



## Guest Editorial

## Simulation based teaching – the future of medical education

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## ARTICLE INFO

## Article history:

Received 04-08-2021

Accepted 21-08-2021

Available online 28-08-2021

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Medical education in India has undergone fundamental changes over the past few years. The new competency-based curriculum introduced from 2019 onwards has completely transformed the teaching learning process with an emphasis on small group, interactive teaching and integration and alignment between various subjects. The new curriculum has also put renewed focus on the acquisition of specific skills by the medical undergraduate students.

## 1. What is simulation?

Simulation means the imitation of a real-life situation; this allows the learners to practice the skills in a safe environment. While many feel that simulation in healthcare owes its origins to the aviation and aerospace industry, clay models of the human body and 'phantom' mannequins have been used in various parts of the world for centuries. However, modern medical simulation as we know today, only became popular after the introduction of 'Resusci-Anne' in the 1960s. Over the next few decades, simulation based teaching (SBT) gradually became the norm for training learners in cardio-pulmonary resuscitation and management of emergency conditions. The wide acceptance of SBT may be attributed to its many advantages such as zero risk to patients, the ability to make mistakes and the ability to practice the skills and receive feedback multiple

times. Research has shown that the controlled environment of a simulated scenario can help learners gain confidence before working in the real-life, and mostly stressful, situations of a healthcare institution. Additionally, SBT also helps to inculcate professionalism, time management and communication and teamwork skills among the learners.

## 2. SBT in Medical Education

Surprisingly though, despite the increasing use of SBT in healthcare, its application seems to have become limited to clinical and emergency medicine, with very limited application in medical education especially in the pre-clinical and para-clinical sciences. There is also a widespread misconception that SBT requires investing in costly equipment and high-fidelity mannequins. There is a need to dispel such notions and make medical teachers aware that SBT can be, and should be, incorporated in all subjects and that simulation and simulators are two different things!! The success of SBT does not depend on using expensive simulators or well-equipped skills laboratories; it rather depends on constructing scenarios which are realistic and aligned to the learning needs of the participants. As long as we are able to artificially recreate real life scenarios and the learners can learn something new by immersing themselves in the situation, the session is a success. And whether it is learning about the measurement of blood pressure in Physiology using a simulated patient, learning various routes of injection in

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Pharmacology or using technology such as 3-dimensional virtual dissections in Anatomy or virtual microscopy in Pathology, SBT has immense potential in all pre- and para-clinical disciplines. SBT also lends itself well to integration, which is an important component of the new curriculum. Sessions on sample collection and laboratory analysis or basic life support and trauma management can easily integrate multiple departments thereby facilitating collaborative teaching-learning and reducing the pressure on faculty of one single department for training learners.

### 3. The Necessity of Faculty Training Workshops

There is a need to organize regular training workshops for faculty across the country. Similar to the revised basic course workshop (RBCW) and curriculum implementation support programme (CISP) workshop, SBT workshops (SBTW) can be organized at the nodal and regional centre levels to train the medical education unit members of individual colleges, who can then organize similar workshops at the college level to train their institutional faculty members. These one or two-day workshops can provide hands-on training to faculty with regards to designing simulation scenarios and modules, the steps in conducting an SBT session, the importance of debriefing in SBT as well the assessment of learners after completion of an SBT session. With skills laboratories being made mandatory in medical colleges, such a workshop will definitely facilitate faster incorporation of SBT in undergraduate medical teaching. Post-graduate medical teaching is expected to soon become competency based, and the trained faculty will be well-equipped to incorporate SBT in the post-graduate curriculum and train post-graduate students in the future.

### 4. The COVID-19 Pandemic

The COVID-19 pandemic has played havoc with teaching-learning in medical colleges across the country. During the nation-wide lockdown in 2020, undergraduate medical teaching shifted entirely to virtual mode and even a year later, online teaching is still continuing alongside offline classes. Such a hybrid model of teaching (combination of online and offline) is expected to continue well into the future and to ensure continuity in SBT, there is a need to explore innovative solutions to implement online and even hybrid simulation sessions. This will require 'out-of-the-box' thinking and involving all stakeholders including the learners in the decision making and planning process.

During the pandemic, many healthcare staff across the world received training on essential skills such as the correct method of wearing gloves, donning and doffing personal protective equipment and disinfection of hands via online training modules. Similarly, SBT sessions on communication skills can be easily adapted for virtual training. Many clinical skills can also be recorded and the videos can be shared with the learners; the real challenge, however, is participation of the learners in conducting the steps because they may not always be physically present in the institution or have access to the equipment needed to practice the skill. Another concern is reducing risk of transmission of COVID-19 when conducting SBT sessions in the college setting; following social distancing norms may put a limit on the number of learners that can be accommodated in a single session. Similarly, disinfection protocols need to be set in place to avoid transmission from surface contamination of mannequins or other infrastructure. All this will put additional burden on the faculty members as well as increase the time duration for training all the learners.

### 5. The Way Forward – Learn, Innovate and Collaborate

SBT is an essential component of the competency-based curriculum and must be incorporated in all subjects in the undergraduate as well as in the postgraduate curriculum. Large scale implementation of SBT will require faculty training which can be standardised as hands-on training workshops. As hybrid teaching is expected to become the 'new normal' in the future, SBT also needs to be reinvented for online implementation. The advantages of SBT far outweigh the disadvantages and collaboration between the medical education units and the various departments can help in overcoming the challenges. On a larger scale, such collaboration can happen between institutions, with resource rich institutions offering their facilities and expertise to train the trainers as well as learners from other colleges. SBT is the future of medical education and as change agents, we must be future ready; the only way to move forward is to learn, innovate and collaborate.

#### Author biography

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**Cite this article:** Verma N. Simulation based teaching – the future of medical education. *J Educ Technol Health Sci* 2021;8(2):38-39.