

SHAMROCK

GRADUATES TAKE ON THE BLOODY TASK OF
CHEATING DEATH IN AFGHANISTAN

BLACK

AN UNFORGIVING SUN burns down over the desolate Afghan landscape as heat waves ripple off the dusty landing strip. The distant drone of helicopters begins to fill the air. The medical team waits outside, peering towards the mountains which surround the forward operating hospital. The first Blackhawk appears over the craggy peaks, followed closely by the second. The call is Shamrock Black: four wounded inbound. Two critical, one missing a limb from an IED explosion, the other unconscious. Inside, chief trauma surgeon Col. Scott Russi, '84, waits patiently in the operating room. It's his fourth deployment, and today, just like every day before it, he will soon have blood on his hands. Beside him, Lt. Col. Ben Kam, '91, now on his fifth deployment, prepares for what waits outside. Just beyond the doors of the hospital, dust begins to swirl as the choppers touch down. It's time to go to work.

Skip ahead three months to the medical center at the Air Force Academy. Russi sits in his modest office, his fourth tour now behind him. Reflecting on his experiences comes naturally to him. His medical team, along with the brave servicemen they cared for, are his favorite subject. "Our job is to provide healthcare to the troops," he says simply, "primarily to US and NATO forces. We

also take care of the Afghan Army and Afghan National Guard as part of a combined unit with the Army, where the majority of the Air Force personnel worked in the operating room (OR). My whole OR crew and half of my anesthesia crew were Air Force."

Running an operating room in a war zone is no small task. The Salerno facility is located in Khowst Province, surrounded by mountains on three sides near the border of Pakistan. "It actually used to be Osama Bin Ladin's area of operation when he was in Afghanistan," Russi points out. "His house is still there in fact."

A general surgeon and internal medicine physician by training, Russi was acting chief of surgery during his deployment. At any given hour of the day, the hospital was a busy place. Not only did the medical staff provide treatment for injured soldiers, they also headed up a lot of local healthcare for injured civilians—mostly children and women. "We saw a lot of women with socially inflicted wounds," Russi explains, "and sadly there were many children who were being used as weapons of war."

Using children as part of their improvised explosive campaign against allied forces is nothing new for the Taliban. Fighting the insurgency has taken a costly toll on US and NATO forces. With soldiers,



airmen and marines getting shredded by IEDs, it is not uncommon for hospitals to become instantly busy with multiple patients. “Trauma situations are called Shamrocks,” Russi explains. “They’re categorized by red (one patient), white (two), blue (three) and black—with black meaning that four or more injured patients are coming in.”

Patients would typically arrive by helicopter—sometimes by ambulance—and sometimes they would arrive unannounced, especially when it came to dealing with Afghan Special Forces. “They would come through their own gate,” Russi recalls. “You could be in the chow hall or in the workout facility when the Shamrock Black call would come through. We sometimes came running in to find eight patients who were critical.”

Dr. Ben Kam, ’91, is an orthopedic surgeon who worked along side of Russi in the trauma ward. A natural observer of local culture, he identifies polarizing differences between western and Middle Eastern civilization. “I could not help but get a sense for the Afghan people,” he begins. “Their sense of humor, their perception of family, work ethic, and even taste in food.” Kam recalls that the city of Khowst did not have central power, which made for an unusual mixture of rural and urban lifestyles.

“In Afghanistan,” he says, “the needs and desires for a good life and family are not too different from any rural town you might find anywhere in the world, including the United States. There are of course some distinct differences, and those came to light in the stories we got from injured patients we took in for care. Here in the US, you don’t have to worry about your children being blown up by an IED or shot by a stray bullet. You don’t have to arm yourself every night because the Al Qaeda members might scale the wall to your property and slit your throat as an example to the community because you’re too educated.”

Despite the gritty reality of the local culture, Russi and Kam’s primary concern remained focused on the constant influx of injured service personnel whose weekly arrivals coincided with the familiar droning of helicopters across the mountains. The hospital had a team assigned to bringing patients in from the Blackhawks when they touched down. Being the senior surgeon, Russi always took the red bed, which was the most critical bed. Triage was not always the most accurate, and occasionally, the most injured person would not always end up at his station. Yet that never bothered the colonel, given his faith in his staff. The surgical team also used the advanced trauma life-support protocols (ATLS) to take care of our patients. ▷

Russi explains, “The ATLS is a methodical, step by step process which doctors use to assess the wounded.” The system follows the acronym ABCDE, which stands for a hierarchy of life-threatening biological functions. “A stands for airway,” he begins, “which is the first thing that will kill someone if it is obstructed. The next is B, for breathing. C stands for circulation, or blood pressure. There are certain things you have to look for in a person’s pulse and blood pressure to know how much blood he or she has lost. D is for disability: does the patient have neurological disability? Does he have sensation? Can he move his extremity? And finally, E is for exposure. We cut off all the patient’s clothing to assess for hemorrhaging, burns, anything that may not be apparent when they first arrive.”

Russi explains that if a person has lost more than 30 percent of his blood volume it is time to start an transfusion. With a limited supply of blood in storage, the hospital often depended on the Massive Hemorrhage Protocol.

The human race has eight different blood types. Each individual is genetically assigned a specific blood type at birth, and each of these types fall within the ABO Blood Group System. Different blood types bear different antigens—chemical substances which can trigger immune responses from the body. Mistakenly giving a patient blood which does not match his own blood type would be catastrophic, resulting in the patient’s immune system attacking the foreign blood. Fortunately, type O-negative blood can be universally donated with no threat of immune attack, making it a popular choice in the trauma ward. The downside is that O-negative is also the rarest occurring blood type, which can often lead to short supply.

“I used a lot of O-negative blood for women and O-positive for men,” Russi begins. “If a patient showed signs of massive hemorrhage we would start a whole-blood drive, and the response to that was amazing. Rangers would come in, we would have 40 or 50 guys show up. We could take a unit of blood from an active duty troop and give it to his fellow soldier laying on the table.”

Dr. Kam echoes Russi’s sentiments. “When the call went out for the whole blood drive for our ‘walking blood bank,’ guys and gals would volunteer, no questions asked. There are actually a number of Afghan citizens walking around now whose lives were saved by American blood.”

Russi indicates that some very important data involving blood products has come out of the war. “I need to be able to give my troops blood that is fewer than 14 days old,” he says. “The mortality rate is decreased when we use newer blood. There is something within the older blood—whether it is the preservatives or the break-down products which occur as the blood ages—which actually increase the stress on the body of the recipient. Whenever we had injured US troops coming in, I always made sure we were using new blood. And if we didn’t have it, we would immediately go to a whole-blood drive.”

Fighting an insurgency changes the nature of injuries our service personnel are sustaining. Improvised explosive devices, though crude and cowardly, are the enemy’s preferred method of attack. These roadside bombs kill and maim both allied forces and civilians in Iraq and Afghanistan without bias. As a result, Russi and his team saw a great deal of blunt-force trauma, shrapnel and severed limbs. Over the course of an eight year war, military phy-



Top: Col. Scott Russi, '84, (right), chats with his patient, a local man who was the victim of an IED attack. Bottom: Air crews bring wounded in from the choppers.

sicians have learned a great deal about saving lives when it comes to massive blood loss.

“The war has shown that early shunting actually saves extremities,” Russi says, “and salvage rate on extremities has gone up significantly in the last eight years. Since we were at a forward operating base, we would not do vascular repairs; all US forces who came into our hospital with vascular injuries got shunted; they would be air-evacuated out where a vascular surgeon could do the primary repair. We would shunt veins and arteries and perform fasciotomies.” (A fasciotomy entails slicing open an enclosed muscle compartment to relieve pressure and swelling.)

Russi explains that when the body is injured, it has a stress-response which releases cortisol. Cortisol causes us to hold on to salt, which in turn causes us to hold onto moisture. The result is that tissues which are injured have a tendency to weep. The

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surgeon likens this phenomenon to a baseball player sliding into home plate and getting an abrasion on his hip and thigh. When skin is violently torn away, it can often abscess fluids for days before drying up and forming a scab. “The same thing happens internally,” Russi explains. “These IED blasts are so strong that we often see internal bleeding and bruising which comes with broken bones. These internal fluids build pressure around the wound and, as that pressure goes up, it cuts off blood supply. Performing a fasciotomy can be quite incredible to see. When

you lance a wound to release pressure you see a mass of dark grey muscle mass bulge out at you; then it starts to turn pink as the blood supply is restored.”

The final thing a surgeon is concerned with is the triad: acidosis, coagulopathy and hypothermia. “What we’re looking for here,” Russi says, “are the things that kill you because of hemorrhage. The first is acidosis. The body makes acid as a bi-product of metabolism. We flush acid out daily. When your acid levels increase, your body’s PH levels start to drop. If we see PH levels drop below 7.2, the proteins in the body stop working, which causes further injury.” Coagulopathy is another serious disorder which keeps the body from forming proper blood clots and can lead to excess bleeding.

“Another thing we’re worried about is hypothermia, because cold kills.” Russi recalls that despite the searing heat in Afghanistan, the surgical teams spent many sweat-drenched hours in the OR with the thermostat turned up. Humans can become hypothermic even when it’s 70 degrees outside, especially when they have sustained heavy wounds. For anyone who may have thought medical teams enjoyed easy days basking in the air-conditioning, it’s time to think again.

In addition to the impact of IED usage, the surgical team saw a lot of gunshot wounds. Al Qaeda and the Taliban have many infiltrators integrated into the Afghan National Army. These men are granted access to military installations under false pretenses, and often go to work committing acts of sabotage and even murder.

Russi recounts one such patient who had an unfortunate run in with an Al Qaeda member posing as ANG. “We had a young kid—an Airman—who went to use the latrine when he was shot by an infiltrator. There’s an old adage in general surgery which states that ‘you don’t go where God lives.’ There’s a section behind the pancreas and you just don’t want to go there—it’s just not a very surgical-friendly place to be. This kid took an AK-47 round that went through the head of the pancreas, the duodenum and his colon and came out his stomach.” At this time, the stern, surgical veneer which dominates Russi’s demeanor begins to show signs of heartbreak as he describes the nature of the wound: “It was clear from the path of the bullet that this kid was shot in the back.”

After a split second of re-composure, the colonel continues. “He was pretty sick when they brought him to us and we took him straight to the OR and began resuscitation, because he’d lost a lot of blood. The survival rate from a pancreatic injury is not very favorable, even for hospitals in the United States. The pancreas helps to neutralize acids produced by the stomach.

With injury to the stomach and duodenum, you can get acid spilling out into the abdominal cavity; that acid is not neutralized by pancreatic secretions, and you don’t want that. We ended up doing damage control surgery by repairing his stomach and tying off his small bowel to prevent further leakage. We con-



Top: Lt. Col. Ben Kam, '91, goes outside the wire for weapons testing. Bottom: Col. Russi, '84, (right) performs surgery in the OR.



trolled all of his injuries, though we didn't definitively treat any of his injuries. From there, he was on a helicopter to Bagram where they were able to put him back together."

Helping a young soldier survive a catastrophic injury is one of the greatest triumphs a surgical team can ever have. Nothing can be more satisfying than giving someone a second chance at life. Yet Russi is quick to point out that saving lives is a team effort. Coming from a combat situation, an injured soldier may make several stops along a chain of hospitals based in different countries. When multiple surgeries are necessary, Russi and his team employ a special technique to help reduce stress on the body. "We use an amazing device called a wound-vac," he explains. "We don't close the abdomen after controlling an internal wound. Instead, we wrap it in sterile plastic and wet laparotomy sponges to keep it moist, then apply suction to seal the wound and collect excess fluid. This provides a sterile closure without having to close the wound."

Vacuum sealing enables the next surgical team to have quick access to an internal wound. It also saves the body from the stress of re-opening the wound that has been stitched shut. The young man with the pancreatic wound underwent surgeries in Bagram, Germany, and finally the United States; at each stop, he was vacuum sealed and sent to the next hospital. "He underwent his final surgery at Walter Reed," Russi concludes. "And survived a wound that nine times out of ten would have been fatal."

It is clear to see that the whole process is very methodical and well planned. From the site of injury, to the air-lift, to the damage control surgery, and then on to the more specialized surgery, our troops are in good hands. Anywhere in Afghanistan, an injured soldier is a mere 30 minutes from a hospital by Blackhawk from dust-off to landing. "The medics who fly with the Blackhawks are phenomenal," Russi says proudly. "They do a lot to keep the patients alive while they're en-route."

Russi attributes many of his characteristics today to his time as a cadet, and how the Academy helped to shape his medical career. "I never thought I'd say this, but the doolie system actually helped me to become a good surgeon. It all comes down to learning how to handle the stress; I tend to be calmest when the situation is more chaotic. Being at the Academy, having someone in your face during BCT and dealing with the demanding academics has translated into my ability to calmly deal with trauma. Even if a ship is going down, if the captain is calm, he has a chance of saving it."

Russi has been deployed four times and he's slated for another tour next summer. Being a surgeon in Afghanistan makes for a busy job. There are no days off and there is no end of sick people who need help. Waking up at 3am to perform emergency surgery is common practice. You never know what type of injury you're going to see, and every surgeon eventually has to face the day when he is not able to save the person on his table. Yet the job is not completely filled with difficulty and defeat. From helping a young airman survive an impossible pancreatic wound to healing a child injured by a road side bomb, the litany of medical triumphs continues. As the war continues, the need for life savers is greater than ever. No matter the odds, they will always be there, like good shepherds, watching over our troops, waiting to bestow the greatest gift of all: a chance to survive. ✓