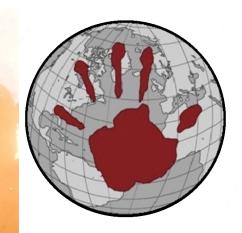


# LIGHT FAST MOBILE



...not just about cell phones

Regan Lyon, Maj, USAF

**SOST Black Team Emergency Physician** 



### Disclosures

- No financial disclosures
- Opinions herein are mine and do not represent those of SOST, the AFSOC, or the DOD

### Overview

- The New Military Medical Team
- Flexibility in Austere Medicine
- Blood Product Challenges
- Get Comfortable Being Uncomfortable

The New Military Med Team

### The New Military Medical Team

- UW has changed the battlefield
- Ground Force Commander's Goal: Risk mitigation for fighters
  - Close the "Golden Hour Gap"
- Far Forward/Outside Wire
  - Move with FLOT
  - Move if in contact
  - Provide same, if not better care
- Strategic Asset vs Support Asset

### SOST Black Team's Summary Numbers

- Deployment length: 120d
- Total Patients: 1011
  - Battle Injury 761 (75.2%)
  - Non-Battle Injury 122 (12.1%)
  - Disease 127 (12.6%)
  - Pediatric 140 (13.8%)
- Trauma Patients seen: 866
  - 87% penetrating
  - 98% trauma survivability
- Damage control resuscitations: 234
- Damage control surgeries: 212
  - Pediatric: 28

- Regional anesthesia blocks: 142
- REBOAs: 8

Flexibility in Austere Medicine

### Flexibility in Austere Medicine

- Must remain LIGHT, FAST, MOBILE!
- Limitations
  - Diagnostic Capability
  - Monitored holding capability
  - Supply Chain
  - Electricity/Power
  - Blood products (and blood storage)

## Far Forward Medical Decision Making

- Limited Diagnostics
  - V-Scan dual probe ultrasound
  - Doppler probe
  - Glucometer
- Can't "watch and wait"
- Decisions based off:
  - What you see/what you get
  - Transport Time
  - Receiving Facility's Capability



### Improvised Shunts

- Blast RLE Large soft tissue defect
- Proximal femur fracture
- Long segment SFA injury
  - Blunt/thrombosed CFA
- IV tubing
- Pelvis to femur ex-fix

### **Traction Splint**

- 50 fractures requiring traction
  - Only 4 splints
- Improvise!
  - 'Kicker' triwall cardboard
  - Kerlix/ACE

### No Luxuries...for you or the patient

- Electricity/Power
  - Generator-Based
  - Heating Elements Minimized
    - No Bovie/Cauderization
  - "Balancing" Circuits
  - Limited Equipment
  - Correct/Enough Fuel
  - Maintenance
- No Running Water
- No OR Suction
- No OR Irrigation
- No Wi-Fi

## **Blood Considerations**

#### **Blood Products**

- Total products used: 1370
- Whole blood transfused: 786
- Emergent walking blood drives: 53
  - Collected +460U blood
- Massive transfusions: 25
- Most Products Transfused in one Patient: 42
- Blood transfusion reactions: 2

### Blood Product Challenge

- CPG recommendations
- Limitations of forward facilities
- Logistics supply timeline
  - Whole Blood Supply Limited
  - Length of Transport/Viability of Blood
- Light/Fast/Mobile vs Storage Capability
  - Large Enough→More supplies/power
  - Mobile → Less Blood

### Blood: The Way Forward

- Low-titer O whole blood
- Liquid plasma
- FDP
- Cold stored platelets
- POC titer testing
- POC infectious disease testing

# Comfortable being Uncomfortable

### Ultimate Team Player

- Know each other's roles
- Feel comfortable stepping in
- Trust your team!
- Suggested skills to obtain:
  - IV placement (LARGE)
  - Mixing Medications
  - Vent settings
  - Priming tubing
  - Instrument Names
  - Regional Anesthesia

### Ultimate Team Player

- Don't forget the non-medicine stuff!
  - Power Expert
  - Carpentry/Engineering
  - Vehicle Maintenance
  - Security mindset
  - Convoy ops
  - Integration with ground forces
  - Resupply network
  - And on....and on....and on....

### Patient demographics

- 82% penetrating trauma
- 20% blunt trauma
- 33% civilian
- 14% pediatric
- 1.1% major burns (>20% TBSA)
- 3 military working dog evaluations

### **Total Surgical Cases**

- 109 laparotomies
- 26 thoracotomies
- 27 vascular shunts
- 7 neck cases
- 28 pediatric cases
- 63 amputations
- 13 ex-fixes
- 22 urologic cases
- 8 REBOAs

### Notable Cases

### Cardiac Injury

- 10F GSW L chest to R abdomen
- Hemopneumo on L
- + FAST
- R Diaphragm injury
- + pericardial window

### Cardiac Injury

- Blast wounds
- Eviscerated
- Bilateral traumatic BKA TQs placed
- + E-FAST L chest
- Large volume out of L chest tube
- L Thoracotomy
- Ex-lap, gastrorrhaphy, bilat BKA
- 22u WB, no coagulopathy noted

### Carotid Injury

- Civilian Male GSW L neck w expanding hematoma
- Injury to proximal internal carotid
- External to internal transposition
- Closed over drain

### Facial and Ocular Injuries

- 29 open globes
- 28 corneal abrasions
- 6 corneal ulcers
- 1 lateral canthotomy
- Airway/Bleeding control
  - 1 cric

# Conclusion

### The Way Forward – for DOD Medicine

- Light, Fast, Mobile
  - Bringing Same Medicine, Less Stuff, Less People
- Damage control mindset
- Austere mindset
  - No Luxuries
  - No Subspecialties
  - No "Extra Hands"
- Blood Trouble-shooting
- Step Out of Comfort Zone

## Questions?