



# MV-22 Osprey Aircraft Simulator's Utility in Developing Medical Student's Communication, Teamwork and Clinical Trauma Skills

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## RATIONALE

Undergraduate medical education at Brody is split into an 18-month didactic portion followed by 25 months of clinical training. Unfortunately, this setup leaves medical students with few opportunities to develop clinical skills during their foundational science phase. This is especially true regarding close-loop communication and teamwork abilities during difficult situations. Our retrospective analysis sought to determine whether ECU's newly constructed MV-22 Osprey Simulator can be used to teach trauma skills as well as foster development of communication and teamwork skills among first and second year medical students.

## METHODS

A total of 24 first and second year medical students from the Brody School of Medicine were recruited for this simulation via OrgSync and word of mouth.

Participants were randomly divided into groups of four. Students were trained in trauma skills immediately prior to the Osprey simulation. Each team of four worked with two mannequins under the guidance of a physician to complete the simulation.

An anonymous, 13 item post-survey was sent to all participants following the simulation. Yes/No, free response and 10-point Likert scale responses were utilized to gauge perceived utility of the simulation. Participants were not incentivized to sign up for the simulation nor to complete the survey.



## PRESIMULATION TRAINING

Students were divided into groups of four. The groups rotated through the below stations spending 15 minutes at each under the guidance of a physician:

- Rapid Trauma Assessment
  - Utilizing the ABCDE method of assessment
- Wound Care
  - Gauze packaging, bandaging, tourniquet and sucking chest wound
- Airway Management
  - Oral Pharyngeal Airway, Nasal Pharyngeal Airway, ETT Intubation using direct visual laryngoscopy

## SIMULATION

The Osprey simulation recreated a theoretical battlefield evacuation of two patients having suffered blast injuries. The simulator recreated military evacuation settings to include low lighting, helicopter sound effects at actual levels, vibrations, cramped space and push-to-talk radio communications. Two mannequins were utilized with matching injuries: arterial extremity bleed, venous extremity bleed, sucking chest wound and developing airway compromise. Students evaluated and treated the mannequin under the guidance of an onboard physician providing incremental updates on status and changes.



## RESULTS

Of the 24 participants, 19 responded (79 %) to the post-event survey. Responses were analyzed for participant satisfaction, self-assessment of skills learned and frequency of specific skills in free responses. Using a 10-point Likert scale, respondents indicated an average satisfaction of 8.7 with a range of 7 – 10 (Figure 1). Respondents (19/19) indicated they would recommend this simulation to other students while (17/19) respondents indicated the experience improved their communication and teamwork skills. Respondents (19/19) indicated they had learned something from the simulation (Figure 2) with a frequency of 8 mentioning intubation skills, 5 mentioning teamwork/communication skills and 5 mentioning trauma assessment skills.

Figure 1

10-point Likert scale response to the question: "How much did you enjoy the simulation?"

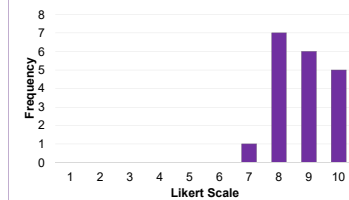


Figure 2

Participant response to the following "Yes/No" Questions:

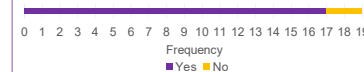
"Would you recommend this sim to other medical students?"



"Did you learn anything?"



"Did the experience improve your communication/teamwork skills?"



## IMPACT

Our results indicate both a high level of satisfaction among the simulation participants and participants found the experience educational in various ways. Our findings indicate that ECU's new MV-22 Osprey Simulator can successfully be used in the future to offer medical students clinical training and the opportunity to develop communication and teamwork skills.

Our study was limited by response rate, a small sample size and retrospective analysis of a satisfaction survey not intended for research. We believe future research into the viability of the simulator's use for first and second year medical students should utilize a research oriented, structured debrief to elicit specifically what students learned and how to create more impactful simulations.

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