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Addressing Pitfalls of the Flipped Classroom: An Approach to Purposeful Small Groups and Improved Learner Preparation Using EM Fundamentals

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#### **Authors**

Shappell, E  
Ahn, J

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## **Best Innovations & Soundbites from the 2018 CORD Abstracts Oral Presentations**

### **1 Addressing Pitfalls of the Flipped Classroom: An Approach to Purposeful Small Groups and Improved Learner Preparation Using EM Fundamentals**

*Shappell E, Ahn J, /University of Chicago, Chicago, Illinois*

**Background:** The flipped classroom approach to resident conference has recently grown in popularity. While designing an intervention using this approach can seem simple, difficulties arise in (1) creating purposeful in-class activities and (2) ensuring learners complete assignments prior to conference.

**Educational Objectives:** To (1) create in-class activities that facilitate high-quality discussion as rated by faculty and (2) increase learner completion of pre-conference assignments compared to the previous year.

**Curricular Design:** We created EM Fundamentals, a flipped classroom curriculum featuring seventeen topics. Each topic has consensus-derived learning objectives, curated pre-conference resources, and novel in-class activities. In years past activities were designed by facilitators, which was met with mixed results. Based on this need for increased structure, faculty with educational expertise designed sessions using an array of educational strategies (e.g. think-pair-share, team quiz, mind maps) to target transfer of tacit knowledge. In attempt to increase pre-conference assignment completion, an automated service was used to schedule email reminders to participants. Discussion quality, learner completion of pre-conference work, and satisfaction with small group activities were evaluated with surveys.

**Impact/Effectiveness:** Fourteen of 16 residents (88% response rate) and 6 of 8 faculty (75% response rate) returned surveys. Satisfaction was rated on a 7-point scale from "extremely satisfied" to "extremely dissatisfied." All faculty were extremely satisfied with small group sessions (n = 6, 100%). Faculty were either extremely (n = 3, 50%) or moderately (n = 3, 50%) satisfied with the discussion created by group activities. Residents reported completion of pre-conference assignments 48% of the time, a modest improvement from the year prior (41%). Most residents were extremely (n = 6, 43%) or moderately (n = 6, 43%) satisfied with small group sessions; the remainder reported slight satisfaction. Realization of the flipped classroom's potential is promoted by careful design of activities by faculty with educational expertise; however, ensuring learner preparation remains a challenge. Future study will include additional incentives, direct monitoring of preparation, and knowledge

assessment using a web-based platform that is currently under development.

### **2 Emergency Medicine Foundations Asynchronous Learning Pathways: Analysis of Learner Participation and Preferences**

*Grabow Moore K, Shappell E, Wheaton N, Weygandt P, Shayne P, /Emory University, Atlanta, Georgia; University of Chicago, Chicago, Illinois; UCLA Ronald Reagan - Olive View, Los Angeles, California; Johns Hopkins University, Baltimore, Maryland*

**Background:** Individualized interactive instruction (III) is a mechanism for emergency medicine residencies to employ asynchronous learning as part of resident conference. The flipped classroom is a popular model for resident education where pre-conference learning may qualify as III; however, resident completion of pre-conference assignments remains a challenge.

**Educational Objectives:** To maximize learner completion of pre-conference assignments by offering multiple modalities (asynchronous learning pathways, ALPs) in the Emergency Medicine Foundations curriculum. Secondary objectives included characterizing learner preferences and satisfaction with the curriculum.

**Curricular Design:** Emergency Medicine Foundations (EMF) is an open access flipped classroom curriculum focusing on core content. We created a course website to host curated multi-modal resources for asynchronous learning including traditional and high-yield textbook readings as well as multimedia resources (Table 1). Each pathway covers similar learning topics and requires 1-2 hours to complete. ALP content coordinates with weekly Foundations Meetings, wherein learners engage in small group case-based learning.

**Impact/Effectiveness:** In the 2016-2017 academic year, 19 sites participated in EMF. We anonymously surveyed enrolled residents in February 2017, and 190 of 275 (69%) responded. Of these learners, 89 reported use of ALPs by their programs. Residents preferred multimedia resources (77%) over traditional text (49%) or high-yield text (35%) (Table 2). The majority of learners (54%) utilized resources from multiple pathways. 83% of learners completed at least 50% of their asynchronous assignments with 71% dedicating between 30 and 60 minutes weekly. Learners also reported high levels of satisfaction with Foundations ALPs and perceived positive impact on clinical performance. Our study supports continued use of asynchronous learning to supplement conference time and suggests that providing multiple modalities and limiting assignments to 60 minutes may best suit resident learners.