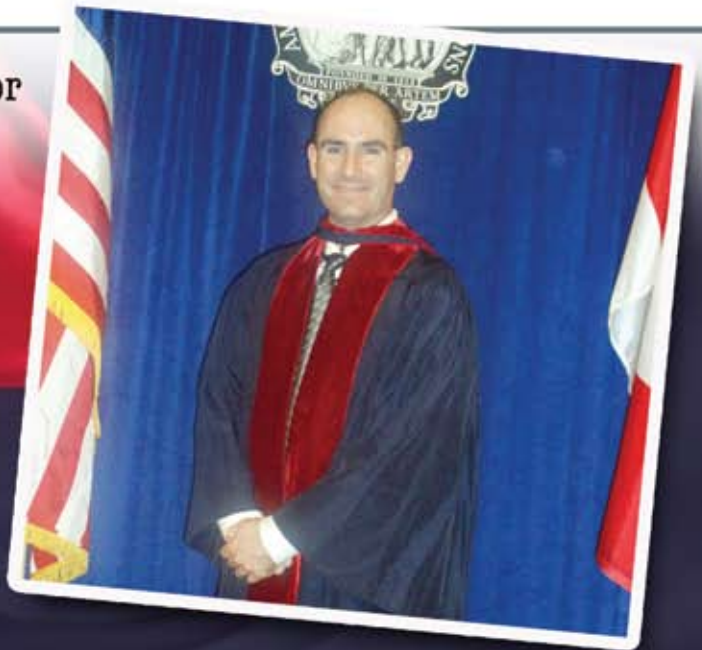




## “The best and worst week of my life”: A surgeon at war

by Karen Stein, Associate Editor



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**I**magine a week when your life changes because of a major professional accomplishment. Imagine a week when your life changes because of a devastating injury that derails your initial career ambitions. Now imagine those two things happening within the same week.

Ross “Rusty” D. Segan, MD, FACS, a member of the 2007 class of American College of Surgeons Initiates, had such a week in 2006.

### ***The path toward Fellowship***

Dr. Segan hadn’t originally expected to follow the route toward a career in general surgery. In fact, after obtaining his bachelor of science degree in liberal studies, with a concentration in athletic training, from Salisbury (MD) State University—followed by a master of science degree in athletic training from West Virginia University, Morgantown—he had in mind to pursue a medical career in orthopaedics.

But in 1995, while he was pursuing his graduate studies at West Virginia—and after being accepted to medical school at the University of Medicine and Dentistry of New Jersey–Robert W. Johnson Medical School (RWJ), where he ultimately became drawn to surgery during the laparoscopy revolution—Dr. Segan decided to use his impending medical education in service to the U.S. Considering it an honor to care for America’s fighting men and women, Dr. Segan was commissioned as an officer in the U.S. Army; his grandfather, a former Army-Air Corps tail gunner, was influential in spurring his desire to serve.

Beginning his surgical training in 1999, Dr. Segan was an intern at Madigan Army Medical Center in Tacoma, WA, and a resident at Cooper Hospital/University Medical Center at RWJ and at Thomas Jefferson University Hospital in Philadelphia, PA. While serving as clinical instructor in the department of surgery at University of Maryland School of Medicine, Baltimore, he completed a fellowship in advanced laparoscopic and minimally invasive surgery.

Dr. Segan returned to active military duty after completion of his fellowship in June 2005, and was promoted to the rank of major. He served as chief of minimally invasive surgery and acted as associate program director for the general surgery residency in the department of surgery at Tripler Army Medical Center (TAMC) in Honolulu, HI, from 2005 to 2007. During his time at TAMC, the general surgery residency program received approval to expand its categorical positions by one per year and received a favorable review from the Accreditation Council for Graduate Medical Education Residency Review Committee for four years.

While at Tripler, he was granted certification by the American Board of Surgery and was in the process of fulfilling the ACS Fellowship requirement for one year of surgical practice after all formal training is complete when he was deployed to Afghanistan in January 2006. There, while stationed at the 14th Combat Support Hospital at Bagram Air Force Base and responsible for combat specialty care, Dr. Segan accomplished a very important milestone for his career and for the history of surgery.

### ***The experience of a lifetime***

Practicing medicine while at war was an exhausting and challenging experience. “For my whole time in Afghanistan, I worked every day with little down-time,” Dr. Segan said. “Because I was one of only a few surgeons in the most advanced hospital in Afghanistan, patients tended to accumulate because there is effectively no medical infrastructure. Night after night, we would care for trauma and emergent surgical cases. Doctors rarely had a night off, continuing to provide critical care services to the inpatients. We were all the patients had until [their medical care at Bagram] was over.”

For 12 hours he hand-resuscitated and operated (to stem ongoing shock) on a U.S. soldier who had been impaled by munition and sent to Bagram after initial stabilization at a forward operating base. This soldier survived the procedure and was sent back to the U.S. for convalescence. “If there hadn’t been a general surgeon to treat this soldier,” Dr. Segan said, “he would not have fared as well” as he did.

During his service at Bagram, Dr. Segan also

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Overleaf, top: Dr. Segan on patrol near the Afghanistan-Pakistan border. The snow-capped peaks are located inside Pakistan. Bottom: Dr. Segan in his Fellowship robes. (All photos courtesy of Dr. Segan.)

cared for Afghan national soldiers involved in Taliban and Al-Qaeda attacks—including a difficult case of a local serviceman who was victim of an improvised explosive device (IED) attack and suffered injuries initially deemed to be lethal but who ultimately survived—and lots of children, some who succumbed to their injuries. “I took care of one kid for two weeks, but unfortunately the constellation of his injuries and sequelae were nonsurvivable,” Dr. Segan explained. “He was at school when the Taliban attacked it because they believed it was teaching western education and didn’t believe it was a good idea for the country. The Taliban rocketed this school, near a U.S. base close to the Pakistani border. A lot of kids died that day just trying to go to school. For me, that senseless death of those children and the child for whom I cared so diligently represented one of my most painful personal and professional experiences.” Dr. Segan described the country’s survival tactics as humbling, saying that bearing witness to the plight of the Afghan people put into perspective the “problems” of the U.S. citizenry. However, without any hesitation, he states that he is a better person for having experienced it.

The experience of a lifetime came on April 28, 2006. As part of the Society of American Gastrointestinal and Endoscopic Surgeons’ (SAGES) annual meeting, Dr. Segan performed minimally invasive gallbladder surgery—the first ever performed in Afghanistan—on a U.S. serviceman. It was broadcast in Dallas, TX, to the 1,700+ SAGES meeting attendees via satellite from the 14th Combat Support Hospital at Bagram (see photo, page 19). It was moderated in Dallas by



Surgery following a mass casualty after IED attack on Afghan National Army Troop patrol near the Pakistan border. The patient is undergoing exploratory laparotomy during trauma resuscitation in preparation for evacuation to Bagram Airbase for definitive management. Assisting Dr. Segan (left) is orthopaedic surgeon David Brown, MD, LTC, MC, Brooke Army Medical Center, San Antonio, TX. At the patient’s head is a Marine medic who was supporting the mission in Afghanistan (identity unknown).

renowned minimally invasive surgeon, Adrian Park, MD, FACS, FRCSC, the Campbell and Jeanette Plugge Professor and vice-chair in the department of surgery and head of the division of general surgery at the University of Maryland Medical Center and Dr. Segan’s fellowship director and mentor.

“[Performing this procedure] had started out as an initiative to bring this standard of care forward to the operating environment in Afghanistan,” Dr. Segan said. “At that time, if a soldier needed appendectomy, cholecystectomy, or other general emergency procedures, that person would have to undergo open operations, his or

## Laparoscopy comes to Afghanistan

Laparoscopic procedures have been included in the standard of surgical care since 1992, soon after the laparoscopic cholecystectomy used today was first performed in the mid-1980s by Philippe Mouret. Since that time, when laparoscopic surgery was mostly used in cholecystectomy and organ removal as well as antireflux, colon, urologic, thoracic, and trauma procedures,<sup>1</sup> its surgical applications have grown exponentially. Today, in the U.S., approximately 700,000 cholecystectomies are performed each year, more than half laparoscopically.<sup>2</sup>

Before laparoscopy's inauguration in Afghanistan, members of the military stationed in that country who needed gallbladder surgery were sent to other locations with laparoscopic capabilities, and other patients requiring emergency medical care were operated on with open procedures. This system of care contributed to high costs for transport as well as lowered morale caused by lessened troop strength and longer recovery times.<sup>3</sup> Why did laparoscopy take so long to reach Afghanistan, by way of Dr. Segan's historic first application of the procedure nearly 15 years after its widespread acceptance?

Afghanistan's long recent history of instability and armed conflict has led to its label as being among the worst countries in terms of health care. With a population of 30 million, average life expectancy is 43 years,<sup>4</sup> and it ranks near the top for newborn mortality (60 deaths per 1,000 births in 2006).<sup>5</sup> Estimates reveal that diarrheal disease and tuberculosis—which have been showing consistently decreasing rates in the U.S.—are frequent contributors to the high mortality rate among children, where approximately 25 percent of children die by the fifth birthday.

But improvements in vaccination programs have not been enough to combat the effects of a country where 80 percent of the populace resides in rural areas that lack access to care (few roads and transportation venues and no system for medical referrals) and a deficiency of skilled medical professionals (approximately eight physicians per 100,000 people). This difficulty is compounded by the frequent targeting of violence toward aid workers based on assumptions regarding their political allegiances and the additional challenge that medical officers servicing rural villages often

have a medical educational background both outdated and brief.<sup>6</sup>

Such poor health care is typical in countries with depressed economies. Estimates put the poverty rate at approximately 50 percent, with 40 percent unemployment.<sup>4</sup> The high cost of obtaining equipment and training medical and allied health personnel for performing such advanced procedures is essentially prohibitive in such a climate.

Fortunately, however, Dr. Segan had begun to coordinate and assist in the sustainable introduction of laparoscopic procedures while still in Afghanistan. "The equipment is still there," Dr. Segan said. "It was a gift to the hospital from industry partners who were paying respects to the men and women of the U.S. Armed Forces. The country of Afghanistan now has the capability to perform laparoscopic surgery."

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her convalescence often mandating evacuation [to a facility outside of Afghanistan] at great risk and cost.” To bring laparoscopic procedures to Afghanistan would potentially result in U.S. government savings of \$1.5 to \$2 million each year (based on historical surgical volumes and diagnoses) and faster recovery and faster return of soldiers to their units (see sidebar, page 18). Dr. Segan discussed the idea with the leadership of SAGES for the organization to support the arrival of laparoscopy to Afghanistan and the potential training of local surgeons. Given the fortunate timing and magnitude of this event, it became possible to broadcast this significant moment in surgical history to the industry floor at the SAGES’ annual meeting.

Working with U.S. Surgical (now Covidien) and Stryker, the Combat Support Hospital was sent machinery and 20 cases worth of disposable equipment to help make laparoscopy not a novelty but a day-to-day reality for the country. Dr. Segan had been coordinating efforts to establish laparoscopic surgical care and training at a Kabul hospital intending to teach the procedure to medical personnel, including a multinational group of surgeons.

But just as soon as Dr. Segan had started to change the face of medicine in a war-torn country, a devastating injury changed the outlook of his career as a surgeon.

### ***Fellowship interrupted***

A week after the laparoscopic cholecystectomy was broadcast live to SAGES, while on a medevac mission transporting a patient from Afghanistan to Landstuhl Regional Medical Center in Germany, Dr. Segan’s life and professional career were forever changed. While caring for a patient in the cargo hold of a C17, an unavoidable mishap turned the provider into a patient. The litter slipped, and as Dr. Segan reached out quickly to catch it, the patient landed on Dr. Segan’s head. Dr. Segan suffered a cervical spinal cord injury, multilevel disc herniation, and upper extremity radiculopathy.

Despite physical therapy administered at a military medical facility, months passed without significant meaningful improvement. Dr. Segan realized that he was destined for chronic pain, arm weakness, and paresthesias and that

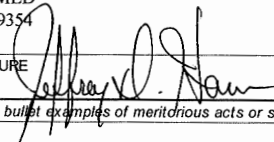


Intraoperative photo of the first laparoscopic procedure in the history of Afghanistan. Dr. Segan (left) was assisted by Keith Havenstrite, MD, LTC, MC, Madigan Army Medical Center, Tacoma, WA (not visible) (cardiothoracic and general surgery), and Richard Nahouraii, MD, MAJ, MC, William Beaumont Army Medical Center, El Paso, TX (general surgery).

his injuries effectively ended his budding career as a practicing surgeon. “I was in service to our country, trying to make a difference,” he said. “One minute [the ability to do so] is there, the next minute it’s not.” Ultimately he was placed on the medical disability retirement list and separated from the Army.

Dr. Segan had been on track to achieve Fellowship in the American College of Surgeons at the time of his injury. He hadn’t yet begun his formal application, as he was planning to assemble his case list when he returned from deployment. But at that time, aside from compiling the list, Dr. Segan had met all obligations on the Fellowship checklist. However, this injury precluded him from satisfying one major requirement for becoming a Fellow: “A *current practice* that establishes the applicant as a specialist in surgery.”

Even though his disability prevents him from practicing, Dr. Segan obtained an application and sent a letter to the College to ask for an exemption. “I just wanted to be able to apply

<b>RECOMMENDATION FOR AWARD</b>			
For use of this form, see HQDA Letter 600-06-1; the proponent agency is DCS, G-1.			
For valor/heroism/wartime and all awards higher than MSM, refer to special instructions in Chapter 3, AR 600-8-22.			
1. TO COMMANDER, CJTF-76 APO AE 09354		2. FROM COMMANDER, TF MED APO AE 09354	
		3. DATE (YYYYMMDD) 20070102	
PART I - SOLDIER DATA			
4. NAME (Last, First, Middle Initial) SEGAN, ROSS D.		5. RANK MAJ	6. SSN
7. ORGANIZATION HHC, TF MED APO AE 09354		8. PREVIOUS AWARDS NDSM, ACM	
9. BRANCH OF SERVICE US ARMY (ACTIVE)		10. RECOMMENDED AWARD MSM	11. PERIOD OF AWARD a. FROM (YYYYMMDD) 20060131 b. TO (YYYYMMDD) 20060531
12. REASON FOR AWARD			
12a. INDICATE REASON SVC	12b. INTERIM AWARD IF YES, STATE AWARD GIVEN	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	12c. POSTHUMOUS YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
			13. PROPOSED PRESENTATION DATE (YYYYMMDD) 20070120
PART II - RECOMMENDER DATA			
14. NAME (Last, First, Middle Initial) HAUN, JEFFREY D.		15. ADDRESS HHC, TF MED APO AE 09354	
16. TITLE/POSITION TASK FORCE COMMANDER	17. RANK COL	19. SIGNATURE 	
18. RELATIONSHIP TO AWARDEE COMMANDER			
PART III - JUSTIFICATION AND CITATION DATA (Use specific bullet examples of meritorious acts or service)			
20. ACHIEVEMENTS			
ACHIEVEMENT #1 As a staff general surgeon at the 14th Combat Support Hospital at Bagram Airfield in Afghanistan MAJ Ross Segan had a profound impact on casualty care in the Afghan theater. Knowing that there was no laparoscopic capability in theater, and knowing that it could significantly reduce the morbidity and hasten the return to duty of soldiers, MAJ Segan, one of the foremost specialists in laparoscopic surgery in the Army, facilitated the donation of over \$200,000 in laparoscopic equipment to the 14th Combat Support Hospital.			
ACHIEVEMENT #2 Upon obtaining the equipment MAJ Segan performed the very first laparoscopic surgical procedure in the nation of Afghanistan -an event which was broadcast live to a conference on laparoscopic surgery in the United States and which brought much positive publicity to the 14th Combat Support Hospital the event being featured in the 2006 Green Journal.			
ACHIEVEMENT #3 As a staff surgeon, MAJ Segan was actively involved in the establishment of a critical care team for the first time in the history of military health care in Afghanistan. A direct result of the efforts of this team was a 25% reduction in the overall mortality rate when compared with the best results obtained during prior iterations of Operation Enduring Freedom. His efforts helped to save the lives of countless Afghans, coalition and U.S. Service members.			
ACHIEVEMENT #4 Shortly after arriving at Bagram, MAJ Segan volunteered to provide emergency coverage for a surgeon at a forward surgical team in the Forward Operating Base at Asadabad. His skill, dedication and selfless service during this period was credited with saving the lives of at least three injured coalition soldiers.			
21. PROPOSED CITATION			
<b>FOR MERITORIOUS SERVICE WHILE DEPLOYED WITH THE 14TH COMBAT SUPPORT HOSPITAL, TASK FORCE MED, IN SUPPORT OF OPERATION ENDURING FREEDOM VII. YOUR COMMITMENT TO DUTY AND SELFLESS SERVICE EPITOMIZES THE ARMY VALUE SYSTEM AND THE WARRIOR ETHOS. YOUR CONTRIBUTIONS TO OUR FIGHT IN THE GLOBAL WAR ON TERRORISM REFLECT GREAT CREDIT UPON YOU, TASK FORCE MED, COMBINED JOINT TASK FORCE - 76 AND THE UNITED STATES ARMY.</b>			

DA FORM 638, APR 2006

REPLACES DA FORM 638-1.  
PREVIOUS EDITIONS OF DA FORM 638 ARE OBSOLETEPage 1 of 3  
APD v1.02

The Recommendation for Award for Dr. Segan's Meritorious Service Medal with Oak Leaf Cluster for his efforts in support of Operation Enduring Freedom.

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for this highest honor, to be inducted as a Fellow,” he explained, adding that just being able to apply for Fellowship was a major achievement in his career.

### ***Fellowship granted***

The College did, in fact, waive the current practice requirement for Dr. Segan, and he was inducted into Fellowship at Clinical Congress in New Orleans, LA, in October 2007.

Petitioning the College on his behalf were Dr. Park; Thomas V. Whalen, MD, FACS, chairman of the department of surgery at Lehigh Valley Hospital in Allentown, PA, a Regent of the College, and Dr. Segan’s medical school program director and mentor; and Carlos A. Pellegrini, MD, FACS, the Henry N. Harkins Professor and chairman in the department of surgery at University of Washington in Seattle and a Regent of the College.

In his letter written on Dr. Segan’s behalf, Dr. Pellegrini had this to say: “...I believe his application and his extraordinary interest in Fellowship in the College gives us a unique opportunity to also waive the ordinary process of Fellowship, and bestow this Fellowship, which he considers an extraordinary honor, upon a decorated war hero.” (Dr. Segan received the Meritorious Service Medal with Oak Leaf Cluster for his efforts in support of Operation Enduring Freedom. See opposite page.)

“I was absolutely humbled, amazed, taken aback, and choked up that [Dr. Pellegrini], who has made such great contributions to the field of surgery, was saying it was an honor to speak with me,” Dr. Segan said.

On the Friday before Clinical Congress was to convene, Dr. Segan got the phone call telling him to be in New Orleans that Sunday for Convocation, where he was to be initiated as a Fellow.

### ***A career reinvented***

After retiring from the Army, Dr. Segan accepted a position in the private sector. He is now the global medical director at Covidien in North Haven, CT, where he is responsible for supervising global clinical trials, providing oversight and management; coordinating all clinical advisory boards; providing support for regulatory admissions worldwide; participat-

ing in content creation for medical education programs; and participating in other activities for bringing products to market, including risk-management reporting and reviewing monthly safety reports.

Although actively practicing surgery is what Dr. Segan would prefer to be doing, he says he is positive and trying to make a difference in his current role—being active in surgery even if not performing operations. “Despite my injuries, I have no regrets about my service to our country and would still be doing that today had my injury not occurred,” he said.

And he maintains much gratitude toward the American College of Surgeons for his Fellowship. “I am very grateful and humbled to be given the opportunity to be a Fellow, and I am extremely grateful to the College,” he said. “This went beyond my expectations, as I just wanted to be able to apply. I didn’t expect immediate granting of Fellowship. I appreciate it and consider it an honor of the highest order.” [Q](#)