



## The evaluation of a framework for measuring the non-technical ward round skills of final year nursing students: An observational study

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### ABSTRACT

**Background:** The importance of non-technical skills (NTS) to patient outcomes is increasingly being recognised, however, there is limited research into how such skills can be taught and evaluated in student nurses in relation to ward rounds.

**Objectives:** This pilot study describes an evaluation of a NTS framework that could potentially be used to measure ward round skills of student nurses.

**Design and Methods:** The study used an observational design. Potential key NTS were identified from existing literature and NTS taxonomies. The proposed framework was then used to evaluate whether the identified NTS were evident in a series of ward round simulations that final year general nursing students undertook as part of their training. Finally, the views of a small group of qualified nurse educators, qualified nurses and general nursing students were sought about whether the identified NTS were important and relevant to practice.

**Results:** The proposed NTS framework included seven categories: Communication, Decision Making, Situational Awareness, Teamwork and Task Management, Student Initiative and Responsiveness to Patient. All were rated as important and relevant to practice.

**Conclusion:** The pilot study suggests that the proposed NTS framework could be used as a means of evaluating student nurse competencies in respect of many non-technical skills required for a successful ward round. Further work is required to establish the validity of the framework in educational settings and to determine the extent to which it is of use in a non-simulated ward round setting.

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### 1. Introduction

Both analysis of critical events (Gawande et al., 2003) and observational studies (Atwal and Caldwell, 2006) suggest that non-technical skills (NTS), such as communication and teamwork, play an important role in determining patient outcomes. It has been argued that ward rounds present one of the main opportunities for nursing staff to influence patient care (see Hill, 2003), however they also present a series of complex and challenging tasks which require a high level of both technical and non-technical skills. There has been a recognition from research with various health staff professionals that NTS contribute to the overall quality of ward rounds (Department of Health, 2000) and that, in turn, ward round errors can result in poor patient outcome (e.g. Pucher et al., 2013).

NTS have been defined as:

"the cognitive (such as decision making and situation awareness), social, (such as communication, team working and leadership) and personal resource skills (such as coping with stress and fatigue)

that complement technical skills, and contribute to safe and efficient performance."

[(Flin et al., 2008, p. 1)]

There has been a growing interest in teaching NTS to a range of health professionals and there is evidence that such teaching can result in improved patient outcomes (e.g. Mazzocco et al., 2009; Neily et al., 2010; Pucher et al., 2014). There has, however, only been limited work exploring the measurement of such skills in nursing staff in general and nursing students in particular (e.g. Lewis et al., 2012; Pearson and McLafferty, 2011).

A recent review by Lewis et al. (2012) on the impact of simulation on the NTS of nursing staff concluded that simulation as an educational approach was related to significant increases in communication skills at patient handover; helped to facilitate important leadership skills and improved teamwork in a range of clinical settings. The authors, were, however, only able to identify 16 studies that met their criteria for review. The reviewed studies included both nursing staff and other health professionals and both qualified staff and students. In addition, the studies covered a range of different clinical environments including trauma, paediatric and obstetric services. This makes it difficult to

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identify the specific impact of educational interventions on nursing students alone and specifically in ward round settings. This is particularly important as it is recognised that in order to both teach and evaluate NTS in any given clinical setting, there is a need to first identify the NTS that are specific to that setting (Maran et al., 2013).

A further difficulty with generalizing the results of the review by Lewis et al. (2012) specifically to the NTS required in a ward round setting is that many of the reviewed studies only examined a single NTS, such as team-work or communication, rather than a range of NTS within the one research study. A ward round is a complex and dynamic context (O'Hare, 2008) which requires staff to draw on and display competence in a range of NTS. To begin to capture this dynamic process there is a need to measure a range of NTS, rather than focusing on individual skills in isolation.

In order to achieve this goal, a number of researchers have adapted the broad taxonomy of NTS which was first developed by Flin et al. (2008) to a range of contexts, including anaesthetics, surgery, and the resuscitation room (e.g. Andersen et al., 2010; Fletcher et al., 2003; Kim et al., 2006). Recently Harvey et al. (under review) developed an adapted framework to use to evaluate the ward round NTS of final year medical students. As yet, however, research has not established an NTS framework that can be used to evaluate the skills required by nursing students in order to successfully participate in a ward round.

Study aim: this pilot project, therefore, aimed to explore whether a NTS framework could be developed which was:

- seen as relevant to the clinical practice of nursing students during a ward round.
- could potentially be used to evaluate the NTS of students in educational and clinical settings.

The project represented a first step in the longer term aim of improving these ward round NTS in nursing students and staff.

## 2. Method

### 2.1. Ethics

Approval for the study was obtained from the second author's educational establishment.

### 2.2. Design and Procedure: Identifying Ward Round NTS and Developing a Framework

The pilot project had an observational (cohort) design i.e. the researchers did not implement an intervention but gathered data from participants in a pre-existing situation, in this case a cohort of final year nursing students in a ward round simulation.

Firstly, key literature and policy documents were reviewed to identify NTS that would be likely to be important and relevant to student nurses in a ward round setting. Flin et al. (2008) had previously developed a generic NTS framework, which had subsequently been adapted for use with a range of health professionals (e.g. Armour Forse et al., 2011). Harvey et al. (under review) also used this generic framework to develop a specific ward round NTS framework for medical students. This latter framework was used as a basis for developing the NTS ward round framework in the present project.

Two members of the project team utilised this framework when viewing recorded ward simulation sessions to identify possible ward round NTS that were relevant to nursing. Examples of each generic NTS category were noted. The final framework was then evaluated in terms of content validity as measured by the extent to which it was rated as relevant to clinical practice by education and qualified nursing staff and nursing students.

### 2.3. Design and Procedure: Ward Simulation

A ward simulation exercise was undertaken by approximately 200 Year 3 Adult field nursing students as part of their training at the participating university. Groups of students (on average 25 per group) were allocated to each 4 h simulation session. Detailed information about the students was not available, as this was not collected as the ward simulation represents part of their routine training, however, the student cohort was predominantly female. The sessions themselves adopted an intermediate fidelity approach, recognised in the literature to improve the students' knowledge and clinical skills (Alinier et al., 2006; Brannan and Bezanson, 2008).

The simulations involved a variety of learning challenges that reflected scenarios that the student would be likely to face in practice and were set within a medical admissions environment to foster the opportunity for multiple professional and interpersonal interactions and clinical skills to be rehearsed and modelled. This included opportunities to demonstrate care management, communication and organisational skills in a real time fluid situation as preparation for future professional practice.

Students were presented with a variety of simulated medical patients including those with respiratory problems, dementia, diabetes and Never Events such as an Addisonian crisis. Within the sessions the students role-played nurses, patients and relatives, supported by facilitators who role-played senior staff and other professional groups. As the exercise developed the staff responded to the students' actions, making each session unique to the group while addressing the session's learning outcomes.

The teaching sessions, which are routinely recorded as part of teaching practice, were reviewed by two members of the project team and used to evaluate whether the NTS skills which were included in the proposed NTS framework were displayed by the student nurses and appeared relevant to their practice. Following the recommendations of Hogan et al. (2012) the raters did not have a nursing background, as it was felt to be important to identify skills that related to general clinical care (NTS) rather than specialist nursing or technical issues.

### 2.4. Design and Procedure: Evaluating Content Validity

Three education staff, including two nurse educators, then reviewed the proposed framework to evaluate whether it appeared relevant to both the ward round context and student nurse population. Finally, a small group of second ( $n = 3$ ) and final year ( $n = 4$ ) adult general student nurses (1 male, 6 females, mean age = 29.6, SD = 7.6) and qualified nursing staff ( $n = 10$ , 3 males, 7 females, mean age = 43.3, SD = 8.8, mean number of years since qualification = 5.5, SD = 2.53) were asked to rate the proposed NTS framework on a 5 point scale (1 = not at all, 5 = very) in terms of how relevant and important each category of NTS was to nurses working on a ward round.

## 3. Results

### 3.1. Evaluating the NTS Framework

Following analysis of the ward simulation footage, the following categories from the original NTS framework developed by Flin et al. (2008) were retained as they were felt to reflect NTS that would be relevant to nursing students: Communication, Decision Making, Situational Awareness, Teamwork and Task Management. In addition, the two extra categories identified by Harvey et al. (under review) from work with medical students were included to reflect that the learners were student nurses rather than qualified staff (Student Initiative) and to reflect recommendations in recent UK policy documents such as the recent Berwick (2013), Francis (2013) and Keogh (2013) reports about the importance and fundamental need to listen to the feedback, views and needs of the patient (Responsiveness to Patient).

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