


# Medical education: an unforgettable experience? [Letter]

This article was published in the following Dove Press journal:  
*Advances in Medical Education and Practice*

Omer Mohamed 

Hussein Elghazaly 

Mohammed Allaf 

Faculty of Medicine, Imperial College  
London, London, UK

## Dear editor

We read with great interest the study by Zaeemzadeh et al<sup>1</sup> regarding the evaluation of Physiology knowledge loss in medical students. In particular, their results that the extent of physiology knowledge loss was inversely correlated with time were fascinating, as this conflicts with the known relationship between the passing of time and memory loss,<sup>2</sup> and also conflicts with similar studies.<sup>3,4</sup> Furthermore, their findings contradict with our own experiences at Imperial College School of Medicine that time is a major contributor to knowledge loss.

We appreciate their efforts in conducting this study; however, we believe certain factors need addressing. First, we cannot exclude selection bias as a possible confounder for the results obtained, since enrolment to this study was optional. This is particularly important regarding students who are post-S12. Students younger than this stage may wish to enroll in this study as practice for the Iranian general entrance exam. However, this motivation may not be replicated in the older students, in whom other motivations may play a part in enrolment. Furthermore, whether the students were preparing for board exams, such as the United States Medical Licensing Examination (USMLE) and the Professional and Linguistic Assessments Board (PLAB) was not taken into account. We believe that students preparing for these exams would perform better on the exam study than if they were not. A cohort-based approach where all students are enrolled<sup>4</sup> may be more appropriate.

Second, considering the possible selection bias, we wonder whether the use of mean cohort scores in the calculation of knowledge loss was appropriate. Comparison of each student's score to their previous score on the physiology section in the general basic science examination would be more appropriate.

Third, we wonder whether 20 questions are sufficient to draw such conclusions, especially since this covered all aspects of physiology. With regard to the specific questions, we also believe that they may not be truly representative of "basic pre-clinical knowledge"; for example, the first question regarding pulse pressure is arguably more clinically-oriented. Moreover, the use of single best answer (SBA) questions is controversial. In a recent study,<sup>5</sup> it was argued that election of the correct answer in SBA questions may be subject to cueing and therefore might not test the student's knowledge; in Imperial College School of Medicine, it was found that valid assessment of undergraduate and postgraduate knowledge can be improved by the use of very short answer (VSA) questions in replacement of SBAs.<sup>5</sup> Such an approach will test nascent physician ability rather than the ability to pass exams.

Correspondence: Mohammed Allaf  
Faculty of Medicine, Imperial College  
London, South Kensington, London SW7  
2AZ, London, UK  
Email msa715@ic.ac.uk

In Imperial College School of Medicine, our own experience points towards a relationship between time and loss of basic science knowledge. This is highlighted by students being unable to answer questions related to basic pre-clinical subjects on the wards. A pertinent example is the forgetfulness of basic anatomical knowledge during surgical placements. We wonder whether the course structure between the two medical schools may contribute to this. We believe further studies investigating this are indicated.

## Disclosure

The authors report no conflicts of interest in this communication.

## References

1. Zaeemzadeh N, Taherpour S, Behzadian N, Mard SA. Evaluation of physiology knowledge loss in medical students of Ahvaz Jundishapur University of Medical Sciences. *Adv Med Educ Pract.* 2019;10:157–162. doi:10.2147/AMEP.S189029
2. Mandler JM, Ritchey GH. Long-term memory for pictures. *J Exp Psychol Hum Learn Mem.* 1977;3(4):386–396. doi:10.1037/0278-7393.3.4.386
3. D'Eon MF. Knowledge loss of medical students on first year basic science courses at the university of Saskatchewan. *BMC Med Educ.* 2006;6(1):5. doi:10.1186/1472-6920-6-5
4. Lazić E, Dujmović J, Hren D. Retention of basic sciences knowledge at clinical years of medical curriculum. *Croat Med J [Internet].* 2006;47(6):882–887. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/17167861>. Accessed April 13, 2019.
5. Sam AH, Hameed S, Harris J, Meeran K. Validity of very short answer versus single best answer questions for undergraduate assessment. *BMC Med Educ.* 2016;16(1):266. doi:10.1186/s12909-016-0793-z

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Advances in Medical Education and Practice 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Advances in Medical Education and Practice editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

### Advances in Medical Education and Practice

Dovepress

## Publish your work in this journal

Advances in Medical Education and Practice is an international, peer-reviewed, open access journal that aims to present and publish research on Medical Education covering medical, dental, nursing and allied health care professional education. The journal covers undergraduate education, postgraduate training and continuing medical education

including emerging trends and innovative models linking education, research, and health care services. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/advances-in-medical-education-and-practice-journal>