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An interprofessional communication training using simulation to enhance safe care for a deteriorating patient☆

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SUMMARY

Background: Communication and teamwork between doctors and nurses are critical for optimal patient care. Simulation and interprofessional team learning are emerging as significant learning strategies to promote teamwork and communication between different health professionals.
Aim: The aim of the study is to describe the development, implementation and evaluation of a simulation-based interprofessional educational (Sim-IPE) program, using a presage–process–product (3P) model, for improving medical and nursing students' communication skills in caring of a patient with physiological deterioration.
Method: The program was conducted using full-scale simulation and communication strategies adapted from Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS). 127 medical and nursing students participated in a 3-hour small group interprofessional learning that incorporated simulation scenarios of deteriorating patients. Pre and post-tests were conducted to assess the students' self-confidence in interprofessional communication and perception in interprofessional learning. After the training, the students completed a satisfaction questionnaire.
Results: Both medicine and nursing groups demonstrated a significant improvement on post-test score from pre-test score for self-confidence ($p < .0001$) and perception ($p < .0001$) with no significant differences detected between the two groups. The participants were highly satisfied with their simulation learning.
Conclusion: The Sim-IPE has better prepared the medical and nursing students in communicating with one another in providing safe care for deteriorating patient. In addition, it has improved their perception towards interprofessional learning. This pre-registration interprofessional education could prepare them for more comprehensive interprofessional team learning at post-registration level.

Introduction

Effective teamwork and communication is an important aspect of patient safety. Poor communication has been identified as a cause of delay and poor team performance in the care of critically ill patients (Peebles et al., 2012; Andersen et al., 2010). Communication problems arising between doctors and nurses when seeking help for a deteriorating patient were commonly reported (Liaw et al., 2011a; Andrews and Waterman, 2005). Failure of communication, particularly those that result from inadequate handoffs between clinicians has been shown to be a common factor underlying adverse events (Bate and Gawande, 2003). A study by Peebles et al. (2012) reported the failure of doctors to relay critical information to nurses which contributes to delays in administration of treatment.

Interprofessional team learning to enhance teamwork and communication is increasingly recognized as a high priority for patient safety (Edwards and Siassakos, 2012; Robson, 2012). With the introduction of rapid response system (RRS) to improve care of ward patient with deteriorating conditions (Jones et al., 2011), an interprofessional team learning program in the recognition and management of critically ill patients is being provided in several acute care hospitals as part of continuing education. These programs are intended specifically for developing the clinical performance of qualified nurses and medical doctors on assessment and management of deteriorating patients (Fuhrmann et al., 2009; Mitchell et al., 2010). Improving these programs should include integrating team-based concepts from well-established curriculum such as Team Strategies and Tools to Enhance Performance and Patient safety (TeamSTEPPS) (Ferguson, 2008) or Crew Resource Management (CRM) (Robertson et al., 2009) to improve teamwork and communication skills. In addition, the opportunity for a brief and

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focused team training curricula on a specific healthcare activity should begin at pre-registration level for nursing and medical students to better prepare them for more comprehensive team training at post-registration continuing education levels (Thomas, 2011). A strong willingness to engage in interprofessional team learning at pre-registration training has been supported by previous studies (Bandali et al., 2012; Horsburgh et al., 2001). Masiello (2012) advocates the early exposure of non-technical skills through simulation-based training in the undergraduate curriculum.

Interprofessional education that reflects the authenticity of practice provides a powerful learning experience (Hammick et al., 2007). Simulation to promote interprofessional learning is being used in different clinical contexts including emergency medicine, operating theater, obstetrics and pediatrics. Their educational contents focus on intensive care delivery (Robertson et al., 2009; Falcone et al., 2008), resuscitation (Dagnone et al., 2008) and crisis resource management (Wallin et al., 2007). There are, however, limited reports of using interprofessional simulation learning specifically to enhance communication skills among medical and nursing students in providing safe care for a deteriorating patient in a simulated general ward setting. The purpose of this paper is to describe a simulation-based interprofessional educational (Sim-IPE) program that incorporated TeamSTEPPS communication strategies for undergraduates in nursing and medicine, and outline the curriculum model underpinning it.

Methods

The 3-P (presage–process–product) model of learning and teaching, originally devised by Biggs, was used as a conceptual framework for developing, delivering and evaluating the Sim-IPE program. Presage factors refer to the socio-political learning context and the characteristics of the developer, teaching staff and learners who participate in the educational experience. Process factors are regarded as approaches of planning and delivery of the educational experience and the product factors are known as outcomes of learning (Biggs, 1993).

Presage

Learning Contexts

At National University of Singapore (NUS), through an interprofessional education (IPE) steering committee, four academic units (Dentistry, Medicine, Nursing and Pharmacy) have launched an initiative to incorporate IPE into their respective undergraduate professional health programs. The committee identified and adopted a competency standard framework which comprises of six core competencies, namely: teamwork, roles & responsibilities, communication, learning/reflection, patient focus and ethics. Two platforms known as Interprofessional Core Curriculum (ICC) and IEA Interprofessional Enrichment Activities (IEA) were established for delivery of interprofessional learning activities. While the ICC Core is integrated into each academic unit's undergraduate curriculum and is mandatory, the IEA is outside curriculum time and requirements, and is optional. These two platforms were used for implementing the Sim-IPE program to resolve the timetabling problem. While the program was integrated into a third year undergraduate nursing module, it was conducted outside the fourth year medical curriculum hours. The program was therefore considered ICC for the third year nursing students and IEA for the fourth year medical students.

Program Developers

Four faculty staff (an advanced practice nurse, an anesthesiologist, a nursing lecturer and a physician) from various departments (nursing, medicine and anesthesiology) of NUS met to discuss the learning objectives for the Sim-IPE program that focused on interprofessional communication skills in clinical scenarios with deteriorating patients. All of them have at least ten years of clinical experience and three years of simulation experience. They had undergone formal training in simulation and IPE.

Learners

The Sim-IPE program was undertaken by third year nursing students and fourth year medical students. Prior to the program, both groups of students had undertaken simulation training on acute care in their respective courses but have not received formalized training on IPE.

Facilitators

Nursing and medicine facilitators were recruited from the academic and clinical settings. A two hour facilitator training session was conducted on the Sim-IPE program. A guide containing the learning objectives, lesson plan, description of scenarios and debriefing points were prepared for the facilitators. The training session began with a didactic slide presentation to provide an overview of the program and learners' backgrounds. This was followed by a discussion of the case scenarios at various stages of the simulation. The facilitators were brought to the simulation laboratory for orientation of the simulation set-up and a trial run for the simulation scenarios. The training was concluded with a debrief session of the trial run which highlighted the debriefing process and the critical points for debriefing.

Resources

The Sim-IPE program was conducted in a newly established Centre for Healthcare Simulation that resembled a hospital set-up. Four clinical wards equipped with audio-visual recording capabilities were used for running four concurrent simulation sessions. The program was conducted over two days with 16 repeated sessions of three hours each. Each session was supported by a simulation technologist who ran the software for the simulation. The program incorporated different types of simulation modalities including standardized patient and high-fidelity patient simulators. Four male standardized patients with age between 50 and 60 years old were recruited from the university's SP pool. They were trained to act as patients with sepsis by a standardized patient educator using a detailed script developed from the clinical scenario. There services were remunerated. The SimMan 3G (Laerdal) high-fidelity patient simulators were used to simulate patients in septic shock.

Process

Designing the Curriculum

The training in communication skills for caring of a deteriorating patient was selected for the focus of the learning contents. The communication strategies used for the program were adapted from TeamsTEPPS (Table 1) (Ferguson, 2008). Two clinical scenarios associated with sepsis and septic shock were developed by utilizing the same clinical case history of a post-operative patient who had undergone a surgery and had multiple medical conditions, and co-morbidities. While the first scenario modeled a ward round situation of a patient with sepsis conditions, the second scenario involved the same patient whose condition deteriorated into septic shock. Each scenario led the students to use the communication strategies as described in Table 1. Clinical findings and responses of the standardized patient and patient simulator were developed for each scenario.

Facilitating the Program

A description of the learning objectives and relevant pre-reading resources focusing on team strategies and tools were given to the learners. On the day of implementation, the students were placed into groups of 10 comprising of six to seven nursing students and two to three medical students. Each small group was led by a nursing and medicine facilitator. The learners took turn to be role players and observers. Each role player was given a specific role namely enrolled