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REVIEW ARTICLE

DAA-based IIT simulation model enhances the interprofessional collaboration and team efficiency competency of health professionals

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Abstract: One of the ten recommendations of the commission on education of health professionals for the twenty-first century is the "promotion of interprofessional education that breaks down professional silos while enhancing collaborative relationships in effective teams." Continuously, the increasing prevalence of patients with complex chronic health issues challenges the staff's training strategy of healthcare institution. To ensure patient safety, the collaborative involvement of a team of health professional is necessary to delivery care to patients with complex health conditions and social disadvantage. Integrated interprofessional collaboration and team efficiency (IIT) is a competency that can optimize the multiple professional skills to provide well-coordinated, high-quality, and patient-centered care. IIT-based training is a way to improve team-based care through positive shared learning activities in a nonthreatening environment to respond to patient's needs. The describe, analysis, application (DAA) diamond is a debriefing method that provides different health professionals with valuable learning experiences through communication. Using advocacy-inquiry approach, DAA-based IIT simulation offers an effective platform for training IIT. Including all disciplines in the DAA-based IIT simulation process reinforces the unique role/contribution of each team member and provides a mechanism for the team to talk together for system improvements. Actually, good clinical care requires practitioner's ability to effectively resolve stress and conflict, improve job satisfaction/wellbeing, and enhance quality and safety of patient care. In our institution, regular DAA-based IIT simulation courses were held at various divisions and had been proved to improve the safety and quality of healthcare.

Keywords: Diamond debrief; Interprofessional education; Simulation; Team efficiency

1. INTRODUCTION

In Taiwan, the institute for biotechonology and medicine industry is an organization for the certification of the safety and quality of healthcare system. In 2017, our describe, analysis, application (DAA)-based integrated interprofessional collaboration and team efficiency (IIT) simulation model for the training of IIT of health professionals[1,2] had pass the accreditation of symbol of national quality (SNQ). We will give a brief introduction to this model in the following sections.

2. WHY INTERPROFESSIONAL COLLABORATION?

Within increasingly complex healthcare system, partnership, cooperation, coordination, and shared decision making are important to increase team-efficiency and ensure quality of care delivery by multiprofessional team. In clinical setting, team-efficiency training simulation program involving interprofessional care giver has documented to decrease operative mortality.[3,4]

There is evidence that people's behavior during simulation mirror their actual performance and attitudes.[5] It had been reported that simulation scenario is an ideal tool to train and assess performance of trainees.[6–8] To date, the literature on simulation-based training of team-efficiency has focused on physicians rather than trainees of other professions. The landmark institute of medicine report *To Err is Human: Building a Safer Health System* stated that health care organizations should establish team-efficiency training program for all health professionals.[9] Interprofessional education and collaboration (IPC) aims to improve the coordination, communication, teamwork and leadership skills of health professionals by learning with, from, and about each other. It has been well established that teamwork and team-efficiency are the core elements for the successful IPC.[10,11]

3. WHAT IS IIT MEDICAL EDUCATION MODEL?

For holistic care of complex patients, mutual understanding of cross-disciplinary language and capacity need to be enhanced by training.[12] In addition, experience-based learning model suggested that learning outcomes are acquired through participating in creative activities.[13]

The function of multiprofessional healthcare team can be enhanced by smoothing team process with competencies of IPC and team-efficiency. The core elements of this competency are

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excellent partnership, cooperation, coordination, and shared decision making.[14] Implementation of team-training education was found to reduce surgical mortality by 18% in previous multicenter studies.[15] In addition to acquire knowledge and skills, trainee's performance can be modified by simulation-based training. So, multicenter simulation-based team-efficiency training program for operative teams showed that most of multiprofessional trainees reported that experience of simulation helped them to provide safer patient care.[16]

4. IPC-TE TEAM TRAINING IMPROVES THE SAFETY AND QUALITY OF HEALTHCARES

Baker et al.[17] reported that 2-hour cardiac resuscitation/intravenous access simulation-based inter-professional education (IPE) prepared medical students, nursing students, and junior medical residents for their future as practitioners. In their study, immediate attitudinal scores and responses by means of an Interdisciplinary Education Perception Scale survey were positively correlated among medical and nursing students.[17] Undre et al.[18] reported that using technical and human factors rating scales, trainers and multidisciplinary trainees assessed the crisis by scenarios-based simulation training particularly to improve their technical skills. Paige et al.[19] revealed that in a 3-hour simulation-based interdisciplinary operating room, IPE significantly improved the trainees' self-efficacy teamwork performance in role clarity, anticipatory response, cross monitoring, team cohesion, and interaction. In Vyas et al.[20] study, using the team building and interprofessional communications survey, pharmacy students reported that in semiurgent situations, simulation-based IPE increased their understanding of professional roles and the importance of interprofessional communication.

In Estis et al.[21] study, using an attitudinal survey, speech language pathology, cardio-respiratory care, nursing students reported that simulation-based IPE enhanced their knowledge of medical professional roles/responsibilities and teamwork skills of caring for tracheostomy patients with speaking valves. Nevertheless, participants in the Estis et al.[21] study suggested that presimulation training and more structural interaction during the debriefing phase were likely to enhance the effectiveness of the IPE. Specifically, Watters et al.[22] implemented a debrief diamond, following description-analysis-application steps, during a 1-day simulation IPE course.

5. WHAT IS DAA DEBRIEF EDUCATION MODEL?

The standardized debrief diamond was designed to allow high-quality exploration of the nontechnical aspects of a simulated scenario. The diamond is a two-sided prompt sheet: the first contains the scaffolding, with a series of constructed questions for each phase of the debriefing; while the second lays out the theory behind the questions and the process.[22,23] In Watters et al.[22] study, using self-efficacy questionnaires, doctors and nurses reported that diamond-based simulation increased their confidence in "communication and teamwork" skills. Darlow et al.[24] reported that addition of a preparation workshop to their 11-hour IPE program resulted in improved attitudes toward interprofessional teams and interprofessional learning, as well as self-reported ability to function within an interprofessional team. Debriefing can help a learner clarify and integrate the simulation experience with their previous knowledge. The debrief diamond encourages a standardized approach to high-quality debriefing across courses, which benefits both the participants and the involved faculty members. The DAA debrief diamond is related to various aspects of the advocacy-inquiry approach and of debriefing with good judgment (Fig. 1). The diamond provides an easy but pedagogically sound structure for facilitators to follow specific postsimulation feedback and discussion.

6. CONCLUSIONS

Taken together, in an attempt to ensure high-quality care delivery, the integrated IPC and team-efficiency intervention is a feasible and successful strategy for training multiprofessional trainees.

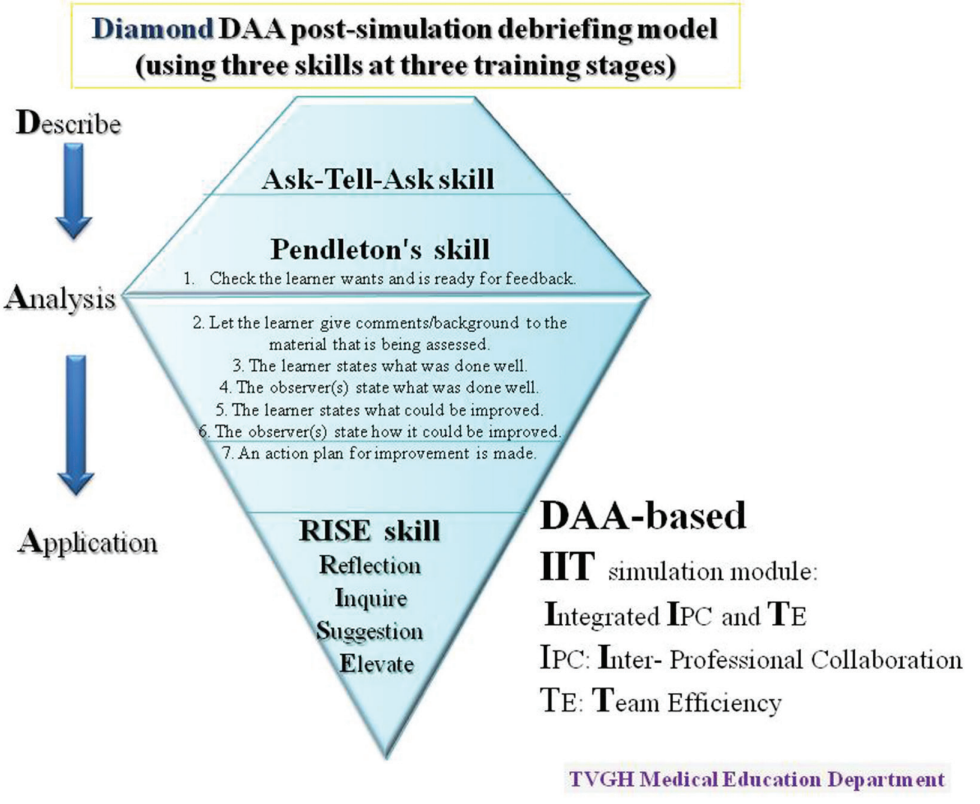

Fig. 1 Schematic representation of the DAA-based IIT simulation module for team-training to ensure safety and quality of patient care.

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