Conversation with Lt. General Bruce Green, M.D. Surgeon General, U.S. Air Force

Since its inception in the summer of 1949, the Air Force Medical Service (AFMS) has sought to provide service members and their families with first-rate healthcare and benefits anywhere and at any time. In support of deployed forces, the AFMS also plays a central role in the most effective joint casualty care and management system in military history—a system that has saved thousands of lives that otherwise would have been lost on the battlefield.

We spoke with Lieutenant General Bruce Green, M.D., surgeon general of the U.S. Air Force, who was a guest on The Business of Government Hour, *about the evolution of the Air Force's aeromedical and expeditionary medical support, and his efforts pursuing disruptive innovation, providing humanitarian assistance, and saving lives.*

On the Mission of the U.S. Air Force Medical Service

The Air Force Medical Service was established about two years after the Air Force was formed, in July 1949. [In fact, AFMS celebrated its 60th anniversary in 2009.] We continue with the same mission we have always had: to enable the Air Force to fly, fight, and win, by [sustaining a] healthy and fit military force. Our various missions [include] setting up hospitals, deploying our medics to faraway places, and using air evacuation to bring back casualties from all the services.

There are approximately 40,000 active duty and civilians, another 9,000 reservists, and 6,000 guardsmen functioning in the U.S. Air Force medical missions. I [manage] a budget of about $2.6 billion in defense health program funds, and another $2.5 billion in personnel accounts. We use those funds not only for the readiness mission, but also to provide healthcare. There are about 1.1 million beneficiaries actually enrolled for care within the [USAF health] system.

On Achieving "Trusted Care Anywhere"

People today seem to be tired of lengthy strategic plans and business plans. So I looked for a mantra, and I thought "Trusted Care Anywhere" really fits what we do. The challenges in achieving trusted care anywhere are: to create a system that can be taken anywhere in the world and be equally as useful whether it's [operating] in war or a humanitarian assistance capacity, to create links back to the American standard of care, and to teach others better ways [of doing things].

To do this requires an enormous amount of training and a lot of creative people putting together systems that will actually work in an austere environment. It takes some time to set up a hospital in such an environment, to create the necessary logistic routes, and to [put systems] in place. It also takes teaching others how best to request our assistance and when. The newest challenge for us is [to develop] our modular expeditionary medical capabilities. It will mean having [the capability] to see the first patient within one hour of [their arrival] and do the first surgery within three hours. Today, it

Critical-care transport team airmen prepare 9-year-old Saleh Khalaf for an aeromedical evacuation flight from Tallil Air Base, Iraq to Children's Hospital and Research Center in Oakland, CA. Saleh was critically injured by a land mine near his school in Al-Nasiriyah and had been cared for by 332nd Expeditionary Medical Squadron airmen until his flight.

takes us 12 to 24 hours to accomplish those things and to establish a hospital in a deployed setting.

On the air evac side, we're bringing people back home to the states in three days—it's tough to beat that. There are certain classes of patients that we need to be cautious with, to make sure that we don't move them too early. In regard to other patients, if there's a way to get them home to their families faster by using polar routes and alternate types of transportation, we're trying to [provide those means] as well.

On the Evolution of the Aeromedical and Expeditionary Medical Support

If we were referring to the 1991 time frame, just after Desert Storm, we would have been talking about 50-bed, air transportable hospitals, each one requiring 13 or 14 C-141 aircraft to transport them [to a deployed position]. Today, 19 years later, I can set up an initial hospital in four pallet positions and basically take all of my team with everything in place on a single aircraft. Regarding our air evac capability, we have created teams that are able to take care of critical patients [in a way similar to] a neonatal transport team here in the United States. [That means] leveraging a three-person team, taking care of three to five very critically ill patients, moving them across continents, and doing it in hours.

We've been in the [Iraq] war for nine years, so we've moved into fixed facilities. We have state-of-the-art CT [scanners], state-of-the-art endoscopy, and almost any equipment you'd see in a normal hospital in the United States. There are days where our hospital in Balad is now empty, so we're trying to pick up on the training mission to make sure that the Iraqis have the graduate medical education and skill sets to manage our equipment. In Afghanistan it's a little different. We're seeing far too many casualties still coming through there, and we'd love to see that [number] decrease. But we've also moved to fixed facilities there over the past nine years. We have our people working in these fixed facilities, as well as some tented facilities in remote areas where we're doing stabilization surgery and starting the process for the care [they'll receive] when they come back home.

The challenges in Iraq are different than they are in Afghanistan. Iraq has a very developed medical system. Over the years they have trained physicians and nurses for other Middle Eastern countries. In Afghanistan, we have seen an exodus of many native medical professionals due to their prolonged time at war, so we are really challenged to [bring]

Master Sgt. Peter Winetroub, 407th Air Expeditionary Group anti-terrorism officer, connects a mock injured patient to an IV during a combat lifesaver final exam.

expertise back into the country so we can transition [medical care] back to the Afghanis.

In addition, we're really pushing to see if we can set up [assistance] more rapidly. In the last year, I've deployed forces into Indonesia, Haiti, and Chile for humanitarian relief. Essentially, we get there within 24 to 72 hours from the time help is requested. If I can get my expeditionary assets to do this more quickly, we can be even more useful.

On the Benefits of Healthcare Informatics

Without an electronic health record, there is no continuity [of care] from site to site. The most critical infrastructure we have created is a product called TRAC2ES. This is a system that tracks patients in a way very similar to how Federal Express tracks packages. We have to know where people are in the system and what has been done to them. We need to know specifically what has happened not just when they go from port to port, if you will, but also what happens to them on board the airplanes. Our new systems—an expansion of the Theater Medical Information Program Air Force—have an electronic record that collects information in the air. We can now look on a web-based [system], know exactly where a casualty was injured yesterday, what's been done to them, and what the physician's notes are. If you don't have the capability to see what's going on as patients transit the system, you can't have the supplies and personnel ready for what needs to happen at the next stage.

Without the informatics, we couldn't be where we are. [Informatics] has the same effect at home. The electronic health record allows us to move people to any military hospital, ensure that their care is continuous, and that there are no problems with patient safety—you know exactly what's been done.

On Humanitarian Assistance

We're trying to place expeditionary medical modules [with our teams], so that we have the right equipment regardless of what we face. The modules could be pulled and pushed into the packages as easy as taking a few boxes in and out of our pallet positions. During Katrina, we found that we weren't well prepared for geriatric response. We found in South America that we weren't well prepared for obstetrics (OB) and pediatric response. With just a few hours notification, we now have modules that are set up for OB, pediatrics, or geriatrics, so they can simply be inserted without necessarily changing the weight or cube for planning purposes.

[In expeditionary care, it's also important to remember that] you don't want to sweep in and take over, but to augment

U.S. Air Force photo/Airman 1st Class Andrew Oquendo

Medics from the Air Force Theater Hospital treat emergency room patients at Balad Air Base, Iraq. The hospital provides Level 1 trauma and specialized medical care.

the systems that are in place, particularly in a humanitarian response. We've been trying to build [expeditionary] capabilities not only in this country, but in others. In Chile, we had a good idea of what we were stepping into. We placed some of the modules for OB and pediatrics there based on the population we were going to serve, and because of some work that had been done with the Chilean Air Force, they were ready to accept our expeditionary medical assets. [The Chileans] purchased that equipment, added some tents of their own, converted our 25-bed hospital into a 100-bed hospital, and they're still operating that today. We were out in about three weeks. This is the kind of activity that we think we offer when any nation really needs help.

On Pursuing Disruptive Innovation

It is a tough thing to create disruptive innovation in a bureaucracy. What I try to do is bring people in who are doing the job, and have them tell me the things that aren't working very well and how they could be done better. A misstep on my part when I first became the deputy surgeon [of the Air Force] was to try and solve issues [involving] our primary care by creating a rotational model. I learned rather quickly talking with the people in the field that there wasn't enough manpower for them to do the job as we wanted them to. After sitting down with different representatives from seven facilities, we came up with the Family Health Initiative. The

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Family Health Initiative was a way to improve Air Force primary care practice by essentially changing it from primary care to something that was more team-based and patient-centered. This concept was similar to what the American Academy of Family Practice was calling Patient-Centered Medical Home (PCMH). We have set up PCMH at 13 facilities in 2009; this year we've added another 10 [facilities]. I hope to have all of our facilities using a PCMH [approach]. By the end of September, I'll have 330,000 patients that now have a single provider and a team of professionals that are responsible for their care. By the end of 2012, 1 million beneficiaries will have this type of access.

Why is that kind of innovation disruptive? I live in a system where my providers typically move every three years and where my patients move every three years. Trying to create continuity in [such a] system is unheard of. Since [implementing the PCMH model] two years ago, patients at those facilities are now seeing the same physician about 70 percent of the time. About 95 percent of the time they are seeing that physician or their partner, and that's what we want [for our patients]: to have the same team watch after them and create that [bond of] trust.

On Improving Resilience

We're using several programs to improve resilience. We use telemedicine initiatives to try and link our various mental health capabilities, so that they can talk between one another and share resources. We also are working with the Army and Navy on outreach for patients in remote areas, to give them the ability to link to telemental health. We also have eight sites where we've set up a computer simulation that we call Virtual Iraq, which decreases the time it takes for an experienced provider to get to those issues that are causing someone trouble. You put someone in front of a computer simulator and essentially take them back to an Iraq-type of situation. It allows them to share with the therapist and helps them to find ways to deal with what's haunting them.

Some of the efforts I've described in the patient-centered medical home [approach] are geared towards giving patients the continuity and focus we think they deserve. Beyond that, we're doing more in terms of case management and disease management to try and deal with everyday diseases. I think it helps a great deal to know that if a loved one is going over to defend this country and may be injured, we will do everything to get them home safely. We work a lot to make certain that services are available for families. We're working with the U.S. Department of Veterans Affairs to streamline our benefits systems. We've transitioned to a single physical examine shared by the Department of Defense (DoD) and the VA in determining disabilities. We've established and strengthened our airmen and family readiness centers. They have the ability to get the services that may be needed,

U.S. Air Force photo/Staff Sgt. Desiree N. Palacios

Sean Halsted shakes hands with a fan as he holds his son, Ethan, 5, after completing the slalom super G competition during the 29th National Veterans Wheelchair Games in Spokane, WA. Mr. Halsted is an Air Force veteran and resides in Rathdrum, ID.

Maria Kravchenko pauses for a photo with family friends retired Brig. Gen. James Albritton and his wife, Pat, after the general administered the oath of office to Ms. Kravchenko in Gainesville, FL. The newly commissioned 18-year-old Air Force Reserve second lieutenant will attend medical school in the fall with help from the Air Force Medical Corps Health Professions Scholarship Program.

whether it's for a short time or even for a more extended time. We're now working to try and create better databases so we can match up the skill sets that a family requires when they go from one station to another, so that there is no gap in services.

On Meeting the Challenges of Today and the Opportunities of Tomorrow

I brought in people from universities and different industries to look at the [factors] that will change our world between now and 2045, using scenario-based situations. What are the actions we must take in order to get to the outcomes we really desire? What [constitutes] better health, better care, and the best value [for that care]? We came up with a few strategic imperatives, starting with patient-centered care. The next imperative would be to tie patient-centered care to informatics, so that we can focus on precision applied, evidence-based medicine. In addition, we'll have to be agile in our institutions, because the thing that gets in the way of change and disruptive innovation is middle management. We'll also have to partner, because there's not a single solution. There's no one institution that's going to find the answer. It's really about how do we partner to try and bring this together and shape a future that we all desire.

We have also shifted our recruitment and retention into scholarships. We found that we've had less luck bringing in fully qualified people [than in the past]. As they finish their specialty and need to pay off loans, they are less willing to come into a military situation. We've increased our scholarship programs by almost 600. We've allocated those [scholarships] to different sets of expertise, not just medicine, but also nursing, pharmacy, and physical therapy. We're trying to make certain that we can attract people who are innovative and in need of scholarship opportunities.

We have a very active training program, both in graduate medical education and with industry; we have our people working in fellowships with various institutions across the country. We try and set up research agreements with different institutions, again trying to let them share our data and to help us find new evidence [that can enhance patient care.]

We also teach them how to operate in austere situations, and how to critically think their way out of a situation that no one may have faced before. Our goal is to continue to find and foster creative people with agile thinking, who are very good at lean process analysis and at making things work better. ◘

To learn more about the Air Force Medical Service go to www.sg.af.mil

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