

Editor's Note: We are pleased to present the 2019 New Ideas articles showcasing novel, implemented initiatives in graduate medical education. This year nearly 100 submissions were reviewed and 11 innovative approaches selected. We encourage feedback regarding your experience with these New Ideas at your institution, as well as reactions to this section in general. Let us know what you think! Tweet @JournalofGME or e-mail jgme@acgme.org.

Development and Implementation of a National Neonatology Flipped Classroom Curriculum

Setting and Problem

Neonatal-perinatal medicine (NPM) fellowship programs rely heavily on didactic teaching (DT) to formally educate trainees in core educational content specified by the American Board of Pediatrics (ABP), with each program internally developing a unique curriculum. These didactic curricula foster knowledge acquisition through passive teacher-centric learning and typically do not include active learner engagement. Educator fatigue is also frequent, as a small core of NPM faculty typically create and deliver the curriculum at each program. Many Accreditation Council for Graduate Medical Education training programs, including NPM, would benefit from the development of a standardized peer-reviewed curriculum to deliver core educational content to ensure nationwide trainee access to high-quality education.

Intervention

Recognizing the potential benefits of a standardized national neonatology physiology curriculum based on adult learning principles, the Organization of Neonatal-Perinatal Medicine Training Program Directors (ONTPD) is developing a novel flipped classroom (FC) curriculum that employs peer-reviewed preclass online videos and in-class group discussions of clinical cases highlighting physiological concepts facilitated by a faculty educator. Thus far, ONTPD has developed FC programs for 22 respiratory and gastroenterology topics. Based on learning objectives that map to ABP physiology content specifications, each program consists of 3 to 7 online videos (4 to 10

minutes each) housed on MedEd On The Go (www.mededotg.com/pediatrics), learner and facilitator guides to promote group discussion of clinical cases, and suggested reading lists. Before class, learners and educators review the videos independently for knowledge acquisition, and then participate in a group case-based discussion facilitated by the educator for knowledge application.

Outcomes to Date

In 2017, a prospective, observational pilot study consisting of surveys and focus groups was performed at 5 institutions to assess feasibility and acceptability of the FC physiology curriculum using 2 of the 22 FC programs. Forty-one fellow learners and 6 faculty educators rated the relevance, quality of discussion, and learner-educator engagement as good to excellent. Six major themes emerged during focus groups for both learners and educators (FIGURE).

Results of the pilot study led to a larger survey study including 99 learners and 74 faculty who implemented FC teaching using one or more of 14 respiratory programs (2017–2018). Survey results demonstrated an increase in fellow preparation for physiology education and a decrease in the time needed for faculty to prepare content for a new educational topic. Both groups identified the content as relevant and the class discussions engaging.

Since September 2018, the ONTPD has implemented a national multicenter prospective randomized study that aims to evaluate the efficacy of a FC versus DT. Sixty-four participating fellowship programs were cluster-randomized to a FC or DT and provided with educational materials for 8 gastroenterology physiology topics. The participation of 67% (64 of 96) of NPM fellowship programs in the study reflects the enthusiasm for a potential standardized neonatology physiology curriculum and the innovative use of FCs to help align educational methods with andragogy.

Using Kirkpatrick's framework of curriculum evaluation (levels 1–4: reaction, learning, behavior, results), this randomized study will evaluate the following qualitative and quantitative outcome measurements:

- Pre- and postcurriculum surveys and focus groups of learners, educators, and fellowship

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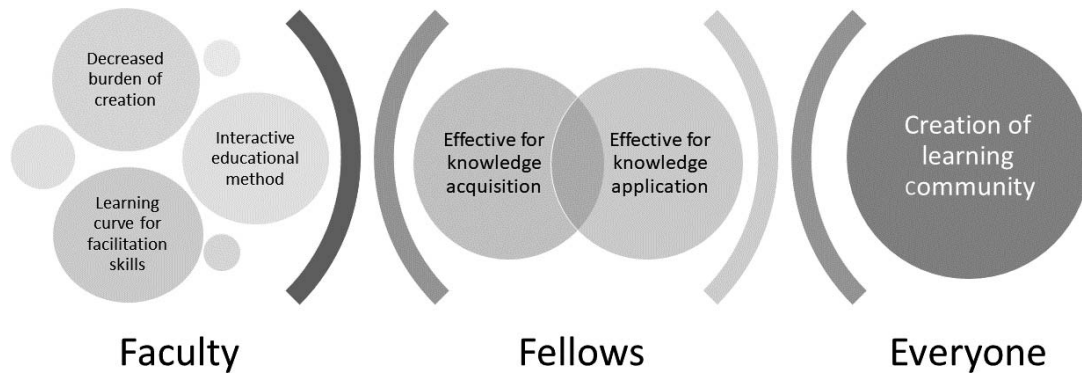


FIGURE
Major Focus Group Themes Emerging From Physiology Flipped Classroom Pilot

program directors regarding their experiences participating in FCs versus TDs, use of educational materials, and application of knowledge to the clinical environment (levels 1–3);

- Knowledge assessments of learners consisting of multiple-choice questions preimplementation and 1, 12, and 24 weeks postimplementation (level 2); and
- Results of national subspecialty in-service training examinations over a 3-year period (level 4).

The development of high-quality educational materials on a national scale has been labor intensive. An editorial board was created and structured with reviewers for each submitted program. Participating educators gain opportunities to join an educational collaborative and engage in faculty development and educational scholarship.

Susan Izatt, MD, MEd

Professor of Pediatrics, Division of Neonatology, Duke University Medical Center

Megan Gray, MD

Assistant Professor of Pediatrics, Division of Neonatology, University of Washington School of Medicine

Rita Dadiz, DO

Associate Professor of Pediatrics, Division of Neonatology, University of Rochester Medical Center

Heather French, MD

Associate Professor of Clinical Pediatrics, Division of Neonatology, The Children's Hospital of Philadelphia

Corresponding author: Susan Izatt, MD, MEd, Duke University Medical Center, DUMC 2739, Durham, NC 27710, 919.681.6024, susan.izatt@duke.edu

Skin in the Game— Taking Skin of Color Dermatology to the Classroom

Setting and Problem

Diagnosis and treatment of dermatological conditions play critical roles in disease prevention. However, previous studies have demonstrated that dermatology education in internal medicine residency programs is underemphasized, and education on skin of color dermatology is especially limited. Dermatology education involves pattern recognition and active, analytical thinking due to the heavy emphasis on visual learning. An effective way of absorbing these tenets requires learners to apply concepts and individually engage with the subject matter at their own pace. We sought to implement and improve dermatology education for skin of color through flipped learning, which shifts the focus of traditional learning from the group to the individual by engaging learners in a dynamic environment. We used these principles to develop 2 games to teach internal medicine residents about skin of color dermatology.

Intervention

We first used traditional learning styles to introduce simple concepts important for dermatology of darker skin. We introduced important resources and

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