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AIR COMMAND AND STAFF COLLEGE

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PROLONGED FIELD CARE

ARE SPECIAL OPERATION FORCES MEDICS PREPARED FOR
FUTURE CONTINGENCIES?

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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PREFACE

I have been a critical care registered nurse for over 10 years and a nationally certified paramedic for two years. I was selected for an assignment in the special operations community in December 2013. Through both conventional and non-conventional deployments, I have become increasingly aware of the importance of education and training for special operations medics, in particular the Green Beret medic. With the fluidity of the current battlefield, prolonged field care has become an important initiative in the special operations community.

This research is the capstone to completing the Air University Online Master Program. I would like to thank my wife and my children. She was very supportive in my efforts throughout the program. My wife was always willing to proof read every discussion post and paper I wrote during this program. I would also like to thank Dr. Smith, Dr. Morris, and all my classmates for their guidance. This was a long road that found me working on class work from the peak of a snow covered mountain, to the deserts of Africa and everywhere in between.

ABSTRACT

The United States has recently declared an end to the wars in Iraq and Afghanistan. This process has decreased the use of conventional military assets in this area while slowly increasing the presence of Special Operations Forces (SOF) personnel throughout the region. The Middle East is becoming more volatile with an ever-increasing presence of violent extremist organizations such as ISIS, who take root in Iraq and Syria. The decrease in conventional support has lowered the number of medical support sites in the region, leaving SOF personnel with increased evacuation times from their austere and sometimes isolated locations. The change includes medics working outside of the 60-minute ‘golden hour’ standard for transport of wounded soldiers to higher echelons of medical care.

The purpose of this research is to assess the need for further education and training for 18D Army medics in the new initiative on prolonged field care. The study finds that current training attained by 18D medics lacks standardization and task-specific training on prolonged field care such as intensive care nursing and critical care medicine.

The study identified several training opportunities that will increase the knowledge and skill level of the Special Forces medic of today for the challenges of tomorrow. Key recommendations include increasing Special Operations Combat Medic Skills Sustainment Course by five days, the creation of a Memorandum of Understanding between United States Army Special Operations Command and the University of Cincinnati, enabling all 18D medics to attend the four-week Medical Proficiency Training at the University of Cincinnati, and requiring Medical Proficiency Training at the University of Cincinnati as a mandated training event for all 18Ds every four years.

Research Question

This research will utilize a problem/solution framework and a review of an after action report to answer the question: “Should more comprehensive training in prolonged field care be incorporated into the initial and sustainment training received by Special Operations medics?”

The analysis will include what changes to the current training attained by SOF medics will more effectively sustain a constant state of readiness to provide prolonged field care? The goal is to improve Special Operations Command’s (SOCOM) capability to provide prolonged field care as the battlefields transition to areas with fewer medical assets.

The use of the after-action report will demonstrate an event in which further training in prolonged field care would have led to improved patient outcomes. Dr. Todd Rasmussen of the U.S. Combat Casualty Care Research Program at Fort Detrick wrote, “Future casualty care scenarios may be frighteningly more complex and involve delayed resuscitation, prolonged field care, and longer-distance critical care transport.”¹

Introduction

Prolonged Field Care (PFC) has recently become an important topic of discussion in the SOF community due to a new focus on managing patients in austere environments, with limited resources, and no surgical or medical support. The Prolonged Field Care Working Group has developed a required knowledge base to include a minimum of 10 capabilities to perform prolonged field care. These skills are: monitor, resuscitate, ventilate/oxygenate, secure airway, sedation/pain control, physical exam/diagnostic measures, nursing, surgical interventions, telemedicine, and flight/evacuation.²

10 Essential PFC Capabilities

	1. Monitoring	2. Resuscitate	3. Ventilate and oxygenate	4. Control the Airway	5. Sedation and Analgesia	6. Physical Exam and Diagnostics	7. Nursing and Hygiene	8. Surgical Interventions	9. Telemedical Consult	10. Package and Prepare for flight
Minimum	BP Cuff, Stethoscope, Pulse Ox, Foley	Fresh Whole Blood Kit	Bag-Valve-Mask with PEEP Valve	Awake Ketamine Cric	Opiate Analgesics titrated through IV	Physical Exam without advanced	clean, warm, dry, padded, catheterized	Chest tube, cric	Make comms, present patient and key vitals	Be familiar with stressors of flight
Better	Capnometry	2-3 cases of LR for Burn Resus	O2 Concentrator	Long duration sedation	Sedation with Ketamine/option of midazolam	Ultrasound and point of care labs	Elevate head of real bed/debride, washout NG/OG	Fasciotomy, debridement, amputation	Add labs and ultrasound video	Trained in critical care transport
Best	Vital Signs Monitor	PRBS, FFP, Type specific donors	Portable Ventilator	Proficient in Rapid Sequence Intubation	Educated and practiced multi drug sedation	Experienced and trained in above	Experienced in all nursing care concerns	Trained and experienced in above	Real time video conference	Experienced in critical care transport
Ruck	Pulse Ox, Head Lamp	1 FWB Kit per man, 2 250cc bag NS	BVM with PEEP Valve	Cric Kit, LMA/SGA, lidocaine and ketamine IM	Fentanyl TML, Perc PO, Ketamine IM/IV	Urinalysis test strips, fluorescein strips	Compct Foley kit, Sterile kerlix, litter padding	Cric, 10g Needle D Scalpel	Cell Phone and call sheet	Have checklist available
Truck	BP Cuff, Stethoscope, capnometry, small monitor	Case LR, Additional FWB Kits, 3% Saline	SAVent or SAVE 2	RSI, LMA/SGA, Cric kit ketamine bag IV	Ketamine IV with midazolam	Blood tubes to drop off labs on the way	Padded litter, NG,	Sterile Chest Tube Kit with drapes	Cell phone and call sheet, sat phone, radio	Checklist plus flight evac kit
House	Add defibrillation	2 additional cases LR, Case NS, Additional 3% Saline	Impact Vent and O2 bottle	All from above Add Benzo if not available for truck	Same as above	Blood tubes to run labs to local clinic	Real mattress with head elevated, nursing care kit sleeping bg	Sterile Surgical Kit with Drapes, Gowns and scrub soap	Secure comms, email	Extensive evac kit
Plane	Take all of above	All of above	Impact vent on O2	All above calculate for flight and double	All above calculate for flight and double		Padded Litter, Sleeping Bag	10g needle D Chest tube kit Cric kit	Through aircraft	From Above

Figure 1: Required Capabilities
(Source: prolongedfieldcare.org)

This research will focus on nursing and telemedicine. Nursing encompasses every facet of the listed required capabilities noted by the working group. Telemedicine is the bridge between a medic and a critical care doctor. In a Level 1 trauma hospital, the nursing staff within the Intensive Care Unit (ICU) has critical care intensivists readily available for guidance. Technology has made video and voice communication available for SOF medics to contact a critical care doctor any hour of the day.

SOF medics who work in austere isolated locations must be largely self-reliant when providing medical care. The most important element in delivering medical care to the Army Special Operation Forces (ARSOF) is the non-licensed independent provider. The unique requirement of SOF medics has led to the development of joint standards for medics by

SOCOM. The standard for SOCOM medics far exceeds those skills attained by the conventional forces medic, such as an Army 68W, Army Health Care Specialist.³ The SOF medic receives training at the paramedic level. According to SOCOM, the SOF medic gets in-depth training in cardiac life support, pediatric cardiac emergencies, civilian trauma, and Tactical Combat Casualty Care (TCCC) principles.³

The majority of this research will focus on and reference the 18-Delta (18D) Army Special Forces Medical Sergeants. 18-Deltas are cross-trained members of the Special Forces A-Teams. The United States Army Special Operations Command develops two kinds of SOF medics: 18D's and Special Operations Combat Medics (SOCMs). The SOCM undergoes a 24-week medical course, whereas the 18D undergoes 46 weeks of initial medical training. Their training includes trauma medicine in the first 24-week block. An 18D continues with medical training after the first 24 weeks to learn a broad scope of specialties.³

In 2010, Lt. Col. Michael Curriston, the Chief of Operational Medicine-Air Force Special Operations Command (AFSOC), noted SOF medics "...have to have the capability to be self-sufficient, with a small footprint, and operate for prolonged periods of time in austere environments without outside support."³ Training in critical care medicine is of utmost importance due to the high likelihood of future operations requiring the SOF medic to operate for prolonged periods as a lone critical care provider. The situation may dictate that the extent of supplies a medic has may be that which can fit in his backpack. This scenario requires a higher level of medical understanding due to the limit of available supplies.

To reduce the morbidity and mortality of their team, the host nation, and in some cases enemy combatants, SOF medics must use what they take with them when dropped into remote,

austere locations. Re-supply and evacuation may be hours to days away so rationing of available supplies is critical. Col. Jeffrey Kingsbury, Dean of the Joint Special Operations Medical Training Center (JSOMTC), stated, “If a special ops unit infiltrates an area where they do not want to be detected, they may have to hold a wounded warfighter for days until they can get him out.”⁴ This is the new reality the SOF medics face in future contingencies around the globe. In these situations, prolonged field care is vital to sustaining life. In dire situations where evacuation is delayed, telemedicine helps provide sound medicine in a reach-back capability to help the medic deal with situations outside of their scope.

Assumptions

Some will claim the occurrence of a prolonged field care scenario is so rare that no further man-hours, funds, or training should be spent on preparing for a low-likelihood contingency. Both initial and ongoing proficiency is difficult to achieve given the wide breadth of scenarios and saturated training and deployment requirements among SOF medics. As part of the effort in a renewed focus in PFC, the community has struggled with the reality of limited training time and in some cases, limited resources to adequately prepare both the individual medical provider and their operational elements for this challenge.²

Methodology

This research includes a study on the current critical care nursing skills taught in prolonged field care training at the special operation combat medic schoolhouse. It will further analyze the training received every two and four years on intensive care nursing. Through this research, a proposal will be provided that makes possible a standardized training, by utilizing the current training program, by Center for Sustainment and Readiness Skills (CSTARS) Cincinnati,

as an in-hospital training guideline for advancing critical care competencies. The training will need to be completed every four years. SOF medics attend Special Operations Combat Medic Skills Sustainment Course (SOCMSSC) every two years. Interviews will support the addition of five days of prolonged field care training at SOCMSSC to include: critical care competencies, equipment review, simulation training, and clinical practice guidelines review. Army Special Forces Groups will need to receive approval through CSTARS Cincinnati for attendance. This research will present data through interviews conducted with medics that will support the research argument that more training is required in critical care nursing.

Nursing is the critical component in PFC that can only be learned in a hospital setting. Prior to starting the 27-day hospital immersion training, the medics will take the Basic Knowledge Assessment Tool test (BKAT) for adult ICU. This test will be used as an assessment tool and will be given at the beginning and end of the course. The training objectives will include rotations in the ICU, Anesthesia/Operating Room, Respiratory Therapy, and the Trauma unit. The student will be provided a detailed schedule and procedure list.

Additionally, this required training will further support the need of a formal United States Army Special Operation Command (USASOC) PFC training course that all 18D medics must attend every four years. An unclassified after-action report from South Sudan will identify how a lack of basic critical care knowledge led to a poor outcome. Recommendations will be posed that compare current training and the requested training SOF medics need to provide PFC.

Research Argument

As the large-scale conventional wars slowly develop a smaller footprint, SOF personnel are being tasked to do more with less support. Future engagements will include small groups of

SOF personnel widely distributed over large geographic areas with few medical treatment facilities and longer evacuation times.⁵ The sheer remoteness of some of the engagement areas pose unique requirements in how to support and sustain medical care in the forward areas. The contingencies in which casualty evacuation (CASEVAC) was always 30 minutes to one hour away may not always be the case. Future battlefields may be urban ones in which it will not be feasible to land a helicopter for rapid casualty evacuation or austere locations with surgical support four hours or greater away.⁶ Many aspects of the battlefield architecture and environmental factors such as vehicular access, temperature, and prolonged evacuation times affect the medical mission.

Initial training for SOF medics is variable among Services but is generally to a level well beyond their certification level of National Registered Emergency Medical Technician-Paramedic (NREMT-P). Prolonged field care has recently been added to the list of topics needed to maintain proficiency. Currently, there is no standard for certification and the only formal training is attained at a mandatory refresher course every two years. When it comes to prolonged field care, it is extremely challenging to create standing protocols for all possible contingencies a remote medic might face. Stand-alone protocols have a role; however, these cannot replace the judgment and actions by medics on the ground. Therefore, the answer lies in task-specific training combined with the use of advanced telemedicine technology.⁷ The required working knowledge base of prolonged field care or essentially ICU nursing/critical care medicine should be at a basic level. Both initial and ongoing proficiency is difficult to achieve given the wide breadth of scenarios and saturated training and deployment requirements among SOF medics. However, having the ability to save a life by reviewing sound critical care competencies is priceless. The expectation of a lone medic in an austere environment for 1-72 hours should not

and will never be the same level of care a critically injured patient will receive at an ICU in a hospital. The current training teaches SOF medics to take care of an injured soldier in a prolonged field care scenario; however, the goal of training will need to achieve a more advanced state of constant medical readiness.

PROBLEM BACKGROUND AND SIGNIFICANCE

As large scale conventional involvement such as Operation Enduring Freedom (OEF) comes to a close, SOF medics will begin to find themselves operating outside of the 'golden hour' CASEVAC ring. The golden hour is a well-known timeframe lasting one hour or less which has been proven to increase survivability of severely injured patients that receive advanced medical treatment within this time period. In the military, the goal within the golden hour is to have a traumatically injured soldier transported to a higher level of care. In OEF and Operation Iraqi Freedom (OIF) military helicopters were located in areas which enable CASEVAC of an injured person within the golden hour. SOF medics may be placed in forward environments that will require prolonged care of injured personnel. The future of combat has small "...military groups widely dispersed over large geographic areas, with few medical treatment facilities, and long evacuation times."⁸ The U.S. is transitioning to the deployment of a smaller medical footprint via the use of SOF surgical teams. SOF surgical teams bridge the gap from point of injury to definitive treatment; however, there are not enough surgical teams to cover every SOF deployed element. There will remain many circumstances in which SOF medics will need PFC skills. The realm in which the SOF medic will have to implement prolonged field care is the point after TCCC but before damage control surgery. This time period is known as damage control resuscitation and prolonged field care. Figure 2 demonstrates the continuum of care during a PFC scenario.

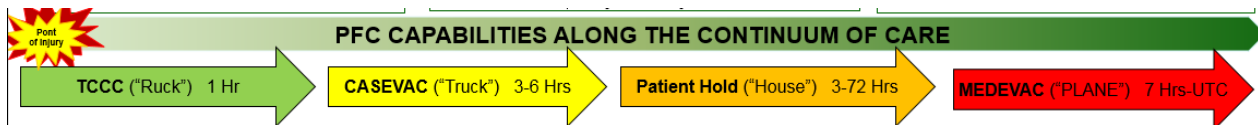


Figure 2: Continuum of Care (Source: Prolongedfieldcare.org)

Proficiency in damage control resuscitation requires a solid foundation in critical care medicine and ICU nursing. Prolonged field care is a relatively new concept within the Special Operations medical community. The current training models for teaching prolonged field care to the operator are inadequate when compared to the expectation of care that is to be provided to the wounded soldier. The goal of training should create confident, competent medics that prevent iatrogenesis, while providing aggressive nursing care.⁹ Increasing the amount of clinical time spent at a Level 1 hospital will create a working knowledge of basic critical care medicine. The lone medic must be able to recognize ominous signs indicating a decline in patient status. Pathology recognition from repeated exposure to ICU on the job training will help prevent a PFC scenario from becoming unmanageable resulting in the death of the patient who would have otherwise survived. Standardized training rotations to hospitals will also build a foundation where the medic will be able to prioritize procedures and distribute tasks before becoming task-saturated. Moreover, hospital settings are the best training environments for perfecting procedures such as tube thoracostomies, blood product administration, vasoactive medication administration and endotracheal intubation.

The initial training for Army SOF members is called the Special Forces Medical Sergeant Course (SFMS) and is divided into two phases. Phase I, the SOCM course is six months in length. Phase II, is the SFMS course and is often referred to as "The Long Course." Phases I and II require one year of training. The 18D module is academically demanding with a 50% attrition rate. Five modules are completed prior to Phase I, which includes a 75 credit hour

correspondence course covering: human anatomy, human physiology, medical terminology, pharmacology calculations, and basic math. These soldier-medics accomplish their training at the John Fitzgerald Kennedy Special Warfare Center and School (JFKSWCS).⁹ The SFMS course is a comprehensive 46-week course that covers a myriad of topics, to include: nursing and patient management, preventative medicine, battlefield trauma, medicine, surgery, veterinary, dental, and laboratory skills.⁹ The pinnacle consists of a four week proctored hands-on clinical experience in a military or federal service hospital. As noted by Col Benson, the USASOC Command Surgeon, "...the SFMS course produces the most skilled non-licensed independent soldier-medic in the world."¹⁰

Initial and sustainment training is mandated for Army SOF medics through medically-related Army regulations, United States Special Operations Command (SOCOM) regulation 350-29, Title 10, and United States Army Special Operations Command (USASOC) regulation 350-1, Title 10. 18Ds start their medical careers within the USASOC special warfare medical group. The special warfare medical group runs the Joint Special Operations Medical Training Center at JFKSWCS at Fort Bragg. Since the 1960's, Joint Special Operations Medical Training Center has been the home of special operations medicine. Sustainment training mandates the attendance to the SOCMSSC course once every two years. Currently, the course is used to recertify medics on basic health care certifications such as Basic Life Saving (BLS) for healthcare providers, Advanced Cardiovascular Life Support (ACLS), Pediatric Life Support (PALS), Advanced Tactical Practitioner (ATP), and Pre-Hospital Trauma Life Support (PHTLS).¹¹ The listed certifications require repeat accomplishment every two years to maintain an active card. The recertification of cards comprises the first week of SOCMSSC training. The second week encompasses basic trauma skills, PHTLS review, military working dogs, ATP, environmental

emergencies, general medicine, and a field training exercise.¹¹ Prolonged field care is currently a briefing received during the second week of training at SOCMSSC.

Army Special Operations Forces Medics (ARSOF) are also required to complete Medical Proficiency Training (MPT), which can consist of two weeks every two years or four weeks every four years of training inside a medical facility. The clinical experience is solely based on the individual medic. Some medics choose to spend time in an ICU learning critical care medicine, whereas others can work alongside a ski patrol unit for two weeks to complete their required medical training. The four-week program at the University of Cincinnati is ideal for prolonged field care and critical care preparedness.

The MPT program at Cincinnati has just become available as an option for 10th Group Special Forces medics. The MPT training at the University of Cincinnati has identified gaps in previous training related to prolonged field care. Typical medic rotations focused on medics chasing procedures in various departments with patient care a byproduct of those interactions.¹² Special Forces Medical Sergeants do not routinely provide medical care on a daily basis. Non-Trauma Modules (NTMs) simulations, and short scenarios during tactical training are the primary methods for skill sustainment and retention of education.¹² At MPT-Cincinnati, a full-spectrum experience is planned with rotations in the emergency department, labor and delivery, neonatal ICU, neurosurgical ICU, anesthesia and so on with the capstone being the rotation in the surgical/trauma ICU (SICU). There is also an opportunity to attend the five-day Tactical Critical Care Evacuation Team (TCCET) course. So far, only one medic has attended and completed the course. Each Army Special Forces Group must acquire a memorandum of understanding (MOU) with a medical training facility. Only medics in the 10th Group have a MOU with Cincinnati and are able to attend their course. A formalized MOU through USASOC

with the University of Cincinnati would allow all ARSOF medics to attend the MTP-Cincinnati course.

This topic warrants research due to the expected long evacuation times and far-forward deployment of the lone SOF medic. An on-going working group is currently developing a list of potential training objectives in PFC. At present, MPT Cincinnati is the only well-accepted method to ensure these objectives can be consistently achieved. Future studies may see an increase in advanced critical care medicine delivered during the damage control resuscitation phase while in the isolated environment. This data will come through the review of case studies.

ANALYSIS

Current active duty 18Ds have a few options to sustain their required training hours. As noted previously, each medic is required to complete either two weeks of training every two years or a four-week rotation at a medical training facility every four years. The current options for Green Beret medics leads to vastly different experiences based on the training site they choose. For instance, some medics go to Copper Ski Resort in the winter to work in the clinic and with the Ski Patrol. And others go to University of Colorado Boulder and work with sports trainers and large animal veterinarians.¹² This research does not advocate for eliminating current options but rather the addition of a standardized formal training platform that each 18D must complete every four years. Formal standardized training ensures an equal and expected level of knowledge and skill for medics throughout the Special Forces Groups. Joint missions between services are becoming more prevalent in current contingencies. When a Green Beret medic is utilized to be the lead medic for a joint service mission, the expectation of skill and knowledge should be the same for any Green Beret medic, with no regard to which Group they come from.

Each Special Forces Group has legal agreements with different facilities. There are also facilities that allow medics from any unit in USASOC to attend.¹² Lack of a standardized training platform in PFC and critical care nursing potentially jeopardizes patient lives. USASOC currently has five active duty Special Forces Groups: 1st, 3rd, 5th, 7th, 10th.¹³ The Army National Guard (ANRG) has two Special Forces Groups: 19th, 20th. 10th Special Forces Group is currently the only Group with an agreement with the University of Cincinnati. Duke University has just started an agreement with 1st, 3rd, 5th, and 7th Special Forces Groups.¹⁴ At Duke University many medics receive task specific training such as ultrasound training, and general medical care. Pre-deployment training has been a primary focus at Duke University. At Duke 18Ds also have an option to fulfill a one-month residency. Nearly 50 medics have trained at Duke since the partnership began.¹⁴ Inconsistencies in training afford some medics a high level training at Duke University or The University of Cincinnati for four weeks, while other medics do not attend training at large medical training facilities which limits their ability to receive comparable opportunities.

With the varying differences in training facilities and modalities, ARSOF Green Beret medics will benefit from a single standard of training at MPT Cincinnati. This program is focused on the full spectrum of care, to include PFC. Important topics of emphasis at MPT Cincinnati include trauma patients and ICU nursing. The procedure list and objectives can be seen in the following figures.¹²

SFMS Rotation Procedure List (Draft)						
procedures requested for ER	Date	Date	Date	Date	Date	Date
NPA						
OPA						
apply a NRB mask						
apply a Nasal Cannula						
BVM operation						
suction an airway						
manage a patient on a ventilator						
Superglottic Airway						
DL Intubation						
Cricothyroidotomy						
Chest Seal						
Needle Decompression						
Chest Tube						
Chest Tube management						
Check Pulses						
Apply pressure bandage						
sutures/staples						
wound cleaning						
12 lead ECG						
start an IV						
Draw venous blood sample						
urinary catheterization						
<u>These procedures are all within the SOCM Paramedic's scope of practice and signed with a MOA on file with the hospital. This does not supersede clinical judgment or Medical Director acceptance of risk.</u>						
<u>Site</u> Coordinator _____ Date _____ SFMS Paramedic _____ Date _____						

Figure 3: Listed Procedure Objectives prolongedfieldcare.org
(Source: Prolongedfieldcare.org)

Objectives:

- Follow full spectrum of care for trauma and acute surgical patients
 - Participate in ICU care of acutely injured and critical ill surgical patients
 - Assist with monitoring to include
 - Invasive and non-invasive physiologic monitoring
 - Acquisition and interpretation of labs
 - Assisting (within scope of practice) with respiratory care
 - Interpretation/discussion of
 - Ventilator settings, alarms and waveforms
 - Selection of modes of ventilation
 - ABGs and PaCO₂ waveforms
 - Assist with endotracheal suctioning, oral care and pneumonia prevention strategies
 - Assist with sedation/analgesia
 - Directly assist with monitoring of pain and sedation levels
 - Independent assessment of patient needs to be correlated with mentoring nurse's assessment
 - Work directly with mentor, learning pump use, dosing adjustment and selection of agents
 - Medic will not program pumps or independently administer medications
 - Assist with blood transfusion
 - Medic can prime tubing, prepare transfusion and discuss indications with mentor and ordering providers
 - Medic will not independently administer blood products
 - Assist with all aspects of bedside care including start of shift assessments
 - Positioning
 - Hygiene
 - Nutrition
 - Infection control
 - Follow patients through entirety of course when feasible
 - Respond to Trauma STATS when not involved in acute bedside care activities
 - Accompanies either new trauma patients (if in SRU on arrival) or assigned SICU patients when those patients go to the OR.
 - Intent is shadowing and observation of both operative and anesthetic considerations
 - Decision to switch patients (assigned patient A but follows new patient B from SRU to OR and back to SICU) will be made in consultation and with agreement of assigned mentor and SICU charge nurse
 -
- Education
 - Participate or observe rounds in the same pod each day
 - While medical students or residents will present patients on rounds, medic will prepare similarly in order to best benefit.
 - If mentor feels it is in best interest of medic education additional patients may be pre-rounded on within the same pod
 - Medic will follow SICU team on rounds through entirety of assigned pod
 - If acute care issues are being addressed with assigned patient during this time, then medic should stay at bedside
 - Participate in the simulation lab scenarios
 - To be arranged on a case by case basis with the director or deputy director of CSTARS. Every effort should be made to avoid breaks in patient care in the midst of an assigned shift.

Figure 4: Full Spectrum Training Objectives prolongedfieldcare.org
(Source: Prolongedfieldcare.org)

For most 18Ds, prior MPT's focused on completing certain procedures without the 18D understanding why a procedure was being accomplished. There was no depth to the knowledge they were obtaining. The sole focus was on task completion not an understanding of the

pathophysiology behind the reason for needing the procedure. For instance, if a patient needed a chest tube in the emergency room (ER), the medic would travel to the ER, perform the chest tube then proceed to the next procedure, which could be an endotracheal intubation in the ICU. At the University of Cincinnati, it was hypothesized that by remaining with the same patients throughout their stay, 18Ds could engage in discussions by staff, comprehend the reasoning for procedures performed on their assigned patient and gain insight into all the ancillary care that occurs.¹² This approach would aid in furthering education and experience. The curriculum was created with PFC as a foundation. At the University of Cincinnati, the first MPT rotation was used to identify gaps in previous training and education that related to PFC.¹² The first MPT course was recently held in October 2014 and was attended by a 10th Group medic. The course allows for and encourages the use of the flowchart the medic would use during a real world PFC scenario to gain familiarity to it. The flowsheet can be seen in the following figure.


Name: _____	Last 4: _____	Date: _____	Time: _____	Weight: _____ lbs _____ kg	Height: _____	Blood Type: _____	TQ Time On: _____	
Allergies: _____		Problem	Plans	TQ Converted:				
M.I.S.T. REPORT		1.		Drugs/Fluids Administered				
MOI: _____		2.		Drug	Dose	Time	Route	Loc
Injuries: _____		3.						
Stable / Unstable		4.						
Treatments: _____		5.						
		6.						
		7.						
		8.						
		9.						
	10.							
<u>Call script:</u> "THIS IS _____ (JOB POSITION) _____ I HAVE A PATIENT WITH _____ WHO I THINK HAS _____ AND I NEED _____ CHIEF COMPLAINT: _____ BRIEF HISTORY: _____ PE VITALS: HR: _____ BLOOD PRESSURE: _____ RESPIRATION RATE: _____ OXYGEN SATURATION: _____ TEMPERATURE: _____ MENTAL STATUS (AVPU): _____ BRIEF EXAM: _____ "I NEED _____" (CONSULTATION, HELP, ADVICE, TRANSPOR...)		<u>TeleMed Recommendations:</u> 1. _____ 2. _____ 3. _____ 4. _____		<u>Standing Orders:</u> Vitals Every _____ Normal Ranges Turn Every _____ Systolic BP: _____ IV Fluids _____ Diastolic BP: _____ GCS Every _____ Mean Arterial Pressure(MAP): _____ Measure Urine _____ Urine Output: _____ Vent Settings: _____ Heart rate(HR): _____ Other: _____ End Tidal CO2(ETCO2): _____ SpO2: _____		Trend Vitals: Norms? UOP? GCS Tube Care: Open? Clean? Sites? Pulmonary Status: Airway open? Lung sounds? Suction? Hydration Status: UOP, Intake vs output? Wounds and Dressings: Drainage? Redness? Swelling? Smell? Splints: CHECK PERIPHERAL PULSES Bowel Care: Last BM? Diarrhea? Impacted? Bladder Care: Last voiding? Swollen? Catheter clean/patent? Eye Care: Contact Lenses? Drops? Ointment? Mouth Care: Loose Teeth, Dry Mucous Membranes, Oral Care q4 Mobility: Passive exercises? Calf Massage for DVT Prophylaxis Skin Care: Pressure sores forming? Skin Dry? Buttocks/Groin?		

Figure 5: Flowsheet (Source: Prolongedfieldcare.org)

Additional Tasks/Responsibilities

The Special Forces Medical Sergeant (SFMS) will provide, under the guidance and supervision of assigned supervisory resident /staff physician or nurse for the purpose of education and professional growth, routine and emergency care for:

1. Uncomplicated illnesses, injuries or problems that have low risk for the patient;
2. Major illnesses, injuries, conditions or procedures without significant risk to life;
3. Major illnesses, injuries, conditions or procedures that carry substantial threat to life. (Recognizing the educational needs of the resident staff and medical students, attempts will be made to allow the SFMS Medic Rotator the opportunity to perform invasive procedures when available and under the supervisory resident or staff physician present.)
4. The SFMS/Medic Rotator scope of practice includes:
 - a. Patient assessment.
 - b. Triage of patients.
 - c. Disposition of patients.
 - d. Airway management including uncomplicated, semi-planned intubation. (Typically patients with poor reserve, declining saturations on BVM or of unfavorable body habitus will be deferred to the mid-level resident staff.)
 - e. Bag-valve-mask or bag-valve-tube ventilator support.
 - f. Independently initiate peripheral intravenous vascular access.
 - g. Central venous lines will generally be obtained by resident or attending physician. (If agreed upon by both the attending and the resident faculty, medics may initiate jugular or femoral access under their direct supervision.)
 - h. Patient immobilization and transport.
 - i. Urinary tract catheterization and placement of a nasogastric or orogastric tube for lavage or gavage after consultation.
 - j. Wound debridement/care, drainage or associated procedures under supervision.
 - k. Wound suturing.
 - l. Bandaging, splinting and casting in consultation with covering physician.
 - m. Emergency needle and tube thoracotomy will be allowed under the supervision and discretion of the supervisory resident or staff physician and with consideration of the education needs of the residents, medical students and patient stability.
 - n. Hemorrhage control (tourniquets)
 - o. Assess, order labs/ plain x-rays with consultation of covering physician.
 - p. Evaluation of urinalysis, blood count, Gram staining, stool O&P, thick/thin blood smears, KOH and saline slide preparations, rapid diagnostic test results from kits such as card, vial or blister-packs and selection of response to serology for communicable diseases and to bacterial and fungal culture results in consultation with covering physician.
 - q. Collection, preparation, preservation and shipment of specimens for pathology evaluation.
 - r. Medics will not be allowed to program medication infusion pumps, push medication or directly adjust ventilator settings but will be actively involved in decision regarding these actions.
 - s. An SFMS who also has and maintains certification as a Nationally Registered Emergency Medical Technician – Paramedic (NREMT-P), and has and maintains Advanced Cardiac Life Support (ACLS) certification may, at the direction of the supervising physician, perform all skills that these certifications permit such as medication administration during cardiac arrest and defibrillation.

Figure 6: Additional Tasks¹²

As noted by CSTARS Cincinnati Cadre, medics often push aside the pieces of equipment they are not familiar with. Any competent provider would not use equipment they are not familiar with because of the risk to patient care. A working knowledge of medical equipment and the ability to trouble-shoot issues are vitally important to 18D medics who are often relied on as the subject matter expert on medical equipment on their respective teams. Increased exposure to ICU nursing will enable the 18D medic to become proficient with handling and troubleshooting medical equipment such as vital sign machines, intravenous pumps, suction machines, ventilators, etc. Nurses are expected to be subject matter experts on patient care medical equipment. CSTARS Cincinnati has a room devoted to training personnel on medical equipment that is open 24 hours a day. Many of the simulations conducted during training at CSTARS create situations in which the only way to save a patient life is to recognize the problem with a specific piece of equipment and then troubleshoot the medical equipment to solve the problem. This equipment is not intended for point of injury care, but rather for care after TCCC and point-of-injury care. These pieces of equipment are kept in a PFC bag or kit, and is not intended to be “rucked” various places, but instead left in a truck, house, or aircraft. Nurses are expected to be experts in medication administration.

Nurses are tasked with understanding how a medication works, why it is being used, side effects, and should be knowledgeable of how to titrate certain medications used for sedation and blood pressure management. Master Sgt. Rick Hines, the 3rd Group Senior Medic stated, “In Afghanistan, the soldiers were always less than an hour away from a medical evacuation flight. In Africa, it could be a day or more before medical help can arrive.”¹⁴ This new reality requires skill sets based on competent critical care and nursing skills. 18Ds who attend MPT at Cincinnati have the opportunity to enhance their knowledge and skill sets because of the intense

focus on ICU patient care. CSTARS Cincinnati is a proven training ground and sole training platform for Critical Care Air Transport in the military. Along with CCATT and TCCET, Cincinnati hosts the medics from the Army's 160th Special Operations aviation unit.

To gain first-hand insight into the training 18Ds receive both initially and for sustainment training, two 18Ds were interviewed regarding their perspective on prolonged field care. For confidentiality, they will be referred to SOF-Medic01 and SOF-Medic02. The interviews were conducted in 2015 while deployed to Africa. Both medics state the initial training received on PFC lasted six weeks and was substantial and in-depth. However, the sustainment portion of PFC was non-standardized and was conducted at the unit level with high fidelity simulations and field exercises. SOF-Medic01 reemphasized how vastly different each medic's sustainment training can be. He reiterated the quality of an individual's recurrent training is based on the medic's desires and motivation, not necessarily on what the medic needs to maintain proficiency. SOF-Medic01 stated, "Medics would gain more relevant training by spending two weeks in a level 1 hospital as compared to going to Copper Ski Resort."¹⁵ Although most people would agree that visiting a Ski Resort for two weeks sounds more appealing than rotating through a hospital for two weeks doing nursing care, little is learned at a ski resort which can be applied on a battlefield. Spending two weeks in the 'trenches' of a trauma ER or ICU would provide legitimate learning opportunities enhancing the medics' knowledge of trauma care.

SOF-Medic02 noted available "time" in the already busy schedule as a hindrance to requiring additional training. He suggested that in relation to PFC, the only feasible training would be ICU nursing care, where he currently spends zero training hours a year.¹⁶ SOF-Medic01 also suggested that with the new focus on PFC within the SOF community, an extension to the SOCMSSC course should be recommended. This course is taken by all SOF

medics every two years as a re-certification course and refresher. His recommendation was an additional five days of didactic and hands-on practicums. The additional five days would be utilized most effectively with CPG review, PFC scenario table top discussions, medication calculations, and equipment review. A review of past after-action reports (AAR) and vignettes would also be recommended during the five additional days. He also agreed the 18D community would be served best by a formal training platform. A standardized training program would ensure the recommended level of refresher training was achieved by every SOF medic. At the time of the interview, neither member interviewed was aware of MPT at Cincinnati.

The medics discussed the need for an immersive ICU nursing training program conducted at a centralized location to ensure the proper level of training was available and consistent among all 18D medics. According to SOF-Medic01, the current training received on PFC is inadequate for their current operations overseas. 18Ds find themselves in many locations which require prolonged care before air evacuation or advanced medical care can arrive. The overall recommendations concur with the theory that a formal USASOC critical care and PFC training platform is needed to standardize the training amongst the 18Ds. He believes with the current atmosphere of global conflict that the bi-annual refresher course requires an additional 5 days of PFC training.

DISCUSSION

The after-action discussed is based on an unclassified casualty care case study in South Sudan.

Situation: On 21 December 2013 at approximately 1015L, three CV-22 aircraft were carrying a Crisis Response Element (CRE) on a non-combatant evacuation mission at the U.S. Embassy. All three aircraft suffered heavy damage from small arms fire. Four U.S. personnel sustained injuries on one of the aircraft.¹⁷

Care under fire was conducted by a Navy Seal Corpsman who was also injured with a shrapnel wound to the left lower back. The Navy Seal medic performed exceptionally well considering the circumstances. Having the poise to save three lives with excellent TCCC while tending to his own injury, requires a unique individual with courage, resiliency and selflessness. At approximately 1130L the aircraft landed at Entebbe International Airport in Uganda.¹⁷ The four injured patients were treated by an Air Force Special Operations Medical Element (SOFME), which includes a Flight Surgeon and an Independent Duty Medical Technician. In addition to the SOFMEs, an 18D, a Navy Physician Assistant and two Navy medics were at the flight line.¹⁷ Total time spent on the flight line was 30 minutes. The patients and medical providers were loaded onto a diverted C-17 and flown to Nairobi General Hospital. The patients continued to receive care in route and landed at approximately 1315L. The total time from injury to arrival at Nairobi ER was four hours. The focus of care will be centered on patient # 2 who sustained a gunshot wound to the right mid-thigh.

Patient #2 had a timely and appropriately placed tourniquet during TCCC-care under fire. In route to Nairobi, a second tourniquet was placed to further control the bleeding noted at the

injury site. The initial tourniquet was placed at 1000L and reported to the SOFMEs during transfer of care from the Navy Seal Medic. After arrival to Nairobi hospital, patient #2 was given a computed tomography scan (CT). It was then discovered that his tourniquets were still in place. Total tourniquet time was 6-8 hours without reassessment or conversion. The patient was taken to the operating room to have the tourniquets removed and fasciotomies placed.

Conversion is "...a deliberate process of trying to exchange a tourniquet for a hemostatic agent or a pressure dressing" thus allowing for reperfusion of the distal extremity.¹⁸ According to a 2015 article in the Journal of Special Operations Medicine regarding tourniquet conversion and application:

- Conversion should be attempted as soon as tactically appropriate, but no later than 2 hours after initial tourniquet application.
- Conversion should be attempted with each progressive movement to the next level of care, but not for tourniquets that have been in place for more than 6 hours, unless at a definitive care facility.
- Conversion less than 2 hours is considered safe.
- Conversion between 2-6 hours is likely safe.
- Conversion beyond 6 hours requires caution and is not advised in the field¹⁸

The assessment by the hospital staff determined that patient #2 never had an arterial injury to the right leg. Following surgery, the patient lost blood perfusion to his right foot. The lack of reassessment and proper treatment of the tourniquet after care under fire caused catastrophic injuries to the patient. He went on to develop kidney failure from rhabdomyolysis, was placed on dialysis, had to receive a massive blood transfusion and was placed on a ventilator to adequately oxygenate his body. The next morning his right lower extremity was deemed non-viable and the patient had an above-the-knee amputation.

The breakdown in this PFC scenario occurred after patient care was transferred to the ground medical team in Entebbe, Uganda. The 18D, SOFMEs, and Navy providers did not

reassess the need of the tourniquets during care in route to Nairobi. Appropriate documentation was not annotated during this time period, leading to a loss of situational awareness among the providers as to when the tourniquets “went up,” or were placed on the patient. The Navy Seal medic reported the tourniquet time was 1000L when he handed over care to the SOFMEs. This information was not acted on, written down, or passed on during the next transfer of care at the hospital. Further exposure in PFC training may have prevented the poor outcome for patient #2.

Documentation of care has recently been highly emphasized when teaching PFC during high fidelity simulations and field exercise training for 18Ds. Documentation is the best way to accurately log procedures, vital signs, assessments, and patient condition on an hourly basis. Clinical charting allows for capturing trends, reassessment of interventions, and facilitates early recognition of changes in a patient’s clinical condition.¹⁹ Furthermore, this documented information can be used as a reference to relay information to the next provider in the echelon of care. Dr. Doug Powell, a U.S. Army provider, stated critical care documentation as the biggest “systems” gap in care provided by the SOF medic.¹⁹

As stated previously, SOCMSSC is a bi-annual two-week refresher course taken by all SOF medics. With a suggested mandatory training requirement every four years, SOCMSSC is an ideal location to implement mandatory PFC training every 24 months. SOCMSSC is a standardized refresher course that can familiarize and train 18Ds on new equipment and clinical practice guidelines (CPGs). CPGs guide practice for medical personnel. More specifically, the Joint Trauma Theater System Clinical Practice Guidelines (JTTS) is utilized by military medical members. During the extended training days at SOCMSSC, medics can learn about updates to CPGs involving critical care such as: massive transfusion, traumatic brain injury, ventilator management, burn care, catastrophic care, and many other relevant topics. The review of CPGs

will update the medic on the standard of care for each circumstance. Of equal importance, the medics can review current and new medical equipment.

Telemedicine is a capability which enables the ground medic to connect with medical providers in Landstuhl, Germany. New capabilities are enabling the SOF field medic to transfer live telemetry and video feeds of the patient. This capability understandably relies on a network connection. Equipment such as the Tempus-Pro can live feed telemetry with full vital signs. Another capability soon to come online is a live video feed of the patient and the patient care environment. This capability will greatly enhance the level of patient care. Furthermore, it can reinforce the medic's decision making process and eliminate the thoughts of second guessing themselves. It is a great confidence booster when a doctor can tell the medic the treatments thus far have been appropriate. Conversely, it is also beneficial for the doctor to be able to intervene and adjust treatments with the goal of a positive patient outcome.

Telemedicine should be incorporated in full mission profile exercises to allow medics the opportunity to relay information via video or audio capabilities to practice a real-world capability, and it creates an opportunity to treat a patient with guidance from the critical care team in Landstuhl. The use of a real-time system will enable the critical care team to assess the situation, order appropriate interventions dependent on the supplies available and evaluate the patient response. Using varying scenarios, these exercises will provide the critical care doctors in Landstuhl, Germany invaluable practice at treating a patient based on vital signs, limited supplies, and the assessment by the 18D medic. Even with these great resources in technology available, the focus still must remain with education and training of the lone medic delivering medicine in an isolated environment without outside help. Due to the vastness of Africa,

SOCOM has created an MOU with Landstuhl for telemedicine. Figure 7 demonstrates just how large Africa is.



Figure 7: True Size of Africa (Source: informationisbeautiful.net)

In reference to the map above, if a patient was injured in North Florida, and the closest advanced medical care with flight capabilities, is in Texas, the proper procedure process entails evacuation, surgery if required, and strategic evacuation to Landstuhl, Germany. This fictional scenario would require a four-hour flight to pick up the patient and then a four flight back to a strategic flight line. So far, this scenario is in the eighth hour of care considering air evacuation

was notified immediately. The patient will be assessed for the need of surgery on arrival back in Texas, given this is the next higher echelon of care. Once deemed able to fly, the patient will be loaded on an aircraft and flown to Germany. This trip can take between 6-9 hours, depending on the aircraft. The scenario purposefully negated all other aspects such as weather, a functional runway at the site of injury, and mechanical malfunctions of aircraft. Many variables can increase the time in which a patient is flown to definitive care. For a place like Africa, PFC is a reality due to the enormity of the country. Lt. Gen. Bradley A. Heithold, Commander of Air Force Special Operations Command said, in places like Africa, “the tyranny of distance is certainly a problem.”²¹ For such reasons, SOF medics are encouraged to utilize the current telemedicine MOU for Africa.

RECOMMENDATION

To best prepare Army Special Forces 18-series medics for current and future contingencies which may involve the prolonged care of a patient, this research proposes four recommendations to the United States Army Special Operations Command and the United States Special Operations Command. Specifically, (A) create an MOU between USASOC and the University of Cincinnati; (B) USASOC should expand the availability of MPT Cincinnati to all 18D medics; (C) increase SOCMSSC by five training days; (D) continue to utilize and develop the reach-back capability through telemedicine.

Recommendation A, a formal MOU between USASOC and the University of Cincinnati, would make every 18D eligible to attend MPT Cincinnati. Currently, only 10th Special Forces Group has an MOU with the University of Cincinnati hospital. Medics from 1st, 3rd, 5th, and 7th

group must look elsewhere for sustainment training at this time. Possibly, the current MOU could be updated to include all five active duty Special Forces Groups.

Recommendation B, the University of Cincinnati offers unparalleled training opportunities for 18Ds. This is the sole platform in which 18Ds can expect a full spectrum immersion into a trauma department. The program is tailored for SFMS and is centered on critical care medicine and prolonged field care. The University of Cincinnati CSTARS staff in conjunction with a 10th Group Special Forces medic sought out and identified deficiencies in the current training attained in regards to PFC. The addition of the BKAT assessment tool will gauge knowledge pre- and post-course. This assessment tool can also guide training during the course, possibly extending training in some areas that require further remediation or refreshing.

Recommendation C, expand upon the current bi-annual training at SOCMSSC. An additional five days of training every two years should be used to update all SOF medics on new best practice initiatives, CPG updates and changes, and advancements in prolonged field care. In addition, the training days will need to focus on equipment review, medication calculation, damage control resuscitation, and ventilator management to include a hands-on skills portion.

Recommendation D, continue to expand and utilize the telemedicine capability through equipment procurement. Incorporate telemedicine during full mission profile exercises to build trust of the system, comfort, reliability, and real-time practice with the reach-back capability.

CONCLUSION

Adapting medical training to best prepare medics for current and future battlefields ensures the best medical care is being provided to the injured special operator. The last 14 years of U.S.-involved conflict was large scale warfare. The U.S. has now transitioned to a greater

global SOF presence. This smaller foot print inherently garners more risk due to a decrease in the number of medical treatment facilities.

As noted by the prolonged field care working group, PFC will increase the amount of medical sustainment obligations placed on the 18D. 18Ds have suggested that “time” for training is the issue and more medical training will be difficult to attain in their already increased tempo. However, as casualty evacuation and strategic evacuation become less available, medical care from point of injury to evacuation will squarely fall on the tactical level provider, specifically the 18D. At the command level, the Special Forces Groups must stay current with the changing tactical medical situation in efforts to balance these new training requirements with the other responsibilities of the team medic.¹⁹

USASOC and SOCOM have been developing brilliant independent duty combat medics for years. The ideal solution for preparing the 18D medic for prolonged field care relies on increased training in ICU patient care and critical medicine. The platform exists by modifying the current SOCMSSC course and mandating MPT at the University of Cincinnati.

ENDNOTES

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