Use of Simulation to Teach Estimated Blood Loss
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Introduction
Over or underestimation of blood loss (BL) can adversely affect clinical decision making and resuscitation efforts. There are few educational methods available to improve resident ability to quantify BL.

Methods
- Convenience sample of residents (OB-GYN, emergency medicine and anesthesia)
- Participation was solely based on scheduling availability during a single 2-hour study session
- All levels of residents were eligible to participate
- Residents had completed a minimum of 11 months of post-graduate training
- Curriculum review determined that BL had not been included in the formal didactics of the participating departments

Five simulation cases included
- pregnant trauma victim
- c-section
- ruptured ectopic pregnancy
- GI bleed
- vaginal delivery

Questions regarding:
- blood loss resuscitation (amount of fluid ordered)
- management
- type of fluid ordered: crystalloids, red blood cells, FFP, cryoprecipitate and platelets

Blood loss tutorial (using validated visual examples) was completed
- Residents re-evaluated the original scenarios and clinical questions
- Repeated measures t-test and upper tail sign test were used to analyze data

Results (n=____)
Nineteen residents completed the study
- 7 emergency medicine
- 7 OB/GYN
- 5 anesthesia
1.63 cases was correctly assessed
  - mean; range 0-3; SD 0.96
39.5% of residents initially overestimated blood loss; 40.8% underestimated
68.4% overestimated and 18.4% underestimated BL after the tutorial, a significant change from initial interpretations (p < 0.05).

No significant difference on pre- or post-test scores between the specialties (p=0.37).

Conclusions
Simulation is a potentially clinically relevant option to enhance resident ability to accurately quantify BL. Larger studies are needed to further evaluate the role of this modality in improving this critical resident skill.

Disclosures Panel & Acknowledgements
The study authors would like to thank the staff of the STAR Center for making this study a reality.