Innovative blended learning strategies in medical science education

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• Introduction: The concept of blended learning (BL) has become an emerging paradigm as a method for students training in medical science. In the last years the definition of BL as a simple blend of e-learning courses and classroom training has changed to more complex strategies and programs, which incorporate a wide variety of learning activities. BL strategies vary according to the medical sub-discipline.

• Blended learning strategies and methods: Using fully designed virtual patients as preparation for skills laboratory training is one example of an innovative blended learning approach. The clinical case examples focus on laboratory procedures using interactive images, questions, and video clips [1]. Another example of an innovative BL program is the implementation of a standardised bedside ultrasound (BUS) curriculum for medical students. The teaching focuses on four cognitive and psychomotor learning domains: image interpretation, image acquisition, BUS instrumentation knowledge, and procedural guidance [2]. Another strategy to improve the academic performance and student satisfaction in the basic surgery clerkship is the incorporation of blended online curricula (BOCs). Thereby a rotation model is established, in which students rotate through the combined online and in-person curricula components and which is determined by the tutor [3]. The implementation of an interactive blended system to teach geriatric medicine in medical schools is another example of teaching concepts in medical education. On the one side the suggested strategy consists of interactive learning, on the other side it allows more exposure to patients, frequent interaction with a multidisciplinary team, and it provides regular feedback [4].

• Discussion: The overall acceptance of BL strategies and programs is high among students and tutors [1]. In several studies, the implementation of interactive BL curricula were shown to improve the cognitive and basic clinical skills of medical students [1, 2, 3]. Moreover, it may be a beneficial approach to motivate the medical students’ interest in particular medical sub-specialities (i.e. geriatric medicine) [4]. The BL programs in medical science education offers valuable tools, which may supplement or replace traditional lecture-and-text-book-based teaching and learning strategies. They provide students learning contents in a way that they can then translate to novel situations in their academic clinical careers, which is the hallmark of effective learning [5].

• Conclusions: BL has the potential to improve medical science education. Medical schools may consider routinely incorporating BL teaching programs into their clinical rotation curricula in order to promote effective learning and the motivation of medical students in particular sub-specialities.

References
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