

# The Effect of Increased Task Load Index on Surgical Performance at High Seas

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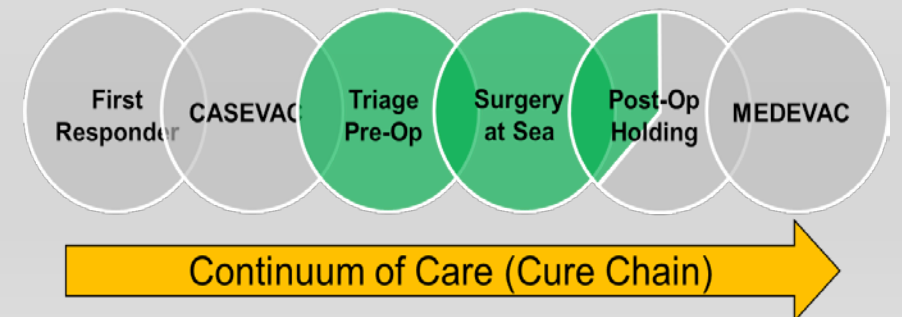
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# Introduction

- Embracing care within the “Golden Hour”
- The Effect of High Deck Accelerations on Surgical Tasks
  - Phase I: One person + Simulator
  - Phase II: Four-person team + Simulator
  - **Phase III:** Six-person team + Ship at sea
- Will increased task load index from rough seas affect surgical performance?



# Methods

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- Four most common traumatic combat injuries
  - Abdominal Injury
  - Multiple fractures of pelvis
  - Transverse fracture of femur
  - Partial traumatic amputation of lower leg
- “Cut-Suit” Manikin
- USNS Brunswick (EPF-6) from Norfolk to San Diego
  - Sea State (SS) 1 through 4
- Surgical Task Load Index (TLX – derived from NASA) and Performance evaluation by experts after each procedure



# Results

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- Across all participants, TLX scores increased during higher sea states
  - Approximately two points per sea state level ( $p < 0.001$ )
- 112 procedures performed
  - 89% of all had satisfactory performance scoring 4 or 5 out of 5
  - 46% of surgeries were at SS4

# Conclusions and Impact

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- No correlation between increased TLX and successful patient outcome
- Surgical teams can overcome rough sea conditions
  - Hard to predict due to human compensation
- Need to explore procedures and higher sea states



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