DR HANDS-ON:
Students operate on lifelike dummies

The pros: Learning time is shorter; actual patients not put at risk

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It’s a typical scene in an operating theatre. The doctor is busy with a patient when the phone rings. He answers the call only to find, when he returns, that his patient has died.

This scenario is played out in simulated theatres where medical students train on dummies that can blink, breathe, have a heartbeat or even give birth, learning the best treatments without putting actual patients at risk.

The use of such training techniques has been shown to shorten the learning time needed in the actual operating theatre by 40 per cent, said Dr Rajesh Aggarwal, clinical lecturer in the Department of Surgery and Cancer at Imperial College London, which has been conducting training in its simulated operating suites for the past 18 months.

The mannequin patient is controlled by trainers via computer in a control room beside the theatre, watching the students from behind a two-way mirror.

Real hospital equipment is used, and actors play other doctors and nurses.

Trainers can manipulate various physiological responses from the dummy, and set up realistic emergency scenarios ranging from uncontrolled muscular spasms that close the larynx to oxygen shortages in the body and abnormal heartbeats.

Dr Roger Kneebone, Reader in Surgical Education at the Department of Surgery and Cancer in Imperial College London, helped to develop an inflatable operating theatre that makes training portable. The entire device fits into a car boot and can be set up in an hour. PHOTOS: IMPERIAL COLLEGE LONDON

Said Dr Hoan Ashrafian, clinical research fellow at Imperial’s Department of Surgery and Cancer: “It’s identical to the real-life setting, and just like in real life, there are a lot of distractions.

“While they are doing an operation, they will have to monitor readings such as heart-rate and blood pressure and act on changes on the run.”

Leveraging on its engineering expertise, the college has also produced numerous training innovations that can be used in tandem with the simulated operating theatre.

For instance, it has patented a special glove equipped with a sophisticated motion tracking system for would-be surgeons. The device tracks hand movements and calculates dexterity, time taken and precision in a particular operation, giving feedback on the user’s technique and skill.

Another innovation has been to take the portable operating theatre on the road, to train medical students further afield.

The portable device, which can fit into a few backpacks and inflate in three minutes, is much cheaper to produce than the high-tech simulation centres used within the university’s hospital campuses.

Building the Lee Kong Chian medical school from scratch will mean that more such innovations can be implemented in the curriculum, said Lord Ara Darzi, Britain’s former parliamentary under-secretary of state at the Department of Health, who holds the Paul Hamlyn Chair of Surgery at Imperial College London.

The surgeon is internationally respected for his innovative work in minimally invasive surgery and using surgical robots and image-guided surgery.

“There is no such thing as one size fits all. We will have to tailor the education and training to fit Singapore’s needs,” he said. “It’s so important for doctors of the future to understand and work with technology.”

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