JCN Journal of Clinical Nursing

Journal of
Clinical Nursing

PROFESSIONAL ISSUES IN NURSING

Factors which influence nurse practitioners ability to carry out physical examination skills in the clinical area after a degree level module – an electronic Delphi study

Evelyn McElhinney

Aims and objectives. The aim of the study was to identify the factors that influence nurse practitioners ability to practice physical examination skills in the clinical area.
Background. The changing health care needs of the population require new ways of working for many health professionals. Physical examination (core skills of inspection, palpation, percussion and auscultation) of patients is a fairly new role for nurses in secondary care in the United Kingdom. However, implementing new roles in the clinical area can be challenging for the practitioners involved, and several factors have been identified which are seen to help or hinder their success.
Design. A Delphi study was undertaken using blind copy email over six weeks in 2008.
Method. The participants included a purposive sample of 21 nurses from 10 clinical areas who had completed a degree level module in physical examination as part of a nurse practitioner pathway.
Results. This study generated valuable opinion of factors that can help or hinder the ability of nurses to practice physical examination in the clinical area. The results highlight the importance of individual self-confidence, role clarity, effective educational preparation and support from other disciplines to the nurse practitioners ability to carry out this new role.
Conclusion. Several factors reported by the participants concur and add to factors reported in previous studies of new role implementation. There appears to be a continued need for clear job descriptions, role clarity, authority and autonomy to practice for nurse practitioners undertaking physical examination.
Relevance to clinical practice. Physical examination knowledge and skills are part of the role of nurse practitioners. This study highlights several factors which need to be addressed to ensure practitioners are able to carry out this new role on return to the clinical area.

Key words: Delphi study, nurse practitioner, nursing, physical skills, role development

Accepted for publication: 15 March 2010

Introduction

Nurses have been advancing their practice and taking on several new roles for several years. This has required them to acquire new knowledge, skills and attitudes which ensures patient safety and enables them to remain within their professions legal, ethical and regulatory framework (Scottish Executive Health Department (2004a). Often this advancement of practice requires nurses to take on several roles which cross traditional health care boundaries. Recently, this has included the ability of nurses in secondary care to carry out a full physical examination of the patient (core skills of inspection, palpation, percussion and auscultation). The cost in both monetary terms and time to educate nurses in this role

Author: *Evelyn McElhinney*, MSc, BSc, SPQ, LPE, RN, FHEA, Lecturer, Post-Registration Nursing, School of Health, Glasgow Caledonian University, UK
Correspondence: Evelyn McElhinney, Lecturer Post-Registration Nursing, Room A516, Glasgow Caledonian University, Cowcaddens Road, Glasgow, G4 OBA, UK. Telephone: 0141 331 8791.
E-mail: Evelyn.McElhinney@gcal.ac.uk

doi: 10.1111/j.1365-2702.2010.03304.x

is significant to the National Health Service (Scottish Excecutive Health Department 2001). Therefore, it is important that this role is successfully implemented and makes a positive difference to patient care.

Physical examination is a role which has been traditionally associated with doctors' and is not usually seen by other health care practitioners or patients as a role undertaken by nurses (Marsden *et al.* 2003). Several studies have highlighted factors that can help or hinder the success of new roles; however, there is a dearth of studies specifically investigating the factors which influence implementation of physical examination knowledge and skills. This study was undertaken to investigate and gain consensus on factors which help or hinder nurses' ability to carry out physical examination in the clinical area and to highlight areas which may require to be modified in either the education component or within the clinical area.

Background

Advanced practice roles for nurses are not exclusive to the UK, and the nurse practitioner role has existed for several years in the USA (Pearson & Peels 2002). More recently, global introduction of these roles, particularly in the United Kingdom, Canada, Australia and New Zealand, has added to the differing titles, definitions, role boundaries and educational preparation which are determined by each individual country (Bryant-Lukosius *et al.* 2004, Marsden *et al.* 2003). However, these roles are seen as innovative and have been shown to be safe and effective in several clinical areas (Shum *et al.* 2000, Horrocks *et al.* 2002 and Middleton *et al.* 2007). The continued debate, about what advanced practice is and how it should be defined, led to the Nursing and Midwifery Council (NMC) publishing the *Standards for Postregistration Nursing*. In this document was the agreed definition:

> Advanced nurse practitioners are highly experienced, knowledgeable and educated members of the care team who are able to diagnose and treat your health care needs or refer you to and appropriate specialist if needed. (Nursing and Midwifery Council 2006, p. 7)

The International Council of Nurses had previously defined Nurse practitioners as 'a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country where s/he is credentialed to practice. A Master's degree is recommended for entry' (DeBack 2002).

Similar themes between the statements include education, experience and expert knowledge. However, although the NMC discuss master's level thinking, they do not specifically ask for a Master's degree and have not fully defined master's level thinking. Therefore, many institutions still offer degree level programmes.

Physical examination

The NMC advanced practice document discusses the ability of nurses to carry out a full physical examination of the patient. Although nurses in some areas in England have been carrying out a full physical examination as part of advanced practice roles for many years (Royal College of Nursing 2008), most nurses in acute care advanced practice in Scotland have only undertaken this role in the last five years. This is usually undertaken as part of a nurse practitioner degree which includes modules on non-medical prescribing and advanced diagnostic skills. The title Nurse Practitioner is used to describe nurses who have advanced their practice and is not presently regulated by the NMC unlike many other countries.

This development of nurse practitioners in Scotland was in part in response to the impact of the implementation of *Junior Doctors: The New Deal* (NHSME 1991). Health Boards were unable to maintain services and meet the costs of 'breaching' the maximum hours Junior Doctor's had been allowed to work (Department of Health 2005). Nurses, therefore, acquired new knowledge and skills to allow them to diagnose and treat patients. Further changes to out of hour's in-hospital medical care have been necessary because of the requirements of the European Work Time Directive, Modernising Nursing Careers and Modernising Medical Careers (Department of Health 2004, Scottish Government Health Department 2006). This has led to the development of interdisciplinary teams who respond to care requirements out with normal working hours. This has required a change in practice and new care delivery models (Department of Health 2005). In these new teams, nurses are often the first responder to acutely unwell adults. These changes therefore require these nurses to carry out a systematic physical examination.

The study

Aim

The aim of the study was to investigate whether nurse practitioners in a large Health Board perceived specific factors which help or hinder them to carry out their physical examination skills on their return to the clinical area, after a degree level module. The study employed an electronic Delphi methodology.

Ethical approval

Ethical approval for this research was granted by the local National Research Ethics Service and the relevant NHS Boards research and development department.

Methods

The Delphi technique is a research method which is favoured by researchers who wish to gain reliable consensus of a group of 'experts' on a particular issue. This is achieved by gathering information through a series of questionnaires until 'group' consensus is achieved (Beretta 1996). After reviewing the literature, it was decided to set consensus at 75% as this appeared to be a level which was seen to be acceptable for this type of study (Keeney *et al.* 2006). Three rounds were completed for this study as there was minimal change between rounds 2 and 3.

Results

Round 1

In round 1, 47 potential participants were sent a blind copy (Bcc) email invite to participate in the study. This ensured anonymity between the participants. Twenty-one (45%) participants agreed to take make up the group. Table 1 represents the demographics of the group. The data from the 21 participants from round 1 was analysed using content analysis. This generated 22 helping factor items and 13 hindering factors.

Table 1 Demographics

Male	3
Female	18
Age	36–52 years
	Average age – 44
Years qualified	10–33 years
	Average – 22 years
Years since completing the module	1–4·6 years
Type of hospital worked in	18 teaching
	3 district general
Clinical area of group members	Surgical receiving (4)
	Medical receiving (1)
	Surgical (1)
	Medical (1)
	Accident and emergency (3)
	Cardiology (3)
	Hospital at Night (4)
	Vascular access (1)
	Outpatients (1)
	Critical care outreach (2)
Agenda for change banding	Band 7 (9)
	Band 6 (8)
	Band 5 (1)
	Still to be assimilated (3)
Highest qualification	Master's (1)
	Postgraduate diploma (2)
	Postgraduate certificate (2)
	Graduate certificate (2)
	Degree (11)
	Diploma of higher education (3)

Round 2

The helping and hindering factor statements were sent back to participants in the form of a five-point Likert scale going from 'not at all important' to 'extremely important'. A Likert scale was chosen for this round as it is a familiar tool used in surveys and is seen to be 'user friendly' (Keeney *et al.* 2006, Polit and Beck 2008). All 21 participants (100%) returned round 2 within the two weeks allocated. Data was entered into SPSS© and checked for accuracy. Statistical analysis consisted of descriptive statistics, the tabulation of frequencies, percentage and mean was created for each statement. At this stage, categories 4 (very important) and 5 (extremely important) were collapsed as after discussion with a statistician it was deemed that the difference between these variables was negligible. Therefore, where the response to '4 and 5' on the Likert totalled 75% or more, consensuses would be deemed to be achieved on that factor. In Table 2, each helping factor statement from round 2 is displayed along with the percentage after categories 4 and 5 were collapsed. Table 3 shows the hindering factors.

Round 3

After analysis of round 2 data, 13 (59%) of the 22 helping factor statements and four (23%) of the 17 hindering factor statements had reached consensus. Therefore, these would not be returned in round 3. At this point, it was decided that the factors could be placed into four main themes; individual factors, organisational, educational and support of others. In round 3, all statements which did not reach consensus in round 2 were returned to the group. Controlled feedback was given to the participants using descriptive statistics. Feedback indicating the dispersion of scores using frequencies and percentages was used for round 3. Participants were informed of their own individual scores and the scores of the group and invited to reconsider their original response in light of this information. All 21 participants returned round 3. Table 4

Table 2 Summary of round 2 results after categories 4 and 5 were collapsed

Helping Factors (round 2)
Individual
1 You feel the role makes a difference to patient care = 100%
2 Increased confidence in your own ability to carry out physical examination = 95·2%
3 Self-motivation to continue to practice and use knowledge and skills = 95·2%
4 Trust of senior colleagues in your ability = 95·2%
5 Autonomy to practice collapsed = 85·7%
6 Able to communicate with Doctors at their level = 81%
7 Continued self-study = 66·7%
8 Previous experience = 57·1%
9 Easier to practice where standards/protocols were set = 38·1%
Organisational
1 Opportunity to practice as soon as the module was completed = 95·2%
2 Requirement to carry out physical examination as part of your role = 90·5%
3 Time to carry out physical examination = 81%
4 Adequate environment to carry out the examination = 66·7%
5 No one else was able to do the examination, allowing more practice = 33·3%
6 Availability of medical/nursing notes = 57·1%
Educational
1 The module content (knowledge and skills to perform systematic examination, recognise normal findings) = 90·5%
2 Supervision and teaching of other staff helped increase knowledge and skills = 57·1%
Support of others
1 Supervision and support from medical staff = 85·8%
2 Support of patients (allow you to carry out the examination) = 81%
3 Peer support = 76·2%
4 Support from other Nurse Practitioners = 66·7%
5 Support from ward staff = 52·4%

Table 3 Hindering factors Summary of round 2 results after categories 4 and 5 were collapsed

Hindering factors
Individual
1 Your confidence in your ability to practice certain systems = 85·7%
1b Please identify the system if applicable
Heart sounds = 81%
Abdominal system = 76·2%
Musculoskeletal system = 42·9%
Respiratory system = 61·9%
2 Anxiety regarding increased responsibility = 47·6%
3 Fear of making mistake = 52·4%
Organisational
1 Workload-competing demands of the role = 61·9%
2 Lack of staff (increased demand to do other roles) = 52·4%
3 Change of job role reduced the ability to carry out physical examination = 38·1%
4 Noisy environment = 33·3%
5 Lack of time to practice skills because of novice status (longer to do examination) = 33·3%
6 Lack of facilities to carry out physical examination = 28·6%
Support of others
1 Acceptance by medical staff of your ability to carry out physical examination = 81%
2 Acceptance by nursing staff of your ability to carry out physical examination = 66·7%
3 Lack of medical support for ongoing mentorship/supervision = 66·7%
4 Support from patients (did not want physical examination repeated) = 42·9%

shows rank ordering of all helping statements that made consensus. Table 5 shows the hindering factors.

Discussion

Helping factors – individual

The top ranking helping factor related to practitioners' belief that the role (carrying out physical examination) (100%) made a difference to patient care. This indicates a strong belief by the group that their ability to practice physical examination skills made a positive difference to patient care. Several other studies have shown that practitioners believe there is a need for these type of roles and that they make a positive contribution to quality of patient care and contribute to retention of staff and job satisfaction (McKenna *et al.* 2008, Zangaro & Soeken 2007, Norris & Melby 2006, Easton *et al.* 2004, Kinley *et al.* 2002, Tye & Ross 2000, Marsden *et al.* 2003, Rafferty *et al.* 2001, Collins *et al.* 2000).

Confidence in their own ability (95·2%) was seen as an important helping factor. Confidence grew the more they used their new skills and as they consistently correctly diagnosed problems. Several studies discuss individual practitioner confidence as vital to facilitation of successful role implementation (Hamric & Taylor 1989, Marsden *et al.* 2003). Interestingly, a lack of confidence was also mentioned in the hindering factors, with particular reference to examination of specific systems. Tye and Ross (2000) state that a lack of confidence can lead to practitioners avoiding carrying out new roles and that this may lead to feelings of isolation and stress. Ball (1999) went as far as to state that a demonstration of lack of confidence by practitioners in new roles may lead to a reduction in the acceptance of the role by both nursing and other members of the interdisciplinary team. It may be argued that patients would also not accept a demonstration of lack of confidence.

Table 4 Helping factors which reached consensus

Helping factors
1 You feel the role makes a difference to patient care = 100%
2 Increased confidence in your own ability to carry out physical examination = 95·2%
3 Self-motivation to continue to practice and use knowledge and skills = 95·2%
4 Opportunity to practice as soon as the module was completed = 95·2%
5 Trust of senior colleagues in your ability = 95·2%
6 The module content (knowledge and skills to perform systematic examination, recognise normal findings) = 90·5%
7 Requirement to carry out physical examination as part of your role = 90·5%
8 Supervision and support from medical staff = 85·8%
9 Autonomy to practice = 85·7%
10 Support of patients (allow you to carry out the examination) = 81%
11 Time to carry out physical examination = 81%
12 Able to communicate with Doctors at their level = 81%
13 Peer support = 76·2%

Table 5 Hindering factors which reached consensus

Hindering factors
1 Your confidence in your ability to practice certain systems = 85·7%
2 Heart sounds = 81%
3 Acceptance by medical staff of your ability to carry out physical examination = 81%
4 Abdominal system = 76·2%
5 Lack of medical support for ongoing mentorship/supervision = 76·2%

Self-motivation to continue to practice and use their new skills reached (95·2%). It could be argued that groups' belief that their ability to practice physical examination made a difference to patient care may help to increase self-motivation to practice. Improvements in patient care can be a powerful motivator for nurses and is inherent in their professional values (NMC 2008). Expectancy – value theorists believe engagement with new skills, and knowledge is dependent on peoples' value of the outcome and expected success of achievement of the activities, believing that the two elements must be present to achieve motivation to engage with new knowledge and skills (Wigfield & Eccles 2000).

The factor 'trust of senior colleagues in your ability to successfully perform physical examination' reached (95·2%). Several group members stated that this enabled them to 'do the job' and increased the amount of referrals they received. This echoes the findings of Scholes and Vaughan (2002) who found practitioners reported that colleagues valued them more as they began to recognise their clinical credibility.

Autonomy to practice (85·7%) could be regarded as an individual or organisational factor as both have an impact on how practitioners view their autonomy. Autonomy has been stated by practitioners as the freedom to set their own boundaries for the roles and choose the appropriate plan of care necessary at the time. The perception being that they are the best to judge the risk associated with the action required (McKenna *et al.* 2008, Marsden *et al.* 2003, Woods 1998, Hupcey 1993). However, nurse managers may not always see this as being an option in today's NHS, where litigation is increased (Collins *et al.* 2000). Interestingly, the Scottish Government in their framework for developing new roles states that one of the aims of new roles should be to increase the ability of individuals to exercise professional autonomy (Scottish Executive Health Department 2004b). In a Canadian study of factors influencing nurse practitioner (NP) role implementation, practitioners reported a lack of autonomy as impacting negatively on role implementation. Flanagan (1998) had previously reported a perception by practitioners that the support required from Doctors for new roles which have crossed traditional boundaries further reduced autonomy.

The issue of autonomy is frequently linked to the use of protocols. Several studies have found that practitioners find protocols useful in the initial stages of learning the new role (Roberts-Davis & Read 2001). However, as they become more confident and skilled, they report that protocols can limit autonomy and practice, prevent the use of professional and clinical judgement and reduce the options available to patients (McKenna *et al.* 2008, Marsden *et al.* 2003, Scholes & Vaughan 2002, Roberts-Davis & Read 2001). In this study, the statement regarding protocols did not reach consensus. However, the majority (47·6%) rated protocols as moderately important. Manias and Street (2000) argue that the use of protocols may lose value if they are not developed locally. There is also a risk of protocols becoming obsolete very quickly unless they are regularly reviewed, leading to outdated practice.

Able to communicate with Doctors at their level (81%), the perception that their new knowledge helped them to communicate better with Doctors may be associated with the belief that they were able to speak the language of the medical profession, which has been linked to integration and effective interprofessional teamwork (Hall 2005, Snelgrove & Hughes 2000). Equally, it could be argued that, as they have increased their knowledge and skills, they have also increased their ability to communicate at an advanced level.

All of the individual helping factors that reached consensus, confidence, self-motivation, feelings that people trust your ability and a perception of autonomy to practice have

been reported in several studies by all members of the multidisciplinary team as vital qualities which are required by practitioners' to successfully implement new roles (Scholes & Vaughan 2002, Tye & Ross 2000, Bamford & Gibson 2000, Read 2001). This suggests that nurse managers' may need to take these factors into consideration, when choosing nurses to put forward for a new role, to maximise effectiveness.

Helping factors – organisational

The top two factors in this category were 'Opportunity to practice as soon as the module was complete' (95·2%) and 'Requirement to carry out physical examination as part of your role' (90·5%). Several participants commented on this in round 1:

I had to perform physical examinations as part of my role in a nurse led clinic. This meant I was continually practising physical examinations and gaining experience.

Ability to conduct patient assessment soon after the course – aspects/skills still fresh in your mind..... Patient assessment was part of the clinical role it is part of my job description.

The fact that physical examination was part of their job description suggests that nurse managers have selected nurses from the appropriate area for the module. This was not always the case in the initial stages of running the module. Many students found they returned to the clinical area and were not permitted to use their new knowledge and skills.

The continued practise of new skills is required to gain competence and confidence, to move through the stages of skill acquisition (Benner 1984). The opportunity to practice as soon as they returned to the clinical area was also linked to confidence by the participant.

Time to practice their physical examination skills reached consensus as a helping factor (81%). This has frequently been reported in the literature as both a helping and hindering factor (McFadden & Miller 1994, Woods 1998, Marsden *et al.* 2003). Interestingly, in the hindering factors, lack of time to practice their skills (33·3%) and workload-competing demands of the role (61·9%) did not reach consensus. This may be related to the time in post (quicker at examination) and the possible better time management of this particular group.

Helping factors – educational

Several members of the group commented in round 1 on the importance of the module content on their ability and confidence in carrying out physical examination (90·5%):

Confidence gained from practise in clinical examination using practical skills book, fellow students, medical mentor(s), tutors..... Recognition of a methodical, systematic review of patients to ensure thorough clinical assessment improved my confidence in approaching patients. The availability of the online videos; the availability of the teaching staff who were always very helpful and encouraging.

Gave me more confidence and expertise to carry out examination professionally because of the theory and study obtained on course.....Able to extend my role and professional experience further with the knowledge to support my findings. This was achieved through study days, course work and lectures.

This is an important finding as this suggests that the content of the module is fit for purpose. Having the knowledge and skills to undertake a role has also been linked to autonomy, confidence and job satisfaction (Marsden *et al.* 2003, Gibson & Bamford 2001, Read 2001, Roberts-Davis & Read 2001). Collins *et al.* (2000) in a study investigating job satisfaction and new roles found that practitioners who felt the education they had received prepared them for the role where more satisfied.

Helping factors – support of others

The highest ranking helping factor in this category was 'Supervision and support of medical staff' (85·5%). This echoes several other studies who found that the continued support of doctors for supervision was important to effective implementation of new roles (McKenna *et al.* 2008, Norris & Melby 2005, Tye & Ross 2000, Woods 1998, Hamric & Taylor 1989). This may be related to the continued reliance on medical staff for mentorship and supervision (Marsden *et al.* 2003). This is especially pertinent when looking at physical examination skills in this group. Teaching physical examination to nurses is a relatively new concept in Scotland. However, physical examination skills have been taught to doctors for many years, therefore, they are seen as the clinical experts and ideal to offer supervision (Khattab & Rawlings 2001). Once the number of nurses educated in physical examination increases, this reliance on doctors may decrease. However, many of the previous studies mentioned above have included findings from several countries where nurses have been undertaking physical examination as part of a new role for many years. However, support of medical staff continues to be reported as important.

Support of patients (allow you to carry out the examination) (81%). This suggests that participants have had support from patients to undertake physical examination, a role which was traditionally embedded in the medical domain. This correlates with previous findings which have found that

patients are satisfied with nurses who undertake these types of roles (Chang *et al.* 1999, Kinley *et al.* 2002).

Peer support reached consensus of 76·2%. Freeman *et al.* (2000) state that peer support is important for debriefing purposes, reducing isolation and personal and professional identity. Glen and Waddington (1998) agree arguing that a lack of peer support and role models can lead to reduced socialisation into a team. Interestingly, when asked about support from other Nurse Practitioners, the participants did not reach consensus. However, 57·1% rated it as very important. This may be related to the fact that some of the participants were the only practitioner in that area and were unable to seek immediate support from other NPs.

Hindering factors

Hindering factors – individual

The top ranking statement in this category at this stage was 'Your confidence in your ability to practice certain systems', (85%). It was felt that this needed to be quantified; the actual system in question had to be identified. Therefore, systems mentioned in round 1 where included as subsections of this question. This was done to aid identification of changes which may be required to the curriculum. Lack of confidence to identify heart sounds was seen as a hindering factor (81%). Comments in round 1 included:

> Whilst I was comfortable in performing the physical examination and could recognise normal heart sounds when I heard a murmur I did not have the knowledge to know if it was an innocent murmur or one of more significant importance.

This is not an unusual perception. Although no studies have been found which have investigated nurses' ability to identify heart murmurs. Several studies have investigated physicians' ability to identify heart murmurs using auscultation techniques. Results highlight the difficulties Medical staff has at identifying murmurs (Iversen *et al.* 2006, Reichlin *et al.* 2004, Mangione 2001, Roldan *et al.* 1996).

Confidence in the ability to practice the abdominal examination also reached consensus as a hindering factor (76·2%). This correlates with module feedback where students reported anxiety when learning the abdominal system examination. They perceived the examination as complex. Anxiety with regard to diagnosis of abdominal conditions was also reported. This anxiety is not unusual, the amount of organs in the abdominal cavity and the radiation of pain to other areas of the body contribute to the difficulty in accurate diagnosis of abdominal complaints (Bickley & Szilagyi 2007).

Again, there is a dearth of studies which have investigated nurses' diagnostic accuracy using abdominal examination. However, several studies have investigated and highlight the difficulty Doctors' have in accurately diagnosing acute abdominal conditions (Pines *et al.* 2005, Lynch 2004, Kamin *et al.* 2003, Fagbohun *et al.* 1999). This lack of confidence in this group may be associated with the amount of exposure to abdominal examination in their clinical area. With regard to the teaching in the module, these findings suggest that longer time or different teaching and learning strategies may be required to increase confidence in identification of normal and abnormal heart sounds and abdominal examination. However, another group of practitioners may not agree or highlight different systems. The lack of studies on nurses' diagnostic ability using physical examination highlights this as an interesting area for future studies.

Hindering factors – organisational

No hindering factors reached consensus in this category. These included; 'Lack of time to practice skills because of novice status (longer to do the exam)' the majority rated this as moderately important (57·1%). This may suggest that this group no longer perceived themselves as novice in this role. The following factors all had a spread of scores throughout the Likert scale; 'Noisy environment', 'Workload–competing demands of the role', 'Lack of facilities to carry out physical examination' and 'Lack of staff (increased demands to do other roles)'. These factors have previously been mentioned in the literature as hindering factors to new role implementation and job satisfaction (McFadden & Miller 1994, Collins *et al.* 2000, Read 2001). Whether the lack of agreement in this group, which are spread over a large geographical and clinical area, points to improvements in these organisational resource issues is difficult to infer. This may partly be because of the successful implementation of the new role guidelines (Scottish Executive Health Department 2004b). However, this is out with the scope of this research and may be an area for future studies.

Hindering factors – support of others

The only hindering factor in this category which reached consensus was 'Acceptance by medical staff of your ability to carry out physical examination' which reached 81%. Interestingly, the factor, 'Acceptance by nursing staff of your ability to carry out physical examination' did not reach consensus. However, 66·7% still rated it as 'very' or 'extremely' important. This suggests that this group felt medical staff had a harder time accepting nurses undertaking physical examination than nurses. Comments from round 1 support this:

Some anaesthetists did not feel this was a role for nursing staff, this did not hinder the ability to do physical examination, it only caused some animosity.

Ongoing medical support, medics could be unhelpful at times, maybe having difficulty in adjusting to nurses performing these skills on patients.

Several studies have investigated the crossing of role boundaries and the effect on nurse–doctor relationships, with many linking issues to medical dominance and power. In a study by Marsden *et al.* (2003), NPs reported that the success of implementing their new role was reliant on doctors 'allowing' them to practice. Scholes and Vaughan (2002) discuss the concept of a hierarchy of knowledge existing between professions and argue that when this is challenged, tension can develop. Snelgrove and Hughes (2000) in a study of relations between doctors and nurses in Australia found that medical staff was happy to pass on mundane tasks to nurses but were more protective of prescribing and diagnostic knowledge and skills, which they saw as exclusive to medicine. Interestingly, prescribing rights are now accessible to appropriately educated nurses and Allied Health Professionals (AHPs) in the United Kingdom, and many of the participants in this study are nurse prescribers.

Nurses have reported that they have to continuously remind Doctors' of their role and capabilities both verbally and by demonstrating a high standard of clinical practice to ensure they are accepted as being clinically credible. They describe this as a 'chipping away' at the Doctors' (Scholes & Vaughan 2002, Robinson & Cottrell 2005, Willard & Luker 2007).

Acceptance by nursing staff of nurses who undertake new roles has also been reported in previous studies as a hindering factor (Read 2001). Skillen *et al.* (2001) in a USA study of case managers found where there was a lack of acceptance by peers, the case managers use of physical examination skills reduced. Other studies have associated intra and interdisciplinary tension to role ambiguity, role conflict and lack of role models, which led to misconceptions and differing expectations of the role (Glen & Waddington 1998, Read *et al.* 2001, Collins *et al.* 2001, Norris & Melby 2006, Willard & Luker 2007).

These tensions between disciplines are not exclusive to nurses; similar problems have been reported by AHPs and social workers who work in multiprofessional teams (Collins *et al.* 2001, Robinson & Cottrell 2005). Suggested solutions in the literature to break down these tensions include; national standards for the role, establishing clear job descriptions and role boundaries, team building activities and joint practices (Read 2001, Roberts-Davis & Read 2001, Collins *et al.* 2001, Marsden *et al.* 2003, Robinson & Cottrell 2005).

Interestingly, this group also reported the support of medical staff as a helping factor to their ability to practice physical examination. Therefore, it may be that some individual doctors were more helpful and accepting than others and that this acceptance is more to do with the personality of the individual than which professional group they belong to.

Although introducing new roles, can lead to tensions between professionals, the ability to work as a team is important in today's NHS. The Scottish Government see the ability to work in teams and flexibility of roles as important to future health care delivery (Scottish Government Health Department 2006). Effective teamwork and good working relationships have also been shown to contribute to improvements in patient outcomes, job satisfaction and retention of staff (Adams & Bond 2000, Rafferty *et al.* 2001, Robinson & Cottrell 2005). However, teams tend to require a leader, it could be argued that who that leader is should be based on who is most competent for the role as opposed to the professional group they belong to.

Limitations of the study

The small sample size and the use of a one health board area meant generalisation of the findings cannot be achieved. The return rate in round 1 of 45% was deemed acceptable for a Delphi study (Keeney *et al.* 2006). A larger sample, however, may have increased the reliability of the findings. However, the sample all had knowledge of the subject area and remained through all three rounds. These factors along with the high agreement between rounds 2 and 3 add to the validity of the study (Jones *et al.* 1992, Keeney *et al.* 2006, Hasson *et al.* 2001).

Conclusion

This study has highlighted several factors that can help or hinder nurses' ability to practice physical examination in the clinical area. This group believed the education they received prepared them to undertake physical examination effectively. Although this was a small study, this suggests that the programme undertaken by these practitioners is fit for purpose and offers nurse mangers value for money. However, more time may need to be spent on certain systems where a lack of confidence was highlighted as a hindering factor. Other individual helping factors reported included; confidence, self-motivation, trust of senior colleagues, autonomy

to practice and a perception that they could communicate better with medical staff. All these factors are seen to be important to the successful implementation of advanced practice roles.

Organisational factors reported as helpful by the participants included the opportunity to practice, and physical examination being part of their job description. Continued practise is required to ensure skills are consolidated. Nurse managers therefore need to ensure that when they support practitioners to undertake education in physical examination that it will be part of their job description and they will be supported in implementing their new knowledge and skills on return to the clinical area.

Support of others is vital to the success of new roles. Interestingly, the participants perceived the support they had received from patients to date as a helping factor. Patients consent and support is vital to their ability to undertake physical examination. Patients need to feel that the care they receive is from skilled practitioners who have received appropriate education regardless of the discipline they represent. Support from medical staff for supervision was reported as both a helping and hindering factor. This was linked to the availability of doctors as opposed to their refusal to help. Because of the fairly low numbers of nurse practitioners in the clinical area, there is a reliance on medical staff to provide supervision and mentorship for physical examination. However, the reduction of medical staff in the clinical areas can make it difficult to find time for mentorship and supervision. Therefore, when selecting mentors, the availability and overall clinical commitment of individuals must be taken into consideration. This reliance on medical staff may reduce as the numbers of nurses practicing physical examination increase. However, continued collaboration with medical staff should be seen as good practice. It was reported that a lack of acceptance by medical staff was a hindering factor; this was linked to role ambiguity and clinical credibility in physical examination. If this is to be reduced, there has to be clear and concise job descriptions which are meaningful to both the individual practitioner and other health care disciplines. However, if the NMC do not pursue regulation of advanced practice and national standards of care, this must be done via governmental means. However, the fact that nonacceptance by medical staff is still seen as a hindering factor suggests that some prejudice remains around nurses' ability to carry out physical examination. Although new roles can cause tensions between disciplines, 'professional tribalism' cannot be allowed to continue when these types of roles have been evaluated as beneficial to patients. There is also a need for nurse managers to ensure that practitioners feel they have the authority from senior management to practice new roles.

Relevance to clinical practice

Diagnostic accuracy is important for effective clinical decision-making and management of care. Several studies have highlighted the difficulty in physicians' ability to diagnose heart murmurs and abdominal complaints. However, there is a dearth of research on how effective nurses' diagnostic skills are. Therefore, this is an area which needs to be researched in the future as evaluation of care is extremely important to ensure an efficient and effective health service.

The requirement for nurses to advance their practice is a result of several professional, socio-economical and political changes to the populations' health care needs. Policy and education support this development, and advanced nursing practice is now seen as a legitimate career pathway for nurse' who wish to remain in clinical practice. This allows nurses to take on new roles which advance their knowledge and skills to a high expert level. However, cognisance of the difficulties faced by practitioners when implementing these roles must be acknowledged, and continued solutions at local, national and international level must be sought to ensure effective, and efficient health care is delivered to patients.

Contributions

Study design: EMcE; data collection and analysis: EMcE and manuscript preparation: EMcE.

Conflict of interest

Nil.

References

Adams A & Bond S (2000) Hospital nurses' job satisfaction, individual and organizational characteristics. *Journal of Advanced Nursing* **32**, 536–543.

Ball C (1999) Revealing higher level nursing practice. *Intensive & Critical Care Nursing* **15**, 65–76.

Bamford O & Gibson F (2000) The Clinical Nurse Specialist: perceptions of practising CNSs of their role and development needs. *Journal of Clinical Nursing* **9**, 282–292.

Benner P (1984) *From Novice to Expert: Excellence and Power in Clinical Nursing Practice*. Addison-Wesley, Mento Park, CA.

Beretta R (1996) A critical review of the Delphi technique. *Nurse Researcher* **3**, 79–89.

Bickley LS & Szilagyi PG (2007) *Bates' Guide to Physical Examination and History Taking*, 9th edn. Williams and Wilkins Lippincott, Philadelphia, PA.

Bryant-Lukosius D, DiCenso A, Browne G & Pinelli J (2004) Advanced practice nursing roles: development, implementation and evaluation. *Journal of Advanced Nursing* **48**, 519–529.

Chang E, Daly J, Hawkins A, McGirr J, Fielding K, Hemmings L, O'Donoghue A & Dennis M (1999) An evaluation of the nurse practitioner role in a major rural emergency department. *Journal of Advanced Nursing* **30**, 260–268.

Collins K, Jones ML, McDonnell A, Read S, Jones R & Cameron A (2000) Do new roles contribute to job satisfaction and retention of staff in nursing and professions allied to medicine? *Journal of Nursing Management* **8**, 3–12.

DeBack V (2002) ICN announces its position on advanced nursing roles. *International Nursing Review* **49**, 202.

Department of Health (2004) *Modernising Medical Careers: The Next Steps*. Department of Health, London.

Department of Health (2005) *The Implementation and Impact of Hospital at Night Pilot Projects: An Evaluation Report*. Department of Health, London.

Easton K, Griffin A, Woodman N & Read MD (2004) Can an advanced nurse practitioner take on the role of senior house officer within a specialised area of practice: an evaluation. *Journal of Obstetrics & Gynaecology* **24**, 667–674.

Fagbohun CF, Toy EC & Baker B (1999) The evaluation of acute abdominal pain in the elderly patient. *Primary Care Update for OB/GYNS* **6**, 181–185.

Flanagan M (1998) Specialist nursing. Factors influencing tissue viability nurse specialists in the UK: 2. *British Journal of Nursing* **7**, 690.

Freeman M, Miller C & Ross N (2000) The impact of individual philosophies of teamworking on multiprofessional practice and the implications for education. *Journal of International Professional Care* **14**, 237–247.

Gibson F & Bamford O (2001) Focus group interview to examine the role and development of the clinical nurse specialist. *Journal of Nursing Management* **9**, 331–342.

Glen S & Waddington K (1998) Role transition from staff nurse to clinical nurse specialist: a case study. *Journal of Clinical Nursing* **7**, 283–290.

Hall P (2005) Interprofessional teamwork: professional cultures as barriers. *Journal of Interprofessional Care* **19**, 188–196.

Hamric AB & Taylor JW (1989) *The Clinical Nurse Specialist in Theory and Practice*, 2nd edn. W.B Saunders, Philadelphia.

Hasson F, Keeney S & McKenna S (2001) Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing* **32**, 1008–1015.

Horrocks S, Anderson E & Salisbury C (2002) Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal* **4**, 819–823.

Hupcey JE (1993) Factors and work settings that may influence nurse practitioner practice. *Nursing Outlook* **41**, 181–185.

Iversen K, Søgaard Teisner A, Dalsgaard M, Greibe R, Timm HB, Skovgaard LT, Hróbjartsson A, Copenhagen Ø, Copenhagen S & Copenhagen K (2006) Effect of teaching and type of stethoscope on cardiac auscultatory performance. *American Heart Journal* **152**, 85.e1–85.e7.

Jones J, Sanderson C & Black N (1992) What will happen to the quality of care with fewer junior doctors? A Delphi study of consultant physicians' views. *Journal of the Royal College of Physicians of London* **26**, 36–40.

Kamin RA, Nowicki TA, Courtney DS & Powers RD (2003) Pearls and pitfalls in the emergency department evaluation of abdominal pain'. *Emergency medicine clinics of North America* **21**, 61.

Keeney S, Hasson F & McKenna HP (2006) Consulting the oracle: ten lessons from using the Delpji technique in nursing research. *Journal of Advanced Nursing* **53**, 205–212.

Khattab AD & Rawlings B (2001) Assessing nurse practitioner students using a modified objective structured clinical examination (OSCE). *Nurse Education Today* **21**, 541–550.

Kinley H, Czoski-Murray C, George S, McCabe C, Primrose J, Reilly C, Nicholson P & Healy C (2002) Effectiveness of appropriately trained nurses in preoperative assessment: randomised controlled equivalence/non-inferiority trial. *British Medical Journal* **3**, 1323–1326.

Lynch RM (2004) Accuracy of abdominal examination in the diagnosis of non-ruptured abdominal aortic aneurysm. *Accident and Emergency Nursing* **12**, 99–107.

Mangione S (2001) Cardiac auscultatory skills of physicians-in-training: a comparison of three English-speaking countries. *The American Journal of Medicine* **110**, 210–216.

Manias E & Street A (2000) Legitimation of nurses' knowledge through policies and protocols in clinical practice. *Journal of Advanced Nursing* **32**, 1467–1475.

Marsden J, Dolan B & Holt L (2003) Nurse practitioner practice and deployment: electronic mail Delphi study. *Journal of Advanced Nursing* **43**, 595–605.

McFadden EA & Miller MA (1994) Clinical nurse specialist practice: facilitators and barriers. *Clinical nurse specialist CNS* **8**, 27–33.

McKenna H, Richey R, Keeney S, Hasson F, Poulton B & Sinclair M (2008) The managerial and development issues of nurses and midwives in new roles. *Scandinavian Journal of Caring Sciences* **22**, 227–235.

Middleton S, Allnutt J, Griffiths R, McMaster R, O'Connell J & Hillege S (2007) Identifying measures for evaluating new models of nursing care: a survey of NSW nurse practitioners'. *International Journal of Nursing Practice* **13**, 331–340.

NHSME (1991) *Junior Doctors: New Deal*. NHS Modernisation Executive, London.

Norris T & Melby V (2006) The acute care nurse practitioner: challenging existing boundaries of emergency nurses in the United Kingdom. *Journal of Clinical Nursing* **15**, 253–263.

Nursing and Midwifery Council (2006) *Standards to Support Learning and Assessment in Practice: NMC Standards for Mentors, Practice Teachers and Teachers*., Nursing Midwifery Council, London., No. 3, 253–263.

Nursing and Midwifery Council (2008) *The Code Standards of Conduct, Performance and Ethics for Nurses and Midwives*. Nursing and Midwifery Council, London.

Pearson A & Peels S (2002) The nurse practitioner. *International Journal of Nursing* **8**, 5–10.

Pines J, Uscher Pines L, Hall A, Hunter J, Srinivasan R & Ghaemmaghami C (2005) The interrater variation of ED abdominal examination findings in patients with acute abdominal pain. *The American Journal of Emergency Medicine* **23**, 483–487.

Polit DF & Beck CT (2008) *Nursing Research: Generating and Assessing Evidence for Nursing Practice*, 8th edn. Lippincott, Williams and Wilkins, Philadelphia, PA.

Rafferty AM, Ball J & Aiken LH (2001) Are teamwork and professional autonomy compatible and do they result in improved hospital care? *Quality In Health Care: QHC* **10**(Suppl. 2), ii32–ii37.

Read SM (2001) *Exploring New roles in Practice (ENRIP) The Final Report*. Department of Health, London.

Reichlin S, Dieterle T, Camli C, Leimenstoll B, Schoenenberger RA & Martina B (2004) Initial clinical evaluation of cardiac systolic murmurs in the ED by noncardiologists. *The American Journal of Emergency Medicine* **22**, 71–75.

Roberts-Davis M & Read S (2001) Clinical role clarification: using the Delphi method to establish similarities and differences between Nurse Practitioners and Clinical Nurse Specialists. *Journal of Clinical Nursing* **10**, 33–43.

Robinson M & Cottrell D (2005) Health professionals in multi-disciplinary and multi-agency teams: changing professional practice. *Journal of Interprofessional Care* **19**, 547–560.

Roldan CA, Shively BK & Crawford MH (1996) Value of the cardiovascular physical examination for detecting valvular heart disease in asymptomatic subjects. *The American Journal of Cardiology* **77**, 1327–1331.

Royal College of Nursing (2008) *Advanced Nurse Practitioners – An RCN Guide to the Advanced Nurse Practitioner Role, Competencies and Programme Accreditation*. Royal College of Nursing, London.

Scholes J & Vaughan B (2002) Cross-boundary working: implications for the multiprofessional team. *Journal of Clinical Nursing* **11**, 399–408.

Scottish Excecutive Health Department (2001) *Caring for Scotland The Strategy for Nursing and Midwifery in Scotland*. Scottish Excecutive Health Department (SEHD), Edinburgh.

Scottish Executive Health Department (2004a) *Facing the Future*. Scottish Executive Health Department, Edinburgh.

Scottish Executive Health Department (2004b) *Framework for Developing Nursing Roles Consultation*. SEHD, Edinburgh.

Scottish Government Health Department (2006) *Modernising Nursing Careers: Setting the Direction*. Scottish Government Health Department, Edinburgh.

Shum C, Humphreys A, Wheeler D, Cochrane MA, Skoda S & Clement S (2000) Nurse management of patients with minor illnesses in general practice: multicentre, randomised controlled trial. *BMJ (Clinical research ed.)* **320**, 1038–1043.

Skillen DL, Anderson MC & Knight CL (2001) The created environment for physical assessment by case managers. *Western Journal of Nursing Research* **23**, 72–89.

Snelgrove S & Hughes D (2000) Interprofessional relations between doctors and nurses: perspectives from South Wales. *Journal of Advanced Nursing* **31**, 661–667.

Tye CC & Ross FM (2000) Blurring boundaries: professional perspectives of the emergency nurse practitioner role in a major accident and emergency department. *Journal of Advanced Nursing* **31**, 1089–1096.

Wigfield A & Eccles JS (2000) Expectancy–Value Theory of Achievement Motivation. *Contemporary Educational Psychology* **25**, 68–81.

Willard C & Luker K (2007) Working with the team: strategies employed by hospital cancer nurse specialists to implement their role. *Journal of Clinical Nursing* **16**, 716–717.

Woods LP (1998) Implementing advanced practice: identifying the factors that facilitate and inhibit the process. *Journal of Clinical Nursing* **7**, 265–273.

Zangaro GA & Soeken KL (2007) A meta-analysis of studies of nurses' job satisfaction. *Research in Nursing and Health* **30**, 445–458.