



THE LOSS OF THE GOLDEN HOUR

02

Medical Support for the Next Generation of Military Operations

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The views presented are those of the authors and do not necessarily represent the views of the Defense Department or the U.S. government.

Sweat pours off the advanced medic's forehead and drips onto his watch. The truck lurches and hits another hole in the dirt trail they are travelling to get to the airfield. He curses. Still over four and a half hours until the aircraft lands that will transport his patient to surgical care. His teammate is now in shock from blood loss in his pelvis and abdomen after a vehicle rollover in the remote area where they were operating. The injured man's moans are barely audible over the roar of the engine as the driver guns the throttle, hoping to get to the airfield as quickly as possible...

This is the reality of Prolonged Field Care (PFC). Defined as "field medical care, applied beyond doctrinal planning timelines, by a Special Operations Combat Medic or higher, in order to decrease patient mortality and morbidity. Utilizes limited resources, and is sustained until the patient arrives at an appropriate level of care,"⁰¹ this will become the medical reality in the next decade of military conflict. Gray Zone conflict is "not quite open war but more than regular competition" and encompasses activities ranging from information warfare and economic conflict to transnational crime and terrorism.⁰²

In such a paradigm of conflict, it is unlikely that a large conventional force

will enter the theater. It is equally unlikely that the expeditionary medical footprint modeled by U.S. Army forward surgical teams or a combat surgical hospitals, which collectively contributed to the lowest mortality rate of any conflict in history, will be deployed in support of such Gray Zone operations.⁰³ Indeed, a complete paradigm shift in how we plan and execute medical support for hybrid conflict will be required. The key problem: The Gray Zone model of conflict prohibits forward staging of definitive medical support in all operating areas due to wide geographic dispersion of high numbers of small teams/units performing low-intensity operations.

WHAT WE KNOW:

1. Globalization has resulted in potential for widespread Gray Zone (hybrid) conflict. Hybrid conflict by definition does not imply a large conventional military force response. In other words, we have greater potential for low density of critical casualties widely dispersed across remote operating areas with less readily available military medical support. In addition, mechanisms of injury and wounding patterns may be different.

2. Transporting critically ill or injured patients to advanced (ie, surgical or physician-based) medical

care within one hour saves lives. Early initiation of treatment and resuscitation of critically injured and sick patients improves outcomes.⁰⁴

3. The 2015 National Military Strategy states, “We are more likely to face prolonged campaigns than conflicts that are resolved quickly...that control of escalation is becoming more difficult and more important...and that as a hedge against unpredictability with reduced resources, we may have to adjust our global posture.” This is what General Votel termed, “The Gray Zone” model of conflict.

4. Rapid medical transport capability and forward medical support staging is impossible in the model of low-intensity, widely dispersed Gray Zone conflict due to a simple problem of numbers. There are not enough medical and evacuation assets to ensure one hour evacuation times. In addition, the infrequent occurrence of injury in any given area of operations cannot justify the deployment of such resources even if they are available in sufficient quantity. Prolonged field care is now the norm, not the exception. As the DoD adjusts its global medical posture, more responsibility for prolonged, resuscitative care in austere environments will fall on SOF medical assets.

5. SOF medics have always had the mission of providing far-forward medical care without surgical support or robust medical supply/support. This skill set has fallen into disuse. Sustainment of robust SOF medical skills has also proven to be

problematic.⁰⁵ We must refresh and refocus this skill set after 14 years of acute trauma-centric care in a mature medical environment that assured sub-one hour evacuation to definitive surgical care. Fortunately, SOF medics have a rich history of solutions to far-forward care in the absence of surgical support that dates back to World War II.

6. The U.S. Special Operations Command’s troop strength doubled from 2001-2014: With about 33,000 personnel in 2001, it was estimated to reach 72,000 in 2014. USSOF are currently deployed to more than 100 countries.⁰⁶ Many of these areas have inadequate U.S. or partner force medical support and failed host-nation medical infrastructure.

SOLUTIONS (USING THE DOTMLPF-P MODEL IN DOD DOCTRINE):⁰⁷

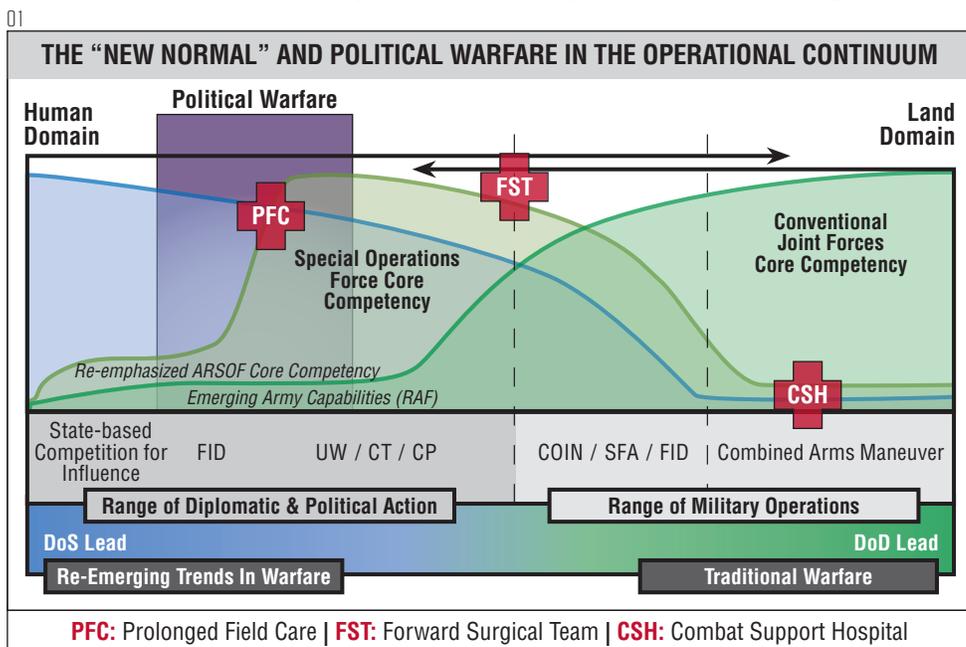
Gray Zone conflict will be prosecuted in a wide range of tactical, geographic and political environments. The goal of Prolonged Field Care medical strategy is to establish key capabilities that guide the development of solutions that can be individualized to specific environments.

DOMAIN – Leadership: Study key principles of Golden Hour trauma care — what interventions are responsible for the drop in Case Fatality Rates? Is it damage control surgery? Care by a trauma team versus a single medic? Robust blood product availability? Advanced monitoring and resuscitation techniques? In

short, what are the key interventions within the first hours of trauma care that dramatically reduce mortality, and how can we push those interventions forward into Gray Zone models of conflict/deployment? Leaders will require the best available medical research in order to shape their willingness to assume risk in hybrid conflict operations. For example, Dr. Kotwal’s comprehensive review of data from the Afghanistan conflict from 2001 to 2014 suggests that the rapid availability of blood transfusion for critically injured Service Members had a significant positive effect on survival.⁰⁸ The rapidly progressing capability of field blood transfusion is an excellent example of how leaders have partnered with researchers to ensure advanced procedures can be safely performed by medics in austere settings.

DOMAIN – Operations: The DoD will need to develop alternatives to the robust medical transport chain that has been so successful in the Middle East theater of operations. The global patient movement system, while an absolute model of success in the last decade, cannot efficiently support the types of operations that will come to typify the next decade — hybrid conflict with small team deployments and uncertain locations/timelines.

DOMAIN - Training: The most important domain for providing immediate mitigation of the risks posed by operating in immature medical environments is training. SOF Medics will need to train to provide care to critically injured and sick casualties for up to several days. Training should be guided by the Core 10 Capabilities of PFC in order to reduce morbidity and mortality in environments with no existing or planned Role II medical support or rotary evacuation.⁰⁹ Non-medical personnel must be medically trained to participate in “trauma team” care of critical injuries. Requirements for Tactical Combat Casualty Care should evolve to a more advanced level, similar to the U.S. Army Ranger Regiment’s Ranger First Responder. Training programs developed for



Adapted from “ARSOF NEXT: A Return to First Principles.”

⁰¹ In the Operational Continuum medical support is least available when special operations are at their peak. As conventional force numbers increase so does access to care.

Unconventional Warfare units such as the Special Operations Force Austere Care Course (SOFACC, for non-medics) and the Regional Support Medic Course (RSM, for SOF medics) should be studied for adoption into conventional SOF units. To facilitate cross-training of non-medical team members, medical scenarios should be incorporated into every possible training event. Research must be conducted to develop new training models to simulate the physiology of critically injured and sick casualties that can withstand field training in harsh environments. SOF physicians and physician assistants should have opportunities to learn and train critical care skills in top civilian trauma centers.

4. DOMAIN – Material: PFC in austere, sometimes semi-permissive or non-permissive environments presents significant challenges for medical logistics and planning. SOF medics and teams must integrate medical logistics and planning into training, tailor training to expected deployment environments and conditions and test logistics and planning as thoroughly as possible prior to deployment and upon arrival. SOF must continue to push existing DoD and civilian research to provide training and technological solutions for the inherent loss of capability generated by global hybrid conflict and loss of the Golden Hour. Promising technology that is being currently validated includes remote telemedicine support through the Virtual Critical Care Consultation service. VC3 represents one of many innovative strategic solutions that brings surgical or critical care consultation forward to austere environments.

5. DOMAIN - Doctrine: Instead of relying solely on conventional DoD medical support, SOF must also forge novel relationships with Department of State, other U.S. Government agencies, international allies and perhaps even non-governmental organizations. Consider the potential of an enduring relationship between USSOF and U.S.

Embassy medical assets to mitigate the lack of robust theater medical support. This achieves both the protection of American citizens abroad and leverages contingency medical/surgical care for USSOF. This is an example of what the 2015 NMS advocates in “adjusting our global {medical} posture.” Improvised treatment techniques, planning and supplies must be studied, trained and new doctrine/ guidance developed to support and share across SOF. An example of advancing medical doctrine for the Gray Zone environment is the partnership between the PFC Working Group and the Institute of Surgical Research at San Antonio Regional Medical Center to develop PFC-specific clinical practice guidelines for some of the most complex medical and trauma conditions. Additionally, NATO and our allies are collectively training and working on shared advanced medical resuscitative efforts to elevate the level of austere medical support across multi-lateral partnerships.

In summary, the nature of hybrid conflict demands that we redesign our approach for medical support in the DoD. The loss of the Golden Hour foreshadows significant challenges in caring for wounded or critically ill Service Members, and current assumptions on low mortality and historical injury patterns may not hold in novel strategic environments. Our military will meet this challenge successfully only through leadership emphasizing a new approach to training, planning and interagency cooperation. Special Operations medicine has a rich historical database of supporting hybrid conflict that must be explored for previously proven solutions. At the same time, military leaders will need to think innovatively to exploit new technologies and reinforce training that will ensure capable medical support during hybrid conflict. Significant forward thinking and courage to change accepted medical paradigms will be required if the DoD is to achieve similar medical outcomes to the historically low mortality rates achieved in OIF and OEF. 

THE TEN PROLONGED FIELD CARE CAPABILITIES:

1. Monitor the patient
2. Resuscitate the patient
3. Ventilate/Oxygenate the patient
4. Gain definitive control of the patient’s airway
5. Use sedation and pain control effectively
6. Use physical exam and diagnostic measures to gain awareness of potential problems
7. Provide nursing/hygiene/comfort measures
8. Perform advanced medic-level surgical interventions
9. Perform teleconsultation
10. Prepare the patient for flight

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NOTES **01.** Keenan, Sean, “Deconstructing the Definition of Prolonged Field Care,” *J Spec Oper Med* 4 (2015):125. **02.** Pomerantsev, Peter, “Brave New War,” *The Atlantic*, 29 Dec 2015, url: <http://www.theatlantic.com/international/archive/2015/12/war-2015-china-russia-isis/422085/> **03.** Kotwal R., et al. “The Effect of a Golden Hour Policy on the Morbidity and Mortality of Combat Casualties,” *JAMA Surg*, 2016;151(1):15-24. **04.** Ibid, 22. **05.** Wilson, RL and DeZee KJ, “Special Forces Medical Sergeants’ Perceptions and Beliefs Regarding Their Current Medical Sustainment Program: Implications for the Field,” *J Spec Oper Med* 4, (2014), 59-69. **06.** Turse, Nick, “Why Are U.S. Special Operations Forces Deployed in Over 100 Countries?” *The Nation*, 7 Jan 2014, url: <http://www.thenation.com/article/why-are-us-special-operations-forces-deployed-over-100-countries/> **07.** Joint Publication 1-02, “Department of Defense Dictionary of Military and Associated Terms,” 8 Nov 2010. **08.** Kotwal R., et al. “The Effect of a Golden Hour Policy on the Morbidity and Mortality of Combat Casualties,” *JAMA Surg*, 2016;151(1):22. **09.** Ball, J and Keenan, S, “Prolonged Field Care Working Group Position Paper: Prolonged Field Care Capabilities,” *J Spec Oper Med* 3 (2015):76-7.