

**Title:** Integrating basic medical sciences using clinical simulation

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**What problem was addressed:** Helping students see the relevance of the basic sciences to clinical practice is a common challenge. In Brazilian medical schools, it is uncommon to find horizontal or vertical integration. Teaching is quite fragmented, and students do not receive regular feedback on their learning. Even when clinical cases are presented, these are theoretical - students do not see patients, understand the connections between various basic science disciplines, or actively get involved in solving problems.

**What was tried:** This pilot project was carried out in a Brazilian medical school which has a discipline-based curriculum with clear basic and clinical sciences components. The idea of creating clinical scenarios and use of standardized patients (SP) was introduced to the faculty. Consequently, we developed and conducted workshops for those teaching faculty in basic sciences. Seven clinical cases that included content from anatomy, physiology, histology, microbiology, and pathology were developed, with clear clinical signs and symptoms. Working with clinicians, appropriate cases for such teaching were taken from actual patients treated in the hospital. To create simulations, we recruited employees from the hospital and trained them to play the role of a patient. As an example, a patient with aortic valve insufficiency was one of the scenarios to discuss cardiovascular anatomy, physiology, and pathology concepts.

All students from the first and second year (60 per year totaling 120) were invited to participate in these simulation exercises. Each student was provided an opportunity to interact with the SP followed by individualized feedback. Collective debriefing in groups of eight was conducted by a faculty member. The debriefing focused on both content as well as communication skills. Feedback was collected from all students using a questionnaire and a focus group was organized with nine randomly selected students, to provide more in-depth perceptions of their experience. Interviews were conducted with the five faculty members who were actively involved in creating and conducting SP sessions.

**What lessons were learned:** The students were overwhelmingly motivated to interact with standardized patients, since they received individualized feedback and were able to see the clinical relevance of the basic science concepts; however, they felt their communication skills were poor. The concept of SP was appealing to the faculty. Faculty showed high enthusiasm and thought that these activities were highly useful to motivate students to understand difficult basic sciences concepts instead of memorizing facts. A challenge was the shortage of time during the debriefing session. Even though many hours were spent in creating the scenarios, training the SPs, and arranging the logistics, the faculty were quite passionate in creating more scenarios, and making them part of the official curriculum. This low-cost strategy is innovative in the Brazilian context, where the teaching of the basic sciences is theoretical with minimal integration and almost no feedback. An unexpected benefit was the utilization of such activities for formalizing formative assessment. Institutions with similar teaching modalities could easily benefit from this positive experience by encouraging the faculty to create clinical scenarios, train SPs, and arrange debriefing sessions.

**Reference:**

Sheakley ML, Gilbert GE, Leighton K, Hall M, Callender D, Pederson D. A brief simulation intervention increasing basic science and clinical knowledge. *Med Educ Online*. 2016; 21:30744.