

# Case-based simulation scenarios in cardiology

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## Dear editor

We read with interest the study by Bilello et al,<sup>1</sup> which assessed the utility of a cardiac case-based simulation scenario to investigate the physical examination performance of fourth-year medical students. As medical students, mannequins have granted us useful practical skills, but we recognize that they do not command the same feeling of dread nor the adrenaline surge that comes with managing a real-life cardiac arrest. This is a unique study design, and we respect the authors' description of its limitations, but for the educator who wishes to utilize mannequins in a similar investigation, we propose slight alterations to the study protocol.

Firstly, in order to increase the study's authenticity, we recommend mannequins to be used in conjunction with a simulated patient (SP), that is, lay persons or actors who adopt and adapt to a given patient scenario.<sup>2</sup> In this scenario, an emergency physician provided the voice-over for the mannequin, but we would recommend an SP be present in the room, provide a voice-over for the mannequin and agree to being examined upon – except, of course, for cardiopulmonary resuscitation. From our experience, communication with an SP goes some way to affording genuineness to mannequins, allowing students to approach the situation more seriously and honestly.

Secondly, although assessing outcomes in relation to how well students perform focused physical examination components is valid, we feel it is important for future studies to assess outcomes respecting the universally recognized ABCDE assessment, which is intended as a rapid bedside assessment of a critically ill patient.<sup>3</sup> This would require students to assess domains such as airway patency and hypoxia management, in order of priority, which together would make the scenario a more accurate reflection of a true cardiac arrest.

Thirdly, before commencing the study, it would have been interesting for the authors to have measured students' confidence levels, which could have unearthed a correlation between confidence levels and outcomes in cardiac arrest management. Overconfidence amongst physicians has long been considered a source of diagnostic error and poor patient management,<sup>4</sup> and it would have been worthwhile to discern whether this phenomenon existed amongst medical students.

We agree with the study's findings regarding the need for a "call for improved technology to increase authenticity of simulators," but this must not detract us from another serious conclusion of the investigation that fourth-year medical students are,

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very worryingly, potentially not performing an adequate assessment of the cardiac arrest patient. This calls for more SP-based teaching – employing our aforementioned recommendations – in the management of cardiac arrest, which should be a fundamental skill in the House Officer’s armory. Given that medical students are potentially not being adequately taught how to manage a cardiac arrest situation, the onus should also be on hospitals to commission more teaching on this subject to their newly appointed House Officers.

## Disclosure

The authors report no conflicts of interest in this communication.

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## Authors' reply

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## Dear editor

We appreciate the Letter to the Editor from Butt et al regarding our study and recent publication entitled, "Fourth-year medical students do not perform a focused physical examination during a case-based simulation scenario." This study sought to assess the physical examination performance of medical students in the simulation laboratory during a high-acuity cardiac case that later evolved into a cardiac arrest.

We agree with the letter writers that increased emphasis must be placed and future resources spent on the teaching of physical examination skills, which is one of the primary conclusions of our study. As stated in our introduction, we feel that "physical examination skills represent one of the most important diagnostic tools we impart to new generations of medical students and trainees." We the authors of this paper,

aspire to achieve this in our work as medical educators and emergency medicine attending physicians.

We understand the writers' interest in incorporating live standardized patients, but we would like to highlight the fact that our study provided a standardized experience within the simulation laboratory with the use of mannequins. For each assessment, we utilized the same high-acuity cardiac case-based scenario with a standardized timeline in a controlled simulation setting. We feel this provides the most uniform research setting as opposed to live standardized patients.

Additionally, the suggestion from Butt et al regarding involvement of live standardized patients was to assess learners' communication skills. The focus of our study was to evaluate their physical examination performance in an environment that is similar to the clinical setting, such as our high-acuity cardiac arrest scenario for an emergency medicine clerkship. Although we appreciate the importance of teaching and evaluating learners' communication skills, the students' ability to communicate with a patient is not the primary aim of this study.

We thank the writers for their interest in our research and look forward to future studies aimed at improving the medical student simulation experience.

## Disclosure

The authors report no conflicts of interest in this communication.

## Reference

1. Bilello LA, Dubosh NM, Lewis JJ, Hall MM, Fisher J, Ullman EA. Fourth-year medical students do not perform a focused physical examination during a case-based simulation scenario. *Adv Med Educ Pract*. 2018;9:583–588.

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