

**6/22/20166/22/2016Energy and Commerce Committee**

**House of Representatives**

**Washington, DC**

**June 24, 2016**

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**National Academy of Science, Engineering and Medicine**

**Committee on Military Trauma Care's Learning Health  
System and its Translation to the Civilian Health Sector.**

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**Testimony on findings and recommendations from the work  
done for the Scudder Oration 2014 and its accompanying  
paper Journal of the American College of Surgeons August  
2015 that informed the NASEM's Committee on Military and  
Civilian Trauma Care and the recent report:**

**“A National Trauma Care System: Integrating Military and Civilian Trauma Systems to Achieve Zero Preventable Deaths.” (June 17, 2016)**

**The “Achieve Zero Preventable Deaths’ by creating a single National Trauma System report is an extensive and well supported by evidence, data and expert testimony. The report has eleven leading recommendations that we feel will protect all Americans from death after injury, at home and while serving in the defense of our country. As well, it urges the recreation of the synergy between the two sectors- military readiness and civilian trauma care to greatly improve our overall medical response to disaster and mass casualty events, natural and intentional, that occur on American soil.**

**I said recreates as the concept of a combined system of military and civilian physicians, surgeons, nurses, researchers and leaders working in partnership to advance combat casualty care, develop leaders in medicine and nursing and translate the human devastation of the battlefield to the research laboratories in our medical universities is not new. Prior to Viet Nam and for the first 175 years of this country’s history, this was the norm and greatly benefited the health and welfare of our country. After VN it disappeared.**

**I will address Recommendation 11, which calls for integrating and optimizing the civilian network of America’s best and busiest trauma centers as robust platforms to train, sustain, and retain military trauma teams and an expanded expert trauma workforce necessary to support the PRIMARY MISSION of the DOD MHS---Readiness.**

***Recommendation 11: To ensure readiness and to save lives through the delivery of optimal combat casualty care, the Secretary of Defense should direct the development of career paths for trauma care (e.g., foster leadership development, create joint clinical and senior leadership positions, remove any relevant career barriers, and attract and retain a cadre of***

***military trauma experts with financial incentives for trauma-relevant specialties). Furthermore, the Secretary of Defense should direct the Military Health System to pursue the development of integrated, permanent joint civilian and military trauma system training platforms to create and sustain an expert trauma workforce.***

## **How did our committee arrive at this recommendation and what evidence and data supports such a recommendation?**

First let me say, the last two decades have seen astounding and significant advances in military medicine, improving trauma care for combat, mass casualty, and civilian injuries. However, as in all the history of medicine, as the war intensity decreases and periods of interwar peace emerge, there is little to NO opportunities for the military workforce to maintain the surgical, resuscitative and reconstruction skills necessary for the battlefield. In fact, our data show that throughout the military beneficiary care (TRICARE), drives the practices of most surgeons and physicians. The most common procedures in military hospitals are obstetrical and the medical management of diseases related to the aging in the enormous beneficiary population of the retired military. Thus, those astounding skills and abilities to save the most devastating wounds is quickly slipping away. Those Lessons Learned will soon be Lessons gone. Don't blame the individual physician or nurse as the military has little to almost no opportunity for military teams to care for severe trauma. There is only one Level I Trauma Center in the DOD and two other verified lower level trauma centers.

History also records that as military action returns, there is little time to prepare and relearn the necessary skill set a military surgeon needs to deal with combat, mass casualty events and the horrors brought to the human body. Thus, the first few years of war begin with poorly prepared trauma and combat casualty teams. The price of this is death and some of it preventable death. Again, please don't blame the individual surgeons deploying at such times as predeployment they were doing their duty; what

the DOD asked of them; delivering care to beneficiaries, not wounded soldiers! The analogy might be a concert musician who for years is never asked to play a single concert, then suddenly and with only hours to prepare must perform the most difficult piece of music at the most competitive public event, oh and in the worst conditions- outside, sleep deprived, no back up, poor lighting and from memory. Data that we reviewed showed that surgeons at Military Treatment Facilities did less resuscitations, less trauma operations and had less exposure to management of trauma cases than even a modestly busy trauma surgeon in civilian practice. In fact, our data published in August of 2015 shows that military surgeons performed more amputations, extensive wound debridements, craniotomies, emergency airway procedures, just about every combat surgical procedure in battle than they did while practicing stateside at the military hospitals.

In that same paper, we reported on how well the DOD prepared the surgeons and their teams to go to war and the answer was it was inconsistent, lacked coordination across the three Services and lacked standardization for curricula and skill set. As well, no assessment of the predeployment or “just in time” training of military surgeons could be found. This preparation is of utmost importance when one looks at the characteristics of the surgeons who went to war. A few were well experience from conflicts of the 1990s but not many.

Most of the front-line surgeons were young (mean age of 36 years) at the time of first deployment, and averaged 2 years of board certification. Most had little to no combat

experience and many had not seen civilian combat surgery or had a concentrated experience in a high volume civilian trauma center. Most of the general surgeons were not fellowship trained in the earlier war years.

As well, when we reviewed questionnaire data from recently deployed military surgeons, they all requested more training in combat surgical procedures and stated they had never been exposed to these.

One survey, largely of nonfellowship-trained general surgeons, asked what additional surgical experiences they would request on completing their tours. Hemorrhage control at difficult anatomical sites and mediastinal and thoracic injury management topped the list. Of note, almost 15% requested additional experience with fasciotomy! These findings suggest flaws in preparation for the front line surgeon and perhaps infer less than adequate confidence in these young surgeons to face the difficult cases from battle.

So let me offer a solution that will provide a well-trained, prepared workforce for the Military Readiness mission and keep a constant large group of expert military surgeons, physicians, nurses and others able to deploy at short notice.

Greatly increase the number of current national military civilian training trauma centers sites at America's best medical universities with full time Military faculty

and staff integrated into the culture, organization, clinical academic services of the university and medical center.

The answer as to where these skills are best learned and refreshed continues to be at a very busy civilian urban level I trauma center. Reports starting in the 1990s confirm that, when staffed and structured correctly, these intense immersion clinical experiences provide a vibrant and effective environment for providers to learn new skills and refresh proficiencies. Those same reports support these environments for pre-hospital, allied health, nursing, special teams, physicians and surgeons to acquire both individual and team training. A more recent report favorably compares the caseloads, severity and type of cases seen at the Center for the Sustainment of Trauma and Readiness Skills program in Baltimore with those of the Role 3 USAF Theater Hospital in Balad, Iraq. Although no civilian center can replicate the case load or wounds of the battlefield, this study concluded that the intensity of high injury severity cases, shock, and exposure to a high volume of soft tissue cases and debridements offers the closest approximation. In a report from a US Marine Corps Shock Trauma Platoon, at a less intense Level I center, benefit was subjectively recognized and valued by the authors.

Recently, the RAND Corporation further studied how best to maintain military medical skills in peacetime and recommended stationing military teams in civilian trauma centers settings where the case mix resembles the case mix when deployed.

Last, is this attractive to military physicians and to the civilian medical leaders at our level I academic trauma centers? The answer is a resounding YES.

In the same paper, we reported on our own questionnaire to 86 military affiliated surgeons, the majority of who had deployed early in the war years and now were more senior and experienced. Most were involved in teaching trauma surgery, some had been deployed multiple times and the majority had completed advanced surgical training in trauma and surgical critical care.

To understand how to optimally train and retain surgical skills for future conflicts and what professional factors would influence continuing of military service, the responses of all 86 surgeons were analyzed. In terms of how to effectively sustain skills, there was almost universal support for achieving this at civilian academic medical and trauma centers as full-time surgical faculty and staff for clinical practice and as trainers for rotating military trauma teams. More than 85% of the respondents felt this model to be effective and attractive.

Let me conclude. Recommendation 11 of the NASEM report can best be summarized. The literature, available surveys of military affiliated surgeons and interview data, and a recent RAND report, support imbedding trauma teams in our busiest civilian academic medical centers and large teaching metropolitan trauma centers.

Greatly increase the number of current national military civilian training trauma center sites at America's best medical universities with full time Military faculty and staff

integrated into the culture, organization, clinical academic services of the university and medical center. These “permanent” trauma teams and supportive workforce elements would be on assignment to the civilian hospitals for a period of three to four years and serve as fully integrated faculty and staff. They would maintain their full pay, benefits and be available to rapidly deploy as needed to support military operations as determined by the DOD. These centers should be selected based on volume, acuity and profiles that assure adequate and continuous exposure to critical injury.

All would be **JOINT** training centers and provide experiences to the Army, Navy, Air Force and personnel who are active duty, reserve and National Guard.

The overall direction and governance of this national network of Mil-Civ Training centers would fall under the direction of the DHA and a new readiness command informed by an elevated Joint Trauma System made up of military trauma experts. The curriculum, skill set and validation of both individual and team competencies would be standardized across the sites.

Where possible, our struggling “safety net hospitals,” many of which serve the inner city poor and some of our most violent areas, are in need of supplemental staffing and should be reviewed for military training centers if they fit all the criteria developed by the DOD.

*(JACS Aug 2015)*

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The above are my abbreviated comments based on the two years of research performed under my direction and by me to explore how to secure a viable and improved partnership between military and civilian medical sectors in order to optimize learning platforms and embed military trauma personnel at America's academic medical universities for trauma and combat casualty care. This investigation used an iterative process, consisting of literature reviews, interviews of military and civilian physicians, administrators and health system executives and a new survey of military affiliated surgeons to craft and validate recommendations for immediate action.

The opinions expressed were those of the author and not approved or endorsed by the ACS, DOD or other governmental agency when published in August 2015.

C. William “Bill” Schwab was trained as a surgeon in the US Navy during the Viet Nam war period and remained on active duty till 1980. Over the last 35 years, he has remained a strong supporter and collaborator with the Medical Health System of the DOD, and in particular the leadership of the USUHS. Bill has held numerous positions of leadership in academic surgery and is a well-known expert on the development of trauma systems, trauma centers and trauma teams. He has established five trauma centers in academic medical centers and community teaching hospitals and served as a consultant to HHS, CDC and several university health systems for trauma systems and center development. From 2003-2006, he served on the Institute of Medicine’s Committee to examine the crisis in emergency care in America and its subsequent three part reports on emergency medical services, in hospital emergency care and emergency care for children. These reports called for a national referendum on improving emergency and trauma care.

Dr. Schwab has been at the University of Pennsylvania for the last 29 years and the founding chief of the academic division of traumatology, trauma center and aeromedical evacuation system. He established one of the largest interdisciplinary fellowship training programs for physicians and surgeons in the United States. In cooperation with the three services, he has trained 18 military surgeons in the trauma fellowship, all of whom deployed prior to, after or multiple times to Iraq, Afghanistan or to MTF stateside in support of the war efforts.

In 2014, he was asked to give the Scudder Oration in Trauma of the American College of Surgeons. His “white” paper entitled “The Winds of War: Enhancing Military Civilian Partnerships to Assure Readiness” is considered a seminal contemporary contribution in guiding the future of training, sustaining and retaining military and civilian trauma teams at the highest level of clinical readiness for combat and disaster trauma care.