

## **Periodic review sessions contribute to student learning across the disciplines in Pharmacology**

**Orla P. Barry<sup>1</sup>, Eleanor O' Sullivan<sup>2</sup>, and Marian McCarthy<sup>3</sup>**

*Abstract: Background: The teaching of the discipline of pharmacology is in constant flux. In order to meet the challenges of teaching pharmacology effectively we investigated a new teaching and learning strategy. Aim: Our aim was to investigate whether structured periodic review sessions (RS) could improve teaching and learning for students in a multidisciplinary undergraduate pharmacology module. Methods: Following each lecture students were asked to identify topics of difficulty in pharmacology using the one minute paper classroom assessment technique (CAT). Three review sessions were then introduced based on the problematic issues identified by students. They completed a pre- and post-review session multiple choice question (MCQ) examination to gauge improvements in their learning. Feedback was obtained from students at the end of the module regarding the acceptability, advantages and limitations of the CATs and the review sessions. Results: There was active participation by students in all thirteen CATs (71.15%  $\pm$  1.2%), three review sessions (78.3%  $\pm$  1.6%) and the end of module (EOM) questionnaire (81%). A significant increase in student learning across all disciplines was observed in all three review sessions.*

Barry, O.P., O'Sullivan, E., & McCarthy, M.



*Analysis*

**Description of the three Review Sessions**

**Design and conducting of Review Sessions including MCQ examinations**

*(i) Review topics*

*of the RS*

*(ii) Format*

**Strategies to design the Review Sessions and MCQs**



## Results

### CAT participation and analysis

±

*Student CAT analysis*

Lecture number	Analysis of student CATs	Six main areas of student difficulty
		(i)

*All CATs were a one minute paper completed by students at the end of each lecture. Six main areas of student difficulties were identified from lectures 1-4 for RS 1, lectures 5-8 for RS2 and lectures 9-13 for RS 3. AA; arachidonic acid, PPAR; peroxisome proliferator-activated receptors, HPA; hypothalamic pituitary axis.*









*Questionnaire*







Barry, O.P., O'Sullivan, E., & McCarthy, M.

## Acknowledgements

## References

- Achike, F. I., & Ogle, C. W. (2000). Information overload in the teaching of pharmacology. *Journal of Clinical Pharmacology*, 40(2), 177-183. doi: 10.1177/00912700022008838
- Angelo, T. (1991a). Introduction and overview: From classroom assessment to classroom research. *New Directions for Teaching and Learning*, 46, 7-15. doi: 10.1002/tl.37219914603
- Angelo T. (1991b). Ten easy pieces: Assessing higher learning in four dimensions. *New Directions for Teaching and Learning*, 46, 17-31. doi: 10.1002/tl.37219914604
- Angelo T. (1998). Classroom assessment and research: An update on uses, approaches, and research findings. *New Directions for Teaching and Learning*, 75, 1-2. doi: 10.1002/tl.7500
- Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques*, 2<sup>nd</sup> ed., San Francisco: Jossey-Bass.
- Banerjee, I., Roy, B., Sathian, B., Pugazhandhi, B., Saha, A., & Banerjee, I. (2013). Teaching aids in pharmacology teaching and learning methodology: A study from a medical college in Nepal. *International Journal Interdisciplinary and Multidisciplinary Studies*, 1(1), 1-7.
- Bligh, D. A. (2000). *What's the use of lectures?* San Francisco: Jossey-Bass.
- Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W., & Krathwohl, D. (1956). Taxonomy of educational objectives. *The Cognitive Domain*. New York: McKay.
- Brewer, G., & Hiscock, D. (2001). Medical education and practice in the information age. *Postgraduate Medical Journal*, 77(909), 425-427. doi: 10.1136/pmj.77.909.425
- Brown, W. A., & Gamber, C. (2002). *Cost containment in higher education – Issues and recommendations*, ASHE-ERIC Higher Education Report. 28(5).
- Byon, A. S. (2005). Classroom assessment tools and students' affective stances: KFL classroom settings. *Language and Education*, 19(3), 173-93. doi: 10.1080/0950070508668673



Barry, O.P., O'Sullivan, E., & McCarthy, M.

Coleman, I. P. L., Foster, R. W., Hollingsworth, M., Morgan, R., Sewell, K., & Walker, J.

Barry, O.P., O'Sullivan, E., & McCarthy, M.

Joshi, A., & Trivedi M. (2010). Innovations in pharmacol

Barry, O.P., O'Sullivan, E., & McCarthy, M.

Skaalvik, E. M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology*, *99*, 611-625. doi: 10.1037/0022-0663.99.3.611

Simpson-Beck, V. (2011). Assessing classroom assessment techniques. *Active Learning in Higher Education*, *12*(2), 125-132. doi: 10.1177/1469787411402482