

Contribution of a debriefing after simulation to nursing students' clinical judgment regarding patient deterioration: a protocol



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Background

- Most in-hospital ICU admissions, cardiac arrests or deaths are preceded by **signs and symptoms** of deterioration¹⁻³
- Nurses **do not always monitor, document or act** upon these signs and symptoms⁴⁻¹²
- Failure to recognize those cues, to initiate proper interventions or to ask for assistance = **suboptimal care**
 - Suboptimal care may lead to patients experiencing **avoidable adverse events** when hospitalised^{5,13-17}
- A **call to prepare or assist nurses** to recognize and intervene in patient deterioration situations in order to prevent suboptimal care
 - Track and trigger systems¹⁸⁻¹⁹
 - Outreach, rapid response or medical emergency teams²⁰⁻²²
 - Educational interventions** that will contribute to the soundness of their **clinical judgment**^{8,23-24}
- Two **challenges**:
 - To **develop** such educational interventions
 - To **evaluate** their contributions to nurses' clinical judgment regarding patient deterioration

Our previous work regarding these challenges:

- Development of an educational intervention: **REsPoND**²⁵
 - Reflective debriefing after a Patient deterioration simulation
 - Developed from a literature review and the theoretical integration of a clinical judgment model²⁶ and an experiential learning theory²⁷⁻²⁸
 - A preliminary version was successfully piloted for feasibility²⁹
- Development of a **clinical judgment instrument**
 - Operationalization of the **clinical judgment model** through a **situation awareness** theory³⁰
 - Noticing** = **perception** of the elements in the environment
 - Clinical judgment** = **comprehension** of the elements' meaning
 - The new instrument is inspired by a situation awareness instrument³¹

Purpose

To evaluate the contribution of REsPoND to nursing student's clinical judgment regarding patient deterioration simulated experiences

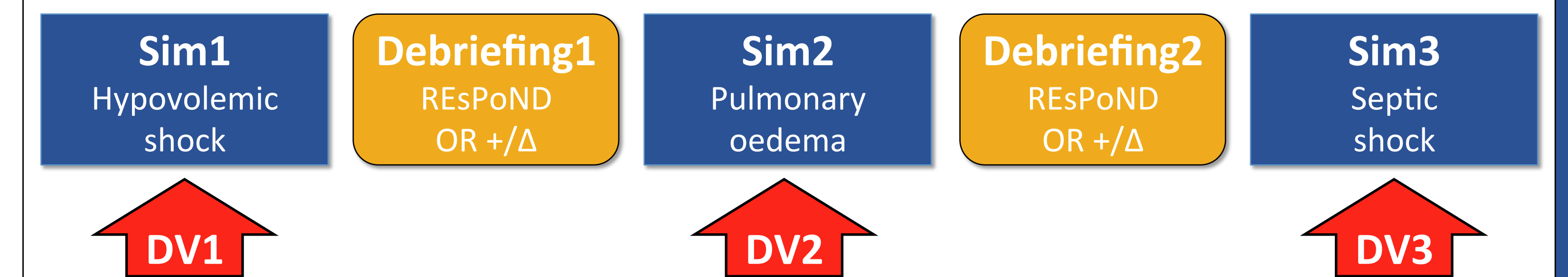
Protocol: a sequential explanatory mixed methods design³²

1 Clinical judgment instrument validation

- Literature review** on possible items to retain from a 12-items situation awareness instrument used in similar studies³¹
 - Measure for nursing students' in patient deterioration simulations
 - Selection and translation of 3/6 perception items, 1/2 comprehension item and 2/4 projection items (3 levels of situation awareness)
- Elaboration of **new items**
 - Perception: based on a literature review of clinical signs and symptoms of patient deterioration
 - Comprehension: selection of nursing diagnosis³³ corresponding to elements of the primary survey (ABCDE)³⁴
 - Projection: addition of items pertaining to the simulation scenarios and formulation of items based on a literature review
- Content validity index**³⁵
 - ≈ 8-12 critical care experts (nurses, physicians, educators)
 - Rating of the items' relevance, comprehensibility, exclusivity to measure clinical judgment
- Administration** to nursing students and critical care educators in a context similar to the one planned for the study
 - Calculation of the instrument's psychometrics
 - Construct validation by contrasted groups
 - Comments on the instrument's administration (influence on performance, clarity of explanation prior to administration)

2 Experimentation

- What is the debriefing's effect on nursing students' perception and comprehension of signs and symptoms of deterioration?*
- Nursing students** in an undergraduate critical care course ($n=185$)
 - Randomization** by simulation (SIM) groups
 - Independent variable: **debriefing interventions**
 - Experimental group: REsPoND
 - Control group: debriefing with the plus-delta technique³⁶ (+/Δ)
 - Dependant variables (DV): **clinical judgment** assessed by **situation awareness** instrument
 - Simulation is "frozen" during completion
 - Clinical data is unavailable during the freeze
 - H1: mean for **perception** and **comprehension** in the experimental group > control group
 - Exploration of differences in mean for each level of the instruments
 - Exploration of significant differences for each item in a level



3 Qualitative follow-up

- How do the elements of the reflective process in REsPoND foster (or not) those learning outcomes?*
- Individual interviews**
 - Interview guide developed from research questions and study's framework
 - Purposive sampling** of individuals based on quantitative results
 - Based on profiles of efficiency of REsPoND
 - Constant improvement, constant decrease, stagnation of scores...
 - Approximately 5 participants by profile
 - Thematic analysis**³⁷
 - Construction of a theme tree for each profile of efficiency

4 Integration

- How does REsPoND contribute to nursing students' clinical judgment in patient deterioration simulation?*
- Qualitative discussion** of quantitative results for each profile
 - Exploration of variations** in the theme trees of each profile
 - To appraise similitudes and differences between each profile's participants perceptions of REsPoND's contribution to their learning
 - Towards a **typology of REsPoND's efficiency profiles**
 - To be linked with the **study's framework**
 - Clinical judgment model
 - Experiential learning theory

[1] Buist, Bernard, Nguyen, Moore, & Anderson. (2004). Association between clinically abnormal observations and subsequent in-hospital mortality: A prospective study. *Resuscitation*, 62, 137-141. [2] Hodgetts, Kenward, Vlackonikolis, Payne, Castle, Crouch, et al. (2002). Incidence, location and reasons for avoidable in-hospital cardiac arrest in a district general hospital. *Resuscitation*, 54, 115-123. [3] Kause, Smith, Prytherch, Parr, Falbourn, & Hillman. (2004). A comparison of Antecedents to Cardiac Arrests, Deaths, and Emergency Intensive care Admissions in Australia and New Zealand, and the United Kingdom - The ACADEMIA study. *Resuscitation*, 62, 275-282. [4] McGloin, Adam, & Singer. (1999). Unexpected deaths and referrals to intensive care of patients on general wards. Are some cases potentially avoidable? *Journal of the Royal College of Physicians London*, 33, 255-259. [5] National Confidential Enquiry into Patient Outcome and Death (2005). *An acute problem?* London: NCEPOD. [6] Donohue & Endacott. (2010). Track, trigger and teamwork: communication of deterioration in acute medical and surgical wards. *Intensive and Critical Care Nursing*, 26(1), 10-17. [7] Ludikhuijze, Smorenburg, de Rooij, & de Jonge. (2012). Identification of deteriorating patients on general wards: Measurement of vital parameters and potential effectiveness of the Modified Early Warning Score. *Journal of Critical Care*, 27, 424.e427-424.e413. [8] Odell, Victor, & Oliver. (2009). Nurses' role in detecting deterioration in ward patients: systematic literature review. *Journal of Advanced Nursing*, 65, 1992-2006. [9] Pantazopoulos, Tsioni, Koussouni, Papadimitriou, Johnson, & Xanthos. (2012). Factors influencing nurses' decisions to activate medical emergency teams. *Journal of Clinical Nursing*, 21, 2668-2678. [10] Tirkkonen, Yla-Mattila, Oikola, Huhtala, Tenhunen, & Hoppu. (2013). Factors associated with delayed activation of medical emergency team and excess mortality: An Utstein-style analysis. *Resuscitation*, 84, 173-178. [11] Wheatley. (2006). The nursing practice of taking level 1 patient observations. *Intensive and Critical Care Nursing*, 22, 115-121. [12] Zeitz & McCutcheon. (2006). Observations and vital signs: Ritual or vital for the monitoring of postoperative patients? *Applied Nursing Research*, 19, 204-211. [13] McQuillan, Pilkington, Allan, Taylor, Short, Morgan, et al. (1998). Confidential inquiry into quality of care before admission to intensive care. *British Medical Journal*, 316, 1853-1858. [14] McGloin, Adam, & Singer. (1999). Unexpected deaths and referrals to intensive care of patients on general wards. Are some cases potentially avoidable? *Journal of the Royal College of Physicians London*, 33, 255-259. [15] National Patient Safety Agency (2007a). *Safer care for the acutely ill patient: Learning from serious incidents*. London, UK: National Patient Safety Agency. [16] Massey, Aitken, & Wendy. (2008). What factors influence suboptimal ward care in the acutely ill ward patient? *Australian Critical Care*, 21, 127-140. [17] Quirk, Coombs, & McDowney. (2011). Suboptimal care of the acutely unwell ward patient: A concept analysis. *Journal of Advanced Nursing*, 67, 1834-1845. [18] Gao, McDonnell, Harrison, Moore, Adam, Daly, et al. (2007). Systematic review and evaluation of physiological track and trigger warning systems for identifying at-risk patients on the ward. *Intensive Care Medicine*, 33, 667-679. [19] Jansen & Cuthbertson. (2010). Detecting critical illness outside the ICU: The role of track and trigger systems. *Current Opinion in Critical Care*, 16, 184-190. [20] Chan, Jain, Nallmothu, Berg, & Sasson. (2010). Rapid response teams: A systematic review and meta-analysis. *Archives of Internal Medicine*, 170, 18-26. [21] Esmonde, McDonnell, Ball, Waskett, Morgan, Rashidian, et al. (2006). Investigating the effectiveness of critical care outreach services: A systematic review. *Intensive Care Medicine*, 32, 1713-1721. [22] Ranji, Auerbach, Hurd, O'Rourke, & Shojania. (2007). Effects of rapid response systems on clinical outcomes: systematic review and meta-analysis. *Journal of Hospital Medicine*, 2, 422-432. [23] Department of Health (2009). *Competencies for recognising and responding to acutely ill patients in hospital*. London: Her Majesty's Stationery Office. [24] Law, Scherpbier, Klein-Yobas, & Rethans. (2011). A review of education strategies to improve nurses' roles in recognizing and responding to deteriorating patients. *International Nursing Review*, 58, 296-303. [25] Lavoie, Pepin, & Cossette. (under review). Development of a post-simulation debriefing intervention to prepare nurses and nursing students to care for deteriorating patients. *Nurse Education Today*. [26] Tanner. (2006). Thinking like a nurse: A research-based model of clinical judgment in nursing. *Journal of Nursing Education*, 45, 204-211. [27] Dewey. (1997). *Experience and education*. New York, NY: Touchstone. (Original work published 1938). [28] Dewey. (2007). *How we think*. St. Louis, MO: Digireads.com. (Original work published 1909). [29] Lavoie, Pepin, & Boyer. (2013). Reflective debriefing to promote novice nurses' clinical judgment after high-fidelity clinical simulation: A pilot test. *Dynamics*, 24(4), 36-41. [30] Endsley. (2000). Theoretical underpinning of situation awareness: A critical review. In Endsley & Garland (ed.), *Situation awareness analysis and measurement* (p. 3-32). Mahwah, NJ: Lawrence Erlbaum. [31] Cooper, Cant, Porter, Missen, Sparkes, McConnell-Henry, et al. (2013). Managing patient deterioration: Assessing teamwork and individual performance. *Emergency Medicine Journal*, 30, 377-381. [32] Creswell & Plano Clark. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage. [33] MANDA International (2012). *MANDA International nursing diagnoses: Definitions & classifications 2012-2014*. Chichester, UK: Wiley-Blackwell. [34] Emergency Nurses Association (2007). *Trauma nursing core course (TNCC) provider manual* (6th ed.). Des Plaines, IL: Emergency Nurses Association. [35] Polit, Beck, & Owen. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health*, 30, 459-467. [36] Fanning & Gaba. (2007). The role of debriefing in simulation-based learning. *Simulation in Healthcare*, 2, 115-125. [37] Paillé & Mucchielli. (2012). *L'analyse qualitative en sciences humaines et sociales* (3^e ed.). Paris: Armand Colin.