

## ESSAYS

# Current status of simulation-based medical education in India and the way forward

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## ABSTRACT

India is waking up to the importance of simulation-based education (SBE). More and more institutions are setting up centralized simulation training facilities, while others have such facilities at the departmental level. The new National Medical Commission curriculum mandates communication and procedural skills training for undergraduate medical students and it is likely that SBE will soon be mandated for postgraduates as well. In my experience there are several difficulties with a universal adoption of SBE in healthcare in India. This article describes the current situation of SBE in healthcare in India before proposing strategies to enhance uptake and acceptance.

### What this essay adds:

- Simulation-based education (SBE) in India has traditionally developed serendipitously, with many factors other than its educational value being responsible for this.
- As a result of this haphazard growth, the current use of SBE is patchy at best, with some institutions using it regularly while many hardly use SBE at all.
- The lack of penetration of SBE is more pronounced in the service hospitals in the private sector.
- Suggests are proposed to address how these issues can be tackled to improve the use of simulation as an education modality in India.

## Introduction

In many parts of the world, simulation-based education (SBE) is now entrenched as a method supporting the development of healthcare professionals. The value of simulation lies in the fact that it allows for practice of skills and teamwork, without causing patient harm<sup>[1,2]</sup>. It also permits the healthcare teacher to explore often neglected areas of clinical practice such as teamwork in rare and critical situations, repeated practice of skills to mastery, interprofessional training, on the job training, communication skills etc.<sup>[3,4]</sup>. In other words, simulation allows for training exactly as one practices, thus providing for creation of a skilled workforce which is comfortable in adapting to their roles in the workplace. Simulation therefore acts as a bridge between classroom and workplace.

India has woken up to the importance of using simulation for medical education. Increasingly institutions are setting up centralized simulation training facilities, while others have such facilities at department level. Much of this pre-dates the new National Medical Commission curriculum which is now mandating skills training for undergraduate medical students in simulation laboratories to be set up by every teaching institution<sup>[5]</sup>. Despite this surge in interest in simulation, there exist many lacunae and bottlenecks in adapting SBE in a major way in India.

In this paper, I explore these issues in medical education in India. After identifying challenges in the implementation of SBE in India, I discuss differences in public and private institutions before moving to present and future trends and then propose strategies for promoting SBE.

## Challenges in implementing simulation

There are many problems that have hindered the implementation. The growth of simulation centres has been haphazard to date. There is no national level policy on simulation in healthcare, nor do most institutions have one. As mentioned earlier, there is no regulatory requirement or even management requirement to use simulation training. Centres are set up and purchases made only based on recommendations by vendors or in a last-minute need to spend allocated funds.

The medical education fraternity remains largely ignorant of the concept of simulation for team training and patient safety. Faculty unfamiliar with the concept have a belief at best that simulation is either not needed in view of adequate patient material and at worst that it is a complete waste of time since it does not provide any value addition. There is an understandable reluctance to step out of one's comfort zone to adopt seemingly *newfangled* ideas.

A big drawback for most simulation centres in the country is the lack of dedicated simulation operations specialists (SimOps). Neither is there a job description or requirement put forward for this category of staff, nor is there any formal training programme for them. Centres usually manage with multipurpose staff who learn on the job or with biomedical engineers borrowed from the hospital. This further adds to the strain on faculty who must assume the duties of a technician in addition to their own teaching duties during simulation sessions.

Faculty often view simulation as an extra teaching burden over and above their other teaching and clinical commitments. High-quality SBE requires both time and effort commitment from faculty, since planning and preparing for a session can take many hours; even running a session usually requires anywhere between 1 to 2 hours. This coupled with lack of technical support to use some of the more sophisticated simulators compounds the reluctance of faculty. The absence of extra remuneration acts as a disincentive to adopt simulation. There is also a belief that Indian students are different from their Western counterparts in that they are not exposed to the concepts of role playing and problem-based learning <sup>[6]</sup>.

## Public versus private institutions

The growth and use of simulation differ between the public and private teaching institutions. This is due to the differing philosophy underlying the delivery of medical education and differences in funding and financial processes. There is one thing in common, however: the teaching faculty are usually not consulted before purchase of simulation equipment and hence are not motivated to use the equipment which then lies unused, compounding the belief that simulation is useless! The differences are enumerated as follows:

1. In the public sector, the simulation facilities tend to be decentralized, i.e. department-owned. The advantages of this are ease of usage since the simulator is easily accessible and the department has a stake in implementing SBE as the simulator is their property. It is also easier to find time during breaks in the schedule to do simulations. The major disadvantages of this approach are in the form of interdepartmental politics, wherein the department does not allow access to the simulators by other departments as they consider it their property. As a result, the equipment is not used to full capacity. In fact, the simulator is often window dressing to show off the department facilities to visitors. In contrast, in the private sector the facility is usually centralized and set up by the institution. This allows easier access to all departments and theoretically could improve usage. However, since individual departments do not have convenient access or a sense of ownership, it tends to be again underutilized. Here the centre is used to showcase institutional facilities, especially to regulatory bodies.
2. The reason for these differences is primarily in the pattern of funding. In the public sector in India, funding is from the government, with little or no requirement of institutions to generate their own resources. Individual departments are free to apply for funding through the head of the institution and allocation of funds is then made based on needs assessment by a committee and availability of budgetary allocation. Since the departments are raising the need for funding for simulation, funds are allocated to them specifically. This is the reason why simulation facilities are under departments in the public sector. On the other hand, in most private sector institutions, especially private medical colleges which tend to have a closed ownership by an individual or a family, the funds are allocated by the owner for the entire institution's benefit. Hence the simulation facilities tend to be centralized.
3. This system of funding has another important outcome as far as simulation is concerned. In the public sector, the accountability for usage of purchased simulation equipment is limited and hence usage is driven by individual interests rather than by mandatory regulations. A more convoluted purchasing process also reflects on the maintenance of the equipment, with longer downtimes because of maintenance issues. In the private sector, on the other hand, since the funds are given by the owners, they are interested in monitoring the usage of the equipment to ensure that the funds are not being wasted. This leads to a better compliance for usage, albeit reluctantly (since, as already mentioned, faculty buy-in does not happen). Downtimes are also shorter as the management ensures good vendor support post-purchase. However, in both sectors, purchases are rarely needs-based and more to show off the facilities, especially in the private sector where one must have an edge over the competition to attract students.
4. Outside of the medical colleges and universities, SBE is largely confined to various types of resuscitation courses in the service hospitals. Some physicians in practice in the surgical specialties attend skills-based training programmes which largely use cadavers for training. However, these courses are sporadic and there is no formalized institutional training programme in the service sector. The few references to SBE in non-teaching

institutions relate to training rural healthcare workers in safe delivery practices [7]. Firstly, there exists a lack of awareness for the need for SBE, as many of the consultants in these hospitals have not been exposed to simulation themselves and the importance of simulation in patient safety is poorly understood. One study in which the author looked at the awareness of virtual reality training in surgery in India found that less than 50% of their respondents had multimodality training, while a little more than 50% believed that virtual reality surgical training is likely to be helpful. This study had very few participants and the background of the interviewees was unclear as to whether they belonged to teaching or non-teaching institutions [8]. Secondly, for most of the private sector service hospitals, the management prefers to invest in equipment which provides tangible returns in terms of the bottom line, whereas the financial implications of better patient safety have not been studied in this country. Even the concept of patient harm is not well understood, and patient safety curricula are far from complete [9].

### Present and future trends

However, things are changing on the medical education scene. Faculty are beginning to get trained in this modality and are consequently understanding its importance, especially for patient safety and teaching diverse behavioural skills. More and more leading institutions are adopting simulation and showing the way for others. Simulation societies are now actively educating teaching faculty across healthcare disciplines through faculty development programmes and conferences. The National Medical Commission has mandated skills training using simulation in undergraduate medical education and desire it in postgraduate training. More international exposure has also played a part in this renaissance of SBE.

Indian students are now increasingly being exposed to small group teaching involving role play and case-based learning [10,11,12].

The National Medical Commission has also introduced a separate AETCOM (Attitudes, Ethics and Communication) module in undergraduate medical education which, as the name implies, consists of instruction on attitude, ethics and communication. This module suggests the use of case-based learning to acquire these skills [13].

Medical societies are also increasingly becoming involved in the design and conduct of training for residents in their specialties. A typical example of this is the Paediatric Critical Care Medicine Society, which has, through the pediSTARS simulation society, introduced a degree of formal SBE for their trainees [14].

It can therefore no longer be argued that medical students in India are strangers to these modalities of teaching and therefore will find it difficult to participate effectively in SBE. Having used simulation for undergraduate medical students for some time now, I can vouch for the fact that it is perceived very positively by students and they usually participate enthusiastically in these activities.

Vendors are playing their part by informing prospective customers about the utility of simulation and the products available with them, primarily to meet their sales targets while secondarily benefiting SBE. In fact, many vendors have academic programmes related to simulation as well.

### Strategies for promoting simulation

This brings us to the issue of sustainability of SBME in India. Once we are agreed that it is a valuable and effective modality of imparting healthcare education, strategies are needed to sustain it. Based on experience and available research, I suggest the following steps be taken.

Firstly, it is essential to integrate simulation into the curricula to make it part of the regular teaching schedule. This will ensure that teaching/learning activities using simulation will become compulsory, just as other modalities of teaching already are. Secondly, institutions must take efforts to train faculty in SBE. In my experience, an excellent strategy to expose teaching faculty to the value of simulation in team training is to encourage them to be participants in a scenario. This experience as participants usually surprises them as to how easy it is to make mistakes under the stress of a simulation, and it is easier to help them appreciate the benefits of simulation as a teaching modality subsequently. Today there are enough faculty development programmes being conducted in India, so there is no need to go abroad for training.

Thirdly, dedicated simulation faculty and support staff are needed to run the simulation centres. This requires management support. If the centres are run as a business model and generate income, this will go a long way in justifying their existence. This is not a tall order – many simulation centres are already generating good income for their parent institutions. Partnering with external agencies, either vendors or other neighbouring teaching institutions can spread the expenses of running the centre, reducing the burden on each participating institution.

Finally, international simulation societies and educational institutions can be of immense help in promoting and sustaining simulation. International bodies need to move away from their local-centric approach and develop strategies to cater to a wider clientele if simulation is to move forward globally. This assistance should be in the form of concessional memberships and conference registrations; special sections in conferences specifically catering to the developing countries; sharing of online resources including library resources free of charge or for a nominal sum; actively assisting centres and conferences in these countries through providing onsite faculty expertise etc.

### Conclusion

There have existed many barriers for embracing SBE in India, which has prevented widespread use of this modality of teaching. Many of these barriers have to do with the mindset of the teaching faculty as well as availability of simulation equipment. Many of the issues faced by public sector institutions are different from those faced by the

private sector, and these differences need to be considered if SBE is to be successfully implemented. Collaboration with external agencies and support from international simulation organizations is necessary to speed up this process. Thankfully, there is evidence of a new dawn with respect to SBE in India, led by committed individuals, institutions, societies and vendors. It is hoped that this especially useful teaching/learning modality gains much more widespread acceptance and use in the years to come. This will have a positive outcome on both education as well as patient safety.

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