

## Case-Based Learning in Family Medicine Residency Training

Authors: Megan M. Rayman, MD, Joie L. Evans, DO, Karyn Kolman, MD, Judith Gordon, PhD

### Introduction

- BUMC-SC Family Medicine Residency is a university-based residency program, serving a diverse population of patients in Southern Arizona.
- Through surveys of our family medicine residents, a lack of formal teaching on the inpatient medicine service was identified:

**Hypothesis:** *Case based learning would help residents learn in an environment similar to their work environment and having a case database of common inpatient family medicine problems would help facilitate better teaching by attending physicians.*

### Methods

- Designed a case-based teaching module to be used by faculty as a teaching guide or as a self-study module for residents
- Selected Acute Renal Failure as a commonly encountered inpatient family medicine problem
  - designed a case to teach the basics of acute renal failure
- During a didactic session with 17 residents, each of the residents was given a 3 question pre-test
- Residents were then divided into 2 groups, with each group having equal numbers of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> year residents
- Group A: 8 participants reviewed and discussed the case as a group, with an inpatient attending physician facilitator
- Group B: 9 participants reviewed the case individually
- After case: the same 3-question post-test was given to participants in each group

### Results

#### Group A:

- Average number of questions missed on the pre-test was 0.625
- Average number of questions missed on the post-test was 0.375
- 40% improvement in score for the overall group

#### Group B:

- Average number of questions missed was 1.11 on the pre-test
- Average number of questions missed on the post-test was 0.67
- 60% improvement for the overall group

#### Combined Data:

- Both groups showed improvement after having reviewed the case
- Feedback from both groups indicated that some points were emphasized in the explanation of the case, but were not elucidated during the case or in any of the questions
- Participants asked that we incorporate additional questions to make those points more concrete
- Overall, the activity was well received by both the residents and the faculty participant

### Conclusions

- Case-based learning is a feasible, acceptable and effective approach to teaching common inpatient medicine topics
- Cases can be taught in a group setting with a faculty facilitator or through self-study
- Education of residents could be improved by having a variety of common cases available for residents for self-learning as well as for attending physicians to lead discussions
- Having a database of common inpatient medicine cases would be beneficial for both faculty facilitators and residents



### References

1. Toy, Eugene C., and John T. Patlan. Case Files: Internal Medicine. 3rd ed. New York: McGraw-Hill Medical, 2009. 117-29. Print.
2. Vernon, D. T., and R. L. Blake. "Does Problem-based Learning Work? A Meta-analysis of Evaluative Research." *Academic Medicine* 68.7 (1993): 550-63. Web.
3. Hoffman, Kimberly PhD; Hosokawa, Michael EdD; Blake, Robert Jr MD; Headrick, Linda MD, MS; Johnson, Gina. "Problem-Based Learning Outcomes: Ten Years of Experience at the University of Missouri—Columbia School of Medicine." *Academic Medicine* 81.7 (2006): 617-625.