Words from the Wise

President’s Column

Rob “MOBBIC” York, Col, USAF, MC, SFS
President, Society of United States Air Force
Flight Surgeons

THE BEST JOB IN THE UNIVERSE –
The USAF Flight Surgeon
or
Being an Air Force Physician Doesn’t Have to Suck

Welcome to the fall edition of FlightLines. This issue has contributing authors detailing the BEST JOB IN THE UNIVERSE – The USAF Flight Surgeon. Although my thoughts will be rather pedestrian for the seasoned SoUSAFFS readers, my intended target is the vanilla Air Force Physician, those who don’t know (yet) how great being an operational flight surgeon can be. I encourage each of you to digest this issue and then pass it along to your fellow physicians in Primary Care, Emergency Medicine, and any other subspecialty you can.

For those unfamiliar, the flight surgeon is the quintessential operational medicine physician in the USAF. Neither fish nor fowl, we bridge the Operational and Medical Worlds, and at times completely understood by neither. Our medical peers do not understand why we spend time outside of the clinic. Our operational peers do not understand why we don’t fly on most days. From the day you begin service as a flight surgeon, you will never again have a peer who is not a flight surgeon.

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The views expressed in this newsletter are those of the individual authors and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense, or the U.S. Government.
We are occupational physicians; we take care of the occupation of flying and special duty operators including PRAP (former PRP) and industrial hygiene. We are the guardians of medical standards—anything involving the qualification to serve or fly is our purview.

Assignment options are endless—every USAF base in the world has at least one flight surgeon on station. Furthermore, there are numerous special duty assignments reserved specifically for flight surgeons:

- Australia Exchange Tour
- FAA Liaison
- Pilot Physician (PP)
- Aeromedical Consultation Service
- Research
- Squadron Medical Element (SME)
- NASA
- Hyperbaric Medicine
- Graduate Medical Education (GME) Instructor
- AFSOC Medical Element (SOFME)
- Theater Validating Flight Surgeon (TVFS)
- Antarctica

Interested in leadership? Being a flight surgeon is the perfect entry vehicle into Command, Senior Administration, and Executive jobs, both at MAJCOM and AF levels.

Base level flight surgeons are required to split their time 50/50 between clinical and non-clinical duties. Clinical is standard primary care in your clinic, caring for aircrew members and their families, as well as seeing occupational medicine exams and cases. Non-clinical time is spent in admin (waivers and MEBs), shop visits, flying, grounding management meetings, hanging out in your flying squadron (practicing medicine without the patient’s knowledge), etc. You are typically in clinic 2-3 days/week, fly 1 day, and have the rest for admin and shop visits.

Pros and cons: Flight surgeons are the axis around which the AFMS revolves—we are the only discipline and medical capability that we cannot readily buy in the civilian world. The flight surgeon is the sigil of the AFMS to the Line—they come to us for answers. Other benefits include flight pay while still being eligible for your MSP/MISP bonus in your residency-trained AFSC, wearing a flight suit every day, and being accepted by flyers as one of their own. Oh, and have you seen our jets? As a rated officer, you are a member of the team. Countless times I have “shut down” my braggadocios medical school friends blustering about how much money they make or how important they are by simply asking if they have ever flown in an F-16 or transported patients in the back of a Black Hawk in a combat zone.

As far as cons, there aren’t many. In fact, it’s virtually impossible to find a flight surgeon who regrets his or her service in Flight Medicine and why few residency-trained flight surgeons (48R) ever return to their primary AFSC. Money Back if Not Completely Satisfied Guarantee: If you decide Flight Medicine is not for you, you can simply return to your specialty after a single tour.

Being a flight surgeon is simply THE BEST JOB IN THE UNIVERSE. ♦

Mobbic

From the Editor

Chris “VADER” McLaughlin, Capt, USAF, MC, FS
RAM XVII

“So, do you do surgery on planes?” What flight surgeon has not been asked that question? Of course, I always answer that I do not perform surgery on planes. Most of us flight surgeons do not, but few people realize that some of us do. In the case of Tactical Critical Care Evacuation Teams, emergency physicians and surgeons, many of whom are flight surgeons, do operate on planes. This FlightLines issue tackles the question, “What is a flight surgeon?” Even between the squadron medical elements, there are pronounced differences in what flight surgeons do. The missions of the U-2, the F-15E, and the C-17 are nothing alike, and their flight docs reflect those differences. An AFSOC flight surgeon needs to be familiar with multiple aircraft and casualty evacuation. The world of intelligence, surveillance, and reconnaissance is rapidly expanding and the role of the flight surgeon is growing with it. Flight surgeons are physicians, commanders, scientists, operators and Operators, consultants to the Line, public health experts, occupational health experts, and above all else, Airmen. While the work of any two randomly chosen flight surgeons might appear wholly unrelated, there is a unifying element that courses through the blood of all flight docs: a love of the mission. Flight surgeons are drawn to the pointy tip of the spear like moths to a flame.

This issue’s contributors share their personal experiences from the front lines of operational Air Force medicine. The missions described represent only a fraction of the amazing work being done by our operational medics around the world. These are the missions that highlight what it means to be an Airman medic. These are the missions that cannot be outsourced to civilian health care providers. These are the missions that make flight surgeons the backbone of Air Force medicine.

HELP SoUSAFFS GROW!

Flight Surgeons, have you joined SoUSAFFS yet? The Society of Air Force Flight Surgeons is a constituent organization of AsMA that more specifically supports the needs of AF Flight Docs, with a focus on education, mentoring, and networking. We are reaching out to our cadre of young physicians to make our organization one that is essential to be a part of. Not only will SoUSAFFS membership afford you invaluable networking opportunities, but it will also make you eligible for retreats/trips to other bases to experience other missions/airframes and bond with your fellow Flight Docs! There’s even better news…you no longer need to be an AsMA member to join SoUSAFFS®, and instead you pay only $20 annually. We want to grow our organization, and we can’t do that without bright ideas from excited young docs! Join us today at www.sousaffs.org.

For more information, please contact Capt Brooke Organ at brooke.organ.1@us.af.mil.

*If you are a non-AsMA member of SoUSAFFS, you are ineligible to vote in AsMA elections.
The views expressed in this newsletter are those of the individual authors and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense, or the U.S. Government.
So there I was last spring, fat, dumb, happy, and very busy in my aerospace medicine masters program, getting ready to present my research project at AsMA (our parent organization, the Aerospace Medical Association), when I got a surprise email from somebody at AMSRO telling me I’d won an award. “Hey, that was nice,” I thought. And then immediately, “What’s AMSRO?” Time to consult Dr. Google. It’s the Aerospace Medicine Students and Residents Organization, and it wants to help us recruit you into aerospace medicine, Captain Resident or Lieutenant Medical Student!

What does AMSRO do for you? First, it’s an organization that can keep your interest in all things aeromedical near the front of your exhausted brain during the challenging years of medical school and residency. AMSRO is probably more eloquent with its stated mission: “To advance the science and art of aerospace and diving medicine among undergraduate, graduate, medical, allied medical and nursing students, as well as among medical residents, throughout the world.”

Second, it acts as a clearinghouse for some very attractive prospects to help accomplish the mission. Here’s a little taste of some rotations available to you as a student or resident outside military opportunities or commitments.

- Students – NASA Johnson Space Center Clinical Clerkship. This is a 4-week clerkship open to senior medical students with a serious interest in aerospace medicine. Participants see the NASA sausage being made, conduct and present a brief research project, and are launched into low Earth orbit the day before the clerkship ends. (MOBBIC will probably make me take that part out.)

- Students or residents – UTMB Short Course. Study aerospace medicine for a summer month in the benign weather of Galveston, TX! UTMB (University of Texas Medical Branch) runs one of two NASA-affiliated civilian aerospace medicine residencies. Truly, those who are interested in space medicine won’t find a better place to become immersed in the culture. And you can get school or residency credit as an elective. While there, you will tour Johnson Space Center and the campus of UTMB.

- Students – It’s not as hot at the other aerospace medicine residency at Wright State University (WSU) in Dayton OH, and we think it’s also pretty historic in aerospace. WSU runs a 4-week medical student opportunity in October each year. Several participants have gone on to aerospace medicine residency positions at WSU. Students receive top-notch instruction in aerospace and space medicine while in Dayton. While I did not do this rotation as a student (which probably did not exist in the last century when I was in med school), I did complete my MS at WSU last summer and can vouch for the high level of teaching. And they’ve got a high fidelity aircraft simulator on site as well as a wicked museum down the street.

Third, they sponsor the now-famous AMSRO Scientific Paper Award from the student or resident abstracts submitted to the AsMA Annual Scientific Meeting. You could win some no-kidding folding money to help defer the cost of your trip to AsMA!

These are just some examples of the opportunities you will see described on the web page, which I highly encourage you to visit. Also, stay tuned for more contact on multiple fronts. AMSRO hopes to offer a military scholarship to AsMA’s 2017 meeting in Denver and should begin making appearances at summer AMP courses for medical students beginning in the summer of 2017. Aerospace medicine is the interface between aerospace operators, either civilian or military, and the medical community. The military will always need flight surgeons. And make no mistake, with the commercialization of space and the advent of Orion and the Space Launch System, job openings for flight surgeons outside the military will grow. Take a look at AMSRO and see if it can help you find your place in this new world!

Suggested websites:
- www.amsro.net
- www.nasa.gov/feature/aerospace-medicine-clerkship
- http://medicine.wright.edu/aerospace-medicine/rotation-opportunities
RAM-FM Program Update

Michael “Jethro” Jacobson, Col, USAF, MC, SFS
RAM-FM Program Director

This is an update from an article published in the fall 2014 FlightLines.

On June 30, 2016, Majors Peter Baldwin and Clifton Nowell became the first graduates of the USAF RAM-FM program. Their diplomas not only marked the completion of 5 years of intense training, but also the culmination of years of dialogue, effort, and collaboration on the part of many within the aerospace medicine community, particularly numerous “blue ribbon panels” tasked with identifying future training needs. Both Drs. Baldwin and Nowell successfully sat for their aerospace and family medicine board examinations, thus earning double board certification, in addition to their master’s degrees.

Known as the RAM-FM, the program represents the next “generation” of USAFSAM’s “operational medicine” training, in which participants sequentially complete USAFSAM’s Residency in Aerospace Medicine (RAM) followed by (or preceded by — see below) Wright State University’s Family Medicine (FM) residency. Its purpose is to recruit and train general medical officer (GMO) flight surgeons who have a passion for operational medicine, but desire the clinical proficiency of a family medicine residency. The RAM-FM accepts up to three qualified applicants per year via the Joint Services Graduate Medical Education Selection Board.

Recently, the American College of Graduate Medical Education granted the RAM program director authority to issue advanced credit for prior residency-trained applicants. To take advantage of this, the order of the RAM-FM training was reversed, so that the family medicine residency is now accomplished first, followed by the MPH year, then the RAM aerospace medicine practicum year. The WSU FM program may also grant partial advanced credit for prior internship. This credit is awarded under the guidance of the American Board of Family Medicine and is at the discretion of the program directors. An average of 4 to 6 months credit is generally expected, but is case-dependent. One of our goals is that the program will attract qualified applicants who, by earning 6 months of advanced credit toward their family medicine residency, can also, by working collaboratively with the WSU Master of Public Health program, complete both within the first 3 years, then finish with the RAM practicum year. Thus, both residencies and the MPH would be completed in only 4 years!

The WSU Family Medicine Residency (http://www.med.wright.edu/fm/res) offers an outstanding, community-based program. It provides residents with practical, hands-on patient care treating a diverse population with high disease acuity in an urban setting. As there are no other residencies embedded at Dayton’s 350-bed Good Samaritan Hospital, senior residents “run” their own inpatient service under the watchful mentorship of dedicated, full-time faculty. As a result, WSU FM residents achieve a level of clinical expertise that is often lacking in many other training programs.

While at Wright State, RAM-FM residents are attached to USAFSAM, remain on flying status, and stay connected with the Air Force community through flying with their C-17 unit, attending RAM journal clubs and social events, spending time in the flight medicine clinic, and completing required and elective rotations at the base. For example, residents have completed cardiology and psychiatry rotations at USAFSAM’s Aeromedical Consultation Service, as well as courses in SGP, Global Medicine, Occupational Medicine, Air Force Inspection Agency, among other operationally relevant courses. All of the coursework is designed to ensure that graduates are ready for responsibilities at their next Air Force assignment.

The Air Force RAM is the largest preventive medicine residency in the U.S. and has been producing graduates in support of Air Force operations since 1951. The aerospace medicine practicum years offer unparalleled experiences, with aerospace medicine rotations at Wright-Patterson, Tinker, Keesler, the Aeromedical Consultation Service, Mayo Clinic, NASA, the FAA, occupational medicine at Hill AFB, hyperbaric medicine, and a myriad of exceptional elective opportunities. Residents are trained to fly, including soloing a private aircraft, and are on active flying status, attached to a local C-17 unit (except for the master’s program year).

Graduating residents will be vectored to traditional RAM assignments, particularly Chief, Aerospace Medicine (SGP), although efforts will be made to utilize their recently acquired skill set. Countless other clinical and non-clinical assignments are available as well.

The RAM-FM program is open to active duty GMO Air Force flight surgeons who have completed at least 2 years in flight medicine (at time of entry into the RAM). It is designed to vector interested Air Force active duty flight surgeons into a career path that will produce the best combined expertise in operational and clinical medicine. If you have questions about this outstanding and competitive program, please feel free to contact Colonel Michael Jacobson, RAM-FM Program Director, michael.jacobson.6@us.af.mil, or (937) 938-2782 (DSN 798-2782).

PS: For those who do not have operational experience (e.g., HPSP, USUHS students, other GMOs, etc.), there is also the Operational Family Medicine Residency program, in which applicants match to their Air Force family medicine residency of their choice, follow an operational “Area of Concentration” through residency, then go to flight/operational medicine assignments following graduation.
In 2013 I had the distinct honor of deploying to Afghanistan as a member of the U.S. Air Force Tactical Critical Care Evacuation Team (TCCET). The mission, experiences, and opportunities to serve those most critically injured/ill will always be a unique high point in my medical career. This is not only because of the service members, allies, and civilians we served, but in how this mission required the integration of aerospace medicine principles along with trauma/critical care. While I will not hesitate to state that my training as an emergency medicine and critical care physician is an absolute foundation, the concepts and principles that I learned as a flight surgeon bonded all of the training together in the en route critical care setting in a very meaningful way. For any flight surgeon with the appropriate skill set, the TCCET mission is an amazing professional and personal opportunity to continue to provide full spectrum readiness and better care regardless of environment.

During OIF/OEF, healthcare advances brought surgical resuscitation further forward on the battlefield. This advanced forward surgical capability created a critical care skills gap within the en route chain of care, particularly during unregulated patient movement that occurred between Role 2 to Role 3. A significant number of these patients were post-damage control surgery and, with the added stress of the flight environment, required more aggressive resuscitation, management, and monitoring that were beyond the scope of traditional pre-hospital providers. This led to the U.S. Army fielding the En Route Critical Care Nurses in 2010 with the arrival of USAF TCCET in 2011.

The USAF TCCET comprises an emergency medicine physician or critical care physician, a certified nurse anesthetist, and advanced nurse practitioner/emergency department or ICU nurse. While initially trained as a team, like a Critical Care Air Transport Team (CCATT), TCCETs were almost always universally split up and embedded within various U.S. Army MEDEVAC units. These MEDEVAC units have dedicated aircraft and crew to perform all manner of unregulated intra-theater patient transfer from point of injury to Role 3. At this unit level, the USAF TCCET provides the most synergistic benefit to patient care by augmenting the personnel and equipment already deployed in a cohesive team effort to reduce morbidity and mortality.

En route care is a team sport, and while developing and honing our skills, we must continually prepare for the next mission and conflict. Compared to even 5 years ago, much more advanced care is provided at or closer to point of injury. Flight surgeons have long provided medical control, through the clearing and validating process, for regulated patient movement. However, just as medical advances have continued to broaden the scope of what is a “stabilized” patient, our evolving conflicts and requirements will further blur the lines between unregulated and regulated patient movement. For the critically injured or ill, we know that every link in the chain of care matters for short- and long-term survival. As purveyors of operational medicine and the most experienced clinicians on the effects of the flight environment on human physiology, flight surgeons have much to add to this growing operational challenge and should embrace it wholeheartedly.
SOF Truths and My Experience

Kevin “Moses” Hettinger, Lt Col, USAF, MC, SFS
352 SOSS/A7M Flight Commander

Having just graduated from the Residency of Aerospace Medicine, I am settling into my new assignment as the 352d Special Operations Support Squadron (SOSS)/A7M Flight Commander and 352d Special Operations Wing/SG at RAF Mildenhall. My first flight in the unit was with the 67th SOS, the Night Owls, MC-130J Commando IIs, and I was blown away with the mission profile. We started with a parachute drop of a Zodiac and 4 STS personnel off the coast of England, continued with low-levels over the water, met HH-60s, then CV-22s, for tilt-rotor air-to-air refueling, and finally set up a forward area refueling point (FARP) for the CV-22 (Figure 1). Wow! I was duly impressed with the skill of all involved, was reminded of something referred to as “SOF Truths,” and reflected on my AFSOC experience over the years.

Humans are more important than hardware. There are loads of expensive, high-tech weaponry, gadgetry, and aircraft throughout the Air Force, but especially in Special Operations. However, it’s not uncommon to hear the SOF operator referred to as “the weapon system.” I have been impressed with this emphasis on the importance of the SOF person. Through the core of my medical school training experience, I sincerely wanted to be a Family Physician. However, medicine was changing, and the physician/patient relationship was becoming more about productivity, throughput, and coding than having a relationship at all. I became less sure of my medical course, and after HPSP and a transitional internship, I found myself at Hurlburt Field as a GMO Flight Surgeon assigned to Air Force Special Operations. I was attached to the 16 SOS, AC-130H Spectre Gunships for primary flying, and man, that was awesome! But what was even cooler . . . I found out that to practice medicine in AFSOC, it was the human and the relationship that were most important. The relationship I developed with the commander set the tone in the unit for preventive practices, medical readiness, and inclusion of medical resources into operational conversations. The relationship I developed with the operators’ family members not only broadened my clinical skills, but strengthened the trust I had with the operators and gave them confidence when they were deployed that their family was in good hands. Lastly, the relationship I developed with the operators provided insights into issues that were otherwise hidden and allowed me to care for them in a clinic, tent, hotel room, aircraft, or wherever the mission sent us. It was within this framework that I found my Family Practice.

Quality is better than quantity and SOF cannot be mass produced. You can’t mass produce a mindset, nor can you always create one. Hence, selection is critical. You can’t send a doc or medic forward to support the USA 1-10 SFG without the proper training and operational vision. AFSOC physicians spend up to 13 weeks in a training pipeline that includes SOF specific and standardized medical and tactical combat skills. Tactical field skills courses include Land Navigation and Field Skills Training, SERE, Communication and Small Unit Tactics, and Vehicle Convoy/Defensive Driving (Figure 2). The AFSOC Casualty Evacuation (CASEVAC) course prepares medics for patient care in Special Operations aircraft using high-fidelity patient simulators within a controlled environment: low/no light, extreme temperatures, and battle noise. These skills are regularly exercised to maintain currency and improve interoperability with other teams.

Figure 1. FARP with CV-22 receiving from MC-130J. (Photo by author)

Figure 2. AFSOC medics complete tactical combat skills training. (Photo from AFSOC briefing to Aerospace Medicine Primary course)
Competent SOF cannot be created after emergencies occur. CASEVAC is a principal mission capability for the AFSOC medic. Home-station and TDY exercises frequently incorporate CASEVAC training scenarios. In 2005, our SOFME (SOF Medical Element) supported a large exercise in Algeria. Noticing the onsite Algerian Mi-17, our medics and PJs decided to practice litter loading and patient care in the Mi-17 (Figure 3). Shortly thereafter, while en route to the air-drop DZ, one of our Humvees rolled over, in part due to poor road conditions, resulting in an injured USAF troop and concern for a C-spine injury. On-scene care was initiated by the USA 18-Delta who requested CASEVAC due to the poor road conditions. Because of our training, the use of the Algerian Mi-17 for the CASEVAC mission was performed without difficulty (Figure 4). Competent SOF also means effective interoperability with our sister services medics and operators as well as those of our partner nations.

Most Special Operations require non-SOF support. I believe this point to be as important as any of those above. Common terms heard in SOF planning are “joint,” “interoperability,” “building partners,” etc. These emphasize the importance of relationships. In the medical arena, SOF medicine cannot be successful without the support of the home station medical group, in particular, the flight surgeon’s office and logistics.

These “SOF Truths,” in actuality, could be applied to many of our units and our practice of flight medicine. However, I’ve seen them put into practice, daily, at home station and in very remote corners of this world as a flight surgeon privileged to serve in Air Force Special Operations.

Flight Surgeon Oath

I accept the sacred charge to assist in the healing of the mind as well as of the body.

I will at all times remember my responsibility as a pioneer in the new and important field of aviation medicine.

I will bear in mind that my studies are unending; my efforts ceaseless; that in the understanding and performance of my daily tasks may lie the future usefulness of countless airmen whose training has been difficult and whose value is immeasurable.

My obligation as a physician is to practice the medical art with uprightness and honor; my pledge as a soldier is devoted to Duty, Honor, Country.

I will be ingenious. I will find cures where there are none; I will call upon all the knowledge and skill at my command. I will be resourceful; I will, in the face of the direst emergency, strive to do the impossible.

What I learn by my experiences may influence the world, not only of today, but the air world of tomorrow which belongs to aviation. What I learn and practice may turn the tide of battle.

I may send back to a peacetime world the future leaders of this country.

I will regard disease as the enemy; I will combat fatigue and discouragement as foes; I will keep the faith of the men entrusted in my care; I will keep the faith with the country which has singled me out, and with my God.

I do solemnly swear these things by the heavens in which men fly.
Most, if not all of us, can say we have had our hands in someone’s open chest, spent time in beautiful overseas locations, or have flown in fighter jets. All incredible events that I was fortunate enough to experience, but the story I love to tell the most is about my flight with the U-2.

While working as a flight surgeon at Aviano AB Italy, I experienced some of the greatest joys and best opportunities the Air Force has to offer: the travel, the food, and the flights on fighter jets. Any assignment after that would be a hard act to follow, so PCS’ing to Beale was a challenge for me and my family. Most flight surgeons assigned to Beale can expect to have a 45-minute to an hour commute, 6-month-long deployments, and frequent TDYs—not that TDYs to Hawaii or England were something to complain about. Beale AFB in northern California was introduced as the base in the donut hole—a couple of hours from San Francisco, Napa, the beach, and Tahoe, but nothing near to the base. Thus, it was difficult for me to imagine breathtaking experiences at this base seemingly in the middle of nowhere. But Beale is home to the RQ-4, T-38, and the mighty MC-12. (I was with the 489th SME, which flew the beautiful Super King Air; unfortunately, none remain in AD squadrons.) Bomb builders, DGS, and a Pave PAWS are also an important part of Beale’s makeup. When you get the clearances, you may see the best the AF has to offer during a shop visit. Finally, Beale is the only location where a flight surgeon is offered a high-altitude U-2 flight.

A significant amount of training was needed to prepare for this flight. The SERE instructors were excellent, as were representatives from the physiological support squadron—big enough to warrant their own squadron. As important and thorough as the preparation was, memories of the prep work pale in comparison to the actual high-altitude flight. I do remember that the suit was not as heavy as I imagined it would be. I felt a tremendous amount of respect for and faith in the suit and its ability to perform its job when the time came. I felt that same deep respect for the pilots who had to perform their duties in these suits once I experienced firsthand how difficult it was to reach the ejection seat pins and the green apple of the oxygen tank in that suit.

Because this is a once-in-a-lifetime opportunity, I brought my family with me to share in the experience. Upon arrival I was handed my cotton undergarments that are worn under the full-pressure suit. These are the run-of-the-mill long johns with a hole cut out of the front to allow for a urine collection device. This hole was appropriately covered with a Velcro patch to cover all body parts. I came out in my long johns to a crowd of 10 people, strapped on an aviators mask, and jumped on the elliptical to begin my O2 pre-breathe. I flew back in 2012, when the standard was to perform an exercise pre-breathe with 100% O2. Once I reached the required elliptical time, I suited up and anxiously waited for my pilot to complete his process. His helmet needed some maintenance, so I distracted myself by watching TV. The sound of my breathing inside the helmet was the only thing I could hear. Because of my pilot’s delay, the technicians connected the communication to my wife. We talked about how exciting this was, and she made a concerned comment about my Darth Vader-like breathing. She asked if it was difficult to breathe. Ordinarily I’m calm, but in that moment I felt my blood vessels dilate and a cold sweat began. The thought of gasping for air in my pressure suit was all I could think of. I am not one to get claustrophobic, but I felt trapped. I remember seeing my arm slowly rise to get anyone’s attention. I meant to call it off; I had a strong desire to remove the helmet and get outside. My wife apparently saw this shift and told me to relax and take some deep breaths. With each breath, I was able to rationally think about the risks and rewards of this high-altitude flight, but I mainly focused on the fact that this was my one opportunity. I calmed down as quickly as I got flustered. I spent the rest of my waiting time showing my wife my excellent robot arm movements (the pressure suit is sewn in a specific pattern that allows for sharp elbow and wrist movements, the perfect points for robot dancing).

The many details of the work to make this flight possible and to prepare me to be a part of it were familiar and yet amazing. Takeoff was surprisingly smooth and impressive. It felt as though we shot straight up at a 90-degree angle. Even taking off in a Viper with afterburners feels “normal,” and by that I mean that when you take off in a jet, you expect to see the world beneath you get smaller. In the U-2 it did not feel normal. The ground seemed to be getting smaller too quickly. It was a jarring introduction into an extraordinary flight.

As we ascended I wanted to reproduce the routine actions of U-2 pilots. I scratched my nose with a straw. I heated up and ate some tube food. I urinated in my urine collection device, which was incredibly hard to do correctly. You needed to find a balance to overcome the pressure of the suit but not overflow the device. I tried pressing small buttons with the bulky gloves and failed. My attempts at all of these were comical. It gave me an appreciation of the difficulty the pilots had to overcome to perform simple tasks.

As we ascended to altitude, we flew above San Francisco. Like aliens in a high-budget film, we hit all the West Coast landmarks. The Golden Gate Bridge looked like a miniature snow globe, with rolling fog partially concealing it. By Los Angeles we had already hit peak altitude and the heart of the city was the size of a stamp. By no means am I a philosophical man, but I was in awe of what I saw. In that tiny area people’s lives were changing, and their entire world was what was happening in front of them. From our view, they were just one little section of Earth. It made me think that my problems, no matter the importance I gave them, were just a small part of this world. We hear that all the time, but there is something about the actual process of seeing the world from this altitude.

The flight was only two and a half hours, and it flew by. We landed with the chase car behind us, but I didn’t get a good view of it until we stopped. You really can’t see the ground when you are landing the U-2. I also didn’t get to experience the Dragon portion of the flight. As we reached low altitudes the aircraft was a smooth as could be. I attribute that to the expertise of the pilot and the beautiful weather Northern California gave us that day.

It is funny. This was the best flight I have ever taken, and as hard as I try to remember all of it, I cannot. I don’t remember looking up. I didn’t see any stars. I don’t remember the majority of the conversation with my pilot, but I remember talking about family. I do remember looking out to the horizon and thinking how lucky I was to experience this.
flight mED: C1 or See None?

Paul “Trauma” DeFlorio, Lt Col, USAF, MC, FS
RAM-17

Emergency medicine and aerospace medicine are two very distinct specialties. But there can be some overlap; this is the first of a series of articles that will explore what happens when they do. Lt Col Paul DeFlorio—an EM-trained flight surgeon in his last year of the RAM—describes some cases he’s encountered where the clinic starts to feel more like an ED.

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One otherwise unremarkable morning in clinic at RAF Lakenheath, a young air traffic controller came in with a chief complaint of a sore neck. Reviewing his intake sheet, which showed normal vitals and a pain score of 5/10, it seemed like this would be a pretty routine appointment. I walked in with a nice hot cup of coffee, introduced myself, and asked how I could help.

The young staff sergeant said that his neck was still bothering him 2 days after he crashed his motorcycle. I cocked an eyebrow. As an emergency physician and a motorcycle rider, I knew from both perspectives that while it’s easy to walk away from a car crash unscathed, it’s pretty rare to brush off a motorcycle accident. But this guy looked fine. I scanned his face, neck, and hands; there wasn’t a mark on him.

“Tell me what happened.”

“Well, doc, I was racing my motorcycle when I low-sided on a turn and slid off the track. I think I turf-surfed for about 50 feet, and then I sort of piled into a stack of tires head first.”

I put my coffee down. That sounded high energy.

“I assume you were wearing a helmet and leathers. How fast where you going?” I asked, glancing down at the sheet to confirm his vitals were normal.

“I don't know; we tape over the speedo so we don’t look down at it while racing.” I took this to mean that he was riding the bike so fast that even a moment’s inattention would result in a wreck. I reached for my stethoscope and got some more history.

The wreck had impressed the track staff enough to call 999—the UK equivalent of 911. An ambulance arrived, and EMS put him in spinal precautions and transported him to Accident and Emergency. There they had done . . . almost nothing as far as I could tell. I pinged a series of questions at the sergeant about imaging, the mainstay in blunt trauma workups. They might have shot an x-ray, but no CTs were performed, at least he didn’t recall a trip through a big circular scanner. Not really believing this, I backed up.

“Did they cut your clothes off?” This doesn't sound very medical, but it is a very good marker for being taken seriously when you’re in the ED, and not something most patients are apt to forget. When we start slicing your clothes off with trauma shears, it’s because we think you might be really sick or injured. I wanted to know if they had taken him seriously.

“Oh, yeah. And I told them. Hurts worse now,” he added.

I ran through a rapid but thorough trauma review of systems, focusing on neurological symptoms—nothing. On exam, he had diffuse pain in the midline and paraspinal areas of the upper neck, with some muscular tensing as I examined him. His general exam, and a thorough neurological check, were normal.

“Well,” I offered, “the Brits have been doing high-speed medicine for a long time. I’m sure you’re fine—just a wrenched neck.” I thought about offering follow-up in a day or two, but decided against it. “Let’s take some pictures, just in case.”

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I ordered a CT of the head and c-spine; the mechanism sounded scary, and he had ongoing symptoms. Off he went. Throughout the rest of the clinic, I found myself returning to his story, an ongoing worry that perhaps I should have heeded.

Sure enough, at the end of the day I got a call from the radiologist, a buddy of mine. “Paul, it’s Jim. What’s the story with this c-spine patient?” An inquisitive radiologist rarely bodes well. I told him about the mechanism and presentation. “Is he in the ED or the ICU?” Jim asked. Now I was getting plenty nervous. “No, I sent him home—what do you see?”

“Paul, he has a Jefferson fracture!” I just about dropped the phone at that point. “His first cervical vertebra is cracked in three pieces—it looks like a Mercedes Benz hood ornament.” I pulled up the images. Sure enough, the ring of C1 that surrounded the very beginning of the spinal cord had sustained enough axial loading to burst into three chunks. While he had gotten through the weekend without problems, it was a potentially unstable fracture. Stunned that I had nearly dismissed the patient to an uncertain neurological fate, I called him immediately.

“You say I broke my neck?” he asked incredulously.

“Yes. Can your wife drive you back to the med group?” I asked sheepishly. I reminded him to avoid turning his neck and have his wife drive slowly.

“Should I come back to Flight Med?” he asked.

“Yeah, we might have started this one in Flight Med, but let’s finish in the ED,” I advised him. “I’ll see you there shortly. We’ll get you some more imaging and I’ll call in a spine surgeon.” ♠

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RAM XVIII Introduction

M. Bradley Brough, Maj, USAF, MC, FS
RAM XVIII

June 2016 found 12 new RAMs wandering the halls of the U.S. Air Force School of Aerospace Medicine. These baby RAMs come from all walks of life, with varying levels of experience and some with more gray hair than others. Starting this year, the 2-year RAM option was reinstated for physicians previously board-certified in another specialty, leading to a RAM XVIIB class. This adjustment has led to a significant change in the RAM curriculum layout (which will be discussed in a later FlightLines edition).

The RAM XVIIB and XVIII class comprises 12 flight surgeons, 11 of whom have prior board certification. The one general medical officer will continue on to Family Medicine once he completes the RAM. With our class patch on order and call-signs accomplished, I officially introduce everyone to RAM Class XVIIB and XVIII.

### RAM XVIIB

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<th>Prior Duty Station</th>
<th>MPH/MS</th>
<th>Call Sign</th>
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<td>Lt Col Eric Chumbley MD</td>
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<td>Kingsley Field, OR</td>
<td>MS – Wright St</td>
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<td>Lt Col Cindy Graessle-Harris MD</td>
<td>MD, Emergency Medicine</td>
<td>Luke AFB, AZ</td>
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### RAM XVIII

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