

Innovation in Medical Education

– PATient Safety in Surgical EDucation (PASSED)

Text and photos by Dr Alfred Kow

Concerns about patient safety

Healthcare outcomes have significantly improved in this era of modern Medicine. However, many studies have proven that hospitalised patients are at risk of suffering adverse events. To reduce the incidence of adverse events, increasing emphasis has been placed on patient safety training in recent years. Medical students, as future doctors and healthcare leaders, must be prepared to practise safe Medicine.

The World Health Organization (WHO) has published the WHO Patient Safety Curriculum Guide for Medical Schools.¹ One of WHO's key reasons for producing this handbook is that patient safety education for healthcare professionals in the higher education sector has not kept up with workforce requirements. This phenomenon is caused by many factors. Firstly, medical educators have failed to acknowledge that patient safety learning and teaching must be highlighted in the undergraduate medical curriculum and that patient safety skills can be taught.² Secondly, they may be unfamiliar with teaching about this new sphere of knowledge. Areas such as systems thinking and healthcare quality improvement methods are new to many in the medical profession.³

Filling the syllabus gap

Conventional methods of delivering content for medical education, such as large group lectures and knowledge-focused teaching, are slowly being challenged by new pedagogies, like simulation and online teaching sessions. We have to concede that the learning habits of students in this generation have changed significantly, due to the rapid development of the Internet and easy access to the explosion of medical knowledge online. Today, it is common for medical students to whip out their smartphones to google for answers when the tutors ask questions. They now rarely search for relevant books in the medical library or photocopy good review articles from medical journals.

The idea of using gaming modality to teach patient safety issues to medical students came from A/Prof Sophia Ang, who is the Vice Chairman of Medical Board for Patient Safety in National University Health System (NUHS).

Medical students in this era are very tech-savvy and we hope to engage them in a fun and lighthearted way, using a different platform to highlight the importance of safe medical practice.

With funding awarded by the NUHS Innovation and Creativity in Education and Teaching Enhancement Grant given by the Centre for Development of Teaching and Learning in the National University of Singapore (NUS), we engaged software vendors to develop game apps for mobile devices (namely the iPad), to educate medical students about various aspects of patient safety in surgical practice.

Phase III medical students at NUS will spend one afternoon towards the end of their Surgery rotation to participate in this curriculum. First, invited speakers, who have been handling patient safety issues and sentinel events in restructured hospitals, will deliver a short 20-minute talk on the importance of patient safety. The students will then use their iPads to log in and play a game, called PATient Safety in Surgical EDucation (PASSED), and their scores will be captured by the system.

What is PASSED?

The main focus of this iPad game app is on common pitfalls in medical practice, which often lead to issues related to patient safety. Figure 1 shows the game's introductory page.

Students assume the role of residents facing typical circumstances in the ward where decisions involving patient safety need to be made. Scenarios have been drawn from sentinel events in various hospitals. For example, junior doctors are frequently involved in administering potentially lethal medications to correct certain life-threatening electrolyte abnormalities. Most medical students are able to provide textbook answers to the treatments needed. However, not all will have actually experienced drawing a medication using a specific syringe and delivering it to the patient. In the game's safe setting, students will be able to practise making these practical decisions of selecting the correct instruments, mode of delivery and so on, instead of encountering them for the first time by the bedside.

Students may also be required to juggle two to three tasks occurring concurrently or receive information from nurses or the call centre informing them that another patient requires attention. Time-sensitive scenarios will include a timer on the screen; students who respond correctly within the time limit would be awarded more points than those who respond wrongly or later. Multiple tries of the same question are permitted, but demerit points are given with each incorrect attempt. At the end of the game, each student's summary score will be displayed, along with their number of errors (Figure 2). The students with the highest scores would be awarded the "Best House Officer" of the night.

We have launched this game to the current group of Phase III medical students in NUS Medicine, and have received good feedback. Figure 3 depicts students playing with the PASSED game in NUS.

A newer version of the game, with enhanced graphics quality and interactivity, is currently being developed. Future editions will also have additional features, such as more than two scenarios appearing simultaneously. Players will need to prioritise their order of response to the various critical situations, and those who forget to deal with the other scenarios will be penalised, as this may lead to patient morbidity and mortality.

Evaluate students using PASSED

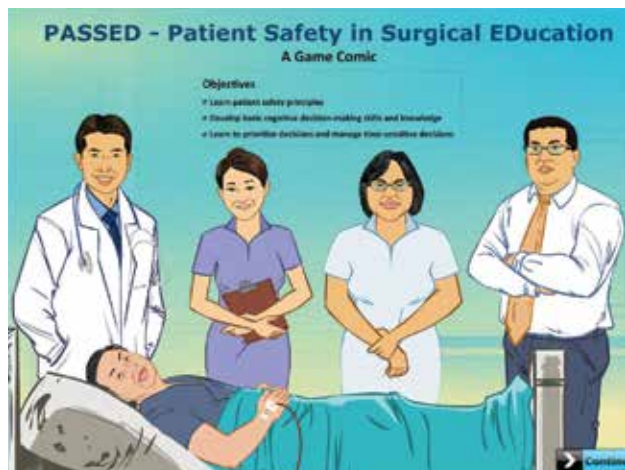
Pre- and post-test evaluations are conducted during the gaming session. However, as the aim of the game is to raise awareness on the concept of patient safety and inculcate the importance of observing safe medical practice in healthcare among our students, their scores are not used to evaluate their academic performance.

Indeed, aspects of patient safety are everywhere in everyday Medicine. We cannot underscore enough the cruciality of having good core medical knowledge and clinical skills and acumen in treating patients. On top of knowledge and skills, the attitude of putting patients' interests and SAFETY first must be repeatedly stressed. Junior doctors who lack patient safety awareness and start taking shortcuts, especially when they are tired, are a recipe for disaster. At that point, not only will the patients suffer, but the confidence and morale of the physicians will be bruised.

So stay SAFE and you will be PASSED! ■

References

1. World Health Organization (WHO). WHO Patient Safety Curriculum Guide for Medical Schools. Available at: http://www.who.int/patientsafety/activities/technical/medical_curriculum. Accessed 1 November 2014.
2. Sandars J, Bax N, Mayer D, et al. Educating undergraduate medical students about patient safety: priority areas for curriculum development. *Med Teach* 2007; 29(1):60-1.
3. Walton MM. Teaching patient safety to clinicians and medical students. *Clin Teach* 2007; 4:1-8.



SCENARIO NO.	DESCRIPTION	CORRECT ATTEMPT	WRONG ATTEMPT	POINTS	TOTAL
1	SNS - CRITICAL X-RAY	2	0	1	3
2		0	0	0	0
3	NO PINKED US NO LIPS REPORT X-RAY	2	0	1	3
4	NO LIPS REPORT X-RAY	2	0	0	2
5		5	-6	0	-1
6		0	0	0	0
7	JUGGLING 4 SITUATIONS	0	0	0	0
8		1	-1	0	0
9		4	-3	1	-8
10	SNS - CRITICAL PROCEDURE	0	-3	0	-3
TOTAL SCORE					41 / 45



From top

Figure 1 PASSED's introductory page

Figure 2 Sample of a summary score

Figure 3 NUS medical students playing the game



Dr Kow is the Assistant Dean (Education) at the NUS Yong Loo Lin School of Medicine and a full-time liver surgeon in National University Hospital. In addition to his regular clinical work, he spends a lot of time on medical education. He has a very supportive wife who is also actively involved in medical education. She hides the iPad from their three kids at all times.