*By Dr Jeremy Lim, Editorial Board Member*

# "SEE ONE, DO ONE, TEACH ONE"

It would be the brave passenger who boards a plane where the pilot announces cheerfully that it is his first time flying. Likewise, it would be difficult to inspire confidence as a country in our security forces if our military did not conduct regular live firing exercises and simulated conflicts. However, in clinical medicine, the traditional model of learning from and on patients still prevails and the ethos of "See one, Do one, Teach one" is deemed wholly appropriate. In this day and age, must we reconsider this paradigm? I would submit we urgently need to.

Flight simulators are routine in the training of any pilot as it would be deemed unwise to allow trainee pilots to practise flying a plane crowded with actual passengers. The potential risk and cost to human lives are simply too great to consider any other way to prepare a pilot for her first flight. Why then, do we persist in an apprentice model in which the first time many of us perform a gastroscopy, appendectomy or even a central venous cannulation is on a live patient?

There are probably two reasons which are often cited. Let us examine each in turn:

There is no substitute for real patients. Yesterday's primitive models were indeed poor replicas of the clinical experience but technology has improved immensely and simulators can quite effectively prepare trainees to perform their first 'live' procedures more safely and comfortably for patients. Incidentally, the medical literature strongly suggests that simulation training enhances the operative performance of surgeons in training in a variety of different settings including laparoscopy, endoscopy and catheter-based interventions. So while there is still no real substitute for patients ultimately in the course of training, the first patient the trainee practises on can be much safer if adequate simulation training is conducted. As Chaer and colleagues from Columbia University put it: "*The traditional approach of "see one, do one, teach one" is rapidly being replaced with the more progressive concept of "learn the operation before the operating room.*""

Simulators cost too much. Inclusion of substantial high-fidelity simulator training into a residency programme is indeed an expensive proposition but this may be because we have been able to look at only one side of the accounting equation. While Bridges and Diamond have previously estimated the cost of graduating a surgical resident to be almost US$50,000 over four years in terms of increased operative time and decreased efficiency, there is little data on the other costs of training as measured by complications and poor patient outcomes. It is conceivable that the human cost of medical errors aside, the reduction in preventable adverse events from better trained doctors will pay for itself.

Do we have the choice of not embracing simulation in medical training? Our medical schools are ramping up the number of students with each passing year while Specialist Training Committees are furiously expanding the number of trainees.

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How has this impacted on the quality of training? Senior surgeons anecdotally bemoan the declining competence of young Registrars but this is not actually surprising given the limited opportunities to learn – Some surgical departments have so many junior staff that young doctors only have two or three calls a months and it is not uncommon to have "too many trainees" in an operating theatre with most of them enviously looking on or distractedly holding retractors.

Finally, with rising patient expectations and increasingly lukewarm receptiveness to being a 'guinea pig' for students and trainees to practise on, it will be more and more difficult to find willing patients in whom it is genuinely 'safe enough' for trainees to learn on.

We have for decades used patients to teach, sometimes exposing patients to unnecessary risks. Perhaps we could have justified this previously, citing constrained resources and limited alternatives, but the only reason why we continue to do so today is because we can get away with it. Can we still, or is it time to seriously examine how we can make the necessary training of a doctor as safe as it can for both the doctor and the patient? ■

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