

The Use of Podcast Videos as a Learning Tool for Airway Skills in a Medical Student Anesthesiology Curriculum

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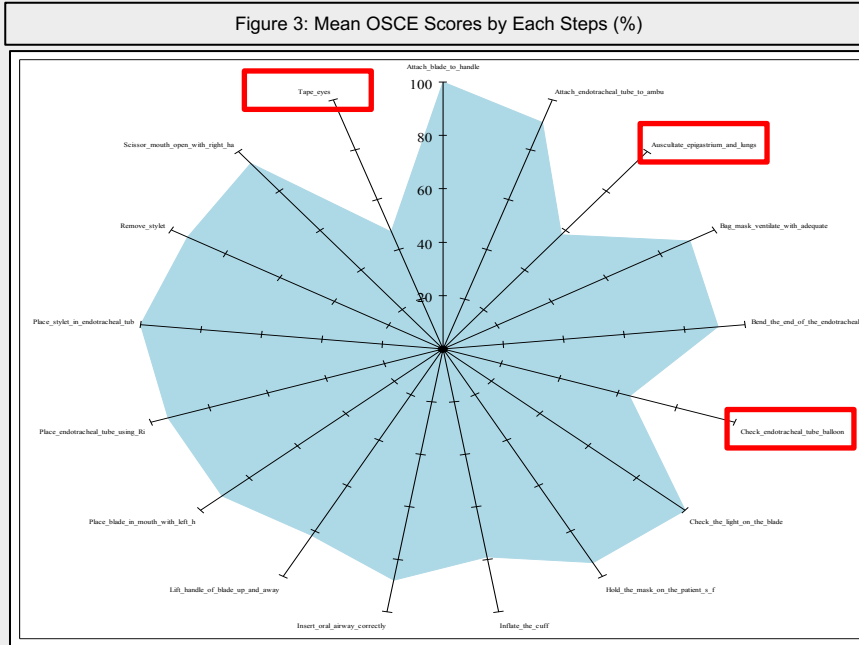
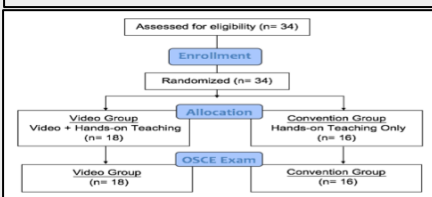
Introduction

- Over recent years, unique challenges to effectively teaching medical trainees with various background increases the demand for institutions to train better and more efficiently^{1,2,3}.
- The latest education literature suggest the benefit of a blended curriculum consisting of a novel educational tools with e-books, podcasts, and online modules often preferable to millennials more accustomed to using electronic devices when compare the more traditional didactic curriculum^{1,2}.
- The question of whether these innovative tools truly provide a better learning strategy for a diverse population of medical learners remains to be answered.
- In an effort to better understand the efficacy of blended learning on medical student education, particularly in the study of airway management, a study was performed with medical students at a level one trauma tertiary referral center on a Trauma Anesthesia rotation.
- We hypothesized that the use of podcast videos on airway equipment and techniques in addition to the current conventional one-on-one hands on teaching in the operating room significantly improves the medical student's airway skills.

Method

- After IRB approval, 34 medical students scheduled for general anesthesia rotation were recruited (Figure 1).
- After obtaining their consent, the ones who were randomized to receive the videos (study group) were given a series of video podcast on airway equipment, mask ventilation, and intubation.
- Both the study and control groups received hands-on conventional teaching in the operating room.
- At the end of the rotation, all students were tested with a 20 step objective skills clinical exam (OSCE) on a mannequin to evaluate how students preparing airway equipment, mask ventilation, and intubation.

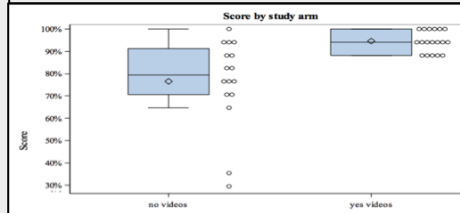
Figure 1: Participant flow chart



Results

- OSCE score was higher in the video group by 18% (Video group n=18, 94.4% (±4.7), Convention group n=16, 76.5% (±14.7), P=0.003).
- As a cohort, More students in the video group passed the OSCE (>70%) than those in the convention group (Video group 100% (18/18), Convention group 66.8% (11/16), P=0.037).

Figure 2: OSCE Score Between Study Groups (%)



Results Cont.

- Three skills were less than satisfactory: checking endotracheal tube balloon (64.7%), taping eyes (52.9%), and auscultating epigastrium and lungs (58.8%) (Figure 3).
- Overall, all students who received the video modules successfully intubated (100%), while two students that did not received the video modules failed to intubate the mannequin (12.5%).

Discussion

- Teaching procedures in Anesthesiology are leaning more towards self-motivated media driven learning through podcasts, online videos for new generation of trainees⁴.
- Our study demonstrate that by supplementing medical students learning with podcasts, the knowledge retention on airway skills is enhanced positively.
- Significantly higher OSCE scores on airway techniques are achieved when series of pre-rotation podcasts on basic airway equipment, mask ventilation and intubation on mannequin, and a real-time video of an intubation on a patient is added in addition to convention teaching through hands-on coaching and resident didactic lectures, when compared to students who received only convention teaching (P=0.003).
- In our video modules, each podcasts covers basic airway knowledge that would be otherwise ubiquitous, is sent out 1 week prior to start of rotation and is less than 4 minutes to encourage multiple viewings without cognitive overload.
- An instructor explains each piece of airway equipment, demonstrates both the proper techniques of mask ventilation and intubation on a mannequin, and teaches without a checklist or specific pointing to a series of steps for the OSCE.

Limitations

- Students were assumed to complete video modules prior to start of rotation.
- Did not keep track of number of times each students watched the video modules.
- Future students should include testing long-term retention of students' airway skills at 3, 6, 9 months.

References

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