Commander’s Corner
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By David R. Howell

Commander’s Corner
Lt. Gen. Thomas W. Travis, MD
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Insights

As 2013 ramps up, most of us across the defense community, no matter the specialty, are bracing for the effects budget cuts will have on our careers and families. Through all this, the DoD medical community continues to ensure that the nation’s warfighters receive world-class care whenever and wherever they need it, focusing on the difference it can make for servicemembers in need rather than on fiscal issues it cannot control.

Straight from The Office of the U.S. Air Force Surgeon General, C&CC offers readers an in-depth look at efforts, in the words of Air Force Surgeon General Lt. Gen. Tom Travis, “to enable medically fit forces, provide expeditionary medics, and improve the health of all we serve to meet our nation’s needs.” Find out how his office is making good on this pledge every day in this comprehensive Q&A.

From global airborne reach to amphibious first response, the U.S. Marine Corps Warfighting Lab (MCWL), Quantico, VA, recently completed a year of study and field experimentation examining the implications to casualty care in future operating concepts and how technologies may support these operations. As the primary R&D center supporting Marine Air-Ground Task Force (MAGTF) operations worldwide, MCWL is moving full steam ahead with analysis and tests of key enhancements to existing techniques in tactical combat casualty care and the equipment upgrades that will enable these processes. On an Army Medical Department (AMEDD) front, advances in field trauma care and pre-deployment training are equating to greater force readiness prior to real-time force operations.

As we move from battlefield to classroom, readers can explore the varied opportunities for career- and transitioning servicemembers interested in furthering their credentials as combat medical- and civilian emergency medical personnel in this Issue’s Industry Partner column, Ferno Aviation, a division of Ferno Military Systems, discusses its lightweight medical transport products for the civil aeromedical market and its modular, air-transportable treatment for surgery and post-op life support.

Much of what the nation learns in response to natural disasters is put to practice as part of the National Center for Disaster Medical Response (NCDMR) Advanced Regional Response Training Center (ARRTC) Program. Taking an updated, comprehensive approach to all-hazards disaster preparedness, response training, and leadership, the program addresses basic core knowledge of responder roles and responsibilities during emergencies or disasters.

Finally, from a medical technology R&D perspective, C&CC offers a look at U.S. Defense Advanced Research Projects Agency (DARPA) developmental programs that are revolutionizing casualty response care across DoD.

As always, feel free to contact me with your comments or concerns.

Thanks for your continued readership!

Sincerely,

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Expeditionary Medicine: Supporting the MAGTF

By LCDR Henry S. Warren, Project Officer, Expeditionary Medicine Branch
U.S. Marine Corps Warfighting Laboratory Technology Division
The U.S. Marine Corps Warfighting Lab, Quantico, VA, recently completed a year of study and field experimentation examining the implications to casualty care in future operating concepts and how technologies may support these operations.

The Marine Corps Warfighting Laboratory (MCWL) was established in 1995 as the “Commandant’s Warfighting Laboratory” and is now part of the Marine Corps Combat Development Command at Quantico, VA. The mission of MCWL is to conduct concept-based experimentation and wargaming to develop and evaluate tactics, techniques, procedures, and technologies in order to support the warfighter by enhancing current and future warfighting capabilities and serve as executive agent for Counter-IED, Science and Technology, and Joint Concept Development and Experimentation. The Expeditionary Medicine Branch, working under the Science and Technology Division, focuses on “the Marine in the last 300 yards.” Improvements sought in support of future operating concepts may be either material or non-material.

EMO Casualty Care Study

An analysis of the Marine Corps Future Operating Concepts with an eye toward the implications to combat casualty care driven by the Enhanced MAGTF Operations (EMO) concept prompted the command to conduct a study with the Naval Health Research Center. Unlike current combat operations, EMO is characterized by distributed forces operating ashore and long evacuation distances back to a seabase. The study examined casualty care outcomes across two company landing teams (CLT), including a Heavy and Light CLT, operating up to 60 nautical miles (NM) from each other and at up to 140 NM from the seabase. Some scenarios included an additional logistics landing team (LLT).

A variety of proposed medical care configurations ranging from program of record capabilities to more notional task-organized medical teams were modeled in the Joint Medical Planning Tool. The medical assets placed ashore with the maneuver element and/or the LLT and aboard rotary evacuation assets helped determine medical outcomes over a 30-day period of simulated combat operations. Additional alternatives evaluated included model runs with mass casualty events and scenarios where aircraft were not available for extended periods. The study considered mortality, morbidity, medical personnel utilization, and the time from injury to Role 2 care when comparing alternative medical configurations. The results of this study moved the Expeditionary Medicine Branch’s project development and experimentation objectives in three directions: casualty care ashore, casualty data collection and dissemination, and far-forward casualty movement by dismounted troops.

Medical Enabler Experimentation

In early 2012, MCWL conducted EMO Limited Objective Experiment One (EMO LOE-1) in conjunction with Exercise BOLD ALLIGATOR (BA12). BA12 was the second annual joint and multinational amphibious assault exercise sponsored by the U.S. Fleet Forces Command and the U.S. Marine Forces Command. It was the largest amphibious assault exercise held on the East Coast in a decade. In February 2012, the Expeditionary Medicine Branch conducted an experiment to examine the casualty care enhancement of equipping a dismounted company corpsman with a lightweight medical enabler set. The set included three physiological sensors: a bio-harness worn by Marines “outside the wire” to capture and store basic vital signs data, a wrist-placed blood pressure cuff, and a saturated pulse oxygen (SPO2) monitor. The devices wirelessly sync via Bluetooth connection to a corpsman’s smartphone monitor (also included in the enabler set). The monitor provides a consolidated view of the data as it is captured and indicates the casualty’s trend lines. However, it does not transmit the data beyond the attending corpsman.
Medical Enabler Round Two

Our next round of field experimentation took place over the summer of 2012. It focused on providing a teleconsultation and data transmission capability with equipment appropriate to corpsmen involved in mounted convoy operations and a select squad of dismounts equipped with a small autonomous squad supporting vehicle capable of carrying 1,200 pounds of gear (including a litter and a few pounds of medical kit). This vehicle provided the dismounted squad a casualty evacuation platform.

The medical enabler device, a TEMPUS IC Pro, provided the forward corpsmen greater access to their casualty’s vital signs. Through an inherent communication capability, tethered to a high-bandwidth Trellisware tactical MESH radio network and a Peltor COMTAC II tactical headset, the device allows a connection between a forward corpsman and another point in the area of operations. In this case, a commissioned medical doctor manned a “call center” in a simulated aid station ashore. Through this connection, the forward corpsmen collaboratively assessed their casualties while sharing vital sign data, treatments, and medication information in real time via the medical enabler device.

One of the more interesting twists during the experiment occurred when the unit could not immediately locate the corpsman. At the start of this unit’s response to a simulated casualty, an infantry lance corporal with no previous training on the equipment became the first responder. After the Marine stabilized the casualty in accordance with Combat Lifesaver (CLS) training, the medical observer/controller provided him approximately one minute of impromptu training on the Tempus device.

Without the benefit of the eight hours of training the corpsmen received, the Marine applied the blood pressure cuff and SPO2 finger sensor and engaged the Reachbak™ capability. Within a few minutes, he became the call center physician’s virtual eyes and hands, bringing some measure of a board-certified emergency medicine physician’s knowledge far forward in very little time. After a short while, the unit corpsman was on scene, taking over further casualty care with the benefit of captured vital signs and the ER doctor “on the line” already executing a care plan for the casualty through the Marine. The lance corporal summed up the event well when he said, “I feel this is more valuable to someone less trained.”

A brief summary of the tactical circumstances in which the corpsmen and Marine used the Tempus & Reachbak™ over the course of a week:

- A variety of halted scenarios (waiting at a helicopter landing zone, for example).
- On-the-move uses of Tempus from within an armored HMMWV.
- Use by dismounted troops (aided by a small squad support vehicle).
- Simultaneous use of two Tempus by corpsman and call center doctors to include data, voice, and streaming video.
- Coached use by an infantry Marine.
The doctor, physician assistant, corpsmen, CLS Marine, and other Marines involved expressed almost universally favorable views of this capability, particularly in the seabased EMO scenarios that may force casualty care to be performed at the company level for a longer period of time while awaiting the arrival of rotary evacuation from, and back to, the seabase.

Lessons Learned

The value of small patient monitors and physiological sensors will be maximized if they can operate over the next generation command-and-control backbone in an austere theater. By leveraging existing technologies, physiological information available to a far-forward corpsman can simultaneously be shared across the area of operations with higher-level medical providers ashore and afloat. This tele-consultation ability becomes ever more important as distances increase—reaching an over-the-horizon Casualty Receiving and Treatment Ship for example. The ability to electronically document a casualty’s injuries, treatments, and medications on an electronic tactical combat casualty care card and then make that information available to the higher-level medical treatment facility (MTF) minutes to hours before the arrival of that casualty will enhance casualty care and evacuation decision-making through situational awareness.

Lastly, I would like to note the importance of material development efforts. The future suite of maneuver element medical kits should be modular and compatible. Devices should offer the corpsmen flexibility for missions to choose between very small man-packable devices capable of syncing with each other and moving data over the tactical network as well as larger, more comprehensive man-portable devices.

A corpsman assesses his casualty’s vital signs in LOE-1. (USMC)

The corpsmen and casualty benefit from improving patient assessments through access to more accurate vital signs and by tele-consultation. Additionally, moving casualty data out in front of the actual patient will allow higher level medical providers to prepare themselves and their facilities prior to the casualty’s arrival. In the long term, the capture and preservation of far-forward digital documentation of injury and treatments can provide the downstream care providers with a more complete medical history of the patient (and the research community with a treasure trove of quality data).

More info: mcwl.usmc.mil

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Several changes made the news in 2012 as the U.S. Army Medical Command looked to improve Army medicine on the battlefield. Carrying over to 2013, the AMEDD mission focus remains fixed on envisioning, designing, and training a premier medical force.

By Phil Reidinger, AMEDD Public Affairs

To increase access for soldiers who need help and a greater capability to support the brigades, the Army is adding more than 1,000 behavioral health Soldiers and assigning them to every brigade in the active Army, National Guard, and Army Reserve. Each brigade combat team now has an additional behavioral health officer who is a clinical social worker or licensed psychologist and an additional enlisted behavioral health specialist. The change doubles the number of officer and enlisted personnel, one of which will be an NCO. The four-person teams also will be assigned to every Army brigade, not just the BCTs.

Additionally, combat support hospitals (CSHs) will get a new look. Now more modular and flexible, the hospitals will have greater trauma care and surgical capacity and will be able to operate in multiple locations. Specialized elements of the new hospital give the medical planner a range of units including a 32-bed field hospital and three different augmentation detachments that can be added to the field hospital to increase its surgical, medical, or ward capabilities. This flexibility will permit the U.S. Army Medical Department (AMEDD) to achieve the same high level of clinical outcomes for our patients while reducing the medical footprint and logistical support requirements.
Rating Restructure

In 2012, the AMEDD announced that seven medical fields would get their own military occupational specialty code (MOSC), a result of restructuring the 68W healthcare specialist MOS by splitting off specialties that used 68W additional skill identifiers. The change focuses the 68W MOSC training on specialized trauma care, which includes new specialties such as practice nurse; occupational therapist; physical therapist; orthopedic specialist; nose, throat, and eye specialist; and cardiovascular specialist. The soldiers assigned to these specialties will no longer be required to attend the 16 weeks of basic combat medic training. Instead, they will attend a four-week introduction to medicine program and then complete specialty training.

The AMEDD is also adding longer, tougher training for flight medics. Soldiers who want to be flight medics will now have to complete a nine-month, three-phase training program comprising four weeks of flight medic training at Fort Rucker, AL; six months of paramedic emergency medical technician training at The University of Texas Health Science Center; and eight weeks of critical care flight medical training conducted at Brooke Army Medical Center (BAMC), Fort Sam Houston, TX. The AMEDD Center and School (AMEDDC&S) will offer the flight paramedic course three times each year for 30 students per class.

Targeted Testing and Evaluations

In early 2012, the U.S. Army Medical Department Board conducted a customer assessment (CA) of The Force Provider Expeditionary-Medical Systems 84-Bed Hospital Company (DEPMEDS) with the 14th Combat Support Hospital. The purpose of this CA was to provide a means for the Board to assess the functionality of the Force Provider Expeditionary-Medical Systems (FPE-MS) in supporting the medical mission. This evaluation used an 84-bed hospital company and a limited chemically protected DEPMEDS to consider a 44-bed early entry hospitalization element and a 40-bed hospitalization augmentation element. A power assessment of the 84-bed hospital company also was conducted. Soldiers from the 14th Combat Support Hospital, Ft. Benning, GA, supported an assessment of the new air beam hospital shelter to evaluate the functionality of the system in supporting the medical mission as a potential replacement for the current TEMPER and Alaskan shelters.

The Board was tasked by the U.S. Army Medical Materiel Agency (USAMMA) to conduct an assessment of the Burn Resuscitation Decision Support System (BRDSS) in a simulated operational environment. The evaluation took place at the DEPMEDS Equipment and Training site at Camp Bullis, TX, in the spring of 2012. The Board test officers evaluated a Burn Resuscitation Decision Support System, a commercial-off-the-shelf tablet-type device with software that implements acute burn fluid resuscitation. The report will assist USAMMA in determining whether the BRDSS device meets the requirements to support Roles II and III and en-route medical care of seriously burned patients.

Another CA conducted by Board test officers evaluated the Environmental Sentinel Biomonitor (ESB) in an operational environment using typical operators and maintainers. Soldiers also tested the prototype ESB system as an acceptable replacement for the currently fielded analyzer. The system will be used to evaluate the toxicity and microbiological quality of water intended for potable use.

Blood Safety at Department Core

The safety of blood products is a critical component of combat casualty care. The U.S. Army Medical Department Board test officers conducted an assessment of the Pathogen Reduction Device (PRD) to determine if the equipment is an acceptable device to treat whole blood for transfusion in an operational environment. The PRD is designed to be used to treat whole blood for viruses, bacteria, and protozoans prior to transfusion and to deactivate white blood cells.

More info: amedd.army.mil

Wisconsin Army National Guard combat medics perform life-saving and stabilizing procedures on battle-damaged mannequins during a two-day Army Medical Department (AMEDD) training session at Fort McCoy, WI. (1st Sgt. Vaughn R. Larson/Wisconsin National Guard)
The U.S. Army Medical Command (AMEDD) Center for Pre-deployment Medicine (CPDM) offers several courses to prepare medical professionals for combat trauma management.

By LTC (Dr.) Jimmy Cooper
Center for Pre-deployment Medicine

From a Combat Med Perspective

The Brigade Combat Team Trauma Training course is conducted via mobile training teams for two five-day training sessions per brigade. Training audience is the combat medic assigned to a brigade combat team’s area support medical company, including assigned flight medics. The focus is on tactical combat casualty care (TC3) concepts, trauma management skills, lessons learned, exposure to humanitarian law, detainee care, pediatric/ob-gyn/geriatric trauma, and preservation of remains.

The Tactical Combat Medical Care (TCMC) course takes place over a five-day period at Fort Sam Houston, TX. The target audience is physicians, physician assistants, and nurse practitioners who will be assigned to either a Role I or II facility. If space is available, Brigade Nurses, Special Forces Medical Sergeants, and select 68W NCOs may also attend when accompanied by their unit provider. The course teaches the fundamentals of TC3 and then provides more advanced training commensurate with the student population’s level of education, expertise, and healthcare role.
Instruction is primarily concerned with treating the four most common causes of preventable death on the battlefield. Emergency surgical procedure labs are also performed utilizing all the instruction the students have gained during that week. Training must be accomplished no more than 180 days prior to deployment and remains valid for two years post-deployment.

The eight-day Military Transition Team (MiTT) NCO course, also conducted at Fort Sam Houston, provides an overview of the skills and knowledge necessary to operate as a medic in remote or isolated hostile environments. The course focuses on basic sick call, including documentation, and diseases of all related systems, including respiratory, gastrointestinal, orthopedic, head, neck, throat, dental, and dermatologic.

Emphasis is placed on emergencies to these systems and determining priorities of evacuation for team members. Students are introduced to the telemedicine program and receive specialty training directly related to overseas contingency operations mentors/combat medic advisors, provincial reconstruction team operations, and logistical planning. Training is divided into a clinical training (four days) and trauma training (four days), with the latter consisting of assessment and treatment in accordance with the tenets of TC3, wound care and basic suture techniques, and MASCAL scenarios using the simulations lab and emergency surgical procedures lab. Air Force and Navy medical personnel that are the equivalent of 68W 30-40 may attend the course if they are assuming an Army position.

Multi-Force Application

The Joint Forces Combat Trauma Management course (JFCTMC) is designed to provide individual trauma training for healthcare providers that are deploying to the Role III echelon of care. The training audience is surgeons, emergency medicine physicians, physician assistants, certified registered nurse anesthetists, and emergency department-registered nurses and practical nurses assigned to deploying combat support hospitals. This course is designed to prepare deploying healthcare providers to care for patients with acute war-related wounds while incorporating lessons learned from OIF, OEF, and other military settings. This five-day course conducted at Ft. Sam Houston is comprised of a series of lectures with breakout sessions by specialty.

During the initial two-day course review, the Joint Trauma System Clinical Practice Guidelines are the focus, with surgeons attending a live tissue training and cadaver lab as part of courses in Advanced Trauma Operative Management and Advanced Surgical Skills for exposure in trauma. Physicians attend an ultrasound lab and an emergency procedures cadaver lab. Anesthesia providers attend a breakout session at Brooke Army Medical Center (BAMC). Realistic training events—such as extracting wounded soldiers from an urban combat zone and loading casualties on air- and ground medevac vehicles—reinforce core skills for combat medics and other military medical professionals. (1st Sgt. Vaughn R. Larson/Wisconsin National Guard)

Nurses attend a day-long breakout session that includes a four-hour simulation lab, KCI negative pressure therapy instruction and lab, nursing-specific lectures on wound and ostomy care, and neurological wound management. Participants also receive eight hours of TC3 training comprised of equal parts lecture and skills stations covering airway, penetrating chest trauma, intraosseous vascular access, hemorrhage, rapid trauma assessment, and medical equipment used in theater.

More info: amedd.army.mil
Some of the latest advances at the U.S. Defense Advanced Research Projects Agency (DARPA) for Joint Service test and field consideration

Bolstering the Front Line of Biological Warfare Response

The DoD employs antibody-based biosensors as its immediate tool for quickly detecting antigens—antibodies bind to antigens—but these sensors have functional limitations that can leave warfighters at risk. The two biggest liabilities involve stability and affinity. Stability refers to a sensor's ability to continue functioning as required over time and despite environmental conditions. Affinity refers to the tightness of the bond between an antibody and an antigen; the higher the affinity, the more sensitive a biosensor is over a wider range of threats. Existing DoD biosensors, while effective, have restricted shelf lives, are quickly rendered inoperable by high temperatures, and offer limited affinity.

By removing temperature stability as a limiting factor, troops will now be able to carry sensors with them without worrying about refrigeration and wondering if the sensor will return an accurate reading,” said Mildred Donlon, the DARPA program manager for ATP.

Specifically, DARPA performers demonstrated the ability to increase antibody temperature stability at 158 degrees Fahrenheit to 48 hours, up from the current limit of five to ten minutes. When transitioned to DoD biosensors, these results are projected to eliminate the need for refrigeration while increasing the shelf life by a factor of 36, extending survivability at room temperature (77 degrees Fahrenheit) from one month to approximately three years. DARPA also increased antibody affinity by a factor of 400, thus opening the door to vastly more sensitive, multiplexed biosensors that can test for numerous antigens.

Donlon explained the implications of the breakthroughs: “When you consider the locations of warfighters who have the most potential for biological weapons to be used against them, they are typically environments with extreme temperatures and harsh conditions, and the warfighters themselves are probably operating in small groups. If it’s going to be useful to these teams, DoD equipment needs to be ruggedized to survive conditions and be easy to use by non-experts. The ATP technology hits these goals.

“By removing temperature stability as a limiting factor, troops will now be able to carry sensors with them without worrying about refrigeration and wondering if the sensor will return an accurate reading. According to the Chemical Biological Medical Systems Joint Project Management Office at Joint Program Executive Office-Chemical Biological Defense, eliminating the need for cold-chain logistics in transport and deployment of sensors is estimated to save DoD in the range of $10 million per year,” Donlon said. “The new stability also means antibodies can be attached to new materials to make potentially more practical sensors to take the place of current beads and strips. Most importantly, by pairing more stable sensors with a huge increase in sensitivity, DARPA is giving troops the confidence to trust the results of what can be literally life-or-death measurements.”

More info: darpa.mil

Pollen: A Lifesaver?

Harvinder Gill, an assistant professor of chemical engineering at Texas Tech University and a member of the 2012 class of academic researchers receiving mentorship and funding through DARPA’s Young Faculty Awards program, seeks to understand, engineer, and test a pollen-based oral vaccination platform to protect against a range of infectious diseases. If successful, his research could lead to more effective, more easily administered, and more easily transported vaccines for deployed troops.

The exterior of a pollen grain is a shell made of a naturally durable, non-allergenic polymer. The contents of the shell that actually contain the allergy-inducing plant proteins and fats can be cleaned out, rendering the shell itself neutral. The leftover space inside the shell could be filled with vaccines and delivered into the body through oral ingestion. The pollen shell’s natural toughness would help the vaccine survive conditions inside the body, and the pollen can pass through the intestinal lining to deliver vaccine.

An orally consumed vaccine is efficient, painless, can be self-administered, and can induce both systemic and mucosal immune responses, thus enhancing protection. And because pollen shells are durable, they can potentially survive harsh digestive processes and safeguard a vaccine until it can be delivered.

More info: gill-lab.che.ttu.edu
DARPA Foam Could Increase Survival Rate for Victims of Internal Hemorrhaging

Technology developed under DARPA’s Wound Stasis System that addresses the “golden hour,” the first 60 minutes after a warfighter is injured, has resulted in 72 percent survival rate at three hours post-injury in testing. In advance of transport, initial battlefield medical care administered by first responders is often critical to injured servicemembers’ survival. In the case of internal abdominal injuries and resulting internal hemorrhaging, there is little that can be done to staunch bleeding before the patients reach necessary treatment facilities; internal wounds cannot be compressed as external wounds can, and tourniquets or hemostatic dressings are unsuitable because of the need to visualize the injury. The resulting blood loss often leads to death from otherwise potentially survivable wounds.

DARPA launched its Wound Stasis System program in 2010 in the hopes of finding a technological solution that could mitigate damage from internal hemorrhaging. The program sought to identify a biological mechanism that could discriminate between wounded and healthy tissue, and bind to the wounded tissue. As the program evolved, an even better solution emerged: Wound Stasis performer Arsenal Medical, Inc. developed a foam-based product that can control hemorrhaging in a patient’s intact abdominal cavity for at least one hour, based on swine injury model data.

The foam, as demonstrated in testing, is designed to be administered on the battlefield by a combat medic and is easily removable by doctors during surgical intervention at an appropriate facility. Actually a polyurethane polymer, the foam forms inside a patient’s body upon injection of two liquid phases, a polyol phase and an isocyanate phase, into the abdominal cavity. As the liquids mix, two reactions are triggered. First, the mixed liquid expands to approximately 30 times its original volume while conforming to the surfaces of injured tissue. Second, the liquid transforms into solid foam capable of providing resistance to intra-abdominal blood loss. The foam can expand through pooled and clotted blood despite the significant hydrostatic force of an active hemorrhage.

In tests, removal of the foam took less than one minute following incision by a surgeon. The foam was removed by hand in a single block, with only minimal amounts remaining in the abdominal cavity, and with no significant adherence of tissue to the foam. Features appearing in relief on the extracted foam showed conformal contact with abdominal tissues and partial encapsulation of the small and large bowels, spleen, and liver. Blood absorption was limited to near the surface of the foam; the inside of the foam block remained almost uniformly free of blood.

“Wound Stasis has been an exciting program because we were able to move unexpectedly from fundamental research to a pre-clinical proof-of-concept based on the strength of our findings,” said Brian Holloway, DARPA program manager. “According to the U.S. Army Institute of Surgical Research, internal hemorrhage is the leading cause of potentially survivable deaths on the battlefield, so the Wound Stasis effort should ultimately translate into an increased rate of survival among warfighters. If testing bears out, the foam technology could affect up to 50 percent of potentially survivable battlefield wounds.”

More info: darpa.mil

Defusing the Threat of Ionizing Radiation

While scientists have made some strides in preventing immediate death from ionizing radiation exposure, there are currently few intervention technologies to protect against long-term morbidity and mortality. In light of the substantial threat posed by ionizing radiation, DARPA has released requests for information on novel approaches to mitigate immediate and long-term health damage from acute exposure to ionizing radiation and model its biophysical effects.

Exposure to ionizing radiation would be a particular concern in the aftermath of a large-scale release of nuclear material, such as might occur following either a natural disaster or a deliberate attack. The damage to Japan’s Fukushima nuclear reactor after the 2011 Tohoku earthquake raised concerns about U.S. preparedness to treat large-scale human exposure to ionizing radiation.

“Researchers have had some success in developing treatments to prevent near-term death from acute ionizing radiation sickness, but there’s still a lot to be learned about specifically how the chronic effects of exposure play out within the body,” said Mildred Donlon, a program manager in DARPA’s Defense Sciences Office. “We’re hopeful that with increased understanding the immediate treatments for exposure can be made more effective and that we can develop novel therapies and strategies for enhancing long-term survival. If we’re successful in this research, we might be able to limit at least some of the destructive power of ionizing radiation.”

More info: darpa.mil
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Guiding Global Medical Service Mission Support

Lt. Gen. (Dr.) Thomas W. Travis is the Surgeon General of the Air Force, Headquarters U.S. Air Force, Washington, D.C. As functional manager of the U.S. Air Force Medical Service, Gen. Travis advises the Secretary of the Air Force, Air Force Chief of Staff, and the Assistant Secretary of Defense for Health Affairs on matters pertaining to the medical aspects of the air expeditionary force and the health of Air Force people. Gen. Travis has authority to commit resources worldwide for the Air Force Medical Service, to make decisions affecting the delivery of medical services, and to develop plans, programs, and procedures to support worldwide medical service missions. He exercises direction, guidance, and technical management of more than 42,800 people assigned to 75 medical facilities worldwide.

Gen. Travis entered the Air Force in 1976 as a distinguished graduate of the ROTC program at Virginia Polytechnic Institute and State University. He was awarded his pilot wings in 1978 and served as an F-4 pilot and aircraft commander. The general completed his medical degree from the Uniformed Services University of the Health Sciences School of Medicine, where he was the top Air Force graduate, and in 1987, he became a flight surgeon. For more than three years, General Travis was Chief of Medical Operations for the Human Systems Program Office at Brooks Air Force Base, TX. He later served as the Director of Operational Health Support and Chief of Aerospace Medicine Division for the Air Force Medical Operations Agency in Washington, D.C.

Prior to his current assignment, Gen. Travis served as Deputy Surgeon General. He has commanded the U.S. Air Force School of Aerospace Medicine; 311th Human Systems Wing at Brooks AFB; Malcolm Grow Medical Center and 79th Medical Wing, Andrews AFB, MD; and the 59th Medical Wing, Wilford Hall Medical Center, Lackland AFB, TX. He also served as the Command Surgeon, Headquarters Air Force District of Washington, D.C., and Command Surgeon, Headquarters Air Combat Command, Langley AFB, VA. He is board certified in aerospace medicine. A command pilot and chief flight surgeon, he has more than 1,800 flying hours and is one of the Air Force’s few pilot-physicians. He has flown the F-4, F-15, and F-16 as mission pilot and the Royal Air Force Hawk as the senior medical officer and pilot.

Lt. Gen. Travis was interviewed by C&CC Editor Sean Phelps.

C&CC: Please talk about your office’s background, mission, and role as part of the Air Force’s and greater DoD medical community.

Lt. Gen. Travis: The Air Force Medical Service (AFMS) was established in July 1949, two years after the Air Force was formed. Our mission is to enable medically fit forces, provide expeditionary medics, and improve the health of all we serve to meet our nation’s needs. Our vision is to provide “Trusted Care, Anywhere.”
Our service’s strategic goals help enable us to accomplish our mission by supporting optimal medical readiness for all airmen and ensuring Air Force medics are current, trained, and equipped. We also encourage better care by providing reliable access to safe, quality care for all that we serve, promoting positive patient experiences and outcomes. Our third goal focuses on better health by encouraging healthy behaviors through a health-based culture to enhance resilient and human performance while reducing illness and injury. Last, we seek to achieve best value through the effective management of our people and resources to attain readiness, better care, and better health.

Some of our various missions include setting up remote hospitals, deploying medics to support our international mission, and using air evacuation to bring back and treat all service personnel.

The AFMS is made up of approximately 40,000 active duty and civilians, another 9,000 reservists, and 6,000 guardsmen functioning in the USAF medical missions. We treat more than 1.1 million beneficiaries actually enrolled for care within the USAF health system, while there are more than 2.6 million eligible beneficiaries worldwide.

C&CC: From a patient care perspective, talk about some of the primary advances that are helping your office address the needs of members transported to USAF care facilities after combat.

Lt. Gen. Travis: Patient-Centered Medical Home (PCMH) is the centerpiece of our medical vision (“Trusted Care, Anywhere”). This program, now with more than 1 million patients enrolled, has made significant inroads into greater continuity of care and improved patient and provider satisfaction. To support PCMH, we implemented secure messaging, now deployed to a third of our medical treatment facilities (MTFs), with the remainder coming on board this year. This technology gives us a secure online communication system that allows patients to contact their primary care clinics for medical advice, appointments, prescription renewal, and laboratory results.

To better prepare airmen for deployment, we have made available Airman Resilience Training, which is a standardized but flexible approach to allow pre- and post-exposure training and reintegration training. This highly effective program ensures members are able to be mentally fit before and after their deployments.

Those service members coming home from the battlefield who have been in career fields more highly exposed to trauma receive more focused assistance at the Deployment Transition Center at Ramstein Air Base in Germany. Since its opening in July 2010, more than 5,000 service members have had an opportunity for this transition assistance, and research has shown lower rates of post-traumatic stress (PTS), interpersonal conflict, and alcohol use in the attendees.

Once the member has returned from deployment, we have established person-to-person health screenings to identify PTS and reach each member through Post-Deployment Health Reassessments at the 90-180 day, seven-12 month, and 16-24 month post-deployment intervals.

For members returning with injuries, treatment is individualized to the patient, and they may be treated through their home MTFs or sent to the appropriate specialty treatment for their illness. Our system enables our providers to give the quality care needed to assist members during treatment.

C&CC: How is your office working to promote partnering with industry in delivering more effective and efficient know-how to the USAF and joint DoD medical communities?

Lt. Gen. Travis: To keep our trauma and Critical Care Air Transport Team (CCATT) providers current and ready for the next conflict, we will be relying even more upon the outstanding civilian partnering programs established at our Centers for the Sustainment of Readiness Skills (C-STARS) in Baltimore, Cincinnati, and St. Louis, where exciting advances in training and research are taking place, such as the new Tactical Critical Care Evacuation Team course at C-STARS Cincinnati and expanded integration of medical simulation at all our sites. CSTARS training has been keeping our medics prepared for high-trauma situations and enabling them to keep current for deployments.

We must also meet the significant challenge of clinical and aviation exposure for our aeromedical evacuation crews and will continue partnering in research in these areas.

C&CC: From an evolving tactical combat casualty care (TC3) perspective, how is your office addressing challenges regarding lessons learned on today’s asymmetric battlefields?

Lt. Gen. Travis: U.S. military forces, now in their second decade of war, benefit from the vast achievements Army, Navy, and Air Force medics have jointly made in deployed and en route health care since 2001. With a 96 percent survival rate, we have never been better prepared to support our warfighters.

Globally, almost 182,000 patients have been moved since 9/11, including more than 8,200 high acuity patients moved with CCATTs. These teams provide intensive care support in-flight to our high-risk patients and have proven to be a major contributor to the lowest died-of-wounds rate in U.S. history.
In the past year, we’ve successfully tested and deployed our Expeditionary Medical Support Health Response Team (EMEDS-HRT), which replaces our former EMEDS Basic as the first element of EMEDS capability. The HRT provides initial operating capability within 15 minutes, emergency room care within two hours, operating room capability within four hours, critical care within six hours, and full operating capability within 12 hours. The HRT allows us to tailor clinical care to the mission, adding specialty care and international health specialist components for humanitarian assistance or disaster relief missions. Ten HRTs are now postured for deployment.

C&CC: Feel free to discuss any accomplishments or objectives your office has achieved or is working to bring to fruition.

Lt. Gen. Travis: In addition to the accomplishments and goals I’ve already discussed, we will be focusing very closely on human performance. As we prepare for the future, human performance and human systems integration will be critical factors in the evolving way we fight wars and must influence the evolution of medical support for operators. We must better support our “deployed in place” airmen who are manning systems such as the distributed communication ground stations, space and cyber operations, and remotely piloted aircraft, as well as those who operate “outside the wire,” such as our Special Operations Forces or Explosive Ordnance Disposal specialists.

The types of injuries or stresses—both visible and invisible—to members and their families are evolving, too. We must provide medical support in different ways than we have in the past to address the expanding definition of “operators” and step up to our role as human performance practitioners, assuring airmen are always able to perform their missions effectively. We are engaging in both human performance research initiatives across the AFMS to further this goal and in research in a broad spectrum of clinical, information/technology, and operational projects to make certain the care we provide remains state of the art.

During the course of the year, we will also continue working with our Army, Navy, and Defense Department colleagues in streamlining the Military Health System governance system. Implementation planning is underway to affect change beginning in 2013, to include consolidating and standardizing redundant processes and services. We are all committed to collaborating on shared services where it makes sense to lower health care costs and improve joint interoperability without abandoning our important service command structures and doctrinal role differences.

However, even in austere fiscal times, our goals of readiness, better care, and better health cannot be scoped solely on funding. While we are heavily engaged in identifying the best processes, optimizing existing services, and pursuing continuous improvement to deliver the healthcare mission efficiently, effectively, and safely, we must also recognize that readiness has a cost that we must pay to maintain an agile, versatile, and innovative medical force.
Vomaris Innovations Initiates Study with Walter Reed NMMC

Vomaris Innovations, Inc., a regenerative medicine company focusing on wound care with bioelectric technology, has launched a study with Walter Reed National Military Medical Center to assess the clinic efficacy of a bioelectric dressing (Procellera®) in conjunction with standard-of-care (SOC) on the healing rate of chronic soft tissue wounds compared with SOC alone.

The primary endpoint for efficacy 50-subject study, funded by the Henry M. Jackson Foundation for the Advancement of Military Medicine, will be the rate of healing (healing trajectory) in the treatment group compared to that of the control group during the 12-week treatment study period. It is hypothesized that a bioelectric dressing will reduce wound healing time when compared to SOC treatment, thereby accelerating wound healing trajectory.

Procellera® is the first totally self-contained, conformable, cut-to-fit, electrically active wound dressing in the world. The technology is extremely versatile and scalable and spans multiple indications.

More info: vomaris.com

North American Rescue Releases Junctional Emergency Treatment Tool

North American Rescue, LLC (NAR) completed the FDA clearance process for its latest product, the Junctional Emergency Treatment Tool, or JETT™. The JETT offers a treatment solution for injuries that are becoming more common to military personnel due to IED blasts and penetrating trauma located too high in the groin or inguinal space to be treated by standard tourniquet devices.

The tool represents an increased capability for treating junctional hemorrhage, which has become the new leading cause of preventable combat death. Developed in conjunction with the Center for Translational Injury Research at the University of Texas, the JETT targets the treatment of junctional injuries by applying direct pressure to the inguinal artery.

It is configured for easy, rapid deployment and comes pre-assembled and ready for use in a compact, vacuum-sealed pouch.

More info: narescue.com

Simulation for Future Combat Training

More than 100 senior medical students participated in a military combat casualty care exercise at Fort Indiantown Gap, PA, in Operation Bushmaster, the capstone Field Training Exercise of the Uniform Services University of the Health Sciences. Students in mock deployment exercises encountered simulated combat scenarios using state-of-the-art mannequins and were evaluated in a number of areas including medical delivery in the field and combat casualty care.

Following a few days of intensive classroom training, students participated in field exercises, encountering an overturned SUV and five “casualties.” The “casualties” were provided by Operative Experience Inc. (OEI) and had injuries that mimicked the result of an IED explosive followed by an ambush and included traumatic amputations, high-velocity gunshot wounds, compromised airways, burns, and fractures.

More info: usuhs.com
“Breathing” Mannequins
Suitable for the rigors of field exercises, OEI’s mannequins are ruggedized soldier-form simulators that breathe, bleed, and move fairly realistically. The OEI simulators are composed of realistic viscoelastic tissues that can be cut, dissected, retracted, and sutured using standard surgical instruments. Wound patterns mimic combat casualties but are customized for the exercises.

More info: operativeexperience.com

Radio Frequency Shield Sack
LOKSAK, supplier of resealable and completely waterproof, dustproof, and humidity-proof storage bags, has introduced a flexible R.F. shield fabric pouch that prevents electronic signals capable of reading your critical information from reaching data transponders. This bag was invented for all types of mobile devices, including smartphones, tablets, and the iPad.

When an item is placed in the SHIELDSAK and sealed, the item and its file contents become invisible. All signals are blocked from entering or leaking from the bag. Phones will not ring, items with ID chips cannot be scanned, and vital information is secure. Tracking is impossible.

SHIELDSAK was made exclusively for the U.S. military and is proven to block radio frequency-, infrared-, and skim- or quick-scan technology. Once placed inside of the SHIELDSAK, your personal information is guarded, and your identity is protected from being read, scanned, hacked, or intercepted by skimming devices.

More info: loksak.com

Arteriocyte Receives FDA Approval to Initiate Cellular Therapy Trial
Arteriocyte, a biotechnology company, received approval from the FDA to initiate a Phase I clinical trial using its Magellan® System technology in the treatment of thermal burn wounds.

The FDA Investigational Device Exemption (IDE-15140) allows Arteriocyte and its clinical partners to initiate evaluation of autologous platelet gel (APG) (using the Magellan® Autologous Platelet Separator technology) as an adjunctive therapy for autologous skin grafting in patients with thermal injuries. This treatment has been developed in partnership with the United States Telemedicine and Advanced Technology Research Center (TATRC), and the University of Utah Health Science Center and Intermountain Burn Center.

“We’re thrilled to see that industry continues to pursue the development of point-of-care cellular therapies to advance military medicine,” said COL Lee Cancio, MD, a surgeon at the U. S. Army Institute of Surgical Research Burn Center at the San Antonio Military Medical Center. “Programs like this are examples of efforts to improve stabilization, retention, and readiness for thousands of our wounded warriors.”

More info: arteriocyte.com

Magnetic Flashlight Mount Introduced
First-Light USA has introduced the Tomahawk TRS Magnetic Mount. Made out of a high-strength flexible material, which permits a Tomahawk tactical light to be positioned on any ferrous surface, the mount allows the Tomahawk tactical flashlight to any military vehicle, car, truck, or boat.

The clip features 180 degrees of rotation allowing the Tomahawk tactical flashlight to pivot while holstered. It is available in black, tan, or foliage green and is compatible with any Tomahawk tactical flashlight equipped with TRS. Its rubberized construction keeps the mount in place and prevents movement.

More info: first-light-usa.com/magnet
The U.S. National Center for Disaster Medical Response (NCDMR), located on the campus of the University of South Alabama, brings regional response capability into 2013.

By Kevin Hunter, C&CC Editor

The National Center for Disaster Medical Response, University of South Alabama Center for Strategic Health Innovation (NCDMR, USA CSHI) has initiated the Advanced Regional Response Training Center Program (ARRTC 2013). This program is made possible by a grant with the Alabama Department of Public Health Center for Emergency Preparedness through a cooperative agreement from the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. In light of the ongoing threats of infectious disease outbreaks, natural disasters, and terrorist attacks, it is apparent, if not critical, that education and preparedness training continue to be a priority.

ARRTC 2013 is an updated and comprehensive approach to all-hazards disaster preparedness and response training. This all-inclusive curriculum is designed to teach responders and leaders to effectively respond and collaborate on the issues that face disaster leadership. ARRTC 2013 is designed for individuals charged with disaster preparedness, response, and leadership responsibilities and will provide basic core knowledge of their roles and responsibilities during an emergency or disaster. This training will also provide leaders and responders valuable information on how to perform their jobs, make the best decisions, and communicate needs and offers of assistance, along with the roles and responsibilities of them and their partners during disaster response.

Foundation First

Those new to ARRTC will gain a core basic knowledge. For those who have attended previous ARRTC sessions, the program will provide information on the most recent developments in disaster response as well as provide a forum for knowledge exchange and reinforcement of lessons learned.

Building upon the successes of the past eight years, ARRTC 2013 has been updated to include some of the most current and timely topics pertinent to disaster preparedness and response as well organizational components of disaster response. A variety of critical and timely issues will be covered, including Incident Command (ICS), the National Incident Management System (NIMS), and Surge Capacity...
issues. This year, four courses will be offered: ARRTC Basic, ARRTC Road Show, ARRTC Administrative, and ARRTC Disaster Preparedness Clinical Simulation Training.

Training Preparedness

ARRTC Basic is a two-day course primarily designed for those who have never attended an ARRTC class or who wish to have refresher training. Twelve ARRTC Basic sessions will be offered onsite at NCDMR, USA CSHI, in Mobile, AL. The goal of the training is to provide regional response partners with core disaster response training. Attendees will learn the basics of regional disaster response: how to do it, how to make the best decisions, how to communicate needs and offers of assistance, and the roles and responsibilities of others in disaster response.

ARRTC Basic is “Area” training and offers unique advantages to attendees. Attendees will be trained away from home in a neutral site free from the disruptions of their day-to-day responsibilities and duties. Also, because training is scheduled by Public Health Areas, there will be opportunities for attendees to meet and interact with their community and with area and regional response partners.

More info: ncdmr.org

Industry Perspective
From Liquid to Life Support

By Jim Neumeier, Dir. of Business Development Life Support Systems, Essex Industries, Inc.

Essex Industries entered the cryogenics market in 1963 with a line of liquid oxygen (LOX) converters designed to store gaseous oxygen as a liquid and expand it into clean, breathable oxygen as needed for pilots and crew of military fighter/transport aircraft.

In the 1980s, Essex used attributes of LOX to design a system that provided therapeutic oxygen for wounded soldiers transported via aircraft to military hospitals. Today, this product has developed into the Next Generation Portable Oxygen System (NPTLOX), with the capability for six patients to receive oxygen at the same time while in transport.

The newest product in disaster/medical response is the Mass Oxygen Distribution System, or MODS. This low pressure, portable liquid oxygen storage and distribution system can accommodate up to 150 patients at one time at an emergency site.

More info: ncdmr.org

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SAMPLE PREP 2013

Sample Preparation for Virus, Toxin & Pathogen Detection & Identification

June 18-19, 2013
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For More Information:
www.knowledgefoundation.com
(617) 232-7400

May 9-10, 2013
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www.knowledgefoundation.com
(617) 232-7400

21st International Conference
Biodetection Technologies 2013
Technological Advances in Detection & Identification of Biological Threats

www.tacticaldefensemedia.com
Since entering the defense market over 50 years ago, Ferno Aviation, based in Alpharetta, GA, has grown into a major supplier of medical products to American air and land forces.

By Carson Chinn, Director of Marketing
Ferno Aviation, Ferno Military Systems

Ferno Washington has been supplying basic medical transport products to the U.S. military since 1955. Its military product development intensified in 1996 with the formation of Ferno Aviation, which began by specializing in the development of lightweight, modular, medical transport products for the civil aeromedical market and soon transitioned into producing similar products for defense applications, with increased focus on lightweight and modularity. Two years later, Ferno Aviation developed an Air Mobile Surgical Table (AMST) for Special Operations Command. The AMST is a modular, air-transportable treatment platform with built-in provisions for everything required to provide life-saving surgery and post-op life support during transport. Later generations of the AMST included an optional off-road (GMK) Ground Mobility Kit that allows the AMST to be towed by LTATVs over rougher terrain. The GMK can be rapidly installed or removed on site as needed. The AMST is approved for transport on the C-17, C-5, and C-130 fixed-wing aircraft.

Additional similar Modular Intensive Care Platforms were developed for other aircraft types and other government agencies. Stemming from our original design in 1983 (T-104), over the years our Mobile Intensive Care Units (MICUs) have evolved with refinements to meet the evolution of requirements and treatment standards of our customers. In 1994, our Model-5 set the tone for later generations. The latest design is our Trauma Pod, which is a lighter, more streamlined variation of all of our previous MICU offerings, with a number of design queues taken from the AMST. Able to be secured with tie-downs at a moment’s notice into appropriately sized airframes, the Trauma Pod provides a stable treatment platform with mounting provisions for a wide range of medical equipment and can be secured with tie-downs at a moment’s notice in appropriately sized airframes. The simple design of the Trauma Pod has allowed us to make numerous variations and offer custom configurations to our customers, ensuring the Pod can always meet their specific mission requirements.

Expanding on Variation

After several years of success in these markets, Ferno Aviation’s military business expanded into non-aviation applications, including the design and production of ambulance kits for Mine Resistant Ambush Protected ground ambulances. In 2007, Ferno Aviation developed the Integrated Mounting System, a modular litter and equipment mounting system for military ground vehicles. The system provides operators or vehicle crew members the ability to create multi-mission configurations or immediate mission configurations within the same vehicle. It also includes modular litter support arms and a range of medical equipment mounts specifically designed to secure patients and medical equipment under blast loads. These ambulance kits have been installed in the U.S. Marine trauma bay, Force Protection Cougar, Oshkosh MATV, the Textron ASV, and several other SOCOM vehicle variants. We now have two systems: the Standard System for larger platforms and the Pro-Series for platforms where space and weight are critical, such as LTATVs.
or aircraft. Our modular track-mounting system continues to be employed in new applications, and we are currently developing track-mounting adapters for the latest OEM offerings of medical equipment, tablets, notebooks, communications, and other equipment used by DoD.

By 2011, Ferno Aviation’s non-aviation military sales had grown to the point where it made sense to create Ferno Military Systems (FMS). With its dedicated focus on the U.S. military, FMS has allowed us to continue with development of some exciting products. We have obtained air worthiness approval on a modular, quick-change, two-patient litter kit for the MH-60 Blackhawk helicopter (TRIMER), and we are currently producing similar kits for operational evaluation and testing on Blackhawk variants and other aircraft types. Our latest efforts have been focused on developing an advanced life support litter with adequate strength for aircraft G-loads, a vibration-isolated patient surface, and mounting provisions for a wide range of medical equipment, including “onboard litter” oxygen units. In addition, we recently introduced a new NATO litter, the All Platform Evacuation (APE), which is equipped with a replaceable bed surface, field replaceable litter components, and a unique spreader bar that permits rapid deployment. The APE litter successfully passed operational testing and was recently selected as the litter integrated into the Special Operations Command TC3 CASEVAC program by Tribalco.

Moving on Innovation

We continue to explore new designs and applications from anything as simple as a spine board—such as our Mantis Backboard or Scoop Litter offering—all the way to more advanced applications for patient extrication, tactical evacuation, and medical transport. We take great pride in thinking outside of the box in an effort to offer high-performance products to meet the ever-changing landscape of tactical care. More importantly, we are honored to work with those who serve and protect our country. Our mission is simple: to provide combat medics with innovative offerings that improve healthcare delivery to the modern American warfighter.

FMS products are distributed by Combat Medical Systems in the U.S. Market.

More info: fernoaviation.com
UF: Online and Serving the Nation’s Finest
By Ian Tebbett, PhD, Department of Medicinal Chemistry

The University of Florida has offered master’s degree and certificate programs to deployed military service members across the globe for more than a decade. Its programs are renowned for providing the academic background and credentials medical and scientific personnel need to advance in the armed forces and prepare for successful careers when they transition out of the military. Students have access to course material 24/7 and interact with professors and peers through email, discussion boards, and live chats. They can work at their own pace to earn a graduate degree in as little as two years or spread their studies out over many years as needed.

Forensic Science

The forensic science program is the largest of its kind in the world, with graduates from 40 countries and classes taught by faculty with internationally recognized expertise. Programs include specializations in Forensic Science, Forensic Toxicology, Forensic Drug Chemistry, and Forensic DNA & Serology, or a Professional Science Master’s (PSM) in Forensic Science that includes additional business-related courses.

Tristy Terwilliger, Special Agent, Naval Criminal Investigative Service Forensic Science Division (NCIS FSD), got her start in the forensic science program. “I decided to enroll in UF’s online Forensic Science program after traveling the world doing everything from exhumations in Iraq to terrorism investigations for the FBI, to processing crime scenes at 144 feet below the ocean surface,” she says. After she was offered the opportunity to join the NCIS FSD—which specializes in advanced photography, bloodstain pattern analysis, underwater crime scenes, and other areas—Terwilliger realized she needed additional education. “The UF master’s degree updated me on the latest forensic techniques and provided me with the professional credentials I need when testifying with other experts in these fields of study,” she says.

Clinical Toxicology

Our country faces dangerous chemical and biological threats, and we rely on our military medical and scientific personnel to be fully prepared to deal with them. The University of Florida clinical toxicology program covers the theory behind evaluating poisons, identifying their acute and chronic toxic effects, and treating patients. This program includes an acclaimed elective course, Weapons of Mass Destruction, designed and taught by an active-duty Army colonel and combat physician with nearly two decades of experience in chemical casualty care.

MAJ George Horsley, physician assistant, 48th Civil Support Team, found the clinical toxicology program beneficial. “As the medical officer for a Weapons of Mass Destruction Civil Support Team, I care for the soldiers and airmen assigned to the team and provide subject-matter expertise to civil authorities,” says Horsley. One the scene, Horsley often sees signs and symptoms that could have been caused by either a single toxidrome at different stages or by a variety of toxidromes. Despite his toxicology education, he felt he needed a deeper understanding of the subject. “In my opinion, any medical professional who could be called upon during a WMD/CBRNE event should make the study of toxicology a priority. There is no substitute for the concentrated education I received from the UF Clinical Toxicology program.”
Philadelphia U: Real-World Lessons, Real-time Application

By Jean Bail, Associate Professor and Director
Disaster Medicine and Management

The Philadelphia University Master of Science in Disaster Medicine and Management was the brainchild of Dean Matt Dane Baker, Lt. Col., Air National Guard (Ret). As a physician assistant and NG serviceman with a special interest in disaster preparedness and response, Dr. Baker developed one of the first online programs to reach adult learners with full-time jobs. Now six years old, the graduate program has matured tremendously. As it is anticipated that graduates will find their way into professional positions, all are expected to perform scholarly activity. Preparation for that requires a full semester course in organizational management and communications and another in applied research.

Depending on personal interest, the student may choose electives in hospital, clinical, and special needs emergency management; terrorism; natural disasters; and a few other topics. All courses include online chats with faculty, special speakers, and recorded lectures, and students may have access to a variety of internships as well. All degree candidates take a semester studying the creation and use of exercises and drills and the psychological aspects of disasters. Students then come to campus for a week in the summer to put skills to work. Finally, all complete an individualized capstone project, focusing on solutions to real life concerns and needs.

Servicemember Applicability

The program can be delivered online with the 6.5-day conference week scheduled during one summer of the program. As an online program, military men and women can participate regardless of station assignment. During active duty times, many students take just one or two courses a term or vary attendance based on internet access. Some of the courses (WMD, Terrorism, GIS, and Homeland Security) may be of particular interest to those with military backgrounds.

Students can take up to five years to complete the program. Philadelphia University accepts the post-9/11 GI Bill (along with other chapters of educational benefits) and participates in Yellow Ribbon. Financial aid is available and the program is VA approved. Graduates have taken positions in local and state EM as well as FEMA, and several now serve as hospital emergency managers. This method combines the online learning with faculty-led seminars every other week for those that like the classroom environment.

Program Outline

The program emphasizes real-world emergency management. It begins with foundational courses such as Principles of Disaster Medicine and Management, Disaster Emergency Planning, and Public Health Implications of Disasters. As it is anticipated that graduates will find their way into professional positions, all are expected to perform scholarly activity. Preparation for that requires a full semester course in organizational management and communications and another in applied research.
The Warrior-Scholar Project seeks to provide support through dedicated tutoring and mentoring of those wishing to transition from servicemember to student.

By David R. Howell, WSP Director of Studies

Hundreds of thousands of veterans now attend college, but many do not make it through their freshman year and most do not graduate. While the G.I. Bill provides the means, there is a need to help veterans find the way. Supporting the troops also requires supporting their transition to civilian life after years of service to their country.

In that sense, the Warrior-Scholar Project (WSP) is an initiative to provide war heroes, veterans, and servicemen and women with the tools and the skills to operate as effectively in college as they do on the battlefield. Operation Opportunity held its inaugural WSP in summer 2012 at Yale University, where we sought to help these warriors become scholars by utilizing their drive, discipline, and motivation to learn effectively in an immersive, inspiring setting.

We all had the privilege of being taught by acclaimed professors such as Pulitzer Prize winner John Lewis Gaddis; former Reagan White House Official Charles Hill; renowned scholar of Ancient Greece and the Pelopaniesian War Donald Kagan; ineffable scholar of the humanities Norma Thompson; and towering intellectual Adam Tooze, alongside the exceptional guidance of professors like Karin Gosselink, Alfie Guy, and Ryan Wepler at the Yale Writing Center and Michael Fotos and Barbara Stuart from the Political Science and English Departments, respectively.

During dinner discussions we also had the fortune of talking with Deans Jeff Brenzel and Bill Whobrey about how to navigate undergraduate admissions and choose academic institutions and with veteran psychiatrist William Sledge about how to deal with the challenges and stresses of post-war civilian life.

Conceiving the Project

Three Yale students, Jesse Reising, Nick Rugoff, and Christopher Howell worked together to found the non-profit Operation Opportunity with the hope of providing greater educational opportunities for veterans and the children of fallen service members.
Jesse Reising’s life-long dream was to join the U.S. Marine Corps. While a student at Yale, he completed Marine Corps Officer Candidate School. However, in the final game of his college football career, Jesse was seriously injured and his right arm was partially paralyzed.

Despite the injury, Jesse still felt compelled to follow his dream, and so he approached Nick Rugoff, a friend and classmate, about starting a non-profit initiative aimed at providing greater educational opportunities for veterans and the children of fallen servicemembers. Nick then introduced Jesse to his neighbor, Christopher Howell, a former Australian special operations soldier who was studying at Yale.

While he excelled in the military, Chris hoped to eventually leave and attend college before his thirties. To help make that transition, Chris’ brother David taught him how to read scholarly essays, how to write well, and how to study efficiently. That “academic boot camp” of sorts gave Chris the skills to excel in his first year at the University of Sydney. In fact, in contrast to his time in high school, Chris consistently performed at the top of his class, which paved the way for him to transfer to Yale through its Eli Whitney Program for mature age students with extraordinary backgrounds.

Chris told Jesse and Nick about his experiences transitioning to university from the military and how he’d always wanted to somehow formalize the process and compress it into a course that would offer other veterans similar opportunities. Jesse, Nick, and Chris decided to partner together and create the Warrior-Scholar Project, and its umbrella organization, Operation Opportunity. Veterans not only have the potential to succeed in college but to be leaders in the classroom, and the program seeks to unlock that potential.

“The goal of earning a college degree has become a priority for me, and the experience I had at Yale has shown me that regardless of where one is at in life’s journey—the opportunities are there for the taking.”

–Stephen Lewis, Gulf War veteran
Calendar of Events

Mar 17
Medical Disaster Response
Las Vegas, NV
www-trauma-criticalcare-com

Mar 18-20
Trauma, Critical Care, and Acute Surgery
Las Vegas, NV
www-trauma-criticalcare-com

Apr 10-11
Marine South
Camp Lejeune, NC
www-marinemilitaryexpos-com

Apr 22-26
SAPA PA Refresher Course
Fayetteville, NC
www-sapa-org

Apr 24-25
Counter Terror Expo
London, England
www-counterterrorexpo-com

Apr 29-May 3
SPIE
Baltimore, MD
www-spie-org

May 13-16
Aerospace Medical Association Scientific Meeting
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www-asma-org

May 14-16
SOFIC
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May 20-23
MHCC
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