



## Thanks from Iraq

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Not only would I like to thank Dr. Naylor and colleagues for sharing their experience as military radiologists serving in Iraq and Afghanistan, but all of those serving or having served in the United States military.

The article presented by Dr. Naylor and his colleagues [1] is succinct and expertly summarizes the unconscionable number of children being injured in war from many fronts. This numerical representation is the first and most extensive article outlining the numbers and types of injuries sorted by age group of children involved in conflict and by type of imaging modality. As radiologists, it's imperative that we know the injury statistics so that we can be prepared for what we will face in theatre, including the required skill sets and imaging protocols. Radiologists in the Army are most useful if ubiquitously trained, capable and mentally flexible, physically and mentally fit, and have resilience and dedication with unparalleled tenacity and passion. A radiologist may be a pediatric radiologist or breast imager at their primary duty station, yet when deployed into theatre, they become a trauma radiologist. In my experience, military medical personnel have an underlying devotion and dedication to their country, and feel fortunate that they are able to serve by practicing medicine while defending their country.

Understanding Army terminology aids in understanding the mental and physical working conditions. In NATO terminology, military Medical Treatment Facilities (MTFs) are designated a role number to describe their functional capability to deliver a specific level of care. A forward operating base (FOB) may contain a Role III medical facility, also called a "Cash" (CSH or combat support hospital), which provides triage to routine and

emergent battlefield casualties, and intensive care capabilities in a fixed facility that has permanent structured walls and includes radiology, laboratory, physical therapy, dental and other ancillary services. These walls are not impenetrable to the routine bombs launched into the area by enemy combatants that can destroy the wall immediately adjacent to the CT scanner or take out the power generator that keeps that machine up and running. The FOB is located right in the middle of the modern-day battlefield, so as a radiologist you are with your medical team out on or close to the front lines, keeping in mind there are no real lines of demarcation. The geographical situation is more like overlapping circles dispersed throughout the country providing medical assistance as needed to the next level of care.

Daily routine can sometimes be monotonous, with routine low acuity clinic patients, three meals and physically working out. However, interspersed are times of random terror – a stray bullet hitting your colleague while picking up laundry or a rocket-propelled grenade lobbed onto the grounds while walking to dinner, and now your closest friend is suddenly your patient. More than a few grenades would cause the staff to sprint for cover and head back to the hospital to take care of the wounded. Mass casualties brought to the hospital by air or ground ambulance would turn a routine day into many hours of hard work saving lives.

Thinking outside the box, thinking on your feet and coming up with alternatives may help save lives. For example, developing means to do an esophagram in the operating room to find the shrapnel-induced tear, or using ultrasound to aid in extracting the hunk of metal from an IED (improvised explosive device) imbedded in the soft tissues or evaluating a liver laceration or intact testicle may be all you can do as the situation presents itself. A technologist in the Army may be trained for only plain film imaging, which may alter the choice of imaging modality. Technologists attached to medical units are typically not trained in the pediatric imaging realm, emphasizing the importance of radiologists being highly skilled in various modalities, especially pediatric US. There is no specialty designation for technologists in the Army, so you may have a CT technologist on your team or

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you may not. There is no guarantee, further emphasizing the need for diversity in the radiologist's skill set. Being versatile in imaging modalities is essential. The radiologist must remain flexible and diagnose with an alternative imaging modality when one is broken, which happens much more readily in the wartime situation due to power surges, environmental conditions (heat and sand) and explosive shrapnel or bombs.

Being called to war may happen with 12 months' notice or almost none. While enjoying a pediatric refresher week at a children's hospital, my then-chief called me from Iraq and said, "I have an exciting opportunity for you." This call is what we as radiologists in the Army are trained to answer but actually think will never happen. Two weeks later, on a plane to Texas, I began to mentally prepare to go to a war zone. No one is mentally prepared for war. Especially the heart-wrenching unintended consequence of injured children. You as a practitioner are doing what you do, but mentally, the challenge you are facing is more far-reaching than anything you experience in the emergency room traumatic accidental setting in our current health care system or even in a natural disaster zone. Children, depending on their age, are never the direct target of the intent of the infliction (keeping in mind that some children are fighting battles in their teenage years). During the immediate intensity of a mass casualty situation, when Soldiers and/or children are being unloaded from the helicopter, you focus on the tasks at hand, triage, imaging as time permits, and operate or care as needed. Grappling with the ethics of war is constantly on a physician's mind, when the immediate fog of war clears and you reflect on what you have accomplished. As in most worthy experiences, years later (even 10 years in my case), the memories and thoughts shape the type of person you are and how you live your life. We do what we do because we can and then others don't have to. A personal deployment experience also significantly enhances future decision making as a leader.

What's it like? What do I remember from 10 years ago? It's facing the unknown. It's scary. It's trust in your country and organization. It's faith in the people with whom you work, empathy, knowing they have your back and would do anything for you. It's a little crazy. It was one of the most professionally rewarding, yet most horrid experiences of my career.

Going into theatre as an individual augmentee replacement (a subspecialist brought into an active duty unit that he or she is not normally assigned to) meant I was inserted singly into my unit without the bond of a group. The singularity of it was daunting. Being inserted into the FOB after a near-vertical drop landing in the cargo hold of a C130 airplane with my two green duffel bags, Beretta handgun strapped to my side, helmet and flak vest on and dropped on the runway in 124-degree F heat, was petrifying. The living quarters were in the back of a container truck or CHU (contained housing unit)

with no running water. There was a window, which I barricaded with a spare bunk bed to deflect stray shrapnel. Bathrooms were a half mile away and labeled Ablution Unit, which was off-putting, but the showers were usually clean with hot running water. The hospital and my work space were 200 yards away from my CHU, making my commute very reasonable. We would wake a few mornings a week to a siren and loudspeaker blaring "Bunker! Bunker! Bunker!," which meant to quickly don your helmet and flak vest and jump into the concrete bunkers outside your front door. I must have missed that briefing because I only grabbed my Beretta the first time. Later, I asked myself what I was going to do with a handgun during a mortar attack and decided to be fully dressed when going to bed.

The toughest night was a large mass casualty that saw us bringing wounded through as quickly as possible. The trauma team leader in his orange baseball cap was standing with me at the CT console while the images were coming out, awaiting interpretation. The head CT of a young female officer showed diffuse cerebral edema with obliteration of all the ventricles and cisterns. When I communicated this result, the decision was made for the Soldier to go to the Expectant Room. I took a deep breath and went on to the next patient. A 4-year-old was the victim of a car bomb and required arm amputation. After 36–48 h of working straight through to make sure all patients were addressed, we post-processed the events with one another. We did the best we could with what we were facing and what we had for resources.

Men and women in military medicine dedicate their lives to diagnose and treat and heal the by-product of war. It's an honor and truly a privilege to work alongside professionals with such unparalleled dedication. Though horrifying at times, working as a trauma radiologist in Iraq was one of the most rewarding aspects of my military career.

## Compliance with ethical standards

**Conflicts of interest** None

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## Reference

1. Naylor JF, April MD, Roper JL et al (2018) Emergency department imaging of pediatric trauma patients during combat operations in Iraq and Afghanistan. *Pediatr Radiol*. <https://doi.org/10.1007/s00247-017-4065-9>