Anesthetic Training in Resource-Poor Settings – Our Experience in Uganda

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Introduction

Inadequate anesthetic workforce and limited capacity for anesthesia training are major obstacles to the provision of surgical services in low-income countries. Recent increases in enrollment of anesthesia residents at Makerere University (Kampala, Uganda) is encouraging and through an ongoing collaboration between Makerere University and GPAS, we see an unique opportunity to further improve, streamline, and advance the anesthetic training environment in Uganda.

Our goal was to determine whether the implementation of a self-sustaining, low-cost orientation course based on those used for residents at Stanford and UCSF would improve access to high-quality anesthetic education in Uganda.

Methods

Stanford and UCSF anesthesia residents have a rigorous, month-long orientation program to introduce them to major concepts in anesthesia. The program includes:

- Key subject lectures
- Airway workshop
- OR simulation sessions
- 1:1 supervised OR cases
- Video lectures

We modeled an orientation course after the Stanford/UCSF programs modified it to make it low-cost and context appropriate with material tailored to the local practice environment and designed to be taught by local anesthesiology faculty and senior trainees.

Seven stations to orient residents to available airway equipment

- Donated equipment
- Each station pre-packaged in compact boxes
- Contains easy-to-follow educational goals and objectives

Built a low-cost simulation center

- Repurposed parts for simulation dummy
- Donated iPad apps
- Recording and playback capability for educational purposes

Taught senior residents to run full simulations

Constraints addressed:

- Low faculty:trainer ratio
- No clear guidelines for key topics
- Limited didactics/instruction prior to clinical practice in the first year of training

Solutions:

- Pre-made standardized lectures containing core materials
- Designed so senior residents can give the lectures (not dependent on attending availability)

Constraints addressed:

- Available educational videos online often not applicable due to resource limitations
- Certain topics not amenable to lecture format

Solutions:

- Helped residents generate videos applicable to practice at Makerere
- Current videos: machine check, monitors

Results

Survey of participants to determine whether each component of the orientation was helpful in preparing them for the operating theater

- Scale 1-7 (1 – least helpful, 7 – most helpful)
- Ranking from 1-4 in terms of best experience
  - Lectures, videos, airway workshop, simulation
  - Most helpful – Simulation
  - Overall 2-fold improvement in feeling of preparedness

Discussion

The orientation course was successful and has been expanded and improved since its initial rollout. The airway workshop has been expanded to include an advanced airway workshop. Since its assembly, the simulation center has remained in use on a regular basis by both the anesthesia department as well as other departments for resident training purposes.

We constructed a low-cost, self-sustaining orientation course for new anesthesia residents consisting of lectures, an airway workshop, and a new, fully-functional simulation center. This orientation course has been well-received by the trainees and represents a model for sustainable, positive improvement in the quality of anesthesia education in a resource-poor setting.

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