

## A new simulator-based psychological training on crisis management

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**The context and setting** In aviation, one aspect of safety improvement for over 30 years has been the implementation of crew resource management (CRM) seminars. This psychological teaching form focuses on the CRM competencies *task management, dynamic decision making, teamwork* and *situation awareness*. The same competencies can be applied to the medical field. Until now, training of these basic skills has not been established in undergraduate medical education, although they would be as helpful for medical teams as they are for people working in other complex environments.

**Why the idea was necessary** Full-scale patient simulators have been available for more than 15 years. Crisis resource management courses have been developed for doctors with a focus on the CRM competencies. In contrast to aviation, most medical CRM courses are held without psychologists, although the course objectives are psychological competencies. Furthermore, no psychological exercises concerning CRM skills are offered, in contrast to CRM seminars for air crews. In particular, beginners in the medical profession have difficulty applying knowledge and working effectively under stress. For this reason, non-technical skills should already be taught during undergraduate medical education.

**What was done** We established a curriculum for medical students to teach non-technical skills. A 3-hour pilot course with a focus on situation awareness was set up as part of the mandatory 2-week course in 'Anaesthesiology' for students between the third and the fifth year. After a lecture about human factors and error prevention (20 minutes), 1 psychologist and 2 anaesthesiologists demonstrated a short resuscitation sequence on a METI-ECS patient simulator (METI, FL, USA). The students had to observe the scenario and discuss how CRM skills were practised (40 minutes). This was followed by a 45-minute seminar about situation awareness, held by a psychologist. The exercises were designed for a medical context by a team of psychologists prior to the course. After the seminar the students completed a resuscitation scenario with the simulator, followed by a debriefing focussed on situation awareness. In all, the simulator training lasted 60 minutes. Participants were asked to complete a questionnaire at the end of the course.

**Evaluation of results and impact** We received 22 evaluation questionnaires from the 22 students who

took part in the course. The overall mark was  $1.8 \pm 0.8$  [marks from 1 (excellent) to 6 (poor), mean  $\pm$  standard deviation (SD)]. The course was rated as suitable for linking theoretical knowledge with clinical contents ( $2.0 \pm 1.0$ ). The marks for the simulator training and the psychological seminar were  $1.5 \pm 0.7$  and  $2.0 \pm 0.9$ , respectively. The lecture was marked with  $1.7 \pm 0.9$ . The content versus time ratio revealed an average mark of  $4.2 \pm 0.5$  (1: too much content to 7: too much time; 4: ideal ratio) and the theory versus practice ratio was rated nearly perfect ( $3.9 \pm 0.4$ , 1: too much theory to : too much practice).

As our students valued teaching about error prevention and crisis management, we will offer similar courses focusing on the other 3 CRM competencies within the next semester.

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