Twelve tips for a successful interprofessional team-based high-fidelity simulation education session

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Abstract

Simulation-based education allows experiential learning without risk to patients. Interprofessional education aims to provide opportunities to different professions for learning how to work effectively together. Interprofessional simulation-based education presents many challenges, including the logistics of setting up the session and providing effective feedback to participants with different backgrounds and mental models. This paper aims to provide educators with a series of practical and pedagogical tips for designing, implementing, assessing, and evaluating a successful interprofessional team-based simulation session. The paper is organized in the sequence that an educator might use in developing an interprofessional simulation-based education session. Collectively, this paper provides guidance from determining interprofessional learning objectives and curricular design to program evaluation. With a better understanding of the concepts and pedagogical methods underlying interprofessional education and simulation, educators will be able to create conditions for a unique educational experience where individuals learn with and from other specialties and professions in a controlled, safe environment.

Introduction

Simulation has become one of the major pillars of medical education (Cook et al. 2012), allowing for experiential learning, which enables learners to practice without risk to patients (Kolb et al. 2001). Learners can practice various tasks including procedural and complex cognitive skills in a simulated setting. Simulated learning transfers to the workplace (Bruppacher et al. 2010) and may enhance patient care (Riley et al. 2011; Phipps et al. 2012).

Interprofessional education (IPE) allows different professions to learn how to collaborate in an effective manner. Historically, healthcare has been taught within professional or sub-specialty silos, missing the opportunity to learn from team-based interactions that are intrinsic to actual clinical practice (D’amour & Oandasan 2005; Robertson & Bandali 2008). High-quality interprofessional care has been shown to contribute to improve staff morale, greater patient satisfaction, and may improve patient safety (Hogg et al. 2009; Zwarenstein et al. 2009).

In recent years, team-based simulation education has become an increasingly popular type of IPE (Reeves & van Schaik 2012) across a range of clinical contexts (Hammick et al. 2007; Undre et al. 2007; Cameron et al. 2009; Zwarenstein et al. 2009; Reeves et al. 2010; King et al. 2013). By re-creating clinical events in a simulated environment, professionals from a range of fields can experience working together in a way that will allow them to reflect on their typical collaborative practice (van Soeren et al. 2011). While growing, interprofessional simulation education is still relatively new, and there is limited literature available to guide simulation educators (Kohn et al. 2000; Bandali et al. 2008; Robertson & Bandali 2008; Reeves & van Schaik 2012).

The 12 tips presented in this paper are based on the available literature and the authors’ experience with the aim to provide educators with a range of practical and pedagogical tips for successful interprofessional team-based high-fidelity simulator sessions. These tips have been structured in a manner that an educator might use in developing, implementing, assessing, and evaluating an interprofessional simulation-based education session.

Tip 1

Focus on the ‘interprofessional’

Interprofessional simulated education requires significantly greater resources and coordination than simulation for a single profession. In order to justify this, it is essential to ensure that the learning objectives focus on enhancing interprofessional knowledge, behaviours, and attitudes (Zwarenstein et al. 2009) such as communication, coordination and leadership/followership. Interprofessional simulation education allows experiential learning, deeper understanding of each others’ roles,
and an awareness of the value of coordinated decision-making (Freeth & Reeves 2004; Robertson & Bandali 2008). Its goal is to ultimately foster collaborative teamwork and communication, which are fundamental aspects of safe and reliable patient care (Rodehorst et al. 2005). There are a number of interprofessional competency frameworks (e.g. Canadian Interprofessional Health Collaborative (CIHC), The Interprofessional Education Collaborative (IPEC) in the United States) that offer collaborative competencies that educators can now use in helping to guide learning.

**Tip 2**

Anticipate complex logistical challenges

While a range of logistical issues exist for profession-specific simulated education, when developing interprofessional simulated education, these issues become more pronounced. Complex logistic considerations, including scheduling (having learners from different professional groups available at the same time in the same place), finance (agreeing how to share different professional programs’ resources), and human resources (a higher number of interprofessional facilitators may be required than for single-professional debriefing) are potential significant barriers for both establishing curricula and implementing interprofessional simulation training (Baker et al. 2008; Reeves & van Schaik 2012). Eliciting institutional support from educational and clinical managers may reduce these difficulties. The institutional leaders can help you to create or use existing opportunities such as mandatory training times to help recruit all interprofessional healthcare learners who may find it difficult to attend at other times due to service commitments. For example, in our institution (SB, DB), there is one hour per week dedicated to perioperative healthcare professionals education; this allows us to offer a range of new interprofessional simulation learning experiences.

**Tip 3**

Find your interprofessional simulation ‘champions’

Identifying and approaching local interprofessional ‘change agents’ or ‘champions’ from each profession is imperative to interprofessional simulation (D’amour & Oandasan 2005). Champions from each profession are extremely important for interprofessional simulation learning – more so than for other types of learning activities, as there can be widespread anxiety about interprofessional experiential learning, as it can involve a range of difficult interactions linked to inequalities of authority and status between professional groups. Different interprofessional champions are also important to help facilitate each step of a high-fidelity simulation program including curriculum design, recruitment, program evaluation and to engage managers, administrators and clinical colleagues from different professional programs. In addition, they can help overcome local professional apathy or resistance to the idea of introducing this new form of learning.

**Tip 4**

Balance diversity with equity

Interprofessional simulated education involves the need to balance the diversity of very different professional learners with equity. Due to the hierarchical relationships that have historically existed between the professions (Hamrick et al. 2007), equity should ensure that no profession is privileged in scenarios or debriefing.

First, one should ensure of a balanced mix of professions (e.g. not four physicians and only one nurse). Second, one should balance the scheduling convenience of involving trainees only with the importance of involving enough staff in order to ensure representativeness of the clinical environment (most teams are led by a staff physician in the clinical setting). The optimal size of the group of learners has to be determined according to the learning objectives while ensuring an effective learning opportunity in the simulator and debrief. Too few participants from different professions will not adequately represent the clinical environment. Too many professions will decrease everyone’s chance to get enough practice and be active during the debriefing. A potential solution to offer appropriate experience to many participants is to increase the duration and the complexity of scenarios and debriefing to allow everyone to be actively engaged.

**Tip 5**

Develop scenarios that are relevant to all professions

Given the issue of diversity involved in interprofessional simulated education (see above), careful thought needs to be given to how a scenario can have relevance to all different professions involved. Particular thought needs to be given to constructing scenarios in which each profession has a significant and balanced role. In helping to overcome this challenge, one needs to involve an interprofessional group of educators when writing the scenarios – this ensures all professional perspectives can be drawn upon. Also, consider options such as hybrid simulation, which involves the combination of several simulators, each of which has been designed to be used individually, into a single functional simulation (Boet et al. 2010, 2013). For example, we (SB, DB) created a novel hybrid simulation for interprofessional simulated crisis management training for operating room teams. A virtual reality laparoscopic simulator was incorporated into a full-body high-fidelity mannequin, after removing its thighs. This hybrid simulation allowed each health care professional involved in the scenario to have procedural tasks relevant to their profession to complete during the crisis situation (Boet et al. 2010, 2013): the surgeon had to control the abdominal bleeding laparoscopically while the nurse obtained and checked blood products and the anesthesiologist supported the patient’s hemodynamics.

Another important consideration is choosing between ad-hoc versus established teams. This choice should, again, be driven by the learning objectives of the session and local contextual factors (e.g. availability of different professions).
When designing the interprofessional groups of learners, it is important to recognize that in many health care settings, interprofessional teams are often ad-hoc in nature with changing membership (Reeves & van Schaik 2012). This point is crucial for the simulation educators to keep in mind because ‘ad-hoc teams need ‘portable’ skills (Flin & Maran 2004) which are not dependent on the presence and combination of certain people but can instead be consistently applied in any given team situation’ (St Pierre et al. 2008).

**Tip 6**

**Be mindful of sociological fidelity**

Before developing an interprofessional scenario for simulation, it is important to consider the cultural and sociological issues that could arise (Reeves & Pryce 1998; Sharma et al. 2011). For example, in a simulation session that involves both nursing students and attending physicians at the same time, power and hierarchical consideration have to be carefully thought out. In the past, IPE has overlooked the imbalances of authority, status, the hierarchical division of labour, and professional identity that exists between the health professions (Sharma et al. 2011). As Sharma and colleagues suggest, the use of a sociological approach help enhance the quality of interprofessional simulation and improve its transferability to interprofessional practice (Sharma et al. 2011). Ask yourself the question: does your simulation simply reproduce the same hierarchy and power relations that are found in the clinical environment and can be a barrier to good teamwork? The use of sociological fidelity in interprofessional simulation aims to create scenarios based on achieving high levels of social realism, rather than simply recreating complex clinical cases which lack context (Sharma et al. 2011).

**Tip 7**

**Put all the professions on the same page: The importance of pre-briefing**

Setting up clear rules for the pre-briefing (i.e. basic assumptions, setting up the atmosphere of the session) is crucial for interprofessional sessions. This is because briefing an interprofessional team of learners should consider a specific set of dynamics (e.g. social acceptance of feedback from all peers, despite any real or perceived authoritative positions). An effective interprofessional briefing at the beginning of the high-fidelity simulation session is aimed at preventing any complications during the interprofessional debriefing phase of the simulation session (Savoldelli & Boet 2013).

**Tip 8**

**Beware of interprofessional debriefing challenges**

Facilitating reflection for learners with different background and professional identities, while maintaining emotional and psychological safety, may be particularly challenging for interprofessional simulated education. Interprofessional debriefing should allow each learner to express his/her point of view, which might uncover specificities reflecting different professional identity or level of experience within a particular domain/situation. Debriefing allows learners to discuss their perceptions and agree on a solution (e.g. expecting the intraoperative team leader to clearly state the ‘crisis event’). As interprofessional debriefings are often considered to be challenging and demanding (Lindqvist & Reeves 2007), they are usually attributed to the most experienced debriefers. However, there is currently no gold standard and a wide variety of interprofessional debriefing methods exist: some interprofessional simulation educators use co-debriefing and involve one debriefer from each profession, while others use only one debriefer. Interprofessional debriefing with no instructor, known as within-team debriefing, has also been shown to be effective for learning as a team, and may represent an elegant option to facilitate and promote interprofessional simulation learning (Boet et al. 2013).

**Tip 9**

**Use simulation to add value within the broader interprofessional curriculum**

It is important to ensure that interprofessional simulated activities are embedded within a broader mandate for interprofessional practice that may include other educational opportunities such as grand rounds, morbidity and mortality meetings, quality assurance. Doing this helps generate a more holistic program of interprofessional activities, indicating that it is not a stand-alone activity, but part of an institution’s mainstream educational program. To foster a culture of interprofessional collaboration, it is important to continue to support and reward interprofessional work in clinical practice after the interprofessional simulated session (e.g. create an award for interprofessional practice). Finally, the integration of simulation training into a broader interprofessional curriculum can help with accreditation – as more professional bodies are demanding it.

**Tip 10**

**Focus the assessment on the team**

How do we know learners have learned anything from the interprofessional simulated session? This question is particularly salient for interprofessional high-fidelity simulation education as it is highly resource intensive. In times of financial constraint, institutions are inclined to require proof of return on investment.

The assessment modality should be selected in collaboration with all the professions involved and decided before the implementation of simulation program. The production of collaborative competency frameworks (e.g. CIHC and IPEC) can be helpful in selecting which interprofessional competences a simulation planning group may wish to focus on in the development of their interprofessional simulated education activity.
It is worthwhile considering both quantitative and qualitative methods when designing an approach to team assessment. For example, the TEAM scale has been successfully used to measure the change in crisis management interprofessional team performance after an interprofessional simulation learning (Cooper et al. 2010). In addition, interprofessional teams should also be asked to qualitatively describe their change in attitude towards interprofessional collaboration after a teaching intervention. A mixture of both quantitative and qualitative methods can produce a more comprehensive assessment than either. Such evidence can be very helpful when providing data for requests linked to return on investment.

**Tip 11**

Support the interprofessional simulation educators

Supporting interprofessional simulation educators is imperative to having a successful interprofessional simulation program (Good 2003). Faculty from all professions involved will need to become more collaborative and learn how to embed interprofessional experiences into the curriculum, to maximize collaboration and knowledge acquisition in a simulated environment (Tilley et al. 2007). Train the trainers courses for interprofessional simulation educators also help ensure that faculty are less likely to miss ‘teachable moments’ during the debrief relating to complex interprofessional issues (van Sooren et al. 2011). These courses should ideally be led by a mix of experienced clinicians with awareness of interprofessional issues and interprofessional educators specialists. Initially, educators will have to be mentored and trained by their colleagues who are more familiar with working in an interprofessional framework (Robertson & Bandali 2008). This includes education to ensure that educators can develop a needs assessment, design curriculum and scenario, and debrief interprofessional issues in an effective manner. As the interprofessional simulated education program progresses, faculty development will need to be embedded throughout the program and occur at regular intervals to ensure quality. Long-term quality of interprofessional simulation program can be maintained with regular meetings in which educators from all professions involved review the goals, outcomes, potentials issues and solutions.

**Tip 12**

Interprofessional simulated learning is under researched: use teaching opportunities to foster research

There have been a number of calls drawing attention to the lack of empirical interprofessional simulation based literature (Kohn et al. 2000; Bandali et al. 2008; Robertson & Bandali 2008; Reeves & van Schaik 2012) making it important to undertake research studies on the interprofessional simulated education process and outcomes. Interprofessional simulation should be considered a research priority. Initially, it will be important to document the conversion of traditional single-profession curricula to something relevant for interprofessional simulated education (Robertson & Bandali 2008). There is a need for focusing data collection on capturing the processes of simulation, and also longer-term follow-up work to see how this form of learning may translate (or not) into practice (translational research). Multiple opportunities for research exist in interprofessional simulation education: interprofessional debriefing should be better understood (Boet et al. 2013), the concept of sociological fidelity needs to be explored and developed (see above), and assessment tools validated (Shapiro et al. 2008; Cooper et al. 2010).

**Conclusion**

Interprofessional simulation appears to have a promising future for team-based education. Interprofessional simulation sessions have some specificity that needs to be considered in order to overcome its challenges. As we have suggested in this paper, the adoption of these 12 tips, offers educators a better understanding of issues and factors underlying interprofessional simulated education, by which they will be able to create conditions for a unique, valuable and effective collaborative experience.

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