Literature Review Critically Exploring and Evaluating Advanced Perioperative Roles in United Kingdom (UK)

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Abstract

Background
UK healthcare has undergone significant modernisation; within perioperative practice reform has occurred mainly due to a reduction in junior doctors and the government directives to reduce patient operative waiting times. Consequently roles such as Surgical Care Practitioner (SCP), Perioperative Specialist Practitioner (PSP) and Physician Assistant in Anaesthesia (PA-A) have been developed.

Method
Five electronic databases (Cinahl, Medline, Pubmed, Google scholar and Cochrane Database) were searched from 2006 to October 2012 for UK primary research.

Results
Only six research studies were retrieved. The studies used a variety of methodologies, none evaluated established roles; the majority addressed educational rather than clinical aspects of the role. Methodological weaknesses were seen in most studies which limited validity and generalisability of results.

Conclusion
Insufficient primary research exists exploring and evaluating advanced perioperative roles, further research is recommended to fully evaluate the scope of practice, integration and impact of these roles within clinical practice.

Key words: Advanced role, Perioperative Specialist Practitioner (PSP), Perioperative Nurse, Surgical Care Practitioner (SCP), Physician Assistant in Anaesthesia (PA-A)

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Introduction

Modernisation to United Kingdom (UK) healthcare originated from government policies such as the NHS Plan (DH, 2000) and New Ways of Working (DH, 2007a), which provided strategies to improve patient care and services. One such strategy is the development of advanced nursing and allied health professional roles, creating flexible team working to deliver quality patient care. In the UK clinical nurse specialists were created in response to the Cancer Reform Strategy (DH, 2007b) to improve patient experiences, through providing information, support and coordination of holistic care. Reorganisation of healthcare has also occurred internationally, with several literature reviews highlighting the expansion of advanced practice and non-medical roles, the United States being the most prevalent (Pulcini et al. 2010) but these roles also exist in Australia, New Zealand (Duffield et al. 2009) and Europe (HPRAC, 2011).

However, UK perioperative restructuring has been influenced primarily by the European Working Time Directive 2009, which reduced junior doctors working to a 48hr/week, effective from 1st August 2009 (Skills for Health, 2010). A small scale quantitative study by Chalmers et al. (2010) evaluated pre and post directive training, and reported that post-directive training has significantly limited doctors’ opportunities to learn and perform surgical operations. Government targets (DH, 2011) reducing elective patient procedure waiting times to 18 weeks have also forced reorganisation of perioperative services. Therefore, non-medical roles such as Physician’s Assistant in Anaesthesia (PA-A), Surgical Care Practitioner (SCP) and Perioperative Specialist Practitioner (PSP) have been developed to support service delivery. Non-medical practitioners provide treatment and care traditionally associated with the medical profession. Consequently, implementation has been controversial, with debates concerning scope of practice (Lange et al. 2011), implications for medical training (Freudmann & Aning, 2006) and role titles. A cross-sectional survey (n=374) by Moorthy, et al. (2006) reported patient confusion, correctly identifying less than 20% of non-medical practitioners from their title.

The SCP and PSP roles have been incorporated within cardiac (Alex et al. 2004), vascular (Hickey & Cooper 2009), orthopaedic (Jones, Arshad and Nolan, 2012), and general surgery (Abraham, 2011; Martin, et al. 2007). The SCP and PSP roles contain two generic components: pre-operative assessment and postoperative care, the SCP also incorporates intra-operative practice, thus providing a consistent holistic approach to care, whereas the PA-A undertakes pre-operative assessment and anaesthetic care within the operating theatre. For a more comprehensive description of each role see Table 1.1. These practitioners undertake academic education and clinical competencies to underpin advanced practice. Educational curriculum frameworks (DH, 2006; DH, 2007c; RCoA, 2008) were introduced to support each role, thus establishing standards within the UK. The training for these roles must be aligned to clinical practice to develop advanced clinical skills and competence. Therefore according to Race (2005) interactive learning through simulation is an effective method of teaching skills such as communication.

Given current healthcare economic constraints it is important that these roles demonstrate value to
the patient and organisation, especially since a survey of specialist nurses by RCN (2010) revealed jobs were being lost following service modernisation. A number of audits (Martin et al. 2007; Newey et al. 2006; Mallick et al. 2009) and one service evaluation (Abraham, 2011) have shown these roles provide an efficient, safe service. In addition Searle (2008) in an Australian study determining the impact of new emergency nurse practitioners suggested existing personal qualities had facilitated implementation, inferring recruitment to the role was critical to success.

Table 1.1 Definitions of Advanced Perioperative Roles

<table>
<thead>
<tr>
<th>Role</th>
<th>Definition</th>
<th>Skills</th>
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</thead>
<tbody>
<tr>
<td><strong>Physician Assistant in Anaesthesia (PA-A)</strong> (RCoA 2009:1)</td>
<td>Trained and skilled individual who is qualified to administer anaesthesia under the supervision of an anaesthetist (a medically qualified doctor). PA-As do not have a medical qualification.</td>
<td>Preoperative assessment for anaesthesia and organising the anaesthesia. Planning the anaesthetic and ensuring it is approved by their supervisor. Preparation of patient for surgery. Administering and monitoring the anaesthetic throughout your operation. Assisting the anaesthetist in regional anaesthesia.</td>
</tr>
<tr>
<td><strong>Perioperative Specialist Practitioner</strong> (DH 2007c:8)</td>
<td>A non-medical practitioner, working at an advanced level in clinical practice ensuring continuity of patient care within preoperative and postoperative settings and supervised by a consultant surgeon working as a permanent member of the extended surgical team.</td>
<td>Pre-operative examination and physical assessment, identifying and performing investigations. Assessing postoperative care including recognising surgical complications Provides a consistent member in the surgical team. Evaluates care including follow-up post-discharge</td>
</tr>
<tr>
<td><strong>Surgical Care Practitioner</strong> (DH 2006:3).</td>
<td>A non-medical practitioner working in clinical practice as a member of the extended surgical team, who can provide surgical interventions, performs pre-operative and postoperative care under the direction and supervision of a consultant surgeon</td>
<td>Pre-operative assessment and physical examination, Undertakes surgical procedures within scope of practice. Educates staff and patients, pre and post-operatively. Orders and performs investigations. Evaluates care, discharging patients including follow-up post-discharge</td>
</tr>
</tbody>
</table>
**Aim and Literature search**

The aim of the literature review was to critically explore and evaluate advanced perioperative roles. Aveyard (2010) recommends following a systematic approach to ensure all relevant literature is identified thus providing a comprehensive search. Search terms were identified both from practice and the literature, see table 1.2.

Five electronic databases Cinahl, Medline, PubMed, Google Scholar and Cochrane were used to retrieve articles using the search terms and search limits outlined in Table 1.2. 100 articles were initially retrieved to further narrow the search and inclusion and exclusion criteria were applied, see Table 1.3.

### Table 1.2 Summaries search terms and search limits

<table>
<thead>
<tr>
<th>Search terms</th>
<th>Search Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Care Practitioner</td>
<td>Literature published from year 2006 onwards to 31/01/2012</td>
</tr>
<tr>
<td>Perioperative Specialist Practitioner</td>
<td>English</td>
</tr>
<tr>
<td>Physician Assistant AND anaesthesia</td>
<td>Human</td>
</tr>
<tr>
<td>Non-Physician Anaesthetist*</td>
<td>Peer review</td>
</tr>
</tbody>
</table>

### Table 1.3: Summarises inclusion/exclusion criteria

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician’s Assistant in Anaesthesia And Non-Physician Anaesthetist</td>
<td>Literature reviews</td>
</tr>
<tr>
<td>Surgical Care Practitioner</td>
<td>Other countries outside UK</td>
</tr>
<tr>
<td>Perioperative Specialist Practitioner</td>
<td>Commentary/opinions/letters</td>
</tr>
<tr>
<td>Adult</td>
<td>Paediatric</td>
</tr>
<tr>
<td>United Kingdom (UK)</td>
<td>Discussion papers</td>
</tr>
<tr>
<td>Qualitative research</td>
<td>Books</td>
</tr>
<tr>
<td>Quantitative Research</td>
<td>Duplicates</td>
</tr>
<tr>
<td>Operating Nurse</td>
<td>Audit/service evaluation</td>
</tr>
</tbody>
</table>

Articles from 2006 were included, since 2006 saw the introduction of the first UK perioperative curriculum framework (DH, 2006; DH, 2007c, RCoA, 2008), providing role standardisation in education, skills and scope of practice. However, it is acknowledged that
delays occur between undertaking research, writing and publication; therefore some articles retrieved included evidence acquired before the introduction of these frameworks. According to Hart (2010) a six-year time period is acceptable for literature to remain current.

Restrictions excluded countries outside UK, due to international differences in advance practice titles, roles, scope of practice and healthcare systems, thus making comparison difficult. Duffield et al. (2009) reviewed global advanced practice titles, roles and scope of practice finding wide variations within and between countries.

100 articles were initially identified but after inclusion/exclusion criteria were applied, six remained. Relevant methodological data and findings from the six studies were extracted using an adapted framework (Aveyard 2010:129) and are included within Appendix 1.

**Results**

From the six research studies reviewed, four used qualitative designs (Gray et al. 2010; Kneebone et al. 2006a; Kneebone et al. 2006b; Smith, Kane & Milne, 2006). According to Green and Thorogood (2009) qualitative research assumes a greater significance when little knowledge exists.

One quantitative study (Cheang Weller & Hollis, 2009) explored the public's knowledge of healthcare titles and ability to distinguish from title those medically qualified. According to Watson and Coombes (2009) a quantitative approach can clarify patient knowledge, thus supporting this approach. However, quantitative data alone meant researchers were unable to elicit reasons why patients came to their conclusion; including qualitative methods of data collection could have added further depth to the findings.

One study, Nestel et al. (2010) chose qualitative and quantitative approaches (mixed methodology) to evaluate a clinical communication programme for PSP and SCPs. Parahoo (2006) suggests mixed methodology studies’ findings are commonly influenced by quantitative methods, due to its hierarchical nature and generalisability.

Methodological weaknesses were identified, with sample selection, size and data analysis in Cheang, Weller and Hollis’s (2009) study. Whilst Smith, Kane and Milne (2006) had a good methodology including case studies which provided valuable insights, but sample bias and errors were noted. Overall the most extensive and robust qualitative study was Gray, et al. (2010) which included educational and clinical aspects of the role, although these results cannot be generalised beyond the population studied. Knowledgeable independent researchers were employed in the educational studies which provided rigour, since tutor-student face-to-face interviews could have affected responses. Only Nestel et al’s (2010) communication training results could be generalised.

**Thematic Analysis**

Three themes were established from the six studies (Gray et al. 2010; Nestel et al. 2010; Cheang, Weller, & Hollis, 2009; Kneebone et al. 2006a; Kneebone et al. 2006b; Smith, Kane & Milne, 2006) following in-depth exploration and coding. Figure 1 illustrates the three themes which emerged from exploring and evaluating the advanced perioperative role; expectations of the role, development requirements and integration of the role into clinical practice.
The expectations of advanced perioperative practice role

Differing expectations of new perioperative roles have been shown in several studies. Smith, Kane & Milne (2006) studied clinical practitioners’ views of the potential introduction of PA-A role, investigating barriers and enablers. This study reported concerns over defining role boundaries, identity and scope of practice and the potential effects on existing roles. This concurs with studies evaluating PA-A (Gray et al., 2010) PSP and SCP training (Kneebone et al. 2006a & 2006b), which reported similar difficulties in role clarity which led to difficulties in learning and clinical practice study, whilst Gray et al. (2010) also linked a lack of role clarity to acceptance and resistance of students resulting from encroachment on existing roles.

Interestingly, Smith, Kane and Milne’s (2006) study highlighted a discrepancy between practitioners’ negative perception of developing the PA-A role and the more positive openness by professional bodies such as Royal College of Anaesthetists (RCoA) to explore new roles acknowledged in position statements. This study also reported anaesthetists recommending clear professional identities.

From the four studies that investigated PSP, SCP and PA-A roles, three (Kneebone et al. 2006a & 2006b; Nestel et al. 2010) recruited practitioners from an ODP, AHP and nursing background. Only Gray et al. (2010) recruited a bioscience graduate student from outside healthcare. Within this study the lack of previous healthcare experience was raised by clinical practitioners due to the student’s inability “to muck in”. This stemmed from a difference in expectations from the role. However, after the first year no differences were seen. However, even experienced healthcare professionals had issues with role clarity (Kneebone et al., 2006a).

Patients too are unclear with some healthcare titles and roles. Cheang, Weller and Hollis (2009) reported patients incorrectly reporting a significantly high proportion of non-medical roles, for example 83% thought anaesthetic practitioners were medically qualified, whilst 51% thought that a consultant nurse was medically qualified, even though nurse was clearly acknowledged in the title. Cheang, Weller and Hollis’s (2009) study gives a clear view of patients’ expectations of non-medical roles, with 90% wishing a doctor to remove a neck lump and 92% of patients not wanting non-medical practitioners to operate.

In summary, role ambiguity was most the commonly cited concern raised by both those undertaking the
new roles, clinical practitioners and patients. When roles were professionally identified, clearly outlined and clinical practitioners involved, less opposition was reported. Previous healthcare experience assisted with a smoother transition in undertaking a new role.

**Development requirements for the advanced perioperative role**

Clinical practitioners recognised this role as a professional development opportunity, whilst also identifying the need for high academic qualifications to enhance the credibility of the role (Smith, Kane & Milne, 2006). High numbers of ODP and nurses were recruited to these new roles, as illustrated within several study samples (Kneebone et al. 2006a; & 2006b, Nestel et al. 2010 Gray et al. 2010). Whilst healthcare experience was not a pre-requisite for any of these new advanced roles, Gray et al.’s (2010) longitudinal study acknowledged bioscience graduate students were disadvantaged during the first year, finding it “overwhelming”. The link between healthcare experience and clinical competencies was demonstrated in Smith, Kane and Milne’s (2006) case study findings which found the trainee with experience had no difficulties attaining practical competence. However, many studies reported anxiety with both academic level (Kneebone et al. 2006a; & 2006b; Nestel et al. 2010) and practical skills (Nestel et al. 2010; Kneebone et al. 2006a; 2006b). A two-year study evaluating PSP training found students feeling “challenged” (Kneebone et al. 2006a). This personal and professional challenge was also reflected in Nestel et al.’s (2010) three-year study which reported a high dropout rate (five) equating to 17%. Academic difficulty was reported by Smith, Kane and Milne’s (2006) case study revealing additional time was required for completion of assignments. In contrast, Kneebone et al. (2006a) reported high success rates with only one drop-out, whilst neither Kneebone et al. (2006b) nor Gray et al. (2010) reported success/attrition rates from their studies.

Interprofessional identity and autonomy are seen as important in role development. Smith Kane and Milne (2006) reported clinical practitioners perceived concerns regarding autonomy accountability and regulation of PA-A role; some practitioner felt this role should be regulated by RCoA. Similarly, Kneebone et al. (2006a) anaesthetists expressed a need for interprofessional identify within team-working.

Undertaking these roles requires personal commitment. Kneebone et al. (2006a) two-year study indicated a high level of personal and professional commitment among PSPs. Clinical colleagues also acknowledged the commitment demonstrated by PSPs and SCPs (Kneebone et al. 2006b). Personal reflection and development was facilitated through teaching strategies. Students in Kneebone et al’s (2006b) study highlighted a preference for interactive teaching methods, group discussion and tutor feedback. Similarly, Nestel et al. (2010) in evaluating simulation teaching (role-play) to improve communication skills found students whilst initially self-conscious and vulnerable, learnt useful theory-practice links, which improved professional and personal development. Only one study, Smith, Kane and Milne’s (2006) case study of a nurse undertaking epidural procedures, identified personal qualities such as enthusiasm and “can do” attitude, as vital in developing and implementing a new role.
In summary, studies identified the need for high academic qualifications to provide clinical skills and credibility with professional regulation. However, advanced practitioners found undertaking the role both educationally and clinically challenging requiring high levels of commitment. Education using reflection and interactive simulation teaching to contextualise theory-practice learning through effective feedback provided both personal and professional development. Only one study discussed the importance of personal attributes when implementing a new role.

**Integration of the advanced perioperative role into clinical practice**

Clinical practitioners displayed a full range of attitudes towards the integration of new roles. Smith, Kane and Milne’s (2006) study recognised pre-existing tensions between anaesthetics and surgery, being described as a “tribal” culture, before the implementation of a new role. Not surprisingly, Kneebone et al. (2006a) and Gray et al. (2010) reported negativity from some clinical colleagues, thus providing students with real challenges within practice. Gray et al.’s (2010) longitudinal study found initially non-healthcare students had more difficulty integrating within clinical teams due to the lack of clinical experience. The student’s lack of inability to participate and “muck in” negatively affected their ability to integrate and “socialise” with clinical professionals. Thus previous perioperative healthcare experience accelerated clinical integration, with bioscience students taking approximately one year to integrate.

Smith, Kane and Milne’s (2006) case study described the importance of clinical team involvement in developing new roles. This study also found clinical practitioners highlighting the need for service re-organisation. The importance of team involvement and restructuring was seen within Kneebone et al.’s (2006a) study which reported differences in PSP roles between hospitals. District General Hospitals and treatment centres reporting better role integration, whilst practitioners in tertiary centres experienced increased hostility due to competition for training opportunities, which resulted in reorganisation of working patterns to improve team working. Gray et al. (2010) reported similar fears with encroachment on existing roles from clinical practitioners.

Several studies reported a lack of mentor commitment for students (Kneebone et al. 2006a; & 2006b; Gray et al. 2010). Clinical support was also requested by clinical tutors, as they too had uncertainties and came across resistance from approximately 30% anaesthetic staff (Gray et al. 2010). Smith, Kane and Milne’s (2006) case study found support from clinical colleagues was vital to successful new role development. Two studies (Smith, Kane & Milne 2006; Gray et al. 2010) noted clinical resistance remained but reduced with time, whilst another study’ (Kneebone et al. 2006a) did not discuss whether hostility remained and to what level.

In summary, integration within the clinical teams is crucial to the success of advanced practice roles. Integration requires service re-organisation to provide training opportunities and effective working. Lack of experience can affect integration and team working. Significant opposition was identified in practice, which reduced with time. Hence active clinical support/mentorship were identified as factors which could positively support practitioners in new roles.
Discussion of findings
The studies reviewed identified several factors which must be recognised in the development of advanced perioperative roles. The most common factor identified was role ambiguity, resulting in clinical practitioners fearing encroachment on pre-existing roles and training opportunities. This inevitably led to opposition and hostility within clinical practice (Kneebone et al. 2006a; Smith, Kane & Milne, 2006; Gray et al. 2010). This is not unique to perioperative roles; Jones (2005) in a systematic review of specialist and advance practice roles highlighted role ambiguity as a barrier. According to Nicholas (2010) opposition in practice still exists, suggesting this is due to a lack of health professional’s understanding regarding these new roles. Whilst the introduction of the national curriculum frameworks improves clarity and structure for the roles, only Gray et al.’s (2010) study of clinical practitioners was undertaken after their publication. The concept of new roles was based on modernising healthcare (DH, 2007a) creating a flexible workforce with shared responsibility, thus blurred boundaries was inevitable. Consequently these roles need a degree of autonomy and fluidity, sharing responsibility to provide safe, quality care, rigid boundaries will hinder such effectiveness, therefore individual services should agree a scope of practice. Greaves and Eastland (2007:603) agree, suggesting planning an auditable role “fit for purpose” within individual services.

Patients too must understand the professional status of healthcare workers and new roles. Cheang, Weller and Hollis (2009) reported significant patient confusion and opposition to the SCP role. This is in contrast to published audits which report good understanding and satisfaction with SCP roles (Martin et al. 2007; Mallick et al. 2009). Kneebone et al. (2006a) study identified differences in acceptance between hospitals. This could be related to stakeholder involvement at the planning stage as suggested in Smith, Kane and Milne’s (2006) case study. This concurs with a review by Knight (2009) which also identified stakeholder involvement as key when developing a paediatric SCP role in plastic surgery. Good interprofessional working is essential for success since relationships can either enable or impede role development and implementation (Schober & Affara, 2006). No primary research studies were retrieved which either explored the value of interdisciplinary working or evaluated the attitudes of clinical colleagues.

Individual personal attributes (Smith, Kane & Milne, 2006) and a lack of healthcare experience (Gray et al. 2010) could affect integration and new role development. An Australian study by Searle (2008) suggested existing personal qualities of those undertaking new roles did have an impact in facilitating implementation. No studies reviewed explored whether personal attributes and healthcare experience affected the development of these new roles.

Identifying further research
Since advanced perioperative roles are relatively new and to ensure these roles are valuable from a patient and organisational perspective, their impact within clinical practice needs to be evaluated. Whilst some audits have been performed and are considered an acceptable method of evaluating a service and measuring change in practice, audit is not considered research (Hall & Dearmun, 2009).
Qualitative and quantitative research needs to be undertaken to:

- Evaluate the effectiveness of established SCP/PSP/PA-A roles on service delivery and patient outcomes.
- Explore interprofessional working using qualitative ethnography research.
- Explore patient opinions and evaluate acceptance of these SCP/PSP/PA-A roles.
- Explore whether previous healthcare experience, familiarity and personal attributes affect new role development.

General application to Health and Social care

The overall applicability of this body of research is critically discussed in general terms. With the modernisation of UK healthcare more advanced roles are being developed therefore some of the findings, whilst not generalisable, should be explored. The studies reviewed focused on specific populations and therefore the research cannot be generalised outside this population, with the exception of one study. Nestel et al. (2010) successfully demonstrated simulation to contextualise learning of communication skills, so these results could be generalised to other healthcare disciplines. Interactive learning including simulation has been successfully recognised as an effective teaching strategy (Race, 2005) and is uniquely suited to teaching communication skills (Fursland, 2004). Communication is recognised as an essential skill for effective patient care and team working (Smith & Jones, 2009) and applicable to other health professionals.

Given the expansion and extension of many roles within healthcare, studies within this review highlighted the need to improve relationships and acceptance, by involving stakeholders in understanding new roles, titles, identifying scope of practice, providing clinical support and encouraging interprofessional working. Hence other new roles should, at the outset, undertake research to explore opinions within their related speciality to avoid unnecessary conflict.

Confusion exists regarding health professional titles (Cheang, Weller & Hollis, 2006). A large international survey by Pulchini et al. (2010) reported 13 different titles for advanced practice nurse roles such as nurse practitioner, clinical nurse specialist, advanced nurse practitioner, being associated to the same role both within and between different countries. Thus the need for standardisation in titles and improved patient education is required generally in healthcare to avoid further confusion.

Conclusion

This literature review was undertaken by a novice researcher with limited time and resources, so some studies may not have been uncovered. Limited studies were retrieved on advanced perioperative roles, with none evaluating established roles. From the six studies identified, five were qualitative having appropriate design for this exploratory research, but some had methodological weaknesses. Gray et al.'s. (2010) qualitative study was the most robust and comprehensive longitudinal study investigating the development of the PA-A role educationally and clinically in Scotland. The majority of studies had an educational focus rather than clinical, being conducted prior to the publication of national curriculum frameworks.
This literature review set out to explore and evaluate advanced perioperative roles. Differences and challenges were seen in expectations of the role, personal and professional development requirements and integration within clinical practice. Some practitioners found difficulties with integration within clinical practice due to hostility, possibly linked to poor understanding of the role, unclear boundaries and scope of practice which threatened pre-existing roles. To improve advanced perioperative role development, it is recommended that clear roles and scope of practice are developed at the planning stage with the involvement of stakeholders. Communication to clinical practitioners is vital to improving SCP/PSP/PA-A integration and reducing conflict. Practitioners undertaking these new roles must not underestimate the high levels of commitment needed, clinically and academically. As previously outlined, more research is needed into evaluating SCP/PSP/PA-A roles.
References


Department of Health (DH) (2011) *Guide to waiting times* [online] [Accessed 28th February 2012]. Available at: <www.nhs.uk/choiceintheNHS/Rightsandpledges/Waitingtimes/Pages/Guide%20to%20waiting%20times.aspx>


Freudmann, F. and Aning, J. (2006) Surgical care practitioners are having a detrimental effect on surgical training. [online] [Accessed 2/03/2012].
Available at: <http://careers.bmj.com/careers/advise/bmj.33.7567.s97.xml>


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Appendix 1: Table showing data extraction of research articles, adapted from (Aveyard, 2010:129)

<table>
<thead>
<tr>
<th>Author</th>
<th>Design</th>
<th>Research question/ aim</th>
<th>Method Data Collection/sample</th>
<th>Data Analysis</th>
<th>Main findings/results</th>
</tr>
</thead>
</table>
| Cheang, Weller & Hollis (2009) | Quantitative            | To find out whether patient were able to identify healthcare professionals by title.                         | Cross sectional questionnaire Survey                                                             | Descriptive statistics & Z-Test         | Patient incorrectly thought a number of non-medical titles were doctor titles-  
Anaesthetic practitioners (83%)  
53% indicated the need to see a doctor depended upon visit situation  
94% wished to know if operation was to be performed by non-medical practitioner  
92% thought operations should be performed by a qualified doctor  
79% preferred to wait for operation by doctor |
|                         |                         | What patients think about non-medical staff performing operations                                           | Sample: ENT OPD patients                                                                         |                                         |                                                                                                                                                    |
|                         |                         | Investigated the effect waiting times may have had on patient decision                                      | Age: 13-83                                                                                       |                                         |                                                                                                                                                    |
|                         |                         |                                                                                                              | N=190 (220 completed: 15 incomplete?)                                                            |                                         |                                                                                                                                                    |
| Gray et al. (2010)      | Qualitative Grounded Theory | Evaluate education of Physician assistant in anaesthesia                                                   | Purposive sample Focus groups, individual interviews, telephone interviews, email, questionnaire | Constant comparative method (Glaser and Strauss, 1967) | Educational aspect challenging/overwhelming  
Differing perceptions/expectations of role.  
Lack of role clarity  
Correlation between role clarity and resistance/acceptance  
Need for supportive clinical person  
Threats from encroachment of existing role  
Bioscience graduates had delayed socialisation |
<p>|                         | Longitudinal 2-year study | Actual and perceived effects of implementation of new PA-A role on theatre team, public, wider staff in NHS Scotland | Sample: Student (25) Clinical tutor (11) Theatre Staff (16) Course team (9) Consultant anaesthetists (5) |                                         |                                                                                                                                                    |</p>
<table>
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<tr>
<th>Author</th>
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<th>Research question/ aim</th>
<th>Method Data Collection/sample</th>
<th>Data Analysis</th>
<th>Main findings/results</th>
</tr>
</thead>
</table>
| Kneebone et al. (2006a) | Qualitative Grounded theory 2-year | Evaluating PSP training by investigating the context of the role and how differences in local circumstances affected development | Purposive sample  
Face-Face interviews individual and group (Audiotaped)  
124 interviews (94 individual, 30 group)  
Sample size: 27 PSP's  
12 Trusts  
Independent researcher  
London academic educational training and national pilot site clinical training sites  
No ethical approval stated | Qualitative Data Analysis  
(Categorising, comparing, developing concepts, assessing intentions, investigating data set patterns) | Lack of clinical support/mentoring  
Differences in role according to hospital size and working patterns  
Conflict over training opportunities between junior doctors and PSP  
Hostility for colleagues, required radial redesigned of work patterns  
Educational training : challenging,  
Inter-professional identity, clarity of role  
Student extremely commitment to role |
<table>
<thead>
<tr>
<th>Author</th>
<th>Design</th>
<th>Research question/aim</th>
<th>Method Data Collection/sample</th>
<th>Data Analysis</th>
<th>Main findings/results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kneebone et al. (2006b)</td>
<td>Qualitative</td>
<td>Evaluating training Programme for PSP and SCP, integrating theory and practice</td>
<td>Observations and interviews individual and semi-structured group interviews for each module</td>
<td>Qualitative</td>
<td>Differing student perception of academic level-provided anxiety &amp; challenges</td>
</tr>
<tr>
<td></td>
<td>Grounded 3-year</td>
<td></td>
<td>Utilisation-Focused evaluation (Patton 1990) to evaluate active/reactive and adaptive attitudes</td>
<td>Data Analysis</td>
<td>Enjoyed interactive aspect of course</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Team of Independent researchers (tutors)</td>
<td>Coding and</td>
<td>Difficulties with clarity/definition of role Clinical challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sample: 172 (124 individual, 48 group) PSP, SCP &amp; professional clinical colleagues from 4 training programmes &amp; 20 NHS Trusts</td>
<td>categorisation</td>
<td>Lack of clinical support</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>techniques)</td>
<td></td>
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<tr>
<td>Smith, Kane and Milne</td>
<td>Qualitative</td>
<td>Investigate the barriers and enabler’s of non-physician in anaesthetics (PA-A)</td>
<td>Pilot study of semi-structured interview</td>
<td>Thematic</td>
<td>Role of professional organisations in supporting a clearly defined role</td>
</tr>
<tr>
<td>(2006)</td>
<td>6 month study</td>
<td></td>
<td>Semi-structured interviews</td>
<td>constant</td>
<td>Professional regulation of practitioner</td>
</tr>
<tr>
<td></td>
<td>(Oct 2002-April</td>
<td></td>
<td></td>
<td>comparative</td>
<td>Perceptions of a non-physician anaesthetist role, require defined role boundaries</td>
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<td></td>
<td>2003)</td>
<td></td>
<td>Case studies x4 hospital sites</td>
<td>analysis</td>
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<td>(Miles &amp;</td>
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<td></td>
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<td></td>
<td></td>
<td>Huberman, 1994</td>
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18
<table>
<thead>
<tr>
<th>Author</th>
<th>Design</th>
<th>Research question/aim</th>
<th>Method Data Collection/sample</th>
<th>Data Analysis</th>
<th>Main findings/results</th>
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</thead>
</table>
| Nestel et al. (2010) | Mixed: Quantitative & Qualitative 3 year study | Evaluate a communication programme for PSP and SCP's                                  | 12 communication teaching sessions  
Observation of role play (DVD) recordings  
Semi-structured evaluation forms  
Focus group interviews (49), Cohort 1 x4 interviews, Cohort 2 x4 interviews, Cohort 3 x1 interview.  
Summative Assessment | Quantitative data:  
Descriptive analysis (3 point scale to rate session)  
Qualitative: Thematically reviewed by two researchers free text comments as well as interviews | Tutor progressively found role less threatening to students  
Clear Link between theory and practice  
Role-play vulnerable with peers and preferred actors improving reality  
Student expectations, anxiety  
Summative assessment (25 successful)  
Good pass rate  
Feedback- students appreciated good clear feedback from experts, feedback less well received from students |
<table>
<thead>
<tr>
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<td>Sample: 29</td>
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<td>(2 deferred, 3 left personal reasons)</td>
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<td></td>
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<td>3 cohorts (n14, 8, 9)</td>
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<td>PSP: 22</td>
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<td>SCP: 9</td>
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<td>Age: 26-51yrs</td>
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<td>M=6, F=25</td>
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<td>Background: ODP, Nurse, Physio</td>
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<td>2 Independent researchers</td>
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<td></td>
<td></td>
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<td>(external moderators)</td>
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