

Renowned Trauma Surgeon on Making Prehospital Trauma Care the Best It Can Be

As the medical director for NAEMT's Prehospital Trauma Life Support (PHTLS) program, Dr. Warren Dorlac helps lead efforts to ensure EMS practitioners can fulfill a critical mission – saving the lives of trauma patients.

Inspired to get involved with NAEMT by the late Dr. Norman McSwain, who founded NAEMT's PHTLS program, Dorlac comes to the role with an extraordinary level of experience.

During a U.S. Air Force career spanning 26 years, Dorlac was trauma chief at Landstuhl Regional Medical Center in Germany during the Second Battle of Fallujah at the height of the Iraq War conflict in December 2004. He worked alongside his wife, Air Force Col. (Ret.) Dr. Gina Dorlac, who led specialized critical care transport teams that brought severely injured soldiers from field hospitals in Iraq to Germany.

After retiring from the Air Force in 2011, Dorlac has served as a trauma surgeon at hospitals in the U.S., including currently as medical director for trauma and acute care surgery at UC Health's Medical Center of the Rockies in Colorado.



Col. Warren Dorlac, MD, and Lt. Col. Gina Dorlac, MD, were presented with the Order of Military Medical Merit for their work in developing Landstuhl into a regional trauma center.



Dr. Warren Dorlac and Dr. John Fildes in a C-12 over Afghanistan on a review of the Central Command (CENTCOM) Joint Theater Trauma System.

Dorlac spoke with *NAEMT News* about lessons learned in caring for the wounded during the war, coping with vicarious trauma, and what's on the horizon for prehospital trauma care.

How did you get interested in medicine?

My high school wrestling coach taught an anatomy and physiology course, and he made all of his wrestlers take it. He pulled me aside one day and said, "I think you should think about going to medical school." He arranged for me to spend afternoons twice a week with the chief of orthopedics and the chief of general surgery at University of Arizona Medical School.

Back then you could go into the operating room. The second case I observed was a gunshot wound to the abdomen that caused a retrohepatic vena caval injury. He was a rather large patient with a large liver, and the doctors

were having trouble visualizing the location of the injury. The surgeon said, "Show Warren how to scrub in. I need another set of hands. I'm going to show him how to retract." That was pretty thrilling for a high school student.

Tell us about your time as trauma chief at Landstuhl, where casualties from Iraq and Afghanistan were treated before transfer to the U.S.

Landstuhl was the receiving hospital for all casualties from Iraq and Afghanistan, and others injured in Europe. It eventually grew into a major facility for the Department of Defense, but it wasn't like that in the beginning of the war.

When we got there, it was a community hospital. They treated hernias, gallbladders, did elective colon operations, and some emergency general surgery. But by 2004, they were doing 90% trauma. It became a very busy

trauma center quickly. The weekend before I got there, the trauma surgeon had 50 admissions in three days. Patients got a couple of minutes of his time, and they deserved a lot more. He said to me, "I need your help. We have become the de facto trauma center for the DoD." At that time, there was no military trauma system – we had to build that.

My wife is a pulmonary and critical care physician. In Germany, she was director of the ICU and the critical care air transport team, doing medical evacuations of critically ill patients from Iraq. Patients were dying in theater because they had gunshot wounds to the lungs, and their lungs were too badly damaged to fly. She helped develop a highly specialized acute lung and critical care transport team. They used a novel device called a pumpless ECMO (extracorporeal membrane oxygenation), which circulates blood through an external, artificial lung and sends oxygenated blood back into the bloodstream. We put pumpless ECMOs on our aircraft, and with that, we could fly them back to Germany.

You were at Landstuhl in late 2004 during the Second Battle of Fallujah, when 107 coalition forces were killed and 613 wounded. How did that experience impact you?

In a 10-day period, we had 500 combat casualties come through. They'd go from an operating table in a field hospital, onto a helicopter, to a combat support hospital in Baghdad or the Air Force Theater Hospital at Balad Air Base, and then flown to Germany, all within 24 hours.

The families at home were sitting on pins and needles. They had limited information from their kid or spouse's commander at the unit level. But we were often the first medical providers who spoke to the family. They had lots of questions. They knew their husband, wife, son or daughter had been injured, but they didn't know how bad it was. Every family member would be in the room waiting for that phone call.

The families wanted to know: Are they going to be able to walk again? Talk again? I can remember talking to one



Dr. Warren Dorlac and Col. Evan Renz in Baghdad at the Army Combat Support Hospital, getting ready to transport a patient back to Landstuhl with the Acute Lung Rescue Team.

family whose son had lost both legs with high amputations. And his mother said, "But he is going to be alive. It's OK. We just want him back."

Hearing the family talk about what their loved one was like before heading off to combat, and you are having to put it into the perspective that they have a devastating injury and will not be the same person you sent off to war. Those are hard conversations.

People think surgeons are callous. But there was never one of those conversations where the surgeon didn't have tears in their eyes. Hearing the family talk about what their loved one was like before heading off to combat, and you are having to put it into the perspective that they have a devastating injury and will not be the same person you sent off to war. Those are hard conversations. Honest to God, there is no training for that. I'm not sure what training you could have to help you with those conversations or those feelings. It's part of being human. It affected all of us.

Witnessing trauma can also impact the mental health of EMS practitioners. You've seen many young people with awful injuries.

How do you cope with vicarious trauma, and do you have any advice for EMTs and paramedics?

Some of the most difficult conversations were about taking their loved one off the ventilator. Almost all of those families elected to do organ donation. Families shared with us that they felt their loved one was going to continue living and giving life to other people. That helped us get through some of those bad times.

I don't know if you ever recover from it. I think it affects you your whole life, but you learn to deal with it. We had some amazing saves on patients who should have died, could have died, would have died, but we were able to get them back to their families. We met one soldier who had burns over 85% of his body. We met him two years after taking care of him in Iraq. He doesn't look anything like he looked before. But he and his family were ecstatic he was alive.

One thing we did that civilian EMS doesn't have a great opportunity to do was weekly conference calls that included everybody across the system who had taken care of a casualty. We held these for the sickest of the sick. Medics were on the call, along with the team that first cared for the patient in the theater hospital, the critical care transport team who had flown them to Germany, the critical care transport team who flew them to the U.S., and the team at Walter Reed Army Medical Center in Bethesda. That gave us some relief, because most

of them were doing really well. That helped our resilience to know that what we were doing was making a difference.

For EMS, it's important to know you make a difference. No one survives a life-threatening injury on a battlefield or in a civilian situation unless we do our jobs. No one survives a severe combat injury without the medic. If the medic can get them to us alive, we will probably be able to keep them alive. But if you don't get them here alive, there is nothing I can do. For everyone who was injured and saved, the medics went out on the line to do their jobs.

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What were your impressions of the skills of combat medics?

There are very few surgeons who would say, "I'll go out there on the battlefield and take care of someone who just got shot or blown up while someone is firing rounds at us." We have great respect for the medics, to be able to work in that dangerous, austere environment. The ability to make super quick decisions based on incomplete data. Or to provide care in the back of a helicopter, in the dark, wearing night vision goggles. In a hospital, I don't have to worry about the lights going out, bullets flying or getting shot at or bombs. I have time. I have a lot bigger team. Sometimes in the field, there's one medic. What those medics do is amazing.

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Why is excellent civilian prehospital trauma care so important?

To me, it's not that much different than the battlefield. Nobody survives life-threatening injuries from car crashes unless someone knows how to get them out of the vehicle, and does the early resuscitation and hemorrhage control. We need to make sure EMTs and paramedics have the best education to do this.

What developments in prehospital trauma care can we look forward to seeing?

A lot has come from the military: tourniquets, hemostatic dressings, pelvic binders and intraosseous devices instead of IVs.

There are research projects looking at ways to get REBOA (resuscitative endovascular balloon occlusion of the aorta), into the prehospital setting. REBOA can be used to control truncal hemorrhage in severely injured patients. It's being used by EMS in London with a physician on board.

The studies on hemostatic foam, which can be sprayed into the abdomen

to rapidly stop bleeding, look pretty promising. It's used in hospitals now, and research projects are going on now with the goal to get it into the prehospital setting.

There are also new "smart" ventilators that can adjust based on what the patients need. It's linked to pulse oximetry and can help with oxygenation while the patient is being moved.

Giving whole blood in the field is exciting, but you won't have access to that in a rural setting. There is research looking at using freeze-dried platelets and plasma, which would have a long shelf-life, instead of the normal saline or crystalloid solution. If you have plasma in a jar that has a long shelf life, that you can mix up with saline and give it to the patient, you get volume that also has the right pH, and is not acidotic, so it doesn't cause a big inflammatory response. This starts correcting the coagulopathy of trauma.

Why is it important to you to be involved with NAEMT?

Two of my mentors taught me a lot about the prehospital setting. Dr. McSwain was legendary in prehospital trauma. He told me about NAEMT when he came to Germany as a senior visiting trauma surgeon. He had a way of making you want to be involved. He'd ask you: "What have you done today to help humanity?"

I was also influenced by Dr. Jay Johannigman, who was faculty at Wilford Hall when I was a resident. He had started as a paramedic. Early in my medical career, he imparted upon us how important prehospital personnel were. As the residents were putting in lines and giving blood, he'd pull the medics aside and ask them what they'd seen, and what they did in the field. He'd show them X-rays and educate them.

NAEMT and what it does is super important. As surgeons, we have the American College of Surgeons as our voice. They advocate in Congress and at CMS. For medics, NAEMT is their advocacy voice and education voice. NAEMT also does a lot of work with the military.



Col. (Ret.) Warren Dorlac, MD, FACS, PHTLS Medical Director

Col. (Ret.) Dr. Warren Dorlac is trauma and acute care surgeon at the Medical Center of the Rockies. He is also trauma systems vice chair for the American College of Surgeons Committee on Trauma, and a member of the ACS's EMS Committee. He's also a subject matter expert for the U.S. Department of Defense's Committee on Tactical Combat Casualty Care. Military assignments included:

Trauma Medical Director at Landstuhl Regional Medical Center in Germany, director of the Advanced Critical Care Air Transport Team program, trauma consultant to the U.S. Air Force Surgeon General, and Central Command (CENTCOM) Joint Theater Trauma System director. He was awarded the Legion of Merit.