Virtual Patient Simulation: Implementation and use in assessment

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ABSTRACT

Virtual Patient Simulation systems (VPS) are educational tools now considered to have entered the mainstream of medical education. VPS support not only undergraduate learning - where they are used mostly for learning and training clinical reasoning -, but for continuing medical education and patient orientation as well. Regardless of educational setting, the broad use of virtual patients for learning has not been paralleled by matching research efforts regarding implementation issues or the educational results of VPS use. The scope of the present research was therefore *i)* to highlight the must-have features of a VPS leading, in the eyes of different stakeholders, to a successful implementation and use of similar applications and *ii)* to clarify the educational results of VPS implementation for learning *and* assessment.

The results of the present studies convey the importance of several VPS features and educational uses, such as: end-user customization; authenticity of the software design, clinical scenarios, media used to support the case and case feedback; use of VPS for clinical reasoning development, in a broad curricular context of clinical specialties, supporting learning of topics not seen during clinical rotations; and a needed relevance of the VPS assessment for the future clinical practice. Assessment with VPS, arguably one of several components of the continuum of implementation, yields better results than ordinary course evaluation when the VPS applications are used both for learning and for assessment. Interestingly, delayed (long term) retention in VPS students also exceeds that of their peers exposed only to traditional learning and evaluation methods.

The findings also indicate that if virtual patients are to stay in the mainstream of medical education, developers, educators and researchers may soon have to deal with issues such as the continuum of VPS implementation, the authenticity of virtual patient design and clinical scenarios, as well as end-user customization. Accountability and sustainable development profile themselves as imperatives for the virtual patient simulation field.