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Point of View Telemedicine at Point of Care

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Introduction

- Forward deployed military medical providers have strived to communicate with their consultant counterparts by email/telephone.
- Telemedicine in austere settings has been limited by expertise and unwieldy equipment.
- The study aimed to show that with relatively inexpensive equipment and current commercial technology one could live-stream a video feed from a head-mounted camera to a remote monitor.
- We hypothesized that a live video feed might impact the time it took to perform life-saving critical actions in a initial resuscitation simulation.
- We also considered that a live-feed might impact confidence measures among operator and consultant groups.

Methods

- Double-blinded randomized within subjects design
- Utilized medics, medical students, and junior physicians as operators. Senior residents and staff served as expert teleconsultants.
- The primary outcome were the time to events for tourniquet application, needle chest decompression, chest tube placement, administration of crystalloids, blood products, antibiotics, pain medications, performance of an ultrasound exam, placement of a cervical collar, and time to final evacuation.
- Secondary outcomes included confidence in outcome and confidence in procedures, and number of interventions.

Table 1. Level of Training

Level of Training	Number
Medic	7
Intern, PGY1	8
Medical Student	5
Senior Resident	5
Staff/Attending	13

Methods Cont.

Figure 1 & 2. Equipment used

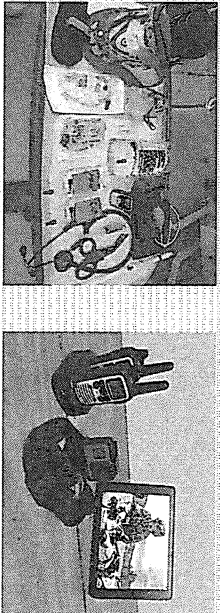
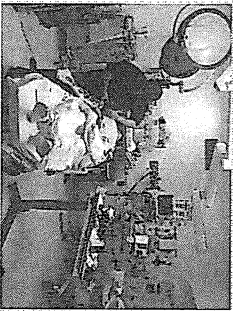
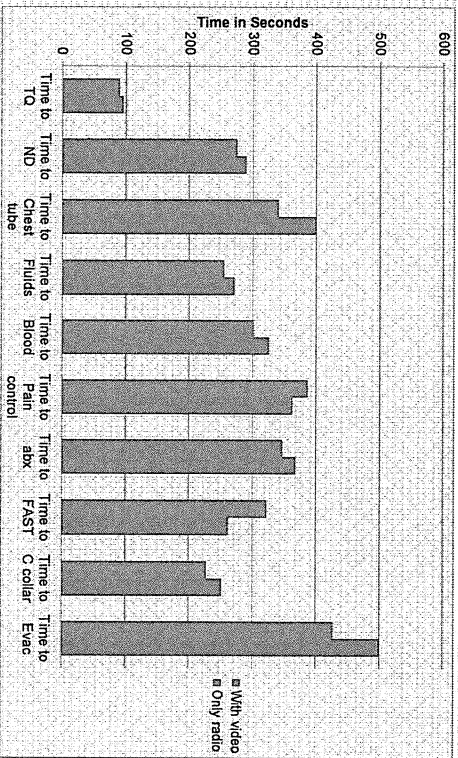


Figure 3. Operator setup



Results

Figure 4. Mean Times to Event



Results

Table 2. Cox proportional hazards significance values

Time to TQ	(p=0.8943)
Time to ND	(p=0.2700)
Time to chest tube	(p=0.8647)
Time to fluids	(p=0.3787)
Time to blood	(p=0.4928)
Time to pain control	(p=0.8176)
Time to abx	(p=0.8884)
Time to FAST	(p=0.4121)
Time to C-collar	(p=0.6689)
Time to evacuation	(p=0.1228)

Discussion

- Using a Cox proportional hazards model there was no significant difference using video for time to event or number of interventions applied.
- There was no significant difference in operator or consultant confidence when using video or without.
- This was a small study using operators with a broad range of medical knowledge.
- This study was underpowered by design, primarily designed a pilot study.

Conclusions and Future Directions

- It appears feasible and economical to use lightweight portable live-video feed technology for aid station teleconsultation.
- Additional study is needed to compare video consultation in deployed settings.
- While video live feed may not be as useful in the acute battlefield trauma setting, it may have more utility in a prolonged field care setting with more complex resuscitation.