



Development of a post-simulation debriefing intervention to prepare nurses and nursing students to care for deteriorating patients

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ABSTRACT

To provide optimal care, nurses need to be prepared to recognize signs and symptoms of patient deterioration so they can obtain assistance from appropriate respondents and initiate rescue interventions when needed. In this paper, we describe the development of a post-simulation educational intervention aimed at improving nurses' and nursing students' recognition and response to patient deterioration. This intervention takes the form of a debriefing after a simulated patient deterioration experience.

Following the Medical Research Council's guidance on complex interventions, we reviewed empirical studies of existing educational interventions for content, teaching strategies, and outcomes, as well as for frameworks, theoretical underpinnings, and rationale. Based on those results, we reviewed theoretical literature (Tanner's clinical judgment model and Dewey's theory of experiential learning) that might inform our understanding of our intervention's intended effect (learning outcomes) and of the mechanisms by which the intervention could lead to it. Integrating results from the empirical and theoretical phases helped us define the new intervention's rationale and develop its components according to relevant standards of best practices. The resulting educational intervention, REsPoND, consists in a reflective debriefing after a patient deterioration simulation. It will be tested in an upcoming mixed methods study.

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Introduction

In the agenda for patient safety, there is a call to improve the quality of care for acutely ill hospitalized patients (Department of Health, 2009; National Institute for Health and Clinical Excellence, 2007; National Patient Safety Agency, 2007a; World Health Organization, 2008). Since McQuillan et al. (1998) evaluated the quality of care prior to admission to intensive care units in the UK, it has been acknowledged that suboptimal care may lead to patients experiencing avoidable adverse events such as intensive care unit admission, cardiac arrest, or death (McGloin et al., 1999; National Confidential Enquiry into Patient Outcome and Death, 2005; National Patient Safety Agency, 2007b).

Suboptimal care has been defined as the "failure to seek and provide appropriate and timely interventions to at risk patients" (Massey et al., 2008). It is linked to failure to recognize cues indicating that a patient is deteriorating (Quirke et al., 2011). Indeed, there is evidence that hospitalized patients are likely to exhibit signs of deterioration in the period preceding adverse events (Buist et al., 2004; Hodgetts et al., 2002; Kause et al., 2004). The National Institute for Health and Clinical Excellence (2007) recommended that tools to recognize deterioration take into account a set of objective and quantifiable indicators that refer to disturbances in physiological parameters. These recommendations were reiterated by the Royal College of Physicians (2012), and objective signs are typically included in early warning scores and other track and trigger systems (Smith et al., 2008a, 2008b). Additionally, nurses may identify patients at risk for adverse events by using non-quantifiable criteria such as respiratory, circulatory, neurological, or other symptoms (Cioffi et al., 2009; Gazarian et al., 2010). The subjective 'worried' criterion has been cited by nurses as the most

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frequent reason for seeking help for a deteriorating patient (Santiano et al., 2009).

Whatever the nature of these cues, nurses are expected to recognize them promptly so they can obtain assistance from appropriate respondents and initiate rescue interventions when needed (Department of Health, 2009; Odell et al., 2009). Nevertheless, nurses do not always monitor, document, or act upon these signs; this has been identified as a contributing factor in the failure to recognize patient deterioration (Ludikhuize et al., 2012; McQuillan et al., 1998; Odell et al., 2009; Tirkkonen et al., 2013). When track and trigger systems are available, research has shown that nurses do not use these tools in a consistent manner (Donohue and Endacott, 2010).

Therefore, there is consensus on the need to improve nurses' ability to assess and recognize signs and symptoms indicating that a patient is deteriorating, so they can respond promptly and appropriately (Department of Health, 2009; Liaw et al., 2011b; Odell et al., 2009). Nursing educators must answer the call by developing educational interventions that will enhance nurses' and nursing students' ability to recognize signs and symptoms and respond adequately in patient deterioration situations. This paper reports on the development of such an educational intervention, using the Medical Research Council (2008) guidance on complex interventions. This intervention takes the form of a debriefing after a simulated patient deterioration experience. It is based on theoretical and empirical knowledge from a clinical judgment model (Tanner, 2006), an experiential learning theory (Dewey, 1909/2007, 1938/1997), and standards of best practice regarding post-simulation debriefing (Decker et al., 2013).

Methods

According to the Medical Research Council (2008), interventions are complex when they consist of several interacting components, can be tailored, and require multiple and skilled behaviors from deliverers and recipients. The model describes how such an intervention should be developed, piloted for feasibility, evaluated, and implemented. In this paper, we report on the first of those steps.

The development step involves three interlinked phases: 1) identification of the evidence base for the intervention, 2) identification of an appropriate theory, and 3) modeling of the intervention's processes and outcomes. For the intervention reported here, a literature review on existing educational interventions to prepare nurses or nursing students for patient deterioration situations informed both phase 1 and phase 2. This review addressed the content of existing interventions; their teaching strategies; their frameworks, theoretical underpinnings, or rationale; and their outcomes. Phase 2 continued with the exploration of additional theoretical literature that could orient the understanding of the intervention's intended effect, namely to improve nurses' ability to identify and intervene in patient deterioration situations. Examination of learning theories that could explain mechanisms by which the intervention could lead to such learning outcomes was also part of phase 2. Finally, in phase 3, the integration of results from phase 1 and 2 allowed for definition of the intervention's theory, and relevant standards of best practice to make explicit the intervention's specific components.

Phase 1: reviewing existing interventions

Database search resulted in 19 primary papers published from 2002 to 2012 on existing educational interventions aimed at preparing nurses to recognize and respond to patient deterioration situations (detailed in Table 1). There were also two literature

reviews (Fisher and King, 2013; Liaw et al., 2011b) that covered parts of this literature.

The content of those interventions mainly revolved around assessment and intervention. Authors suggested a systematic approach to patient assessment (Gordon and Buckley, 2009), sometimes using the ABCDE mnemonic (airway, breathing, circulation, disorder, environment or exposure) (Fuhrmann et al., 2009; Gallagher and Traynor, 2012; Lewis, 2011; Liaw et al., 2011a; Smith et al., 2002), along with vital signs measurement (Mitchell et al., 2010). Such approaches are expected to help in recognizing signs and symptoms of deterioration, so they can be acted on with appropriate interventions. These interventions are defined according to best practices or clinical guidelines, such as algorithms from different healthcare organizations.

Other topics addressed in the reviewed interventions are communication and teamwork. The SBAR mnemonic (situation, background, assessment, recommendation) is proposed as a way to structure communication efficiently (Fuhrmann et al., 2009; Jacobson et al., 2010; Liaw et al., 2011a; Mitchell et al., 2010). Other teamwork abilities discussed appear to be inspired by non-technical skills in crisis management (Fletcher et al., 2002; Gaba et al., 1994). In some cases, the pathophysiology of clinical conditions associated with deterioration is also part of the educational interventions (Liaw et al., 2011a; Perkins and Kisiel, 2013).

This content is presented through an array of teaching strategies—reading, lectures, case studies, problem-based learning, skills practice—the most frequent strategy being simulation, with or without debriefing. In fact, all reviewed interventions involved at least one form of simulation, from low- to high-fidelity and from computer- to mannequin-based. The main argument for using simulation as a teaching strategy is that it exposes learners to rare clinical events in a realistic manner (Buykx et al., 2011; Fuhrmann et al., 2009; Lewis, 2011; Rice et al., 2009; Tait et al., 2008; Unsworth et al., 2012; Wehbe-Janek et al., 2012). It also represents a safe environment, where learners can make mistakes without threatening a real patient's safety (Fuhrmann et al., 2009; Schubert, 2012; Tait et al., 2008).

Nevertheless, authors rarely propose a theoretical understanding of how simulation can lead to learning outcomes. It is said to be aligned with adult learners' needs (Knowles et al., 2011), because it is an active, participatory, and experiential teaching strategy (Fuhrmann et al., 2009; Hoffman et al., 2011; Smith et al., 2002). However, experiential learning theories state that reflection on an experience is necessary for learning (Boud et al., 1985; Dewey, 1909/2007; Kolb, 1984). In the context of simulation, reflection occurs during debriefing, which follows most simulation exercises (Fanning and Gaba, 2007). Despite the importance of debriefing, there are few accounts of how it is conducted. When debriefing is addressed, it is described as an opportunity for learners to identify, by themselves or with the feedback of a trainer, strengths and weaknesses in their actions and those of their peers during the simulation, so they can identify ways to improve their performance in future similar experiences (Buykx et al., 2011; Schubert, 2012; Smith et al., 2002; Unsworth et al., 2012; Wehbe-Janek et al., 2012). In these contexts, debriefings appear more as performance assessments than as exercises in reflection. Thus, there seems to be a tacit postulate that exposure to a simulated clinical event will result in learning, since it is a training opportunity for skills in recognizing and responding to patient deterioration.

Most of these studies showed an increase in subjective self-assessments such as level of confidence, of knowledge, or of skills (Buckley and Gordon, 2011; Buykx et al., 2012; Featherstone et al., 2005; Fuhrmann et al., 2009; Gallagher and Traynor, 2012; Hoffman et al., 2011; Jacobson et al., 2010; Lewis, 2011; Perkins and Kisiel, 2013; Unsworth et al., 2012; Wehbe-Janek et al., 2012).

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