

# A Response to “Assessing Medical Students’ Knowledge of Genetics: Basis for Improving Genetics Curriculum for Future Clinical Practice” [Letter]

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## Dear editor

I read with interest the paper by Alotaibi and Cordero investigating the knowledge of medical students in the field of clinical genetics, particularly as this is relevant to myself as a fourth-year medical student.<sup>1</sup> The authors have evaluated that clinical genetics knowledge is generally insufficient amongst fourth-year medical students.

Multiple-choice questions (MCQs) are the most commonly used tool to assess knowledge in medical education. However, MCQs have limitations as an assessment tool, and they can give a false impression of a students’ competence.<sup>2</sup> The authors may have benefitted from using very short-answer questions (VSAs) as an alternative to MCQs. Recent evidence suggests that VSAs provide a more authentic assessment of students’ abilities compared to MCQs, as they can identify cognitive errors more readily and potentially better quantify where teaching needs to be targeted.<sup>3</sup> Moreover, after inspecting the example Genetics MCQs included in the study, it appears that certain MCQs are mainly testing direct, factual knowledge recall with less emphasis on testing more complex clinical reasoning and problem-solving ability. It is therefore unsurprising that the second-year students performed better than the fourth-year students in wider knowledge domains, considering they likely revised the directly pertinent resources in closer proximity to the assessment and could recall facts with greater clarity. The reduced ability of students in later years of medical school to recall factual knowledge has been previously demonstrated.<sup>4</sup>

The fact that 87.8% of second-year students responded that their genetics knowledge was insufficient for clinical practice is surprising, considering they had recently received all the formal genetics teaching in the curriculum. However, the value of asking pre-clinical students to self-assess their preparedness for future clinical practice is debatable, considering they have not yet been exposed to the clinical environment and are unlikely to be fully aware of the required clinical genetics knowledge of competent physicians. A sub-group analysis of the fourth-year student cohort including analysis of factors that affected their responses to preparedness would be valuable. The COVID-19 pandemic will indubitably have affected the students’ learning opportunities, so its impact should also be factored into the sub-group analysis.

The small sample size and limitation to a single medical school makes it difficult to ascertain the generalisability of the conclusions to the wider medical student population. However, as discussed by the authors, the findings are backed by existing literature. Clinical genetics is a rapidly evolving field and it is imperative that knowledge gaps are addressed from an undergraduate level. In the United Kingdom (UK), one way this could potentially be addressed is through the upcoming United Kingdom Medical Licensing Assessment (UKMLA); a summative licensing assessment taken by all future UK medical students. In the current UKMLA content map, there is a separate domain of professional knowledge titled “Genetics and genomics”.<sup>5</sup> The high-stakes nature of this exam will therefore hopefully encourage increased representation of genetics in the curriculum and motivate students to optimise their knowledge.

## Disclosure

The author reports no conflicts of interest in this communication.

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