The trauma nurse coordinator in England: a survey of demographics, roles and resources

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ABSTRACT

Introduction: Following the introduction of the regional trauma system in 2012 the role of the trauma nurse coordinator (TNC) has been rolled out. This study aims to determine the demographic and practice profile of nurses performing the TNC role in England.

Methods: An electronic survey of TNCs across the 18 trauma networks in England was conducted.

Results: Fifty-three TNCs responded (62%) to the survey. Seventeen different role titles identified. The majority of TNCs had an emergency or trauma/orthopaedics clinical background. The largest proportion of time spent was clinical (38%). Least amount of time was spent in the education (7%), and research (3%). Nearly a quarter of respondents (23%) had some form of formal research training, nearly half (47%) were assisting others in research. Over half (55%) of respondents felt that they did not have adequate human resources to conduct their role.

Discussion: This research has provided baseline information about nurses in the role of TNC, their role titles and domains of the role 18 months after the formal introduction of trauma networks in England. There are some marked similarities and differences in the time spent in the different domains of the role between these findings and those published internationally.

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1. Background

The trauma nurse coordinator (TNC) role has existed in England since the 1990s, but was introduced across the country in conjunction with the introduction of nationwide regional trauma systems in 2012 (Department of Health, 2012; Vondy and Willett, 2011). TNCs are essential to a successful trauma service (Curtis and Leonard, 2012). Trauma care encompasses a wide variety of nursing specialties ranging from injury prevention, emergency, perioperative, intensive care, high-dependency and ward through rehabilitation. Trauma nurses include bedside clinicians, educators, researchers, administrators, clinical nurse specialists and nurse practitioners (Society of Trauma Nurses, 2003). However the TNC has knowledge and expertise in the complex care required of the traumatically injured patient throughout the span of the trauma episode (Curtis et al., 2012) and facilitates the coordination of care (Royal College of Surgeons of England – The Intercollegiate Group on Trauma Standards, 2009). Internationally, the role also includes the evaluation and improvement of trauma education, quality improvement, outreach and research (Curtis and Leonard, 2012). The American College of Surgeons describe the trauma program manager (or TNC) as “fundamental to the development, implementation, and evaluation of the trauma program” (American College of Surgeons Committee on Trauma, 2014, chap. 5, p. 9). DeKeyster et al. (1993) refer to the TNC as: “the stabilizing force in the trauma multidisciplinary team, a resource to staff, a role model for excellence in practice, and a patient advocate” (p. 56).

Given the recent rollout of the TNC role across England and a lack of national guidance about the role there is little understanding about how the role has developed or is configured within the different major trauma centres (MTCs) and trauma units (TUs). This descriptive study aims to determine the demographic and practice profile of nurses performing the trauma nurse coordinator (TNC) role in England. The study will identify common and differing role components; provide information to assist with establishing national parameters for the role and identify the resources perceived necessary to enable the role to be performed effectively.
2. Aim

To generate an initial profile of the demographics and current practice of trauma care coordinators in England investigating their role and available resources.

3. Methods

3.1. Design

An electronic survey of nurses employed as TNCs in major trauma centre (MTC) and trauma units (TU) across the 18 trauma networks in England was conducted investigating their role and available resources.

3.2. Instrument

A six section electronic survey using REDCAP (Harris et al., 2009) was conducted. REDCAP is an independently run online survey tool. The survey is a modification of international questionnaires in the same topic area (Curtis and Leonard, 2012; Gantt et al., 1996), and took approximately 15 minutes to complete. Modifications included changing wording and nomenclature to reflect practice and job titles in England. Response options consisted of a combination of closed “tick box”, entering of numerical values by the respondent and free text (for comments to expand on tick box or numerical data). Participants could not be identified from the responses.

The first section of the survey consisted of nine demographic questions, including nursing experience, education level and whether they were employed full or part time. The second section included the amount of time dedicated to specific role functions such as administration, clinical activity, quality improvement, trauma registry, education, outreach and research. Respondents were asked to indicate the number of hours spent in an average week in each of the identified role functions. Section three asked whether the respondents use a trauma registry (i.e. TARN) and to what extent they are involved in its use. Section four enquired around the practice environment of the TNC and trauma service resources available at their institution, for example, if they had a full time director of trauma. This section also provided an opportunity for respondents to document what additional resources (if any) they felt were needed for them to provide an effective trauma service. Section five enquired what opportunity the TNC had for professional development in the past year, such as funded attendance at a trauma conference. The final section investigated research activity and any perceived barriers to conducting research.

3.3. Procedure

From February to August 2013, a TNC contact list was developed. A list of all MTC and TU was established and cross-referenced with the Trauma Audit Research Network (TARN) contact list. Each centre was then contacted by email or phone and the name and contact details of the TNC determined. This was further validated by disseminating the email via trauma centre managers. Several sites had multiple people with the role title TNC and all were included in the study.

Using the National Health Service Health Research Guidance framework (National Research Ethics Service, 2013), the survey was considered to be service evaluation in that it was designed and conducted to evaluate and measure a current service without reference to a standard. It was therefore approved within the hospital Trust as a service evaluation in September 2013. Following this approval a link to the survey was emailed with a cover letter explaining the purpose of the study to the 107 TNCs identified. The survey link remained active for 4 weeks, and reminders were sent at 2 and 3 week time intervals. Data were analysed in SPSS v21.0 (IBM, 2013). Descriptive statistics were conducted for each item. Twenty-one of 107 nurses on the list were excluded as they were out of office or not contactable.

4. Results

Fifty-three nurses responded (62%) to the survey. Five of the 18 trauma network regions were not represented. These were North Cumbria, North East London and Essex, South Cumbria, Sussex and South East London, Kent and Medway.

There were 17 different role titles identified. These ranged from major trauma clinical coordinator (23%), trauma case manager (4%), trauma nurse coordinator (45%), lead nurse for trauma (4%) and trauma nurse practitioner (6%). There were several nurses conducting the TNC role in conjunction with other roles such as A&E matron, spinal CNS and surgical care practitioner, and maintained their substantive role titles. The majority of TNCs had an emergency or trauma/orthopaedics clinical background. Thirty-four percent of respondents had post graduate university trauma related qualifications and over half (64%) of respondents reported working unpaid overtime (Table 1).

4.1. Role domains

The role domain with the largest proportion of time was clinical (39%). Clinical activities were defined as direct “hands-on” patient care including resuscitation in the ED. For example, talking to relatives, conducting a patient round and clinically reviewing a patient on the ward or in the ITU, referring patients to allied health or other medical or nursing specialties. The second most common role domain was Trauma Registry (19%) such as data collection for (TARN), data entry, injury scoring and report generation.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n = 53</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (median)</td>
<td>42 years [IQR: 34–48]</td>
</tr>
<tr>
<td>Female</td>
<td>83%</td>
</tr>
<tr>
<td>Place of work</td>
<td></td>
</tr>
<tr>
<td>Adult/children’s major trauma centre</td>
<td>23% (n = 12)</td>
</tr>
<tr>
<td>Adult major trauma centre</td>
<td>32% (n = 17)</td>
</tr>
<tr>
<td>Children’s major trauma centre</td>
<td>6% (n = 3)</td>
</tr>
<tr>
<td>Trauma unit</td>
<td>6% (n = 3)</td>
</tr>
<tr>
<td>Trauma network</td>
<td>6% (n = 3)</td>
</tr>
<tr>
<td>Years trauma related experience</td>
<td></td>
</tr>
<tr>
<td>&lt;1</td>
<td>6% (n = 3)</td>
</tr>
<tr>
<td>1–2</td>
<td>2% (n = 1)</td>
</tr>
<tr>
<td>2–5</td>
<td>8% (n = 4)</td>
</tr>
<tr>
<td>5–10</td>
<td>17% (n = 9)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>68% (n = 36)</td>
</tr>
<tr>
<td>Years in TNC role</td>
<td></td>
</tr>
<tr>
<td>&lt;1</td>
<td>25% (n = 13)</td>
</tr>
<tr>
<td>1–2</td>
<td>30% (n = 16)</td>
</tr>
<tr>
<td>2–5</td>
<td>17% (n = 9)</td>
</tr>
<tr>
<td>5–10</td>
<td>21% (n = 11)</td>
</tr>
<tr>
<td>&gt;10</td>
<td>8% (n = 4)</td>
</tr>
<tr>
<td>Specialty background</td>
<td></td>
</tr>
<tr>
<td>Critical care</td>
<td>6% (n = 3)</td>
</tr>
<tr>
<td>Emergency care</td>
<td>32% (n = 17)</td>
</tr>
<tr>
<td>Other*</td>
<td>15% (n = 8)</td>
</tr>
<tr>
<td>Surgery</td>
<td>6% (n = 3)</td>
</tr>
<tr>
<td>Trauma and orthopaedics</td>
<td>43% (n = 23)</td>
</tr>
<tr>
<td>Trauma related qualifications</td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>17% (n = 9)</td>
</tr>
<tr>
<td>Master’s</td>
<td>17% (n = 9)</td>
</tr>
<tr>
<td>Short course (e.g. TNCC)</td>
<td>22% (n = 12)</td>
</tr>
<tr>
<td>Paid hours in TNC role (median)</td>
<td>37.5 [IQR: 37.5–37.5]</td>
</tr>
<tr>
<td>Unpaid hours in TNC role (median)</td>
<td>3 [IQR: 0–6.5]</td>
</tr>
</tbody>
</table>

* Theatres, blood transfusion, physiotherapy.
Improvement, which includes identifying areas for system improvement, for example by reviewing patient care, defining and initiating strategies/policies to improve practice and performance related to trauma care and outcomes for trauma patients or attending trauma committee meetings, took 17% of TNC time followed by administrative tasks (13%). Administrative tasks included managing staff, rosters, ordering stock, answering phones, attending trust meetings and typing minutes. The least amount of time was spent in the Education (6%), such as the development and performance of formal in-service or informal bedside teaching of staff, tertiary teaching, patient and self education then Research (2%). Outreach, which includes community involvement and education, injury prevention programs or any other type of outreach program, accounted for 1% of the total hours (Fig. 1).

4.2. Trauma registry and use of data

Half (51%) of respondents stated they used a trauma database in addition to TARN. Only 9% of respondents reported that they collected data as part of their role, and indicated that the majority of data collection is undertaken by clerical staff (47%), a data manager (17%) or medical records staff (4%). However, 66% of respondents indicated they did some form of data entry and 53% performed trauma data reporting.

4.3. Resources

The majority of respondents had a trauma director (fulltime or part-time). The medical specialty background ranged from orthopaedic surgery (34%), emergency physician (21%), anaesthetics (9%), general surgery (6%), intensive care (4%). One site has an emergency nurse consultant as the trauma director (Table 2). Over half (55%) of respondents felt that they did not have adequate human resources to conduct their role. Of those who indicated which human resources they required, the majority required increased trauma nursing and clerical staff. Comments made in responses within the questionnaire included “we need more TNC resourcing so we can provide a 7 day a week service and improved coordination of care” and “an official TNC is required, I currently do this role on top of my current specialist role”. Another TNC wrote that they need cover for annual leave. Over half (58%) of respondents required additional physical resources. The predominant needs were office space (36%), a computer (28%) and a portable device for data collection and patient tracking (15%). “We have a shared office on the ward that is sometimes used by doctors and nursing staff on the ward.” “We don’t have an office or computer”.

4.4. Professional development and research

The majority of respondents (77%) had attended a trauma related conference or seminar in the past year and 49% as a presenter. The primary barrier for those that hadn’t presented at a conference was time constraints (Fig. 2). Other reasons included newness to the trauma role, for example “I’ve only just come into the role, maybe this is something that will come to me”. Of the 68% that received paid leave to attend, the average number of paid days was 3.7 days. More than one third (36%) of conference attendees did not receive any financial support to attend the conference.

Nearly a quarter of respondents (23%) had some form of formal research training (degree, university subject or short course), nearly half (47%) were assisting others in research (namely data collection) and 11% were leading their own research. 30% of respondents had published in the peer reviewed literature and the majority (77%) were interested in becoming more involved in research. Barriers to this are highlighted in Fig. 3.

5. Discussion

5.1. Title and role function

This research has provided baseline information about nurses in the role of TNC, their role titles and domains of the role 18 months after the formal introduction of trauma networks in England.

The data demonstrated that the TNCs in England have considerable experience with the majority of respondents having greater

### Table 2

<table>
<thead>
<tr>
<th>Role Title</th>
<th>Director F/T</th>
<th>Director P/T</th>
<th>Deputy director F/T</th>
<th>Deputy director P/T</th>
<th>Fellow</th>
<th>TNC F/T</th>
<th>TNC P/T</th>
<th>TCM F/T</th>
<th>TCM P/T</th>
<th>Clerical</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTC</td>
<td>33</td>
<td>46%</td>
<td>18%</td>
<td>18%</td>
<td>36%</td>
<td>79%</td>
<td>9%</td>
<td>27%</td>
<td>6%</td>
<td>67%</td>
</tr>
<tr>
<td>TU</td>
<td>17</td>
<td>35%</td>
<td>23%</td>
<td>12%</td>
<td>24%</td>
<td>53%</td>
<td>24%</td>
<td>0%</td>
<td>0%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Note: Three respondents did not complete this section.

1 Full time.
2 Part-time.
3 Trauma case Manager.
than 10 years in trauma management. Just under 55% have been in the TNC post for 2 years or less which may indicate an increase in these roles nationally following the introduction of regional trauma networks.

As with all new roles there are a plethora of titles and marked differences in roles and functions. These differences might be explained in part by the transition from previous models of working, where some hospitals employed trauma coordinators for specific units, to the model of trauma networks. It is not clear from our data whether the title of major trauma clinical coordinator (MTCC) is given to those who work in major trauma centres or is generic across units. It is hoped that the dissemination of this preliminary work will raise the profile of this essential but emerging role and establish a network for sharing resources such as policies. There is currently a lack of evidence for the benefit of these roles in the UK; however other international work has shown benefit in terms of improved patient outcome, such as reduced morbidity and hospital length of stay (Curtis et al., 2002, 2006; Sesperez et al., 2001). Consideration should be given to a national evaluation of the effectiveness, in terms of improvements in patient outcome and reduction of length of patient stay, of the TNC role in England.

There are some marked similarities and differences in the time spent in the different domains of the role between these findings and those published in internationally (Curtis and Leonard, 2012). TNCs in England spend a greater amount of their time engaged in clinical work (37%) and administration (13%) than colleagues in Australia and New Zealand (27% and 11%). This is reversed for performance improvement or quality (17%), education (7%), research (2.8%) and outreach (1.3%) compared with colleagues in Australia and New Zealand (23%, 13%, 10% and 5%).

5.2. Education and training of the TNCs

The survey identified that only 19% of TNCs were educated to Master’s degree level compared with 45% in Australia and New Zealand (Curtis and Leonard, 2012). The comparatively low rate of Master’s preparation may reflect the recent move to full undergraduate preparation for nursing in England (Nursing and Midwifery Council, 2010). Given the seniority and the complexity of the TNC role, preparation at Master’s level is desirable; however there is a lack of specific masters degree programmes specifically related to trauma in the UK. Trauma networks in England are still in their infancy compared with other international systems (Celso et al., 2006; Gabbe et al., 2011; Twijnstra et al., 2010). As the networks and role of the TNCs within the system mature, greater clarity around educational preparation for the role should emerge.

5.3. Professional development

The domains of education and research were given a small percentage of time overall in the TNC role. The reasons for this are multi factorial, whilst the overall attendance at professional meetings was high; contribution to scientific programmes was much lower at just under 50% with lack of time being highlighted as a significant factor. There were similar challenges reported with participation in and leading research. While nearly half of respondents were research active only a smaller percentage were leading research. The role of TNC provides a unique insight into the effective management of trauma. It is a data rich environment with significant opportunities for research and development. The role of TCM of been demonstrated to reduce morbidity (Curtis et al., 2006) in the current commissioning environment consideration should be given to provide sufficient focus on research. In addition a formalised TNC network could facilitate data sharing and the development of collaborative research.

5.4. Resources

A number of respondents identified a lack of human resource in terms of cover for TNC leave or to provide a 7 day a week service. In addition a lack of clerical and facilities support was identified with some TNCs reporting a lack of infrastructure in terms of access to desk space and computers. The role of the TNC is largely peripatetic, however given the role domains identified access to IT and a suitable place to work is essential. In comparison with TNCs in Australia and New Zealand, English TNCs reported spending less unpaid hours in the role (3 hours a week) than their international counterparts (6 hours a week) (Curtis and Leonard, 2012). With a formal evaluation of role, and critical exploration of time spent on administrative tasks that might be more effectively delivered by others, TNCs might be able to make an economic argument to adjust the time spent in different domains of their role to increase effectiveness.

5.5. Limitations

The database was constructed using an iterative process. All TNCs may not have been identified. As described previously, there were a number of ‘bounce backs’ using email addresses provided. The plethora of titles and differences in roles presented some challenges whilst building the database in identifying those who had responsibility for trauma coordination or case management. It is possible that we were not able to identify all nurses in the TNC role.

The traditional definition of the Trauma Nurse Coordinator involves all the domains previously identified. The survey was sent to multiple people at the same site. It is possible that whilst all of those who the survey was sent to are involved in the care of trauma patients, some may be providing the role of trauma case management (TCM) (Curtis et al., 2006), which has a predominantly clinical role, rather than the TNC role, which also encompasses oversight of trauma services.

6. Conclusion

This is the first survey in England to explore the role of trauma coordinators. Although the role has been established since the early 1990’s in some parts of the UK, the development of regional trauma networks has increased the focus on the importance of these roles. The role is developing across the country with some similarities in its main components. Consideration should be given to standardisation of title and core elements of the role which may improve communication between networks and hospitals and facilitate national evaluation of outcomes. Many TNCs across England
are currently under resourced; this may be due in part to the lack of evidence of the effectiveness of the role. Evidence that demonstrating the benefit of the role and potential impact on morbidity and mortality may strengthen the case for more resources. The positive response rate and subsequent discussions with a number of participants support the development of a formal network of UK TNCs to help develop and refine the role, share ideas and provide support for newly appointed individuals. We hope to repeat the survey in 12 months’ time to explore the maturation of the role within the relatively new trauma system in England.

Acknowledgement

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