# A Train-the-Trainer Simulation Program Implemented Between Two International Partners

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## ABSTRACT

With the expansion of global health initiatives focused on healthcare professional training, it is important to ensure that such training is scalable and sustainable. Simulation-based education (SBE) is a highly effective means to achieve these goals. Although SBE is widely used in the United States, its integration globally is limited, which can impact the potential of SBE in many countries. The purpose of this perspective piece is to demonstrate how a train-the-trainer program can help in the development of an international SBE program and specifically what unique issues must be considered in operationalizing this strategy.

**Keywords:**
global health; simulation based education; interprofessional education; healthcare professional training; international

There is a constant need for advancement in healthcare professional training to improve both staff knowledge and patient outcomes. Although experiential learning at the patient bedside can be powerful, there is a lack of standardization and opportunity to reflect on practice because of multiple limiting factors. These include the lack of protected time to debrief on individual and team performance, gaps in deliberate practice of skills that do not compromise patient safety, and the inability to ensure all staff are exposed to core clinical experiences. Therefore, it is imperative to consider innovative strategies to

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standardize and improve patient care delivery on a system level.

One powerful teaching and learning modality to help mitigate these factors is the use of simulation-based education (SBE). Multiple studies document the ability of simulation to improve a number of health outcomes, with one recent report from the Institute of Medicine suggesting that between 60% and 90% of preventable deaths in the United States were avoided because of SBE programs. Over the years, SBE has become an integral part of medical and nursing education within the United States and across the spectrum of learning (1–4).

However, in spite of the power of healthcare SBE to improve learner and patient outcomes, its adoption globally has been limited by a number of factors, including cost, infrastructure, and lack of expertise. Based on recent statistics, nearly 75% of the 965 simulation centers worldwide exist in Canada and the United States, with only 53 total centers in Asia (5). Thus, continued diffusion of SBE globally will hinge on growing collaborations with established SBE centers. This provides not only a means to disseminate knowledge and best practices but also academic opportunities for development of new educational protocols (6, 7). When these collaborations span multiple countries, there are additional considerations, including understanding the goals, needs, and expectations of the international site, together with understanding the clinical workflow and standards of care that need to be accounted for.

Given that it is often neither feasible nor sustainable for U.S.-based educators to perform large, system-wide SBE in international settings, using a train-the-trainer model to provide international partners with the expertise is more desirable as a sustainable return on investment. One conceptual framework is based on the SBE standards of best practices with the goal of seeking accreditation through the Society for Simulation in Healthcare (SSH), which encompasses all aspects of development, assessment, and sustainability of an SBE program (8, 9).

This perspective piece provides strategies for healthcare professional educators to successfully integrate SBE in their home country training programs. This program was implemented through the creation and facilitation of a collaborative conceptual framework of a train-the-trainer model focused on the simulation standards of best practice (10–12).

## METHODOLOGY

In 2015, Oregon Health and Science University (OHSU) partnered with Bangkok Dusit Medical Services (BDMS) on multiple collaborative projects focused on improving the quality of care across their 43-hospital network at that time. In 2016, OHSU and BDMS leadership established a multiyear collaboration focused on the development of a train-the-trainer model for BDMS healthcare simulation educators regarding SBE. The primary goal was to establish a cohort of Thai healthcare simulation educators with expertise on best practices in SBE and to leverage these educators and simulation-based expertise to improve knowledge and clinical skills among clinical staff throughout the BDMS network in Thailand (13).

The SBE program was structured such that two teams of 10 potential healthcare simulation educators, composed of physicians, nurses, pharmacists, quality improvement staff, dentists, and physical therapists, would come to OHSU for a 1-week initial immersive simulation training curriculum. Each week contained a combination of didactics and hands-on practice

with simulation development and implementation, which included simulation theory, scenario design, briefing-debriefing, and forms of evaluation. Over time, individuals would return to OHSU for additional ongoing professional development.

Furthermore, the OHSU instructional team would spend 1 week per year at BDMS to evaluate workflows that informed the foundation of scenario content design, briefing, and debriefing strategies while evaluating their simulation performance both as individuals and as a team. During the process of developing, optimizing, and sustaining this initiative, a number of important lessons were learned by personnel from OHSU and BDMS on the successful implementation of an international simulation training program for healthcare simulation educators. Throughout the first 5 years of this project, several learning opportunities and challenges were encountered for creating this train-the-trainer SBE program between two international partners.

## FINDINGS

### Understanding the Goals, Needs, and Expectations of the International Site

One of the most important factors to establish before embarking on any program design is understanding the primary goal(s) of the international site through a needs assessment and not assuming that the international site goals align with those of the instructional site (14, 15). These goals need to be explicitly decided upon along two axes.

The first axis is the clinical focus of the program curriculum and is an essential component of an SBE program in which the clinical experience of the participants dramatically impacts the effectiveness of the curriculum. In the collaboration, initially, this was not clear, resulting in a mismatch between clinical practice of the participants and scenario outcomes. The second axis revolved around defining the educational goals.

After discussion with BDMS leadership, it was codified that the primary clinical goal was for BDMS to become a regional leader in their six main centers of excellence (COEs): cardiology, neurology, orthopedics, trauma, oncology, pediatrics, and two minor COEs in occupational health and dentistry. Central to achieving this status was the development of ongoing SBE program curricula for the healthcare simulation educators. This would be deployed by the participants engaging in the OHSU–BDMS SBE program focused on each COE.

Understanding this was central to ensuring that each week of training would accommodate COE cohorts of participants from BDMS. It also allowed OHSU to create scenarios and recruit additional clinical subject matter experts (SMEs) for scenario design and briefing/debriefing design that focused on the COE strategic priorities. Moving toward this structure ensured that participants were able to focus on how to design and evaluate simulations, without the confounder of lack of clinical context over the SBE program and clinical SMEs.

The second axis revolved around the educational goals. Although it was clearly stated that the primary purpose was to train a group of BDMS healthcare simulation educators to effectively design and facilitate an SBE program, it became apparent that additional goals also needed to extend into training on the operational aspects of simulation as an essential element of overall programmatic success. These included simulation operation best practices, equipment maintenance, and moulage (modifications to create realism

in SBE) (16, 17). This became such a critical component that by Year 2, each training week contained a parallel track for one member of the BDMS team to focus on simulation operations. This culminated in BDMS's desire to become an SSH-accredited program. Once this goal was communicated, the framework outlined through the SSH accreditation and certification standards allowed further modification of the train-the-trainer program. The use of an established framework with universal standards and common language, including the Association for Standardized Patient Educators, the Healthcare Simulation Standards of Best Practice (8, 18, 19), and the Healthcare Simulation Dictionary (17), was critical to facilitating these goals and overall success of the program.

### Understanding the Clinical Workflow and Standards of Care

Another challenge of developing an international simulation program is understanding the differences in care delivery systems between two countries. These differences could be grouped into three categories. First were differences in healthcare professional roles and responsibilities. Second were the overall differences in care delivery models and disease management. Third were the differences in how plans were documented and implemented.

Within critical care, the differences in healthcare professional roles were most obvious with the lack of respiratory therapists in Thailand and with the role of ventilator management undertaken by a combination of nurses and physicians. This required significant alteration of the existing scenarios in terms of roles and expectations for participants and eventually led to a separate ventilator-specific training course (10). Other examples include the role of pharmacists in daily practice, with nurses in some countries being responsible for compounding medications at the bedside, again, altering components of scenario design, briefing/debriefing, and evaluation.

A second category is the overall difference in care delivery models and disease management. This has been well described throughout the literature with significant international differences because of a combination of resource availability, culture, and epidemiology (20, 21). This results in significant differences in case mix index and management strategies of critical care patient populations in general, traumatic brain injuries, and coronavirus disease (COVID-19) (20, 22, 23). Understanding this is key to ensuring that the scenarios met the learning objectives for the international workforce. Furthermore, there were significant variations in pharmacy-related management and formularies. There is wide variation in both brand and generic medications on a country-by-country basis, an essential component for ensuring the fidelity of scenario design and implementation. Beyond this, even when there are commonalities, there remain differences in dosing regimens that must be accounted for, especially as it relates to pediatric dosing (24).

Third are differences in how plans are documented and implemented in different countries. Over 90% of U.S. hospitals employ electronic health records, and these can be integrated into an SBE program to improve fidelity and understand workflows (25). This is not universal in many countries, especially low- and middle-income countries reliant on paper for physician order entry, documentation, and data collection (25, 26). This was apparent at BDMS, which is still dependent on paper for order entry and documentation, and thus it was critical to

have these documents integrated into the scenario design. To mitigate these issues, it was recommended that concepts and scenarios be reviewed by SMEs from the local institution in partnership with simulation operations specialists for realism confirmation and content veracity in these three domains. Ideally, if funding allowed, there would be time spent by U.S. instructors *in situ* to understand how these factors manifest in day-to-day care delivery and disease management.

### Understanding the Differences in Learner Expectations and Training Paradigms

Another area is consideration of cultural differences in learner expectations and training paradigms, which can have a significant impact on all aspects of SBE program development and evaluation (7). This became apparent early in the collaboration when, in contrast to what is observed in the United States, Thai individuals were more likely to use silence as a face-saving politeness strategy to show respect, strengthen social rapport, withdraw from disagreement, and prevent further arguments (27).

There are a number of reasons for this cultural behavior, which were important to recognize. First is a lack of confidence in language proficiency. This is a common circumstance, and, as a result, international participants may prefer to stay quiet for fear of making mistakes in English or being judged wrongly as a "bad English speaker" during discussions (14, 27, 28). Language barriers can impact understanding of vocabulary and conceptual models that may not be part of the participants' knowledge base, leading to potential misunderstandings (29).

Second is a fear of performing poorly in front of supervisors and the repercussions of feedback and evaluation. It is important to make a distinction, before training, between formative and summative evaluation. Briefly, formative evaluation aims to foster personal and professional development through practice and ongoing feedback to facilitate the learner's progression toward achieving the objectives or outcomes. We integrated the PEARLS (Promoting Excellence and Reflective Learning in Simulation) (30) framework as a tool for the formative evaluation, as well as incorporated scripted language to guide the debriefing. In contrast, summative evaluation is used for evaluation of a learner's knowledge or skills at the completion of an instructional unit or course. This is often high stakes in nature, and the results of evaluation are often compared with established benchmarks to determine passing or failing.

It became apparent early not only that participants viewed their evaluations as summative in nature but also, in turn, that Thai instructors planned to use SBE as a high-stakes tool for promotion- and performance-based evaluation of employees. This can have profound negative effects, with studies suggesting that summative evaluation-based activities can result in participants engaging in "protective strategies" such as face-saving actions, including withdrawal, reluctance to ask for help, not disclosing errors, and obscuring critique (31, 32). The cultural norm outcome may then be to suppress reflection in debriefings, thus limiting feedback effectiveness in healthcare team training experiences (33).

Third, it should be noted that the silence in such circumstances likely does not reflect a lack of intelligence or knowledge of the topic under discussion. Instead, it may be due to a lack of confidence or fear of being judged by the senior trainers and course instructors facilitating the SBE. This was something much more pronounced in Thai

culture than was observed in the U.S. simulation programs. Silence in training settings can be challenging; however, it can also be used as an educational tool used to draw out further conversations and engagement of participants in a briefing/debriefing (34).

Overcoming these issues requires even greater attention to best practices on interaction with participants and conducting debriefings. There are few basic principles that, if adhered to, can help mitigate these concerns, such as the creation and maintenance of a psychologically safe learning environment that allows participants to share their feelings, opinions, experiences, and knowledge; speak up; and discuss complex topics (35–37). Integral to achieving this is full transparency on the evaluation strategy to be used (summative vs. formative).

Central to this is use of confidentiality agreements from the onset. Confidentiality should be discussed and agreed upon in the initial phase of SBE program development. Healthcare simulation educators need to firmly commit to this philosophy. It is important also to be transparent about how performance, opinions, and discussions regarding the simulation experience will be disclosed, if at all. Last is the establishment of ground rules for all of the participants with the reminder that "what happens in simulation stays in simulation" (38).

It is also important to establish and adhere to an appropriate debriefing strategy that minimizes these learner concerns while enhancing participation. Central to this was adopting the "good judgment" approach (37). This is a universal concept for creating a safe environment that encourages a "no blame" culture of safety (39). The BDMS healthcare simulation educator team communicated this approach to the participants and among the simulation team while developing the simulation design, including pre SBE huddles, scenarios, and briefing/debriefing. This was combined with the "plus/delta/γ" (30, 34) debriefing model. This model incorporates "plus," which focuses on what went well; "delta" to reflect on what can be done differently in the future; and "γ," which explores how the changes will be made. These techniques provided an infrastructure and were effective in engaging participants to discuss their practice, share their experiences, and enable them to verbalize their strengths and opportunities for growth in their clinical practice moving forward.

Finally, it is imperative to ensure that leadership and supervisors at the international site are educated on this structure and SBE principles. It is not uncommon for leadership stakeholders to find value in observing the course and its participants. Understanding the above goals, as well as their own, establishing a learning community, and including evaluation and confidentiality expectations are essential to maintaining a safe learning environment. As with all learning activities, it is important to have structured evaluation of the participants' comfort, confidence, perception, and knowledge acquisition, this being imperative to assess the effectiveness of the above mitigation techniques and the overall effectiveness of the course. As discussed in subsequent sections, it is important to ensure that language and cultural differences do not bias the structure of the evaluation and, ideally, even tools validated in English should be validated in the native language of the participants.

### Educational Infrastructure Considerations

There are educational infrastructure considerations that are important for the

translation of simulation operations and meeting the learning objectives and goals of SBE. Conducting a needs assessment was critical "to provide the foundational evidence of the need for a well-designed simulation-based experience" (15). Included in the needs assessment was determining the availability of human resources, task trainers, manikins, care delivery devices, and electronic health records. This included the financial ability to acquire the needed resources together with the preventative maintenance required for sustainability (40). This is important because the various SBE tools have their own individual trouble-shooting considerations, and not all programs have the resources to operationalize all simulation resources available in the industry (15).

Technology availability directly impacts options for being able to operationalize the required fidelity level, including the environment. Understanding the limitation of tools and knowing what specific tools are available at the international site will allow consistency from training to implementation. Anchoring on the availability of technology in particular could be detrimental to meeting SBE program outcomes. Determining availability of supplies, equipment, and systems at the international site was essential to meeting SBE program outcomes and setting participants up for success.

### Understanding Cultural Norms for Teamwork and Interaction

There was a commitment from both OHSU and BDMS at the onset to train interprofessional teams and to prioritize having an instructional team also modeled a level of collaboration and collegiality. Having the team composed of nurses, allied professionals, and physicians was important to showcase that collaboration (41).

In regard to simulation implementation, it was also critical to include the simulation operations specialist as outlined in the healthcare simulation standards of best practice (40). The simulation operations specialist partners with faculty to facilitate simulation operations and models a team approach, and integration into simulation center operations is an integral part of a high-performing simulation center and is a key component of the accreditation-based framework used in our course (9). On the basis of simulation operations specialist standards of best practices, there are clearly defined roles needed to run SBE. When there is a simulation operations specialist focused on the technology and operational details, then the simulation educators can focus on the clinical content and facilitation of the debriefing (40). It was important for BDMS to provide individuals who were training in simulation operations who could partner with their clinical content experts to facilitate SBE.

### Importance of a Translator and a Cultural Liaison

Early in the partnership, it became clear that there was a need to ensure that a translator and a cultural liaison were part of the train-the-trainer program. Being able to communicate and learn in one's native language allows a deeper understanding of concepts (42). The importance of a translator and cultural liaison was deemed necessary on the basis of three areas.

The first was in regard not only to language and nuances of U.S. slang and terminology but also to facilitating the understanding of expectations and structure for simulation best practices, including debriefing. Second, fear of making mistakes in the nonnative language was an additional barrier for participation and engagement. Therefore,

**Table 1.** Summary of considerations from train-the-trainer simulation program implementation between two international partners

| Main Category | Issue | Solution |
|---|---|---|
| Understanding the goals, needs, and expectations of the international site | There was a mismatch of goals and content as the instructional team used their cultural, educational, and clinical lens to create a curriculum for the international team. | Conduct a needs assessment and collaborate with the international site to determine primary educational goals and training expectations. Use a standard curricular approach with foundation in SSH center accreditation. |
| Understanding the clinical workflow and standards of care | Differences in healthcare professional roles, responsibilities, and clinical workflows. Variation of delivery models, medications, and standards of care.<br>How plans are documented and implemented with computerized versus paper records. | Performance of site visit by instructing team to understand workflow and standards for care delivery. |
| Understand the differences in learner expectations and training paradigms | Lack of confidence with language proficiency, leading to silence, and the fear of performing poorly in front of supervisors.<br>Need for clear and transparent guidelines and structures around facilitation and debriefing.<br>Clarity around summative versus formative simulation and use of simulation performance for professional evaluation. | It was critical to create and maintain psychological safety, confidentiality, and establish ground rules.<br>Being clear and transparent with expectations around the role of debriefing and use standardized frameworks such as PEARLS to ensure best practice.<br>Dedicated meetings with international site leadership on role and utility of simulation. |
| Educational infrastructure considerations | Concerns regarding availability of supplies, equipment, and staffing at international site. | It is important for the instructional site to create a program that is sustainable. To understand the modalities and functional limitations of the tools available at the international site. |
| Understanding cultural norms for teamwork and interaction | Cultural hierarchical realities and practices can cause challenges when not in alignment. | In order to flatten the hierarchical curve, the instructional team modeled collaborative practice and partnership between the various members of the team, including simulation operations specialists. |
| Importance of a translator and a cultural liaison | Concepts being lost in translation when teams are not speaking and listening in native language. | Incorporation of translators for training to ensure there is language comprehension and to understand international site conceptual models before training. |
| Importance of ongoing longitudinal interactions | Building relationships take time. | Bimonthly video conferences were scheduled for review of specific content and reflection on simulation programs through translated video reviews. There were opportunities for collaborative presentations and publications. |

*Definition of abbreviations*: PEARLS = Promoting Excellence and Reflective Learning in Simulation; SSH = Society for Simulation in Healthcare.

it was critical for establishment of a safe environment for effective training (43). Third, regarding debriefing, there was a focus on best practices that focused on the "good judgment" approach (37). Many of the nuances of communication were lost in translation when participants were not speaking in their native language, and the

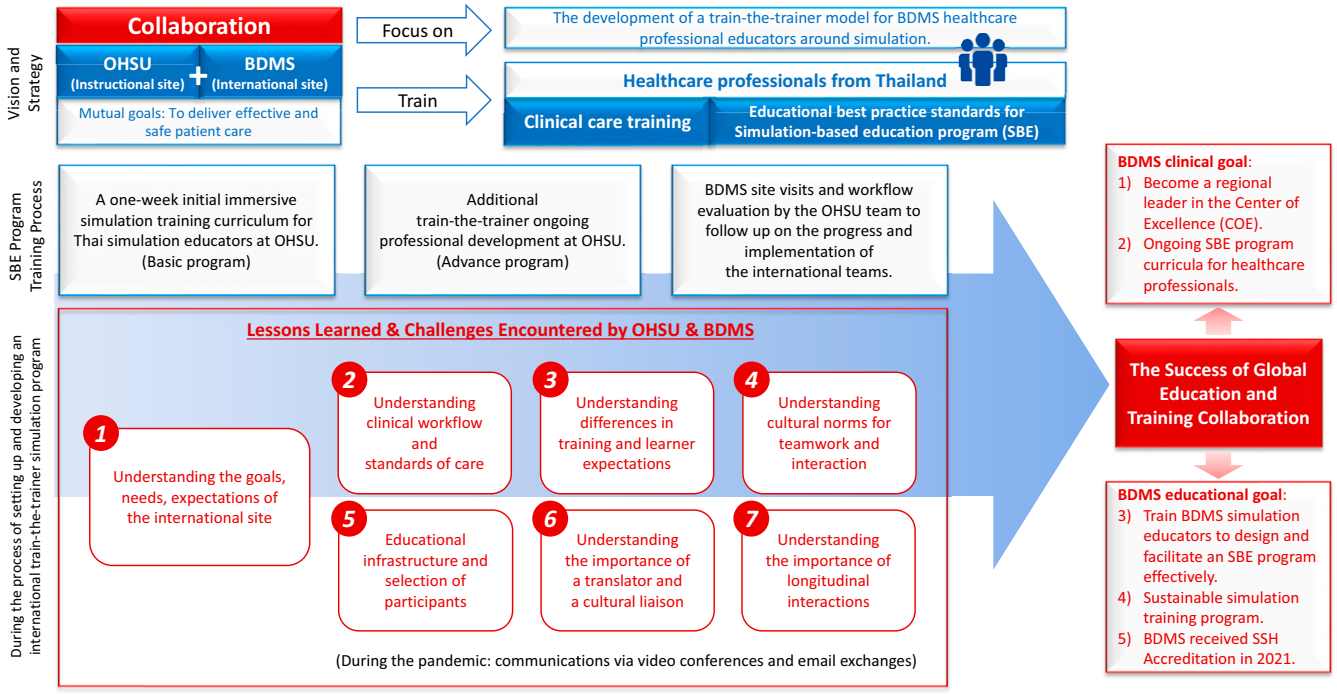


**Figure 1.** Overview of a train-the-trainer simulation program implementation between two international partners. BDMS = Bangkok Dusit Medical Services; OHSU = Oregon Health and Science University; SBE = simulation-based education; SSH = Society for Simulation in Healthcare.

debriefings improved dramatically with the use of real-time translation. Furthermore, the integration of a translator helped with creation of evaluation forms in the participants' native language, which improved the instructor feedback and overall quality of the course.

## Importance of Ongoing Longitudinal Interactions

As with any train-the-trainer model, it is imperative that as the participants progress toward independent design and deployment of educational curricula, there is continued interaction and feedback on performance. This is critical for SBE programs, given the numerous considerations required for every step along the path of programmatic development from scenario conception, design, operations, and feedback. Initially, we established the ability for participants to return to OHSU for an additional week of training with the goal of demonstrating this independence, as well as *in situ* observation of their program with weeklong visits to their simulation center.

However, with the COVID-19 pandemic and the inability to travel, there was a need to maintain connections, training opportunities, and partnerships in creative ways. The international site therefore recorded, translated into English, and shared with the instructional team videos of simulation activities. Communication mainly happened via email; however, there was also a need to connect via a video conferencing platform for real-time conversations and opportunities to mentor in this process. This incorporation of "tele-education" has become more common because of strategies learned during the global pandemic (44). The bimonthly video conference calls were driven by the international leadership needs and their agendas to continue to facilitate their programmatic goals even when international travel was put on pause.

## CONCLUSIONS

In conclusion, there were six main takeaways from this train-the-trainer initiative that resulted in the training of simulation faculty from Thailand as summarized in Table 1 and Figure 1. There were opportunities and lessons learned throughout this 5-year project and within the various categories, based on the goals of the international site. These continue today with virtual touch-base meetings, the reviewing of simulation videos, and brainstorming of innovations and future collaborative opportunities. Finally, through this collaboration, BDMS received accreditation as an SBE center from the SSH, providing an objective measure of success for the international partnership.

Although the lessons learned in the creation and evolution of this program were SBE focused, we believe that the takeaways are valuable for any international healthcare education–based partnership to consider during the developmental stage of a train-the-trainer program. Doing so not only will increase the likelihood of success but also will allow more seamless expansion of existing partnerships into additional programmatic areas. This perspective piece provides considerations as well as a blueprint for structured transition of an SBE curriculum to potentially enhance international partnerships and healthcare professional training.

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