Emergency nurses: Procedures performed and competence in practice

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Abstract

Introduction: Emergency nurses play an important role in identifying and managing critical illness. Thus, nurses’ competence in performing a range of functions is important. This study aimed to identify the procedures performed and associated competencies of emergency nurses.

Methods: A quantitative descriptive design was used and 403 questionnaires distributed to nurses working across 11 emergency departments in Ireland. Data were collected using a researcher developed questionnaire, measuring 119 nursing procedures and corresponding competency levels. A response rate of 53% (n = 214) was achieved.

Results: Results show that activities relating to diagnostic function were conducted most often, followed by activities relating to organisation and work role competencies. Within the helping role, planning patient care was indicated as a key activity. Identifying patient care priorities was conducted most often in the domain of effective management of rapidly changing situations. Activities performed least often were those associated with administering and monitoring therapeutic interventions. Nurses judged themselves to be most competent in diagnostic function. There was a statistically significant positive relationship between nurses level of perceived competence and...
Introduction

In Ireland approximately 1.2 million patients attend the Health Service Executive’s (HSE) emergency departments (EDs) each year which is an average of 3000 people per day (HSE, 2007). From a review of the international literature, it is known that emergency nurses’ play essential roles in ED functioning, often spending more time with individual patients than any other ED personnel (Schriver et al., 2003; Hudson and Marshall, 2008). Emergency nursing staff are available, easily accessible, knowledgeable and committed to providing care (Hickey, 1996). Being an emergency nurse calls for a heterogenic mix of clinical skills and knowledge blended with the ability and willingness to adapt to any given situation which may arise in the often very unpredictable environment of the ED (Tyrode, 1999, p. 11).

The report from the National Task Force on Medical Staffing in Ireland (Department of Health and Children (DoHC), 2003) noted the interdisciplinary relationship between medical and nursing staff, with the considerable ‘un-tapped’ potential of the nursing workforce which should be utilised more productively than at present (Kelleher Keane et al., 2008; Doyle et al., 2008). It is suggested that by investing in staff nurses through enhancing their clinical diagnostic and assessment skills, significant contribution could be made to the timely management of patients presenting to the ED. The introduction of the European Working Time Directive (EWTD) (Council of the European Union, 2004) has been a significant driver regarding the contribution of nursing to healthcare in Ireland. Compliance with the EWTD regulations requires all healthcare professionals to re-examine ways of working. Currently there is a dearth of information on the clinical skills that emergency nurse’s hold or their perceived competencies relating to skills, hence the impetus for this research.

Background

A literature search showed the paucity of research on the work of ED nurses. Specifically no research was sourced on the procedures performed or competencies of staff nurses in emergency care. One study described the procedures performed and education among advanced nurse practitioners in the emergency setting (Campo et al., 2008). This research also examined autonomy and perceived competence of nurse practitioners (n = 423). Procedures, education, level of independence and confidence were measured using the Activities and Procedures Instrument. Results indicated that all of the procedures listed on the questionnaire were being performed by participants. Furthermore, results indicated that the more often procedures were performed, the more confident the nurse practitioner was. Similar research by Meretoja et al. (2004a) compared staff nurses’ self-assessed perceptions of competence and the frequency of using competencies in a number of hospital work environments including the emergency/outpatient setting. The sample (n = 593) consisted of nurses working in a major Finnish university hospital. The instrument used was researcher developed and comprised of 73 items across seven categories which were derived from Benner’s work (Benner, 1984). Results illustrate that nurses considered themselves most competent in procedures included in the categories of ‘Managing Situations’, ‘Helping Role’ and ‘Diagnostic Functions’.

Bickley (2007) maintains that all nursing intervention should be based on a sound clinical assessment of the patient. It is thought that this is particularly valuable in the initiation of early intervention; potentially decreasing the patient’s length of stay in the ED. However, a literature review found that nurses often lack the required skills to undertake a complete clinical physical assessment (Adam, 2004; Higginson et al., 2004; Higginson and Jones, 2009; Marshburn et al., 2009).

Research undertaken by Tippins (2005) in a large London teaching hospital suggested that safe, but not always optimal care is provided by emergency nurses. Findings suggested that all ED nurses regardless of training and experience have some knowledge pertinent to identifying signs and symptoms of critical illness but often fail to respond effectively to clinical deterioration. Research by Church (2003) found that the fundamental failure of clinical staff to respond to a clinical deterioration in patients results in increased morbidity and mortality. The impact of ED intervention on morbidity and mortality was examined by Nguyen et al. (2000), in which 11% of patients (n = 9) who were initially accepted for intensive care were later admitted to general wards following ED interventions.

Within the domain of the helping role, nurses are involved in the holistic assessment of patients’ physical, psychosocial, emotional and spiritual needs. In addition, planning patient care and evaluating patient outcomes either with or without clinical care pathways are integral to the emergency nurses’ role.

As detailed earlier Meretoja et al. (2004a) undertook a study of 593 registered nurses working in 19 various hospital settings, including the emergency department in a major Finnish University Hospital. Results indicated that nurses were competent in performing activities across the following domains; Managing Situations, Helping Role and Diagnostic Functions. In a similar study Salonen et al. (2007) investigated the competence profiles of recently registered nurses working in intensive and emergency settings (n = 235). Data were collected using Meretoja’s Nurse Competence Scale (2004b). Findings revealed that age, length of experience and frequency of using skills correlated significantly with level of competence (Salonen et al., 2007). However, scores for skills and tasks in the categories of Ensuring Quality and Therapeutic Interventions were identified as only ‘rather good.’ Although competence and
confidence may differ in definition, according to Campo et al. (2008) having confidence and working competently in practice empowers nurses to independently make decisions and implement a plan of care that ensures timely patient care. There has been recent focus on the expansion of work role competencies within nursing both in the UK and Ireland (Department of Health and Royal College of Nursing, 2003; National Council for the Professional Development of Nursing and Midwifery, 2008). A recent Irish survey by Griffin and Melby (2006) identified a number of benefits of an advanced role for nurses working in the ED including reduced waiting times, improved continuity and consistency of care, and enhanced cost-effectiveness. Henrik and Kerstin (2009, p. 305), in a Swedish study, identify ‘a need to establish competence demands in ED nursing and evaluate strategies for competence development.’

In summary it can be seen that there is a paucity of research outlining the skills and competencies required by emergency nurses. More research is necessary to describe the procedures performed by emergency nurses and evaluate their corresponding self-assessed competency levels. Against this background the following section describes a method to address this gap.

Aim

To investigate procedures performed and competency levels of nurses working in Emergency Departments in the South of Ireland. A secondary aim was to explore the relationship between procedures performed and competency levels.

Methods

Instrument

The instrument for this study was adapted from the Activities and Procedures Instrument used in ‘Nurse Practitioners Performing Procedures with Confidence and Independence in the Emergency Care Setting’ by Campo et al. (2008) which was adapted from the original work of Cole and Ramirez (2000). Additional items were added from the ‘Nurse Competence Scale’ (Meretoja et al., 2004b) and procedures were categorised under the headings of Benner’s domain categories as described by Meretoja et al. (2004b); Diagnostic Function, Administering and Monitoring Therapeutic Interventions, Effective Management of Rapidly Changing Situations, Organisational and Work Role Competencies and The Helping Role. Skills on the procedures listed encompassed both the technical and psychosocial aspects of emergency nursing based on recommendations by the Emergency Nurses Association (ENA) (2008) and following a review of other pertinent literature (Benner, 1984; Campo et al., 2008; Cole and Ramirez, 2000; Meretoja et al., 2004a,b; Proehl, 2009). Twenty-two nursing activities were also added to the existing instrument based on procedures listed as elements of emergency nursing practice by Proehl (2009). In the questionnaire participants were asked to rate 119 procedures according to the frequency and level of self-assessed competency. A rating scale from 1 to 4 was used to measure items on the competency scale. Scores were then transformed to allow for a theoretical range from 0 (totally incompetent) to 100 (perfectly competent) to be calculated (Meretoja et al., 2004a,b). For the frequency of activates scale each items was measured on a Likert scale where 1 = ''Never'', 2 = ''Seldom'', 3 = ''Sometimes'' and 4 = ''Often''. As a result, a score of 1 would mean low frequency of practice and 4 a high engagement in that practice. Therefore, the higher the number, the more frequently the practices were performed.

Cronbach alpha’s were obtained for both the competency and frequency of practice scales at a desirable level (0.98, 0.94). Content validity was established using two previously validated instruments by Meretoja et al. (2004a,b) and Campo et al. (2008). The instrument for this study was also reviewed by a panel of experts from ED practice and education who modified it for the Irish Setting. The modified combined questionnaire was then pilot tested and additional changes made to content based on feedback.

Sample and setting

A convenient, non-random sample was recruited. All nurses working in the emergency departments of 11 hospitals throughout the South of Ireland were invited to participate. The 11 sites were diverse and sizes ranged from a 1000 bed tertiary referral hospital to a small 72 bed rural hospital. As a result attendance rates vary from approx. 58,000 for the larger sites to 6500 per annum in the smaller EDs. All EDs are staffed by registered general nurses with a Clinical Nurse Manager in charge and staffing levels vary greatly in accordance with ED size. For data collection purposes a study facilitator was assigned in each ED, they were responsible for encouraging fellow nurses to participate in the study and for collecting the completed questionnaires in person. Reminder posters were also displayed in the staff areas to improve response rates. In total, 403 questionnaires were distributed by the facilitators in each site. Following a period of one month 214 completed questionnaires were returned (response rate 53%).

Data analysis

Data were analysed using the Statistical Package for Social Scientists (SPSS). Descriptive statistics were used to describe and summarise sample data. Pearson’s Moment Correlation Coefficient was used to depict the relationship between competency and frequency of practice. Analysis of variance (ANOVA) was used to explore the difference between groups in terms of year qualified/years registered and competency levels.

Results

Demographic profile

Table 1 outlines the demographic characteristics of participants. The typical respondent was female (90%, n = 192), between 31–40 years of age (47%, n = 100), and a staff nurse (73%, n = 157). 35% (n = 74) were registered for between 11 and 20 years, though slightly less (27%, n = 57) had 11–20 years ED experience.
Participants were fairly well educated. The highest qualification achieved was a PhD represented by 0.5% of the sample \( n = 1 \). Only 7.5% \( n = 16 \) had a Master’s degree, 40% \( n = 85 \) held a Bachelor’s Degree, 47% \( n = 101 \) held Postgraduate Diplomas in emergency nursing.

### Frequency of activities performed

For each of the 119 activities, participants were asked how frequently they engaged in each procedure using the following categories: never, seldom, sometimes, and often. Activities engaged in 'often' are presented in Table 2. It is evident that emergency nurses were involved in a wide range of activities across Benner’s five domain categories of practice. Mean frequency scores across the five domain categories are presented in Table 3. Activities undertaken 'often' were represented in the following categories; Diagnostic Function, Organisation and Workload Competencies and The Helping Role (mean frequency scores ranged from 3.03 to 3.59). Activities performed less often were those which related to the Effective Management of Rapidly Changing Situations and Administering and Monitoring Therapeutic Interventions (mean frequency scores ranged from 2.53 to 2.57).
55. Insert nasal packing (n = 18)
56. Incise and drain a skin abscess (n = 15)
57. Take ABG (n = 15)
58. Debride burns (n = 12)
59. Male Urethral Catheterisation (n = 11)
60. Deep layered wound suturing (n = 10)
61. Remove Vaginal foreign body (n = 2)

**Effective Management of Rapidly Changing Situations**
62. Seek assistance with care of patient who is deteriorating rapidly (n = 133)
63. Screen for and refer cases of alcohol abuse (n = 93)
64. Adapt patient decisions according to circumstances (n = 90)
65. Screen for and refer cases of drug abuse (n = 76)
66. Use ALERT system (n = 73)
67. Perform manual defibrillation (n = 70)
68. Administer cardiac arrest drugs (n = 68)
69. Stabilise and transfer serious ill patient (n = 63)
70. Manage adult cardiac arrest (n = 57)
71. Administer thrombolytic infusion (n = 57)
72. Management of ventilated patients (n = 56)
73. Initiate cardiac pacing (n = 56)
74. Initial management of ENT emergency (n = 37)
75. Rapid Sequence Induction (n = 31)
76. Manage patient with major burns (n = 26)
77. Manage child cardiac arrest (n = 13)
78. Manage patient post sexual assault (n = 4)
79. Assessment and initial management of multiple trauma patient (n = 52)
80. Manage emergency child birth (n = 1)

**Organisational and Work Load Competencies**
81. Work as part of the interdisciplinary team (n = 186)
82. Communicate effectively with colleagues (n = 181)
83. Maintain awareness of own limitation (n = 172)
84. Ensure informed consent (n = 141)
85. Teach junior nursing colleagues (n = 135)
86. Maintain and improve professional skills (n = 133)
87. Coordinate overall patient care (n = 145)
88. Give constructive feedback to colleagues (n = 127)
89. Support nursing students (n = 126)
90. Coach others (n = 109)
91. Recognise colleagues need for help and support (n = 123)
92. Use of IT (n = 120)
93. Telephone advise (n = 117)
94. Delegate tasks (n = 109)
95. Identify patient care priorities (n = 105)
96. Using nursing research findings (n = 87)
97. Write and file incident report forms (n = 78)
98. Use clinical care pathway (n = 72)
99. Teach junior doctors (n = 66)
100. Developing nursing ethos (n = 65)
101. Write clinical care pathways (n = 40)
102. Write and file medication error reports (n = 38)

**The Helping Role**
103. Plan patient care (n = 158)
104. Conduct holistic assessment (n = 140)

**Table 2 (continued)**
105. Use ethical principles to guide decision making (n = 137)
106. Evaluate care outcomes with team (n = 118)
107. Evaluate care outcomes with pt (n = 127)
108. Coordinate multi-disciplinary teams nursing activities (n = 113)
109. Evaluate care outcomes with family (n = 105)
110. Support patient coping strategies (n = 100)
111. Modify care plans according to patient’s needs (n = 93)
112. Identify pt care needing development and research (n = 48)
113. Act autonomously in guiding family members (n = 93)
114. Manage family post sudden bereavement (n = 90)
115. Screen for and manage cases of partner abuse (n = 41)
116. Screen for and manage cases of domestic violence (n = 36)
117. Screen for and manage cases of elder abuse (n = 32)
118. Screen for and manage cases of child abuse (n = 29)
119. Manage family post SIDS (n = 13)

**Competency in activities performed**

In a similar manner to Meretoja et al. (2004a,b) an overall competence score was calculated as the mean score of the average competencies assessed for the five competence domain categories. As a whole, participants reported good levels of competence (mean = 73.35). However, this contained some variation, with a low mean score of 67.53 for Administering and Monitoring Therapeutic Interventions and a high mean score of 80.73 for Diagnostic Function.

**Competence in practice and frequency of engagement**

The relationship between competence in practice and frequency of procedures performed was calculated using Pearson’s correlation coefficient. There was a statistically significant positive relationship between nurses level of perceived competence and the frequency of practice (r = .651, n = 214, p < 0.01).

**Competence in practice and years’ experience**

A one-way between groups analysis of variance was conducted to explore the impact of years registered on competence levels. Participants were divided into five groups: Group 1: <1 year registered, Group 2: between 2 and 5 years, Group 3: between 6 and 10 years, Group 4: 11–20 years and finally Group 5: >21 years’ registered. There was a statistically significant difference between groups. Post-hoc comparisons using Tukey HSD test indicated that the mean score for Group 2 was significantly different from Groups 3 (p = 0.019) and 4 (p = 0.00), and Group 4 was significantly different to Group 5 (p = 0.07). The lowest mean scores were in Group 1 (mean 59.0) and the highest were in Group 4 (mean 77.1). When the same test was repeated for Years ED nursing, results indicated that there was also a statistically significant difference between the five groups, again the same categorisation of years applied. The mean score
for Group 1 was significantly different to Group 2 (p = .001), Group 2 (p = .000), Group 3 (p = .000) and Group 4 (p = .000), but not Group 5. There was also a significant difference between Group 2 and 3 (p = .003) and Groups 3 and 5 (p = .037). The highest mean competency score was noted in Group 3 (mean 77.9) i.e. those with between 6 and 10 years’ experience in the ED. The lowest mean score (mean 60.5) was observed in Group 1 (<1 years’ experience in the ED).

**Diagnostic function**

On average, staff in the emergency departments were engaging in activities in the category of ‘Diagnostic Function’ often (M = 3.59). Mean competency scores were also highest within this category (M = 80.73). Of interest, 173 (82%) participants stated that they undertook triage often with 103 (49%) rating themselves as extremely competent and 77 (36%) as competent. In terms of neurological assessment, 188 (88%) of staff used the Glasgow Coma Scale often and 119 (56%) ranked themselves as extremely competent, 77 (36%) as competent. The activity engaged in most often in this category was attaching ECG leads (n = 197), with over 90% (n = 203) either competent or extremely competent. The least often performed procedure was auscultating heart sounds (n = 21) and 50% (n = 103) indicated that they were not competent in this area.

**Organisational and work role competencies**

In all categories of ‘Organisational and Work Role Competencies’, participants rated their competency levels high with mean competencies scores ranging above 79. Similar to ‘Diagnostic Function’ mean frequency scores were noted to be high (M = 3.42). Despite over 50% of the sample indicating that they were competent in writing and filing medication error reports this procedure was seldom performed 45% (n = 89). Working as part of the interdisciplinary team was, as expected, performed often (94%, n = 186) and 90% (n = 102) were competent in this area.

**The helping role**

Under the ‘Helping Role’ category, participants rated themselves overall as competent to extremely competent in many areas, from acting autonomously in guiding family members to evaluating care outcome with patients (M = 71.76). Mean frequency of practice was high (3.03) i.e. nurses performed activities relating to the helping role often. Emergency nurses perceived themselves least competent in the management of family members post sudden infant death (SIDS) and 71 (36%) stated that they never engaged in this activity. Fewer than 18 (10%) rated themselves as extremely competent. Conversely, 91% (n = 176) described themselves as competent in planning patient care.

**Discussion**

**Procedures performed**

One of the aims of this research was to explore the procedures performed by nurses working in the ED in the South of Ireland. It is evident from the results that a range of procedures are being performed and while most could be described as basic general nursing activities, others are described by Campo et al. (2008) as advanced practice procedures. For example procedures such as interpret ABG, insert nasal packing, pack wounds, perform staple closure, perform 12 lead ECG, incise and drain abscess,
manage an adult in cardiac arrest, apply cast to extremities are performed regularly by advanced practice nurses in America (Campo et al., 2008). This suggests that there are certain activities which some nurses in emergency departments in the South of Ireland are performing at advanced practice level, devoid of recognition. This is an issue that needs to be addressed and clear boundaries between general nurses and advanced practice nurses, in terms of procedures performed, is required. According to the results presented procedures engaged in most often by nurses working in ED are categorised under ‘Diagnostic function’ and this is in line with the very nature of an ED. Surprisingly, nurses appear to be less often involved in procedures relating to ‘administering and monitoring therapeutic interventions’. Certain procedures within this category such as interpreting arterial blood gases were conducted by very few nurses (n = 23) on a regular basis. Coombs (2001) states that ABG interpretation provides vital information on the status of individuals and provides reference terms for ventilation and oxygenation. Result of these tests can determine clinical pathways for patients; consequently the ability of an emergency nurse to interpret a patient’s ABG and subsequent oxygen delivery is essential. However, it may be justifiably argued that few nurses are involved in this procedure as it is indeed an advanced practice skill.

Norris and Melby (2006) support this claim stating that taking and interpreting ABGs is a skill which is more appropriate for advanced nurse practitioners to perform. Furthermore their research demonstrated that 97.5% (n = 77) of the nurses surveyed indicated that IV cannulation should be performed by advanced practitioners. Results from this study revealed that over 70% (n = 151) of nurses in emergency departments in the South of Ireland perform this procedure often.

Competency in practice

The second aim was to investigate the competency levels of nurses in the ED. This study has demonstrated that emergency nurses are most competent in the area of diagnostic function. This includes physiological assessment and triage. Similar findings were reported by Meretoja et al. (2004a). However, slightly higher competency scores were reported in this study across the helping role, diagnostic function, workload competencies and administering and monitoring therapeutic intervention compared with emergency nurses (n = 126) in Finland. Conversely, emergency nurses in Finland reported higher competency levels in the area of ‘managing situations’.

Recognising physiological signs of deterioration is fundamental to patient outcomes. As highlighted earlier by Church (2003) the fundamental failure of clinical staff to respond to a clinical deterioration in patient results in an increase in the incidence of morbidity and mortality. This phenomenon is known as ‘failure to rescue’ (Schmid et al., 2007). Competency levels in the domain ‘effective management of rapidly changing situations’ were only moderate in this study.

Procedures performed and competency levels

The final aim of this study was to explore the relationship between the frequency of procedure performed and competence in practice. The results of Campo’s work suggest that the more frequently the procedures were performed, the more confident and independently the NP performed the procedures. Comparable results were echoed by Meretoja et al. (2004a,b), the only other study sourced which explored this relationship among ED nurses. The results of these studies are reflected in the findings of this study by the statistically significant positive correlations between competence and frequency of practice among nurses working across ED’s in the Republic of Ireland.

Conclusion

It is evident from this study that nurses are performing a vast amount of procedures and at varying levels of expertise. Kelleher Keane et al. (2008) argue the nurses in emergency departments should be utilised more productively and that there is ‘untapped potential’, this study has provided evidence to the contrary. A bigger issue is determining the boundaries between standard and advanced practice role among emergency nurses.

Gaining a better understanding of the type of procedures performed and competency in practice among emergency nurses is essential to build a foundation for the contemporary emergency nurse in today’s healthcare setting. This research provides relevant information on the current role and competencies of ED nurses in Ireland. Clinicians and nurse educators must collaborate to establish models for clinical education that take into account current health and education reforms.

Ethical approval

Ethical approval to conduct the study was granted from the Clinical Research Ethics Committee of the Cork Teaching Hospitals.

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