The Integration of a Formal Debate in a Surgical Simulation Course: An Effective Way To Teach Surgical Decision Making

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Disclosures

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Introduction

• Neurosurgery residency training has many different educational components including technical/surgical, didactic, and specific training related to pre-operative decision-making

• Pre-operative decision-making is one of the more difficult concepts to teach
  • Clinical Oxford-style debate might be an ideal approach to teaching this concept

• Objective
  • Examine the learner experience and perceived utility of a formal debate to teach pre-operative decision-making in a neurosurgical residency program.
Methods

1. A formal debate focused on pre-operative decision making for a cervical spondylotic myelopathy (CSM) case was embedded within a spinal surgery cadaver course.
2. Pre-course surveys were administered.
3. The formal debate was moderated by a spine expert.
4. Residents performed their preferred surgical approach to the CSM case in the cadaver simulation lab.
5. Residents evaluated the entire process through a final survey.

Presented CSM case
Results

• 5 residents participated in the formal debate

• All residents felt that an expert moderator was an essential feature for a successful debate

• 4 residents (80%) expressed that the debate influenced their surgical approach choice, independent of their year of training.

• The debate changed the chosen approach of 1 resident only (20%)
  • The others (80%) expressed that it reinforced their primary opinion

• Most residents (80%) noted the importance of fluoroscopy for
  • Real-time technical feedback
  • Authentic operative experience
Results – Pre- and post-survey

Q2 Debate is an enjoyable way to learn.
- Pre-Debate:
  - Strongly Disagree: 40%
  - Disagree: 40%
  - Neither Agree nor Disagree: 20%
- Post-Debate:
  - Strongly Disagree: 40%
  - Disagree: 80%
  - Neither Agree nor Disagree: 20%

Q3 Engaging in debate causes anxiety.
- Pre-Debate:
  - Strongly Disagree: 40%
  - Disagree: 20%
  - Neither Agree nor Disagree: 40%
- Post-Debate:
  - Strongly Disagree: 40%
  - Disagree: 60%
  - Neither Agree nor Disagree: 40%

Q4 Learning using debate requires adequate participant preparation.
- Pre-Debate:
  - Strongly Disagree: 40%
  - Disagree: 60%
  - Neither Agree nor Disagree: 20%
- Post-Debate:
  - Strongly Disagree: 40%
  - Disagree: 60%
  - Neither Agree nor Disagree: 40%

Q5 Debate is useful in understanding evidence-based approaches in spine surgery.
- Pre-Debate:
  - Strongly Disagree: 40%
  - Disagree: 40%
  - Neither Agree nor Disagree: 20%
- Post-Debate:
  - Strongly Disagree: 40%
  - Disagree: 60%
  - Neither Agree nor Disagree: 60%

Q6 The environment where the debate takes place is an important factor in its success.
- Pre-Debate:
  - Strongly Disagree: 20%
  - Disagree: 60%
  - Neither Agree nor Disagree: 20%
- Post-Debate:
  - Strongly Disagree: 20%
  - Disagree: 60%
  - Neither Agree nor Disagree: 60%

Q10 It is important for a spine surgery simulation course to maximally replicate an actual operating room.
- Pre-Debate:
  - Strongly Disagree: 14%
  - Disagree: 43%
  - Neither Agree nor Disagree: 43%
- Post-Debate:
  - Strongly Disagree: 14%
  - Disagree: 57%
  - Neither Agree nor Disagree: 43%

Q11 I gained new skills to apply in the operating room.
- Pre-Debate:
  - Strongly Disagree: 14%
  - Disagree: 86%
- Post-Debate:
  - Strongly Disagree: 14%
  - Disagree: 86%
Results – Changes in chosen surgical approach

Surgical approach

Posterior
Anterior

Stage
Pre-debate
Post-debate
Post-simulation

Participant 1 : *
Participant 2 : ■
Participant 3 : x
Participant 4 : *
Participant 5 : •
Discussion

• First described formal debate implemented in conjunction with an operative simulation course

• Debates are designed based on adult learning principles

• Debates stimulate cognition

• Debates should be added to surgical education curriculum

Summary points

• Formal expert-moderated debates are effective and engaging

• They can inform and hone resident surgical decision-making skills