**Short-Answer Assessment Techniques: Designing Questions That Reveal Learner Understanding**

Marieke Kruidering PhD1, Michael W Lee Ph.D. FAAPE P,2. (1) Department of Cellular & Molecular Pharmacology, School of Medicine, University of California, San Francisco, CA, USA (2) Department of Medical Education, Geisel School of Medicine at Dartmouth, Hanover, NH, USA.

**Introduction.** Assessments that require effortful retrieval of information, such as short-answer questions (SAQs), promote better retention than tests that require recognition only. SAQs also provide a window into a students’ thought processes (1,2), enabling educators to assess students’ engagement in higher-order operations by applying the fundamentals of science to complex clinical cases.

**Aims**. The purpose of this session is to 1) share results from our studies on the perceived benefits and drawbacks of constructed response short-answer questions (CR-SAQs) and 2) provide participants with hands-on practice.

**Methods**. We surveyed students and faculty at three institutions, using a Likert scale and open-ended question-based survey to evaluate perceptions of CR-SAQs using the criteria of good assessment (3).

**Results.** Students and faculty report that the benefits of CR-SAQs are authenticity, deeper learning, and receiving feedback. Drawbacks included feasibility, construct validity, and scoring reproducibility. Students and faculty found CR-SAQs to be both acceptable (show your reasoning, partial credit) and unacceptable (stressful, not USMLE format).

**Discussion.** Using these insights participants in the workshop will be able to achieve the following objectives (4).

* Categorize open-ended exam questions according to levels of Bloom’s taxonomy
* Write open-ended exam questions that test higher level cognitive skills
* Construct rubrics that incorporate cognitive skill level for grading open-ended exam questions

1. Larsen DP, Butler AC, Roediger HL. 3rd. 2008. Test-enhanced learning in medical education. Med Educ. 42(10):959–966.

2. Hubbard JK, Potts MA, Couch BA. 2017. How question types reveal student thinking: an experimental comparison of multiple-true-false and free-response formats. CBE Life Sci Educ. 16(2):1–13.

3. Brenner, J. M., Fulton, T. B., Kruidering, M., Bird, J. B., Willey, J., Qua, K., & Olvet, D. M. (2023). What have we learned about constructed response short-answer questions from students and faculty? A multi-institutional study. *Medical Teacher*, *46*(3), 349–358.

4. Hauer, K. E., Boscardin, C., Brenner, J. M., van Schaik, S. M., & Papp, K. K. (2019). Twelve tips for assessing medical knowledge with open-ended questions: Designing constructed response examinations in medical education. *Medical Teacher*, *42*(8), 880–885.