



Matthew Putnam on a helicopter during his time with a forward surgical team in Afghanistan.

## LATE TO WAR

BY MATTHEW PUTNAM, MD (D'74, MED'77)

**H**ANOVER, 1974. **FIRST YEAR OF MED SCHOOL.** We gathered at the dorm to watch MASH, wanting to be Hawkeye Pierce. Almost all of us had avoided our war (Vietnam) by taking school deferments. Regardless, we watched, hoping that we'd become as experienced as the MASH team. But real experience doesn't come that easy.

After graduating in 1977, I completed orthopaedic training. Throughout the 1990s, I practiced medicine and taught at the University of Minnesota. Over the years, I made a few volunteer service contributions—including helping to build an orthopaedic service at the Polish-American Children's Hospital in Krakow. That was my “war time substitute” contribution.

Then came 9/11.

My first encounter with the attack was upon walking into the surgeon's lounge. A TV was on and our resident's eyes were glued to it. No one was speaking. The scene on the TV was the second plane plowing into the south tower and exploding. My reaction was to tell the residents to turn the movie off because it was awful. They said it wasn't a movie.

We did the first scheduled case, because it seemed all that we could do. While working I felt that something was lost and remembered that a good friend's son had gone to work at the WTC. Later that morning I learned that his son had called home saying that he was okay. But he never called back.

Soon after 9/11, some of my friends started to get involved. I contacted the Armed Services as well. Why? I had deferred my way past Vietnam and never felt that I deserved the special treatment I'd received. At first the Army questioned my age. Then, as the need for orthopaedic surgeons increased, age became less of an issue. Ultimately, I was commissioned as an Army officer and even given a choice of assignment. Knowing nothing, I asked to

be in a MASH unit—only to learn that they no longer existed. The best alternative was to be on a forward surgical team (FST).

I was assigned to the 945th FST, one smaller component of the larger 807th Medical Command. For an Army newbie, being sheltered inside a smaller unit of soldiers works well. The team had my back. I still had to go through the stuff soldiers endure (Basic Officers Leadership Course, etc). Also, I had to redo and do courses to prepare for leading trauma care. To say that I learned new things is an understatement. It was hard work, and it changed me—long before I left on deployment. At the outset, I thought that I could go help out soon after being commissioned. In truth, I was only partly prepared even after three years of training to take on my role as *the* orthopaedic surgeon at a forward operating base (FOB).

Deployment is complex. Every week, soldiers are moved to and from the U.S. to hostile environments via many kinds of transport. For every deployed soldier sent forward, many more must be ready to step into that same slot. The logistics of this are considerable. My own journey through the filter confirmed my physical readiness—including my ability to use my weapon effectively and escape a vehicle rollover.

Then we were off on a five-day trip to central Afghanistan. We stopped at Bagram Airfield to redo our improvised explosive device (IED) training and we slept in a bed one night. We traveled at night to Kandahar, where the arrival gate seemed like a scene from a 1930s

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black-and-white movie. Then we waited in the freezing predawn for a Chinook helicopter to fly us to FOB Apache.

Travel on an FOB-bound “helo” is *loud*. Hand signals are the only means of communication and the five-point shoulder harness is not optional. They do not sell insurance that would allow this ride to be offered at a carnival. We arrived at FOB Apache on a Wednesday morning in January before the sergeant’s morning meeting. We were sent to unpack and sleep.

Days started early. The colonels who ran the base while I was there were notorious for around-the-clock emails, 4:00 a.m. workouts, and full-time positive mental attitudes. I found some running buddies and we would try to head out before dawn. The running area itself was sketchy. To go any distance we ran interconnected loops. The longest was alongside our perimeter wall where we would often encounter the Afghan National Army soldiers being escorted from guard duty. Post-run breakfasts were my best meal of the day because I could count on them—the Taliban are mostly daytime warriors.

All teams on an FOB have daily routines. We began with the sergeant’s morning meeting, where daily duties and clinical updates were reviewed. The commander would follow with review of recent cases using the after-action-review (AAR) format. As I’ve learned it, the AAR format is the best method I’ve seen to enable review of a complex event with emphasis placed on learning and sustainability. A real effort is made to eliminate negativity.

Of course, an FOB is not simply a housing complex. By using Apaches, Blackhawks, mine-resistant ambush-protected

vehicles (MRAPs), special forces from multiple nations, and a variety of surveillance and weapons systems, the FOB worked to maintain order in its area of operations. Some of this work was planned and some was not. Either type could lead to a need for medical care.

Considering our location, we had exceptional tools available at the FST. For the random on-base injury or illness we could deliver nearly all care (from closed fractures to serious superficial cellulitis). Occasionally we would use the internet to access a military consultant at home (CONUS) or in Germany. Some on-base issues were more dramatic (such as cardiac problems and leukemia) and required rapid evacuation. But the reason to put a FST inside the war is to treat war casualties—and we did.

Casualties usually occurred in groups (MASCAL: multiple casualties). Managing multiple patients at once is what an FST does well. From the moment the patient is in triage to the time they can be in full resuscitation in the OR is measured in single minutes. Sometimes this speed is a bad thing. A patient can arrive in the OR with ordinance (live explosives) in place. One time we thought this had happened with a patient I was treating. An unstable patient was brought into the OR, where we discovered an object resembling a molded plastic explosive with metal wiring. We learned that the patient had triggered our metal detecting wand in triage, but in the chaos of the MASCAL the patient’s wand positivity had been overlooked. Fortunately, the molded plastic turned out to be the heel of his boot. It had been wired on to the boot and blown up into his arm. All the time the action is taking place—especially when treating



The medical teams were well-trained to deal with the chaos of mass casualty events.

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non-U.S. patients—U.S. soldiers in full battle gear (Guardian Angels) are standing by, with weapons ready.

All patients treated are converted to “trauma naked” in triage. This occurs regardless of gender, age, or time of year. Two reasons: one, all ordinance is removed from the victim—except when it’s not (see previous paragraph); two, the initial injury is rapidly reassessed, enabling victims to be triaged by order of severity. In all cases, tourniquets and pelvic binders placed in the field are tightened and left in place until surgical control is possible.

The first rule of fluid management is “Stop the bleeding!” Tourniquets, pelvic binders, and external fixators are tools that share one goal: “save the life, save the limb.” French Surgeon Etienne Morel is credited with military use of a tourniquet in battle in 1674, remarkably similar to the modern combat application tourniquet (CAT). Today’s CATs are so essential that *all* soldiers *must* carry them on their person at all times.

Not instantly obvious is how tourniquets work differently from pelvic binders and external fixators. Essentially, tourniquets work the outflow (arterial) side of blood loss while binders and fixators work the return side (venous). Certainly, the arterial side is dramatic while the venous side less so. But, either way, the blood is not getting back to the heart and you will soon be dead. The field availability of both tourniquets and pelvic binders has significantly increased the chance that a victim will arrive at the FST.

Of course the main reason to stop blood loss or give drugs that stabilize the clotting process (tranexamic acid—an



advance associated with the Afghan War) is to reduce the need for blood and blood component replacement. During our morning sergeant's meeting the "dust-off medics" would exchange their expired blood supply for fresh blood ("dust off" refers to the crew and its helicopter). Dust-off medics have significantly improved the soldiers odds of survival and they take on risks in combat that are almost beyond comprehension. This small supply of blood occasionally made the difference in restoring the victim's pulse. If the patient was alive at FST arrival, we often administered 20-plus units of blood before transfer to the next facility. Responding to these massive needs for blood replacement has altered our understanding of blood management. FOB soldiers, for example, are basically considered a walking blood bank. In a MASCAL situation, soldiers can be called by blood type to emergently donate whole blood.

Almost independent of the necessary work of providing care was the added work of continuing to train. To achieve predictable results, medical teams train and retrain continuously. For trauma scenarios, the ratio of training to action hours exceeds 10 to 1. Nonmedical senior officers directly involved themselves in the training of medics. Multiple times during my deployment I observed officers volunteering to be "patients" for the medics to perfect their rapid IV starts. The effects of this continuous training are evident during MASCALS, where despite the chaos of bandages, blood, bones, bowels, and bullets it was possible to manage multiple severely injured patients as a team. This is not to say that chaos was always smooth—but almost always.

That the army should serve as a mentor to me at this point in my career has surprised me. But then, maybe it shouldn't. The physicians who mentored me had almost all served in the military. It was expected—and accepted. One gave back. One took orders. One followed a routine. I learned these things from my many mentors at Dartmouth. All were so good that to single out two is unfair to others. Nonetheless, surgeons Jack Lyons and William Mosenthal stood out to me then and still do now. Their ability to communicate clearly and quietly combined with being approachable made being their student like being their partner and most definitely their teammate.

The reasons soldiers enter combat zones cannot be explained by pay or medals. In his book *War*, Sebastian

Junger wrote that he believes soldiers go into battle not out of a desire to kill the enemy but out of love for their buddies. I observed this daily. Still, it was heart-stopping to see horrific injuries to humans inflicted by fellow humans. That some of our victims were children mutilated by the edge of the battle sticks with me now. These images haunt my mind and catch me off guard in conversation. I have a sense of what PTSD feels like.

In mid-April 2014 I begin to plan for my travels home. The exact day of travel wasn't known. Then, after dinner one night, I was joking with other members of the FST about our trips being canceled when the FST commander walked in and said he needed to talk to me. My replacement was not coming. I had to sign new papers to extend my tour. The joke was over. I signed the papers. I then knew—just barely—how young soldiers felt when they were told the same thing.

As it worked out, a replacement was found for me sooner than expected. When the replacement was found, I was given less than 12 hours to pack and get ready before flying out in the morning. I would miss the closing of FOB Apache. For me, Apache was starkly beautiful. By design, all FOBs are ephemeral. Some pieces may be left behind intentionally for locals—but everything of military value is removed before the last soldier leaves. By the time you read these words, the FOB Apache that I came to love will be gone. Truly, there would be no coming back.

Some of my Apache running club buddies saw me off. As the helo lifted off the landing zone I was glad for the mandatory sunglasses.

Focus on the mission. Have faith.

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ORIGINALLY FROM MICHIGAN, MATTHEW PUTNAM ATTENDED DARTMOUTH COLLEGE AND DARTMOUTH MEDICAL SCHOOL. HE TRAINED AT ROOSEVELT HOSPITAL, THE UNIVERSITY OF PITTSBURGH, AND NEW YORK ORTHOPAEDIC HOSPITAL. FOR THE PAST 25 YEARS, HE HAS BEEN AT THE UNIVERSITY OF MINNESOTA, WHERE HIS WORK INCLUDES PATIENT CARE, TEACHING, AND RESEARCH THAT HAS FOCUSED RECENTLY ON QUANTIFYING THE ACQUISITION AND DURABILITY OF SURGICAL SKILLS. HE AND HIS WIFE ANN CASLER PUTNAM HAVE THREE CHILDREN WHO ARE ACTIVELY ENGAGED IN ORGANIZED VOLUNTEER ACTIVITIES, ONE OF WHOM SERVED OVERSEAS THROUGH THE U.S. STATE DEPARTMENT FOR THREE YEARS.