

Global Surgery: Lifeline for the US Military Surgeon



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Experienced military surgeons from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are at the end of their admirable military careers. Their contributions are innumerable, and their legacies are cemented by unprecedented levels of success in caring for injured soldiers. The new cadre of military surgeons is eager to continue this legacy in current and future military conflicts. However, lack of training and currency to meet the demands of an evolving military mission threaten their ability to succeed.

Current military engagements require surgeons adept at working in small surgical teams to perform damage control surgery in austere locations with limited resources. To be successful in these missions, surgeons must apply a broad level of knowledge from a wide range of surgical specialties to care for injured soldiers, with limited external support. The military surgeon suffers from a lack of pertinent experience to meet these demands. Specialization and reliance on technology, hallmarks of the US medical system, coupled with the military surgeon's practice in low volume, low acuity military hospitals, contribute to an environment in which there is little opportunity to gain the skills and clinical acumen necessary to perform damage control surgery in the austere environment. Global surgery, an emerging field within the global health community, is a much needed lifeline. Providing opportunities for military surgeons to participate in global surgery training has the potential to bridge the divide between their day-to-day practice experience and the challenges they will face on military missions. Viewed as a means to bolster national security, the Department of Defense (DoD) has a long history of global health engagement (GHE), but most of its efforts are directed toward communicable disease. By increasing

global surgery endeavors, the US military will not only demonstrate an understanding of the critical need for surgical care in the global health agenda, but it will also create a mechanism for military surgeons to gain much needed experience in austere surgery.

MILITARY SURGEON CURRENCY

Military surgeons recently met at the Excelsior Society meeting during the 2016 American College of Surgeons Clinical Congress, the title of which was, "Maintenance of competency for the military surgeon."¹ They identified competency as the most critical issue facing the current military surgeon. Edwards and colleagues² clearly articulate many of the pertinent problems in their proposal of a 3-level "educational paradigm for sustainment of surgical skills for military surgeons." The shortage of relevant experience for the military surgeon starts during residency training. Modern surgical training has evolved to a point at which exposure to open surgical interventions is frequently replaced with endovascular, laparoscopic, and robotic procedures. Advances in imaging and interventional radiology techniques allow for more nonoperative management of trauma patients. Although a few of these techniques, such as resuscitative endovascular balloon occlusion of the aorta (REBOA),³ have been applied in the austere setting, most of these technologies are unavailable to the austere military surgeon.

Residency training is also not producing the independent and confident surgical practitioner it did in the past. These characteristics are important for a solo military surgeon operating in an austere environment, who is expected to make clinical decisions with little support. As a whole, graduating chief residents do not feel adequately prepared to start practice directly after general surgery residency. This has led to an increase in the number of chief residents pursuing fellowship subspecialty training to almost 80%.⁴ When fellowship directors were surveyed about the preparation of general surgery residents coming to fellowship, "21% felt that new fellows arrived unprepared for the operating room, 38% demonstrated lack of patient ownership, 30% could not independently perform a laparoscopic cholecystectomy, and 66% were deemed unable to operate for 30 unsupervised minutes of a major procedure."⁵ The problem is complex

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Abbreviations and Acronyms

DoD = Department of Defense

GHE = global health engagement

OEF = Operation Enduring Freedom

OIF = Operation Iraqi Freedom

and is caused by a myriad of factors including “lack of mentor availability, reduction of duty hours and increased supervision requirements, lack of continuity of care because of increased requirements for transitions to remain compliant with rules, a reduction in emergency operations, and the rigid nature of the current residency training paradigm.”⁵ As a result, general surgeons joining the military after residency may be underequipped to make sound independent clinical decisions and perform the appropriate surgical intervention in the austere environment.

The problem is only exacerbated once the surgeon is in the military health system. In 2015, the average Army general surgeon performed 130 cases, a mere 25% of the 530 cases performed by their average civilian counterpart.² As a preparation for deployment, the military relies on crash courses to prepare surgeons for their missions. However, these courses are wholly insufficient to compensate for the lack of currency that the military surgeon faces day after day and year after year. “The military’s reliance on just-in-time (eg trauma courses, short-duration predeployment training programs) and on-the-job training does not provide the experience necessary to ensure an expert trauma care workforce. Providers need to regularly care for trauma patients.”⁶ Furthermore, once on deployment, any skills the surgeon was able to garner quickly diminish due to long periods of clinical inactivity. Current average case volume for the deployed surgeon is 1 surgical procedure per month.²

Accentuating the problem is the fact that these small teams will likely be required to care for casualties far longer and more independently than was typical during OIF and OEF. A general surgeon at a role II facility could perform basic damage control surgery, but then have the patient transferred to a more specialized trauma surgeon/team at a role III facility within 30 to 90 minutes. Without a role III facility as a safety net, on the continent of Africa for instance, demands on the young, inexperienced military surgeon to keep a critically wounded soldier alive for 12 to 24 hours or longer may yield gravely different results than the success that is so often lauded for OIF and OEF.

Gaining experience at a Level I trauma center is a necessary first step in the resuscitation of the military surgeon.

Many programs are already in place at various centers throughout the US to help those surgeons who are not based at the military’s Level I trauma center in San Antonio to gain exposure in treating high acuity trauma patients on a routine basis. The Mission Zero Act, a bill presented before Congress in 2017 that would provide funding for Level I trauma centers to house military surgeons,⁷ is 1 example of efforts to expand this practice. This addresses the currency problem in part, but it will not, by itself, adequately prepare the surgeon to operate in an austere environment. Level I trauma centers have multiple on-call surgical subspecialists and interventional radiologists who provide expertise and care when treating a critically injured patient. In addition, the trauma surgeon can rely on trained technicians to operate and troubleshoot equipment problems. In contrast, “mobile surgical teams require a skill set that includes care normally provided by technicians, paramedics, and nurses, but not necessarily inherent to surgical training for physicians.”² The ability of a surgeon to rely on the expertise and care of other medical professionals when working at a Level I trauma center is in direct conflict with the austere surgeon’s need to improvise and find solutions with limited resources. Accordingly, experience at a Level I trauma center must be augmented with other activities to fully develop the skills and qualities required by current military missions in austere environments.

GLOBAL SURGERY

“Global surgery is an area of study, research, practice, and advocacy that seeks to improve health outcomes and achieve health equity for all people who require surgical care, with a special emphasis on underserved populations and populations in crisis.”⁸ In 2010, an estimated 16.9 million lives, or 32.9% of all deaths worldwide, were lost from conditions needing surgical care. This burden of disease is greater than that of HIV/AIDS, tuberculosis, and malaria combined. There are more than 5 billion people worldwide without access to surgical care. In low and middle income countries, 9 of 10 people cannot access basic surgical care. Only 6% of operations take place in the poor countries in which one-third of the world’s population reside.⁹

In May 2015, the 68th World Health Assembly approved Resolution 68.15, entitled, “Strengthening emergency and essential surgical care and anesthesia as a component of universal health coverage.”¹⁰ This resolution represented a significant breakthrough for surgery in the world global health agenda, which has often been characterized as the “neglected step-child” in global health. Through advocacy coupled with convincing

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