maximized and risks are minimized.

The first part of this review defined and described the range of extended or enhanced practitioner roles within five allied health professions.¹¹ This indicated that such roles are increasingly being introduced with over 200 sources of information identified in support of

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these roles in AHPs. In addition, professional interest in these roles is reflected in the presence of dedicated groups of some of the professional bodies such as the Chartered Society of Physiotherapists in the UK with over 270 members in the Extended Scope Practice (ESP) group.

The second phase of the review presented here, evaluated the evidence for effectiveness of extended scope practice in AHPs from published literature and other sources.

Five AHP groups were included in the review: physiotherapists, occupational therapists, speech and language therapists, paramedics, and radiographers (chosen based upon the experience of the research team). This paper investigates the evidence about effectiveness of such roles in relation to three variables:

- the impact on patients' outcomes;
- the impact on other health professionals;
- the impact on health services' delivery.

Defining extended scope practice (ESP) was not straightforward. Perhaps the most frequently used definition is that produced by Collins¹² who suggested that ESP practitioners were:

'clinical specialists with an extended scope of practice i.e. working beyond the recognised scope of practice of the profession of interest in innovative or non-traditional roles'.¹²

However '*working beyond the recognized scope of practice*' is difficult to operationalize given the continuous change of scope over time. For example, while some interventions (e.g. injecting by AHPs) were ESP at the outset of data collection, professional policy change meant that these roles might no longer be considered strictly ESP. The second half of the definition, '*innovative or non-traditional roles*' seemed more manageable although it could encompass almost boundless activity. Sibbald *et al.*⁸ recently proposed a framework for interpreting and applying 'innovative or non-traditional' working and suggested seven different aspects of role development in relation to skill mix, two of those seem particularly appropriate for considering ESP:

- (1) *Enhancement* – increasing the depth of a job by extending the role or skills of a particular group of workers.
- (2) *Substitution* – expanding the breadth of a job, in particular by working across professional divides or exchanging one type of worker for another type.

The definition of ESP for this review was therefore 'AHP activity including either Enhancement and/or Substitution'. Studies were considered for data extraction if they explored the impact of the practice upon patients, other staff or the health service.

Methods

Search strategy

A three-part search strategy organized in terms of patients/professions (P), intervention (I) and outcome (O) was used based on the PICO framework (see http://www.cebm.net/focus_quest.asp for more details) omitting the definition of controls (C) as we wished to include a range of study designs. The review focused on the five AHP groups above, working with any patient population.

The review incorporated methods of systematic review proposed by the Cochrane Collaboration^{13,14} and guidelines from the Consort group.¹⁵ The search strategy was developed with input from a health information specialist (AB). The search included published evidence and 'grey' research literature, and included health care systems other than the NHS. Given the complexity and breadth of topic and the different definitions of ESP, a comprehensive and inclusive search strategy was specified for populations (the AHP groups) and interventions (ESP), with no limits on language, year of publication or study design. Full details are available in the published report.¹¹ An abbreviated version of the search terms was developed for use with databases that did not provide nesting of search terms through use of multiple Boolean operators.

Data sources

A wide range of sources was used, including electronic databases, hand searching of relevant journals and reference lists of relevant publications. Unpublished studies were sought through personal contact and by approaching the professional bodies associated with the professions studied.

Relevance

The first 700 abstracts were screened by four members of the team to provide training and achieve an acceptable level of reliability. Thereafter, all resources identified were pre-screened against formal inclusion criteria by one reviewer for appropriate focus and presence of data. Those with a focus on ESP but no data were included only for descriptive review or context (i.e. were excluded from quality screening and possible data extraction). In order to ensure reliability and minimize selection bias, all selected papers and those where there was any doubt raised by the first reviewer, were then checked for relevance independently by a second reviewer.

Quality screening

The full text of all studies considered potentially relevant was obtained for further appraisal and assessed for data content and quality. In cases where

the content was relevant and data (qualitative or quantitative) present, quality evaluation was carried out utilizing criteria from the Critical Appraisal Skills Programme, the Centre for Reviews and Dissemination at York, and other sources depending on the nature of the study.^{16,17} All papers containing data were screened by two reviewers and discrepancies if any were discussed to reach a consensus.

In cases where the quality summary indicated that caution should be exercised in synthesis (i.e. where there were methodological flaws), or when the work was relevant but did not include data (such as in the case of descriptive reports or theoretical pieces), only descriptive information was extracted. Reporting and discussion of the descriptive information will be the subject of a separate paper.

Extraction of data

Data extraction was undertaken on papers that passed the quality-screening stage. Data extraction entries were checked and amended by a second reviewer. Discrepancies were discussed to reach a consensus. If relevant data were missing, attempts were made to contact the author(s) although few additional data of interest (in particular outcome related data) were available. Studies that were published in duplicate were included only once. In the case of papers or reports being linked to other work, such links were noted and reflected in the database. Due to the heterogeneity of data, synthesis was necessarily descriptive.

Results

Figure 1 displays a numerical summary of papers resulting from each stage of the review process. Given the inclusive search strategy required for the variable terminology used in ESP, a large number of sources were either irrelevant or of contextual interest only. Of the 355 papers found relevant, only 21 progressed to full review and data extraction, because neither

qualitative nor quantitative data were contained, or because data quality was compromised.

Of these 21 papers, the majority were from the UK ($n = 17$), three from the USA and one paper contained data from multiple countries. Four studies described services that had emerged in response to either national or local service demands (such as excessive demand on specialist services or shortage of trained medical experts). Three studies considered 'patient demand' to be the main driver, although this was linked in the main to similar issues such as improving timely service delivery and reducing waiting lists. One paper stated that the main driver was professional enhancement. A brief summary of the main findings of each paper is contained in Table 1 and more detail is available in the full report.¹¹

Findings according to individual professions

Radiographers

Both diagnostic and therapeutic studies were identified and one early paper explored the attitudes to delegation of radiological tasks across both therapeutic and diagnostic activities.¹⁸ On balance, these papers concurred that radiographers appear able to be trained in both diagnostic and therapeutic skills to a level of performance that is similar to medical colleagues and the performance was acceptable to patients after postgraduate training.¹⁸⁻²⁴ While a number of studies were found exploring this question, synthesis was restricted due to the heterogeneity of design and outcome measures used.

Paramedics

Most of the work evaluating ESP roles in paramedics has, like in radiography, focused on specific skill acquisition. In particular, there have been a number of studies about pre-hospital thrombolysis (PHT) and its impact on reduced mortality indicating that PHT by paramedics would meet call-to-needle guidelines

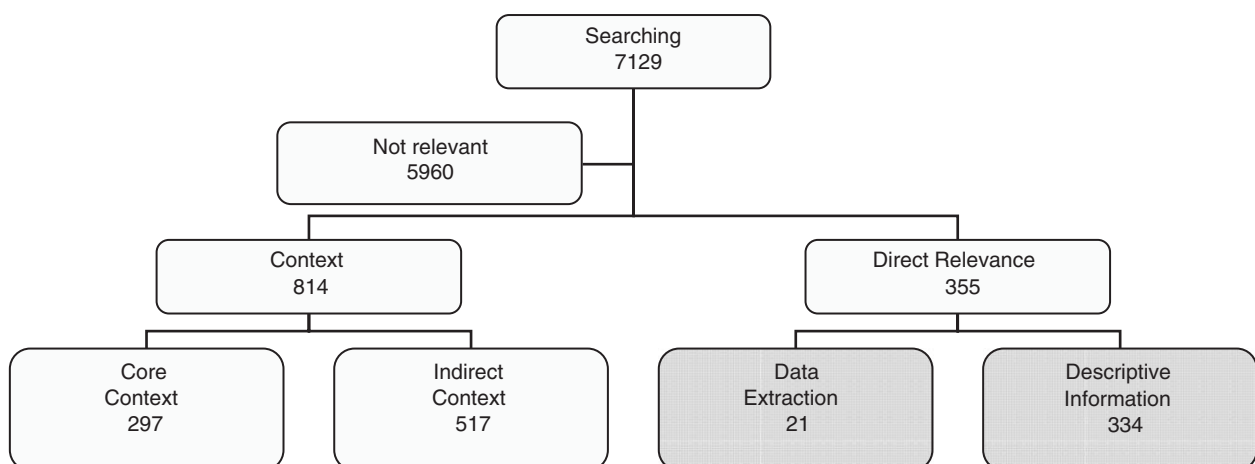


Figure 1 Summary of review process

Table 1 Summary of findings for papers considered sufficiently robust for data extraction

Study	Design	Findings
<i>Paramedic practice (6 studies)</i>		
Dale <i>et al.</i> ²⁹	Pragmatic trial	Telephone assessment identified patients less likely to require A&E care or hospital admission. Almost 10% of patients triaged as non-urgent subsequently required hospital admission raising concerns. Paramedics were more likely to request an emergency ambulance despatch than nurses but in most comparisons the data for nurses and paramedics cannot be separated.
Gausche <i>et al.</i> ³⁰	Pragmatic trial	Paediatric Endotracheal intubation (ETI) compared with bag valve mask ventilation (BVM). No overall differences in survival or neurological outcome in a rapid-transport urban system. However, ETI not successful in all cases (73% attempt rate, 57% success rate) – some detrimental impact on survival and neurological outcome on subgroup analysis.
Morrison <i>et al.</i> ²⁵	Systematic review	Systematic review and meta-analysis from six randomized trials. Decreased hospital mortality for patients treated with pre-hospital thrombolysis (PHT) compared with in-hospital thrombolysis. Estimated call-to-needle time significantly reduced by PHT. Only one of the six trials involved paramedics administering the PHT, and thrombolytic techniques differed between studies.
Pedley <i>et al.</i> ²⁶	Cohort	Three groups: (1) those thrombolysed in hospital from an urban area, (2) from rural area and (3) PHT for rural area. Telemetry-assisted PHT by paramedics was the only model that met 60 min time-to-treatment guideline. Administration of PHT median call-to-needle time saving of 73 min over patients from rural areas and 28 min over patients from urban areas (both statistically significant).
Pitt ²⁷	Cohort	Paramedics did not thrombolysed but the time when they would have was recorded and compared with patient's actual treatment at hospital. Good agreement between paramedic and hospital thrombolysis decisions. Calculations indicated PHT would have reduced the call-to-needle time on average by 41 min.
Weaver <i>et al.</i> ²⁸	Cohort	Paramedics correctly identified those who might benefit from thrombolysis in the field without leading to delay in transportation to hospital.
<i>Physiotherapy (5 studies)</i>		
Atkins ³³	Qualitative research	Therapists applying injection skills following training expressed the main reason had been to increase their level of professional autonomy, although there had also been some external drivers/factors. Good professional relationships with medical colleagues were reported as facilitative. While many therapists felt more confident over time, some remained uncomfortable, with a fear of adverse reactions. Training varied, including in the amount and quality of supervision.
Daker-White ³¹	RCT	Comparison of using two different groups of staff to triage patients. Triage of orthopaedic outpatient referrals can be done by suitably trained ESP physiotherapists as well as sub-consultant surgeons. Patients seen by ESP physiotherapists had higher satisfaction than those seen by sub-consultant surgeons. Initial direct hospital costs in using ESP physiotherapists was cheaper than sub-consultant surgeons performing the same triage role (see text for methodological limits).
Dawson ³⁸	Qualitative research	Physiotherapists assessing and managing patients with chronic problems in an orthopaedic outpatient department were interviewed. Key findings were: success and satisfaction in the post is dependent on the relationship with the consultant and the medical team; most reported similar difficulties outstanding training needs.
Hattam ³⁵	X-sectional	71% of ESP physiotherapy referrals to orthopaedic consultants deemed appropriate (expert review of case notes). However, the study did not examine whether those not referred should have been. Of 29% inappropriate referrals, nearly half referred back by a consultant to physiotherapy care. No relationship between appropriateness of ESP referral and the site of the lesion.
Milligan ³⁷	Qualitative research	Interviews with orthopaedic registrars. Majority felt that physiotherapy ESPs made a significant contribution to the clinic. Those who worked with ESPs had more favourable opinions. Concerns were expressed regarding ESP practitioners making diagnoses or ordering tests, as they were vulnerable to the risk of litigation. Concern that reduced waiting lists would result in more referrals from GPs. The need to educate the medical profession about the role of the ESP was proposed.
<i>Occupational Therapy and Physiotherapy (2 studies)</i>		
Ellis and Kersten ³⁴	Survey	This paper summarizes (1) activity of UK hand therapist ESPs and (2) the variability in their training. The ESP roles in hand therapy were identified by postal questionnaire. Both physiotherapists (PTs) and occupational therapists (OTs) are involved in hand therapy ESP. The ESP roles are viewed as challenging but there are unmet training needs. Authors suggest a special interest or support group for ESP in hand therapy could meet the training and networking requirements. Further work on patient-centred outcomes (e.g. satisfaction), as well as on clinical outcomes and cost-effectiveness of ESP in hand therapy is required.
Ellis and Kersten ³⁶	Survey	Consultants reported that the ESP hand therapist role had been developed: to reduce waiting lists and consultant workload; because they could see patients as effectively as consultants, and lastly to enhance the therapists' development. However, the therapists often worked with clear protocols and many had doctors present in the clinics. Consultants felt that the most appropriate training for ESPs was experiential. While consultant workload had decreased in many cases, they reported sessions already filled up with different patients. Some concerns expressed: The ESP service is only as good as the person who is in post; Expanding of roles inappropriately; Potential for litigation. Many saw the roles expanding further, e.g. into preoperative assessment, casualty services and theatre assistance.

Table 1 (Continued.)

Study	Design	Findings
<i>Radiography (7 papers)</i> Berman <i>et al.</i> ¹⁹	Diagnostic study	Interpretation of the casualty radiographs by radiographers and casualty officers blind to radiographer interpretation. Radiographer assessment, casualty officer notes and the films were then examined by two consultant radiologists. Of 1496 films, abnormalities missed in 68 by radiographers and in 63 by casualty officers, with only 35 common to both groups. Twenty-eight of the films interpreted wrongly by doctors were interpreted correctly by radiographers, 16 misinterpretations were thought to be clinically significant. Radiographers' performance stated by authors as 'reasonably well correlated with seniority' but no supporting data. Authors also remark that so long as radiographers' reports are not legally binding, doctors would not object to the radiographer's opinion being volunteered. Overall, conclusion is that radiographers should signal abnormalities as standard practice.
Bewell <i>et al.</i> ²⁰	Survey	A survey of radiographers performing barium enemas after training. Aim was to determine difficulties in training, the provision of an ESP service or with clinical complications. Key findings: Complication rate for radiographers was low and similar to that for radiologists. Difficulties with training included (1) conflict of suggested procedures between the training course and those of the radiographers' own consultant radiologist colleagues, (2) lack of radiology supervision in periods of staff absence and (3) difficulty in establishing a single protocol when there are multiple supervising consultant radiologists. Waiting list reduction alluded to but not verified with data.
Crawley <i>et al.</i> ²¹	Pragmatic trial	Evidence provided that radiographers did not use higher Dose Area Product (DAP) for screening examinations. However, as they have to produce extra films for reporting for the radiologists, significant increases in DAP were observed overall. The health care trust involved intended to conduct a further analysis in the future and if overall DAP dose remained increased, this extended role would be ceased.
Hughes <i>et al.</i> ²²	Diagnostic study	Pattern recognition to assist radiographers' interpretation of chest radiographs (improvement upon red dot system) assessed. Radiographers successfully acquired the pattern recognition technique and its use improved sensitivity, specificity and predictive values as well as decreasing false positives and false negatives. Kappa statistic (0.4) indicated fair agreement between radiographers and radiologists, although radiographers found to still 'over report' (false positives).
Parker <i>et al.</i> ¹⁸	Survey	A survey of 262 radiologists in five US states regarding delegation of 26 different radiologic tasks to non-physician personnel. In all, 25% consultants agreed with delegating injection of contrast materials to non-physician personnel, 40% supported delegating fluoroscopy and 25% with delegated interpretive tasks to non-medics. However, all tasks delegation was disapproved by 60% of doctors, approved by 30%, with the remainder undecided.
Pauli <i>et al.</i> ²³	Diagnostic study	Longitudinal pre- and post-training with one year follow up. Findings (some limits to generalizability) indicate that radiographers can be trained to evaluate mammograms to a standard equivalent to fully trained screening radiologists. Agreement between co-reading radiographers was almost as high as that between radiologist/radiographer pairs. The study suggests that acquired skills, if practiced, are maintained over time. Differences between radiology and radiography practice mean current training, designed for radiologists, is not appropriate for radiographers. Note that this study supports the concept of suitably trained radiographers in dual reading of mammograms rather than radiographers replacing radiologists.
Price <i>et al.</i> ²⁴	Survey	Survey of ESP roles in radiography from radiology managers ($n = 172$). Extended scope practice adopted haphazardly with the following tasks adopted: intravenous injections (94%), barium enemas (69%), red dot schemes (82%) and reporting (ranging from 12 to 25%, depending on the area of the body). Radiographers at non-teaching hospitals were more likely to undertake barium enemas and use the red dot scheme.
<i>Speech and language therapy (1 study)</i> Rattenbury <i>et al.</i> ³⁹	RCT	Time to complete voice therapy significantly shorter in videolaryngeal endoscopy (VLE)-assisted therapy than traditional therapy patients. Authors conclude that VLE as a therapy tool is more efficient than traditional voice therapy. Limits are that this study was limited to a single geographic location and had a lack of follow-up.

without increasing risks to patients.²⁵⁻²⁸ A separate study, investigating computer-assisted assessment and advice by nurses and paramedics for non-serious ambulance service callers, concluded that telephone assessment can be used to identify patients who are less likely to require accident and emergency (A&E) care or hospital admission.²⁹ In contrast to these positive findings, one study showed that extending the scope of practice (out-of-hospital paediatric endotracheal intubation) had a detrimental effect on survival and neurological outcome.³⁰

Physiotherapists

Among studies considered, one randomized controlled trial (RCT) was found that suggested that orthopaedic physiotherapy specialists were as effective as junior orthopaedic surgeons in the initial assessment and management of new referrals to outpatient orthopaedic departments.³¹ However, there were methodological weaknesses in the paper. In particular, there were a limited number of clinicians involved, inadequate power, different inclusion criteria for participating

centres, and lack of blinding and follow-up. One recent publication (identified subsequent to the review but that would not have been included for data extraction in view of methodological limitations) concludes that AHP ESP is 'an effective way of managing patients with uncomplicated musculoskeletal problems'.³² Although reduced waiting times and increased satisfaction are indeed positive outcomes, a conclusion that these ESP interventions are safe or effective options for patients is as yet unconfirmed.

Three other studies in physiotherapy (and the two studies that included a focus on occupational therapy noted below) comprised surveys exploring reasons for implementation of the ESP service, views of doctors working with ESPs, appropriateness of the ESP referrals to specialists and use of skills.³³⁻³⁵ These surveys showed that therapists had expanded their roles to increase their professional autonomy and skills, although service demands were more frequently reported by medics as drivers for the development of these innovative roles.³⁶ Although the ESP services appeared to decrease waiting times,³⁵ two of the studies reported that these would soon be filled with other patients.^{36,37} In addition, therapists and medics reported concerns in terms of litigation, lack of confidence and fear of adverse reactions when giving injections, variations in training, and the reservation that the ESP service is 'only as good as the therapist employed'.^{33,36,37} A further qualitative study (concerning ESP therapist experiences in orthopaedics)³⁸ reported that therapists find the job stressful but satisfying.

Occupational therapists

The two studies exploring occupational therapists as ESP that met quality criteria explored the role of hand therapists in the UK.^{34,36} Findings are as noted above, as these studies explored both physiotherapists' and occupational therapists' roles.

Speech and language therapists

A number of centres are currently involved in work evaluating ESP roles in speech and language therapy. However, reports of this work are again largely descriptive and therefore not included for data extraction. Nevertheless, one paper, unpublished at the time of the review, was acquired from the author and, upon review, found to warrant consideration for data extraction concerning the effectiveness and efficiency of voice therapy using fiberoptic videolaryngeal endoscopy (VLE).³⁹ This study showed that the time taken to complete voice therapy was significantly shorter in the VLE-assisted group (ESP for speech therapists) than in the traditional voice therapy group. The Royal College of Speech and Language Therapists⁴⁰ has recently issued a policy concerning training and

competency for therapists involved in this practice drawing upon the findings of this research.

Discussion

The review has highlighted that despite major interest in developing ESP and many efforts exploring its impact, little robust evidence is yet at hand. The strongest evidence is that health professionals can indeed learn specific advanced skills outside their routine scope of practice and apply them, and that access to care can be enhanced. However, unanswered questions regarding the financial and opportunity costs of such service developments remain. For instance, it is unclear what the consequence is for junior practitioners or patients under their care when the most experienced practitioners move away from routine ward or outpatient practice into ESP roles. Secondly, while there were some reports of reduced waiting times as a result, there were also concerns (although no clear evidence) that the burden was simply shifted from one area of service delivery to another.³⁶ Finally, while our review did not set out to evaluate cost-effectiveness of ESP, it is of note that only one study considered this and only in a limited manner.³¹ In order for ESP to be applied appropriately, further research is clearly essential.

One of the notable omissions in much of the research was a focus on health outcomes in patients. While the field of outcome measurement is problematic and many measures have limitations,⁴¹ this omission seems at odds with a key goal of ESP, to improve patient outcomes.

The distribution of included studies is perhaps unsurprising. Paramedic and radiographer interventions tended to be more discrete and specific, thus enabling some outcome evaluation, while for some professions, ESP was less easily defined and compared. In the case of occupational therapy, the scope of the profession is already broad and, thus, the concept of ESP has perhaps been less applicable.⁴² Indeed the professional body in the UK has only recently issued a policy statement about ESP.⁴³ In addition, the scope of some AHP practice is relatively loosely defined, with new activities or those traditionally considered one's profession being included in another's practice without necessarily any formal evaluation. Innovation in practice without evidence to sustain it is not new, but is of concern.

The search strategy was necessarily complex due to the highly variable nature of role descriptions. As a result, while attempting to be comprehensive, there is a clear need to be cautious in interpreting the findings cross-culturally. As discussed above, the term 'Extended Scope Practice' may itself be problematic. In particular, it may be difficult to be certain when an ESP role is no longer ESP, at which point the term can cause confusion. To that end, consistency of use of terms would be advantageous. A range of terms is used within 'specialist' practice that may or may not include

'extensions of scope' including: Consultant Practitioner, Specialist Practitioner, Practitioner with Special Interests, and Clinical Specialists including Orthopaedic Practitioner and Rheumatology Practitioner. In the UK, the introduction of 'The Ten Key Roles for AHPs'⁹ and attempts to reach a consensus about directions for practice indicate that it may be timely to establish shared definitions of terms that can be used within and across professions.

Training and education for the new roles were variable and often not described. The dominant model appeared to be an *ad hoc* approach to training with ESP practitioners dependent on an enthusiastic medical specialist or academic for training.³⁴ While such education and training may be sufficient to enable the practitioner to learn a specific skill, there are clearly questions about standardization of quality for patients as well as regulation and protection for the practitioner. At this stage, it is difficult to know how changes in regulations for professional practice such as those required by the Health Professions Council in the UK will facilitate or constrain the development of ESP roles, as, at the time of the review, the Council regarded ESP as outside their remit and the responsibility of individual professional bodies.

An early example of steps to establish core competencies for extended practice can be seen in the case of UK radiographers and image reporting. Recognizing the need for a deeper level of knowledge in order to practice some of the extended skills that may have been taught previously 'on the job', the professional body now requires radiographers to attain a recognized postgraduate qualification. It also appears that modules at MSc level that specifically address ESP are being introduced for the other professions (e.g. at the time of writing there were seven postgraduate courses in enhanced or extended practice at Masters level in the UK). The question of formal education for extended scope practitioners is also being considered by paramedics. Indeed, the recently formed professional body has proposed a move from 'training' to 'education' for all paramedics. Such a view is based upon the suggestion that advanced skills of diagnosis, screening and assessment are required if advanced techniques are to be used in a timely and safe manner.⁴⁴⁻⁴⁶ It is important to ensure educational standards that patients and practitioners can feel secure in are developed and maintained. While practitioners frequently pursue their own postgraduate training in Masters or Clinical Doctorate programmes, variability in education and training for ESP remains an issue requiring attention.

Conclusion

Despite the introduction of extended scope roles across all of the professional groupings considered, evidence about the impact of these new roles is limited. To date, the main focus has been imperatives such as reduced demand on medical colleagues and reduced waiting lists. AHP-ESP interventions can indeed contribute to

improved ease and speed of access to specialist services. An increasing number of studies, particularly in radiography and paramedic practice, have suggested that improved access to specialist interventions also leads to improved patient outcomes (such as reduced call-to-needle times in thrombolysis).

However, more focus on health outcomes is required. In addition, consideration of less immediately obvious outcomes (such as the impact on routine services of experienced AHPs moving to ESP roles or when certain aspects of a role are relinquished) is required. With the introduction of the '10 Key Roles for AHPs'⁹ and the increased activity of the UK Changing Workforce Programme, more emphasis on focused evaluation of AHP-ESP practice appears opportune. Health service 'modernization' requires an increased focus on role development and robust evaluation of the resulting extended scope practice on outcomes for patients.

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