Trainee Information
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Institution: Brigham and Women's Hospital
Program: Obstetric Anesthesiology
Resident or Fellow: F
PGY: 5

Proposal Information
Title: Assessing resident competency and satisfaction following implementation of a novel interactive curriculum

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RESEARCH NARRATIVE

Problem to be addressed: Education research has previously shown that lecture-based didactic structure leads to a small percentage of knowledge retention. As a new class of Obstetric Anesthesiology fellows, we are interested in restructuring the resident didactic curriculum for anesthesia residents rotating on the obstetric service. We would like to provide a more interactive curriculum, which we hope will lead to greater knowledge retention and increased resident satisfaction.


**Study hypothesis:** Our hypothesis is that a curriculum designed for active resident participation including problem-based learning, simulation, evidence-based learning, and question-answer format will result in improved knowledge acquisition and resident satisfaction compared to a traditional knowledge-based format.

**Population:** All anesthesiology residents from Brigham and Women’s Hospital (BWH) and Massachusetts General Hospital (MGH) who are rotating on obstetric anesthesia at BWH will be eligible to enroll in this study. Resident participation will involve partaking in didactic curricula as designed by current Obstetric Anesthesiology fellows. Traditional and interactive curricula will be alternated monthly. To compare curricula, participating residents will be asked to complete a written test at the beginning of the rotation (pretest), another exam at the end of the rotation (posttest), a satisfaction survey at the end of the rotation, and a 3-month retention test.

**Description of intervention or study design:** After enrollment, study participants will attend didactic sessions each weekday at 3:00pm while on the one-month obstetric anesthesiology rotation. Baseline curriculum will include traditional lecture style sessions presented by obstetric anesthesiology faculty and fellows. On alternating months, a newly designed interactive curriculum will be implemented during these 3:00pm sessions. This curriculum will include problem-based learning discussions, low-fidelity simulations, evidence-based literature reviews, and question-answer sessions. Each of these sessions will be standardized and consistent during each interactive curriculum month. Residents will receive short electronic quizzes 24-48 hours following each session to reinforce topics covered. On both traditional and interactive curriculum months, residents will complete a pre-test at the beginning of their one-month rotation. On the final day of the rotation, residents will complete a post-test as well as a satisfaction survey. They will later complete a 3-month retention test. Finally, resident standardized test scores will be obtained to compare efficacy of obstetric anesthesia knowledge between traditional and interactive curricula.

**Description of comparison group (if relevant):**

**Outcome variable to be used to determine the efficacy of the intervention (if relevant):** Outcome 1: Knowledge assessment 1. Scores on baseline knowledge assessment test, consisting of 25 multiple choice questions (pre-test). 2. Scores on end-of-rotation knowledge test on last day of Obstetric Anesthesiology rotation, consisting of 100 questions (post-test). 3. Three-month knowledge retention test scores at three months following completion of rotation, same 100 questions (long term retention test). 4. Scores on standardized exams including Anesthesia Knowledge Test (AKT) and In-Training Exam (ITE). Outcome 2: Resident satisfaction 1. Satisfaction survey completed on last day of Obstetric Anesthesiology rotation

**Power analysis to determine feasibility (when relevant):** We anticipate using descriptive statistics including median and interquartile range values to summarize primary outcome measures, based on a previous study that have yielded skewed distributions with small resident sample sizes (Hards 2012). In this reference study, simulation was used for training anesthesia residents in the management of maternal cardiac arrest and to compare two teaching methods. A total of 20 residents recruited yielded statistically significant differences in performance. We aim to enroll 35 participants over a six-month period. Reference: Hards A, Davies S, Salman A, Erik-Soussi M, Balki M. Management of simulated maternal cardiac arrest by residents: didactic teaching versus electronic learning. Can J Anaesth 2012 Sep; 59(9): 852-60.

**Timeline:** This project will be conducted over a one-year period (6 months of traditional curriculum alternating with 6 months of interactive curriculum), from October 2015 to September 2016. If found to be beneficial to resident education and knowledge retention, the new interactive curriculum will be implemented long-term.

**IRB status of project:** The protocol has been submitted for IRB.
BUDGET

**Line item budget and budget narrative:** Noelle Maternal and Neonatal Birthing Simulator $3,495.00
TrueClot Blood Simulant $45.00 x 10 Wall-Mounted White Magnetic Markerboard $83.84 EndNote Software $104 TOTAL $4,132.84

The majority of funds will be allocated to purchase a maternal and neonatal birthing simulator mannequin (NOELLE). We hope to use this mannequin weekly on the labor and delivery floor as part of our new didactic curriculum to perform fellow-run simulations on postpartum hemorrhage, respiratory collapse, and emergency cesarean delivery. We believe that these low-volume, high-acuity situations are too rarely encountered by anesthesia residents, and this increased exposure will enhance education. Any remaining funds will be used to purchase teaching supplies for other didactic sessions of the curriculum – this may include wall-mounted white boards, pens, and office supplies.

**Disclosure of other funding sources. (Will receipt of this grant augment or replace other funding sources for your research?):**

**Explanation if augmenting/replacing:** If this grant is awarded, we will seek other sources of funding, likely from within the Department of Anesthesiology to supplement the maximum $3000, in order to purchase the NOELLE mannequin.

**OTHER**

**Previous COE involvement to date:** Attended one dinner conference in 2012, discussing the Affordable Care Act

**Previous COE funding:** n/a