



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?