Words from the Wise

President’s Column

Cheryl “SKID” Lowry, Col, USAF, MC, SFS
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Flight Surgeons

Operational Medicine

You may have noticed that our theme in this edition is operational aerospace medicine. When many people think of military medicine, they think of a military primary care clinic or hospital on a military installation; however, military aviation medicine is deeply rooted in support to the operational mission. Early on as military units recognized the benefits of using hot air balloons, Father Jose de Acosta was the first to notice and document the symptoms we now know as hypoxia. Although he was a priest (not a physician), his work paved the way for Paul Bert, the “Father of Aviation Medicine,” and other physicians as they studied physiologic effects of high-altitude flight. As aviation turned from balloon to aircraft, pioneers such as Theodore Lyster researched and established medical standards for military aircrew. Dr. Lyster was also among the first to focus on keeping pilots flying by developing rapport and earning their trust. Flight medicine had begun.

The U.S. military departments soon developed schools of aviation medicine to train operational flight surgeons. These early flight docs included Louis Bauer (helped establish the Army School of Aviation Medicine and civil aviation standards), John Slapp (deemed “fastest man on Earth” due to his acceleration/deceleration research), Harry Armstrong (director of the U.S. Aeromedical Research Lab, researched and developed aircrew protective equipment), and Malcolm Grow (first Surgeon General of the U.S. Air Force, founded the Aeromedical Lab at Wright-Patterson, known for his development of multiple aircrew protective measures and unique psychiatric support for Airmen returning from combat).

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These giants of aviation medicine have many more accomplishments and much more colorful stories than I can discuss in a short article. Their creativity and dedication provided the framework of flight surgeon support to the operational mission. All of the articles in this edition are by flight docs who began their “typical” day and ended up thinking on their feet in situations they had not anticipated. And, despite their different ranks and backgrounds, they all protected their crews and preserved the mission.

Flight surgeons today face a multitude of challenges: space and sub-orbital operations, development of advanced life support systems in 5th generation fighters, emergence of new diseases and new medications, re-emergence of chemical weapons on the battlefield, and more. Even Congress recognizes our contribution to readiness – the National Defense Authorization Act (NDAA) of 2017, section 725, mentions Aerospace Medicine’s contribution to readiness and operational support to the mission. The Military Health System will be changing significantly as we implement NDAA 2017. What will not change is the requirement for good, competent, flexible operational medics to support a constantly evolving mission, at home and deployed. YOU – today’s Flight Surgeons – are critical to sustaining the operational aspects of military medicine. YOU are our future! Figure it out…do the right thing…don’t (mess) it up. ♠

From the Editor

Brad “Candyman” Brough, Lt Col, USAF, MC, FS
Centennial RAM (XVIII)

Welcome to the latest issue of FlightLines! As always happens with summer, a change in editorial staff occurs. Thanks to VADER McLaughlin who did a fantastic job running FlightLines this past year!

As a staff, we decided to dedicate this issue to the operational flight surgeon. You are what makes us great! You are medicine’s “tip of the spear.” Although often pulled between two opposing forces – Ops & MDG – your dedication to your team and medicine is the whole reason we are here. In this issue, we have “so there I was” stories from boots-on-ground flight docs as well as a recent routine helo ride turned aircraft mishap recovery. Although stressful during the event, the best part (and stories) of being an operational flight surgeon occurs when using our craniums to think outside the box. You’ll find that in these stories.

We thank you for reading and hope you enjoy the articles for this issue, and we are always looking for more! If you have a story to share, please write it up and pass it along.

Keep ‘em flying! ♠

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.

Call for Patch Design

Attention artists! SoUSAFFS is looking for a patch and coin design. If you have an idea that captures the spirit of SoUSAFFS, please send your draft design or idea to VADER (christopher.mclaughlin.11@us.af.mil) and Candyman (michael.brough.1@us.af.mil). Drafts will be evaluated by the SoUSAFFS Board of Governors. We are looking forward to your submissions.

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.
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.
The summer crunch is upon us and now is the time to recruit your fellow peers for next summer! Please help to get these potential flight surgeons in contact with me early. With your help, we can get their IFC IIIs completed and get them to the Aerospace Medicine Primary (AMP) this fall and next spring. For most, we can waive the requirement of AMP 101 since they have already been working within AFMS. However, if they are on the fence and haven’t been to AMP 101, no IFC II is required to attend. Attendance may help push them over to the “dark side” (it’s centrally funded and is no cost to your facility).

Since we now have opportunities for GMOs and students coming out of training to go directly into a residency (see below) and graduate into an operational assignment, we need your help spreading the word! Our goal is to create an operational pipeline, bridge future summer gaps, which we have all had to endure during June-August, while maximizing residency training for all of our flight surgeons early on in their careers, giving them even more options for future assignments. Here is the information on our new Operational Medicine GME Programs. The AFMS has approved an operational medicine track to offer several potential avenues toward accomplishing training in family, emergency, or internal medicine.

**Family Medicine-Flight Medicine (Operational Family Medicine Residency – OEM):** The Family Medicine-Flight Medicine program is designed to recruit GMOs and medical students who want to combine operational medicine with the clinical training of family medicine but do not prefer (or are not yet eligible for) the Residency in Aerospace Medicine (RAM). Applicants will compete with other family medicine residents for the program of their choice at one of the five active duty Air Force family medicine residencies (with *CONCURRENT active duty service commitment [ADSC]) and one position at Ohio State University (i.e., active duty, CIVILIAN SPONSORED with a *CONSECUTIVE ADSC). During the second and third years, elective time will be partially devoted to preparing for Air Force operations (i.e., an operational medicine “area of concentration”) through attendance at Air Force clinical rotations and/or courses such as the AMP, SGP, Global Medicine, Occupational Medicine courses, etc. Graduates will be awarded the 48R AFSC and vectored to flight medicine assignments.

**Emergency Medicine-Flight Medicine (Operational Emergency Medicine Residency – OEM):** The Emergency Medicine-Flight Medicine program is designed to recruit GMOs and medical students interested in operational medicine combined with the clinical training of an emergency medicine residency. These are candidates who do not prefer or are not yet eligible for the RAM tracks (see below). Applicants will compete with others applying for USAF emergency medicine training and designate the CIVILIAN training program(s) of choice (collaborative relationships placing OEM residents at Ohio State University, Cincinnati, Mercy St. Vincent (Toledo), St. Louis, Einstein (Philadelphia), Mayo Clinic (Rochester, MN), and VCU (Richmond) have already been coordinated). During their training, residents will be in CIVILIAN SPONSORED status, on active duty with funding by the USAF, assigned to USAFSAM, and accruing a *CONSECUTIVE ADSC but trained in emergency medicine at their respective program to which they match. During the second and third years, elective time will be partially devoted to preparing for Air Force operations through attendance at Air Force clinical rotations (e.g., flight medicine) and/or courses, as noted above. Graduates will be awarded the 48R AFSC and vectored to flight medicine assignments requiring an emergency medicine background.

**Internal Medicine-Flight Medicine (Operational Internal Medicine Residency – OIM):** AFMS is offering one training position at Ohio State University in internal medicine. Applicants will compete with others applying for USAF internal medicine training and designate USAFSAM-Ohio State (CIVILIAN SPONSORED – *CONCURRENT ADSC) as their training program of choice. During the second and third years, elective time will be partially devoted to preparing for Air Force operations (i.e., an operational medicine “area of concentration”) through attendance at Air Force clinical rotations and/or courses, as noted above. Graduates will be awarded the 48R AFSC and vectored to flight medicine assignments following their training.

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For those who have already served or are serving a tour in flight or operational medicine, AFMS offers the following GME options:

**FM-RAM (double-boarded in Family and Aerospace Medicine, with an MPH in 4-5 years!):** The FM-RAM 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 this training.

The FM-RAM program consists of the following:

1. Complete a family medicine residency with Wright State University’s (WSU) Boonshoft School of Medicine. This is a 3-year residency, for which credit is anticipated for at least part of the internship year (R1) that you have already completed. Note: If 6 months of advance credit is awarded and the resident begins limited MPH work during R2 and R3, the entire training path can be completed in 4 years (vs. 5).

The WSU family medicine residency [http://www.med.wright.edu/fm/res](http://www.med.wright.edu/fm/res) is a community-based program that provides residents a diverse patient population with high disease acuity in an urban setting. There are no other residencies embedded at Dayton’s Level II Good Samaritan Hospital, and senior residents “run” many of the 550-bed hospital’s services under the watchful mentorship of dedicated, full-time faculty.
2. Complete a 1-year Master of Public Health (MPH) or Master of Science in Aerospace Medicine at WSU (this is considered the first year of the RAM).

WSU’s Center for Global Health Systems, Management and Policy [http://www.med.wright.edu/mph](http://www.med.wright.edu/mph) offers outstanding MPH programs with concentrations available in Global Health, Health Promotion and Education, Public Health Management, or Emergency Preparedness. Core requirements offered leading to ABPM board certification include epidemiology, biostatistics, health services administration, environmental health, and social and behavioral determinants of health.

3. Complete the Aerospace Medicine practicum year at USAFSAM (USAF School of Aerospace Medicine).

The USAF RAM program is the largest preventive medicine residency in the United States. It has been producing graduates in support of AF operations since 1951. The practicum portion offers unparalleled experiences, with potential rotations at the Aeromedical Consultation Service, Mayo Clinic, NASA, and the FAA. There are additional training opportunities at occupational medicine sites within the AF, hyperbaric medicine, and a myriad of elective opportunities tailored to your areas of interest. You will be trained to fly, including soloing a private aircraft, and remain on active flying status with a local C-17 unit during your training year(s).

The FM-RAM is designed to vector interested AF active duty flight surgeons into a career path that will produce combined expertise in operational and clinical medicine. Ultimately, you will secure board certification in two specialties as well as a masters-level graduate degree, both of which offer significant career opportunities inside and outside of military medicine. You will be awarded the 48A AFSC upon graduation and vectored to a RAM assignment such as the Chief of Aerospace Medicine (SGP) and Squadron Command, although countless other assignments are available to you as well.

Residency in Aerospace Medicine: This option requires at least 2 years of flight medicine experience by the start date of the RAM, which is described above under the FM-RAM. Accepted applicants may choose any approved 1-year MPH, MOH, or equivalent degree at multiple institutions. If applicants already have an equivalent degree, they may compete for the 1-year RAM practicum.

If you are interested in exploring any of these career options in operational medicine, please contact 711HPW.FEEG. operationalmedicine@us.af.mil or patricia.a.macsparran.mil@mail.mil.

*An ADSC is incurred when the USAF provides Graduate Medical Education training. Generally (but not always), the ADSC is “a year of ADSC for each year of training.” A CONCURRENT ADSC means the ADSC is served concurrently with other ADSC, such as might have been incurred through the ROTC, HPSP or USUHS programs. A CONSECUTIVE ADSC means the ADSC from the training program will be served after (i.e., in addition to) completing other previously accrued ADSCs. For either commitment, time is earned toward rank and retirement unlike a civilian deferred program.

As a reminder, please use this link when looking for all things flight medicine on the Kx. Unlike the other links, which change with each update to policy, MSD, etc., this one remains constant:


Continue to care for your patients, your mission, your family, and yourself! We all need you to be successful and to succeed! 🚀
What?? Why is he still hyperkalemic?

Hafez “Timex” Nasr, Lt Col, USAF, MC, FS
Al-Udeid AB, Qatar

So there I was, minding my own business, when a young, healthy 25-year-old African-American male walked in to my Flight Med Clinic complaining of flank pain, myalgias, and dark urine. He had arrived in theater about 2 weeks prior to presentation and admitted to a heavy workout a couple days earlier with symptoms beginning about 24 hours after completion. He initially thought he was sore from his “hard core workout,” but symptoms seemed to be worsening. He denied any previous history of similar problems or issues. His past medical history was unremarkable and he vehemently denied using pre-workout/supplements. He denied smoking and alcohol and worked in POL. His review of symptoms was negative (other than his presenting symptoms) and he denied any recent illness. His vital signs were normal and his physical exam was unremarkable other than mild flank discomfort with palpation. Having seen rhabdomyolysis and kidney stones many times, these were at the top of my differential.

Urinalysis demonstrated a light brown color showing large blood and protein but otherwise normal. Blood testing showed a myoglobin level of 500 (normal <107) with a CK-MB of 10.3 (normal <4.3). Potassium was elevated at 6.1 but all other labs were normal (Na+ 138, Ca++ 8.6, BUN 10, Cr of 1.1). Diagnosis – rhabdomyolysis. Unfortunately, our downrange lab cannot measure total creatine kinase (CK), so we were required to follow his CK-MB. Initial EKG was normal without any T wave peaking noted.

Rhabdomyolysis results from muscle necrosis and the release of intracellular muscle constituents into the circulation. The severity of illness ranges from asymptomatic elevations in serum muscle enzymes to life-threatening disease associated with extreme enzyme elevations, electrolyte imbalances, and acute kidney injury. It is clinically characterized by myalgias, red to brown urine due to myoglobinuria, and elevated serum muscle enzymes (such as CK). Normally, the serum CK reaches its max within 24-72 hours, and a decline begins to be seen within 3-5 days. In individuals where CK does not decline as one would expect, continued muscle injury or the development of a compartment syndrome may be present.

We tanked our young Airman up with several liters of IV fluids with normalization of urine color. BMP continued to be normal with the exception of potassium, which continued to hover between 6 and 7. Serial EKGs remained normal and there was never any T wave peaking. Of note, there was no hemolysis, and checking plasma potassium vs. serum potassium did not change the results (pseudohyperkalemia was ruled out). At this time, we started to put our craniums together to figure out why his potassium was still elevated. With further research, we discovered that our lab machine does not measure potassium directly, but calculates it using a pyruvate kinase to lactate dehydrogenase assay. The product literature warns about falsely elevated potassium levels in cases of extreme muscle trauma. This led us to check the potassium levels with our local i-STAT machine, and the results were normal at 3.5.

This deployed case highlights the importance of questioning lab results in the correct clinical context. Our machine is the Piccolo blood chemistry analyzer, and it is our understanding that other locations in theater also use the same equipment. So, next time you start to scratch your nugget about the validity of your lab test, consider reading about your lab equipment. Timex out!
Always Protect the C-Spine

Jesse Mix, Capt, USAF, MC, FS
48 RQS

I currently serve as the flight surgeon at a small base in Turkey in support of Operation Inherent Resolve. The mission of this base is to provide personnel recovery (PR) support for the Coalition’s air war against ISIS. Functionally, this means we’re on call with HH-60s, HC-130Js, and Guardian Angels (“GA,” including PJs and CROs) to quickly rescue any downed Coalition pilot.

This is my second time being here in the past year, and apart from the toll it takes on my family, I really enjoy what I do here. The base medical capabilities are limited to myself, my IDMT, and the PJs. We order meds from Germany and stock a mostly adequate pharmacy. We have a small ultrasound machine, a Lifepack monitor, but no x-ray capability. Physical exam and flexibility are the key to weathering all medical storms here.

At home station, as the 48 RQS SME at DMAFB, I have the standard squadron duties of keeping my team healthy and supporting them and their families. However, because the PJs are all paramedic-certified and are considered the premier joint special operations medical assets, I have the additional role of serving as their medical director. I teach them on “Med Mondays,” run medical exercises during their training scenarios, evaluate their medical competency, and in return, they get to practice under my license. This additional duty ends up being the most challenging and rewarding part of my practice and allows me to integrate into the team in a way that I imagine is unparalleled even in flight medicine.

One of the little details I’m always harping on when teaching them is to proactively evaluate and protect the spine, as vertebral injuries are common with ejections, and I noticed early on that for some reason, in training exercises, the PJs commonly neglect this detail. In return they jokingly complain about carrying around C-collars or SAM splints (“ounces are pounds,” as they commonly say when packing their rucks) but bring them anyways, if only because they know I’ll nail them for it in the debrief if they don’t. Little did we realize that this lesson would hit very close to home sooner rather than later.

One night my guys were out doing rappelling and hoisting exercises with the HH-60 crews. Everything was going well, as briefed. Then, as one of the senior PJs was getting hoisted up 60 feet back into the helicopter, a gust of wind blew him directly under the helicopter at the worst possible time. Before the gunner could stop the hoist, our PJ impacted his head on the underside of the HH-60. Although he was wearing a helmet, he had immediate excruciating pain in his head and neck and burning pain down both of his arms.

He shouted out in pain, still sitting in his harness at 60 feet and seeing stars. The gunner guided him away, out from under the helicopter, and back up to the door level. He couldn’t move his arms and was in terrible pain, so he was unable to help himself into the side door. One of the other PJs and the gunner grabbed him and dragged him in, calling knock-it-off. His teammates were already on the bird and immediately began to assess him. He couldn’t say what had happened, and had no memory of what the surrounding situation was. He only knew he had terrible pain in his neck and his arms. The lead PJ medic on board held his C-spine in place and quickly fashioned a SAM splint into a C-collar. He recalled later that compared to some of the patients he had treated in a helicopter previously, this was more disconcerting because he was treating his close friend, and also because his close friend, a hulking 6’7” frame and 245 pounds of muscle, was rarely seen as vulnerable in any sense of the word, and here he was writhing on the floor in pain with tears in his eyes.

Back at base, I got the radio call through the Operations Center that something had gone wrong with the hoist and they’d be back at base in 10 minutes. My IDMT and I prepped at the humble “trauma bay” we’d created at the med tent, not knowing what to expect beyond a possible head and neck injury report that was reported over the radio. As often happens when a medical emergency occurs on base, the PJs who weren’t flying flooded into the med tent to offer any help they could and to observe. But this time it was one of our own, and the tension in the air was palpable.

They arrived shortly and rushed him over to the med tent in the back of a pickup, the lead medic still holding the C-spine in case the SAM wasn’t fashioned securely enough. We rapidly assessed him and found him to be stable, but still in significant pain. After a thorough neurological exam, and noting improving mental status and diminishing arm pain, we administered oxygen and ketamine at analgesic dosing.

Things settled down from there, and I had a little more time and bandwidth to think and plan. The nearest Coalition CT scanner was in Baghdad, just over an hour’s C-130 flight away. However, at the time they had no neurosurgeon there, the nearest being at Landstuhl, Germany, a 5- to 6-hour flight away. TPMRC estimated it would take at least 8 hours to get a flight to us. Our group commander would support flying our own C-130 to Baghdad but not Germany, as it would be impossible to keep alert status if we flew that far out of the AOR. And going to the off-base Level 1 trauma center, just 5 km down the road from our med tent, was out of the question given the current threat assessment. Needless to say, in situations like this, I become acutely aware of our limited medical capabilities and relative isolation.

Despite a stable neuro exam and controlled pain, I was reticent to sit on our PJ given his mechanism of injury and the possibility of a developing TBI. Based on exam, I didn’t think he had a C-spine fracture but I couldn’t guarantee it. I chose to favor more rapid time to diagnosis and higher capability of care than to wait for transport to a hospital with a neurosurgeon. After making a few calls to Baghdad, we activated the C-130 crew and were wheels up in less than 30 minutes.

The flight was relatively uneventful; our PJ was more comfortable and was accordingly less emotional than he had been at first. We performed serial VS and neuro exams and maintained him on oxygen and with a good pain regimen. When we arrived, we were transported just off-base to the hospital in an ambulance and the ED staff was expecting him based on our calls ahead. The whole C-130 crew waited for a few hours for the CT read to decide our next move. We were all relieved to hear there were no intracranial bleeds or abnormalities, but frustrated when there was a small “possible artifact vs. fracture line” in the pedicle of C3.

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Based on the possible neck fracture, the decision was made among their hospital staff to send our PJ on to Landstuhl for neurosurgery examination and follow-up imaging. They activated TPMRC for transport and we arranged for our IDMT to accompany him to Germany. The rest of us got a ride back to the flightline and flew home.

Follow-up in Germany went well. He ended up not having a cervical fracture, and 2 weeks later he was cleared by the neurosurgeon to return to the theater. This was a big morale boost for him and the entire team, who all expected him to get sent home despite the testing results. He was able to perform his job at his previous high level, and his experience continued to guide the rest of the team as they provided PR coverage to the theater.

As I reflected on the case, I distilled lessons learned down to a few salient points: the military trauma system is designed to work in a step-wise fashion, and rapid transport to higher levels of care is one of the cornerstones of this system. While I originally doubted my choice to send him to Baghdad, I knew that my medical capabilities and training would have been quickly exceeded if he went south while we were waiting on transport to Landstuhl. And so, favoring a more timely, shorter transport to a higher level of care, despite their limitations, was the right choice for me given his current clinical picture and our capabilities. Next, developing and trusting my physical exam proved crucial to making decent choices in this case, and many other cases that have occurred on this base have reiterated this lesson over and over again. Lastly, as I no longer need to remind my PJs, always protect the C-spine.

So there I was...

Monica “Speed” Sickler, Maj, USAF, MC, FS
Spangdahlem AB, Germany

You never know what you will have to tackle when working as an operational flight surgeon. This is not a story about how I single-handedly saved a life. I am sure many of you have those stories at some point during your medical career. This is more about how many of the operational and medical “pieces” fit together, possible stumbling blocks to medical care, and being mindful to keep the mission moving forward.

My background as a family physician set me up well to overcome most challenges as an operational flight surgeon. As a physician for a highly tactical F-16 fighter squadron, you rapidly learn you have to be more than just a clinic flight doctor. While providing the best medical care, you will also play the role of diplomat and need to be open minded to flex with multiple situations.

During my first year stationed at Spangdahlem AB, Germany, our squadron deployed nine separate times! Last winter the entire squadron and maintenance support deployed to the Mediterranean for 1 month. One weekend, four pilots were traveling back from dinner when they witnessed an injured bicyclist who had just been struck by another car. All of them were trained in self-aid and buddy care and did what they could to resuscitate him with CPR. Eventually, the injured man was taken away via local ambulance, and the pilots rushed back to lodging. They found me, blood still on their bodies and clothing. They were clearly shaken by what they had just witnessed. Rightly so, they had concern about infectious disease exposure since blood came in contact with their mucous membranes.

Gathering as much history as possible, while they were grossly deconning themselves in the dorm sinks, I realized I might be up for a while. Thankfully, one of the more senior pilots took the four other pilots back to their rooms and allowed them to mentally decompress while I worked on medical management.

Our lodging was separate from my makeshift clinic, which I would have to drive to. I only had a “go-bag”! Since it was very late, one of our pilots escorted me to our operational facility and my locked meds. It’s always good practice to have a team when going off post or addressing a medical concern in uncommon surroundings.

Looking through my TDY supplies, I had one treatment of post-exposure prophylaxis (PEP). My plan was to split it up between the four pilots until I had more information or could get them a refill. Starting the pilots on this medication would DNIF them, but that was the last thing I cared about. I set out to get the best medical intel. Combat Comm had established some military servers, but they weren’t working well at that time. I was not able to look up the latest CDC recommendations, research the risk of HIV in the local population, or any other recommendations for PEP. Phone access was poor, making it difficult to call DSN or other national hotlines. Luckily, the pilot escorting me had contact numbers in his German cell-phone (with international calling plan) for some military doctors back in CONUS. After a few transferred calls, I was put in touch with a U.S. military infectious disease doctor. He was so kind to help me out on my questions and concerns. He agreed with my plan of splitting the medications between four pilots while I tried to find out the status of the injured man.

In less than 2 hours from the accident, I was distributing PEP to the four pilots. All were fast asleep, but were thankful I woke them to start the recommended regimen. Since we only had a little over a week before returning to Germany, they could obtain screening labs upon return. The other option would be to coordinate with a host nation laboratory and International SOS to get the labs. Many times I have had to coordinate medical care with the help of International SOS and the process has gone smoothly.

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The next day I briefed our commander. However, I wasn’t able to say when or if I could get them returned for flying in time for them to fly the F-16s back to Germany. Thankfully, there was a small U.S. Naval station nearby I had made contact with prior to going TDY that had a civilian liaison who would help me contact local civilian hospitals and doctors. She found out the injured man did indeed pass away. It was not policy to obtain an autopsy or labs since this man was a migrant from North Africa (no family to release the body to). No medical history could be obtained. So I would have to keep the pilots on PEP longer and DNIF’ed. I continued to work with the liaison in getting the source patient tested. There was concern that such a request may need to be approved by the host nation’s ministry of health. Without permission, the pilots would have to stay on a 28-day PEP regimen. Fortunately, a few days later I was informed by the liaison that a doctor obtained source testing on the deceased man. He stated that they didn’t typically do this, but after reviewing our concerns, he was willing to show me the results at the civilian hospital.

Thankfully, I was able to get all the pilots off of PEP after 5 days, based upon the risk level and labs. I briefed all involved on follow-up labs once returned to home station. And they all were able to safely return to flying without any significant changes to the mission.

This story just illustrates how many little issues you may have to tackle to coordinate care while on the road far from your local MTF. You have to be ready to flex, rely on others for help, and be an ambassador to host nation medical teams.

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**MUSSEL 11 – RESCUE**

**Pronounced MUSCLE ONE ONE**

**Johann “Doom” Westphall, Col, USAF, MC**

Chief Flight Surgeon

Woke up at 0500 hours – standard; coffee pressed and brewing – standard; 50 pushups, 50 sit-ups, 10 palm out chin-ups – standard; shower/shave by 0530 hours – check; dressed in “bag” with appropriate ID, tags, flight safety gear – check and standard; light breakfast, power bars stuffed in flight bag, coffee in hand, peeked in on kids still sleeping, kissed Miss Dawn hello then good bye, left for work by 0610 hours – standard. Everything was “STANDARD” this morning and I was loving every minute of it! Why? Because I was going to fly and crew one of the National Capital Regions’ (NCR) most colorful and iconic aircraft – the Bell UH-1N “Huey” – those “Blue & White copters” from the 1 Helicopter Squadron located at Joint Base Andrews, Maryland. These “whoop whoop whoop” gyro-birdies are vintage leftovers from “da Nam” and with the exception of the base frame and the “VIN” number <wink>, there is not an original bolt left on these ancient aircraft from those heady days in the jungle. And that’s what makes this ride cool, sweet, and one of a kind. After a 2-hour crew pre-mission brief and safety check, the overhead call by the AC was made from the Bridge: “MUSSEL 11 to Step” and off we went to the Beach to receive our aircraft and start our inspections and run-up procedures. My job this day was to crew and control the back compartment and to cover the right side of the aircraft with my Mark 1 eyeballs. I was the right side scanner and inflight safety officer for MUSSEL 11 and I wasn’t going to participate in any other substandard way. I had a job and a safety responsibility and I wasn’t going to let anyone down.

We initially headed southbound, only to loop around the base to head north to our designated LDZ area of operations. Today’s flight was planned around proficiency training at a rustic LDZ followed by a trip “downtown” for route familiarity. We chose to practice our approach and landing procedures at a remote site called <anonymized> the Postage Stamp. This LDZ was small and tight and required complete concentration by the pilots, crew chief, and myself. Both doors were slid open and fixed so that the crew chief and I could accurately report aircraft positions relative to trees, obstacles, and the ground. We were tethered, locked-in, and scanning all the while giving out distance and safety calls as planned. The first time we dropped into the LDZ, the tail rotor just cleared the final tree line before descending down onto a patch of grass no bigger than a postage stamp from about 300 feet. The on-ground debrief was quick, calm, and succinct: “That sucked gentlemen, We can do better.” So off we went and did it three more times before we all felt a bit more confident that we had gotten it right. The AC responded, “Good job on that last one Co. Let’s try one more from the east this time and then head downtown.” We throttled up, pulled the collective up to 70% of max, and pushed on upwards so as to establish our final entry pattern into the Postage Stamp. As we made our turn onto final, I noticed a robust smoke plume at my 3 o’clock that I reflexively associated with what I presumed to be a grass or leaf burn typical with this part of Maryland. But as I looked again at this billowing dark and growing cloud <now I was completely distracted>, that plume looked awful big for a leaf fire. “On final, on airspeed, engines/temps all green” was the call that quickly got me re-engaged with the flight. Just after that call, a steady beacon noise “tweedum, tweedum, tweedum” came over the headset via GUARD. The crew chief chimed in and stated, “Do you guys hear that noise on GUARD?” “STAND BY – ON FINAL,” granted the AC. The Co urgently followed up with “Chief, punch that off until we make it safely to the ground!” With all eyes, ears, and heads back into the standard flight regime, we landed the Postage Stamp without incidence. After a quick debrief, we pulsed MUSSEL 11 of the ground, got to flight altitude, and turned our attention to the beacon noise we had heard moments before.

AC – “MUSSEL CONTROL, MUSSEL 11.”

MC – “MUSSEL 11 GO.”

AC – “MUSSEL 11 REPORTS AN UNSCHEDULED ELT BEACON ON GUARD AND AN UNIDENTIFIED SMOKE PLUME 6 MILES NORTH OF BASE.”

MC – “MUSSEL 11 BE ADVISED THERE HAS BEEN AN AIRCRAFT INCIDENT IN THAT VACINITY. STAND BY FOR CAP INSTRUCTIONS. PUSH TWO.”

Continued on page 10
Within minutes we were instructed to CAP “safely” over the area and to observe and report back the whereabouts and condition of the downed pilot to the base Incident Command Post (ICP) via MUSSEL Control. We learned that it was an ANG F-16C jet from Joint Base Andrews, our home base, that went down and that it was reported that an ejection with chute had been observed. We immediately observed that the jet had crashed in-between a row of houses and high-powered tension lines, just missing homes and property by only a few hundred feet. The pilot, however, was not near the crash site and we had to double back along the path of the downed jet to search for him. Then, in an adjacent field, our crew chief spotted that unique and telling “orange and white” sail and sounded “CHUTE AT OUR 9 O’CLOCK, APPROXIMATELY 2 MILES.” As we approached, we observed that the pilot was standing upright, emergency phone up to his face, and several people were coming up to him from the local area presumably wanting to help. It was at this moment that I instinctively dropped my scanning duties and reverted back to my status as Flight Doc for the 1st Heli Squadron.

FS – “AC, Doc on hot-mike with a request.”
AC – “Go Doc.”

FS – “Request permission to land near downed pilot, disembark aircraft, attend to and assess downed pilot for medical emergencies associated with his ejection. If he needs no-kidding lifesaving emergency care, I can do that while waiting for the ambulance to arrive. They should be here within minutes. I’d then go with him to the hospital as his medical wingman. If, however, he has minor injuries, I want to request that we take him back in our aircraft, expeditiously, to the Andrews’s base hospital and have a positive handoff with my flight medicine colleagues. This is an Airman taking care of an Airman response to an aircraft accident and I want all of us to do this. We can and should do this!”

After an earnest eye-to-eye exchange between me and the rest of the crew, the AC made the call.

AC – “MUSSEL CONTROL – MUSSEL 11 REQUEST.”
MC – “MUSSEL 11 GO.”

As the AC described his request in some detail, it didn’t take long for the MC to respond back with the following:

MC – “MUSSEL 11, YOUR REQUEST HAS BEEN APPROVED BY ICP. YOU AND THE FLIGHT DOC ARE TO PROCEED WITH PLANNED RESCUE OPTIONS.”
AC – “COPY MC. MUSSEL 11 ON THE GO.”
MC – “MUSSEL 11 – ONE FINAL THING.”
AC – “GO MUSSEL CONTROL.”
MC – “CHANGE CALLSIGN TO MUSSEL 11 RESCUE.”
AC – “COPY, MUSSEL 11 RESCUE ON THE GO.”

Minutes later, the crew of MUSSEL 11 RESCUE “plus one” landed safely back at Andrews, confident in the knowledge that we did the right thing. Our downed F-16 pilot was emotionally rattled, but otherwise healthy enough to be airlifted from the crash scene, transported by our helicopter, and then transferred to flight medicine at the flight line, all in under 18 minutes from when we first heard the beacon. As I made the positive handoff to the on-call flight doc, our “rescue” aircraft was now spooling and shutting down for the morning. I looked at my crew – my AC, Co, and Chief – and noticed both a huge sense of relief and accomplishment. We didn’t say much – we didn’t have to. As we packed up our gear and proceeded back to the Bridge, several senior members of the squadron came out to congratulate us for a job well done. It was a team effort and we kept our comments consistent with that theme. After the handshakes and backslaps, I left the crew to unload my gear at Life Support and head back to the hospital to check in with my previous patient. On the way out, several of the younger pilots intercepted me and wanted to know how it all went down. After my “there I was” account, one young aviator responded by saying “I didn’t know flight docs could do that. What made you think the AC or the Base was going to let you do that?” I thought about that for a split second and then reflexively quipped, “I’m your Chief Flight Surgeon – and that’s what we flight surgeons do!”

So, was this day in fact a STANDARD day for a flight surgeon “flying” within the NCR? Decidedly not! But I’d like to think, and I’d stress to the “younger jets” coming up behind us “old props,” that my actions WERE STANDARD and consistent with the fine leadership and medical traditions associated with our beloved aerospace medicine profession. My final words on this matter are simple: Be courageous, do right by your patients, and always stay vigilant in your duties and responsibilities as a U.S. Air Force Flight Surgeon. Read the Flight Surgeon’s Oath – weekly – and commit to memory and action those behaviors you know you can execute on any given day. The day will come, mark my words, whether on the flight line, a community pool, or in a war zone, where you will need to act, take charge, and save lives. By doing so, you will in fact become the next iteration of MUSSEL 11 – RESCUE.

Doom Out.

In that very moment we all knew that our mission had changed from one of flight training to one of real-world mission support and possible rescue.
Graduating RAMs

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

I am honored to have been part of FlightLines for the past year. I have met flight surgeons from all around the world and gained new perspectives into aerospace medicine. Now, though, is the time to hand the reins to a new RAM. I am excited to see what Lt Col Brad “Candyman” Brough does with the publication. He is an outstanding flight surgeon and RAM, so I anticipate great things.

As for me, my fellow RAM XVIIIs and I are moving on to the next chapters of our USAF careers. The years spent at USAFSAM have been invaluable. Now we have the opportunity to apply our education to the operational world. Below is a table of our destinations. I implore you to keep an eye out for us, share your wisdom and beer, and reach out to any of us for anything you may need.

<table>
<thead>
<tr>
<th>RAM</th>
<th>Gaining Base</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lt Col Tracy “TIC TAC” Bozung</td>
<td>Moody AFB</td>
<td>23 AMDS/CC</td>
</tr>
<tr>
<td>Lt Col Paul “TRAUMA” DeFlorio</td>
<td>Dover AFB</td>
<td>436 AMDS/CC</td>
</tr>
<tr>
<td>Maj Ashley “Blue” Franz</td>
<td>Wright State University</td>
<td>Family Medicine Resident</td>
</tr>
<tr>
<td>Col Chuck “Solo” Mahakian</td>
<td>Lackland AFB</td>
<td>Chair, Dept Med Specialties</td>
</tr>
<tr>
<td>Lt Col Bryant “Thunda” Martin</td>
<td>Hurlburt Field</td>
<td>1 SOAMDS/CC</td>
</tr>
<tr>
<td>Maj Chris “VADER” McLaughlin</td>
<td>Kirtland AFB</td>
<td>377 MDG/SGP</td>
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<tr>
<td>Lt Col Michelle “MOTOR” Milner</td>
<td>Hickam AFB</td>
<td>15 AMDS/CC</td>
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<tr>
<td>Col Anthony “MAGIC” Mitchell</td>
<td>Eglin AFB</td>
<td>96 AMDS/CC</td>
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<tr>
<td>Lt Col Stefanie “PHANTOM” Nance</td>
<td>Dyess AFB</td>
<td>7 AMDS/CC</td>
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<tr>
<td>Lt Col Jaime “Hector” Rojas</td>
<td>Wright State University</td>
<td>Family Medicine Resident</td>
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<tr>
<td>Maj Andrew “Stitch” Timboe</td>
<td>Malmstrom AFB</td>
<td>341 MDG/SGP</td>
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<tr>
<td>Lt Col Eric “DEMO” Chumbley*</td>
<td>Spangdahlem Air Base</td>
<td>52 AMDS/CC</td>
</tr>
<tr>
<td>Col Cindy “SAGE” Harris-Graessle*</td>
<td>Andrews AFB</td>
<td>779 AMDS/CC</td>
</tr>
</tbody>
</table>

*RAM XVIII class.
RAM XIX Introduction

Trent Elliott, Lt Col, USAF, MC, SFS
RAM XIX

With the Master’s year quickly coming to a close, the RAM XVIIIB and RAM XIX classes are beginning to gather. Initially the RAM XIX class comprised only 7 individuals and was promptly dubbed “The Magnificent Seven” in the RAM offices. However, with the addition of Col Zhang for the next year and some others undecided on which of the two tracts they will follow, we are now “The Magnificent Seven-ish.”

It is with great pleasure that I officially introduce you to the RAM Class XVIIIB and XIX.

<table>
<thead>
<tr>
<th>Resident</th>
<th>Medical Degree/Specialty</th>
<th>Prior Duty Station</th>
<th>MPH/MS</th>
<th>Call Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM XVIIIB</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Col Jianzhong Zhang</td>
<td>MD/Nuclear Medicine</td>
<td>Tinker AFB, OK</td>
<td>MS/UCLA</td>
<td></td>
</tr>
<tr>
<td>RAM XIX</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Maj Scott Dillard</td>
<td>MD/GMO</td>
<td>MOD Boscombe Down, UK</td>
<td>MPH/Wright State</td>
<td>FAC(B)</td>
</tr>
<tr>
<td>Maj Rob Doxey</td>
<td>DO/GMO</td>
<td>Hill AFB, UT</td>
<td>MOH/Univ of Utah</td>
<td>Hero</td>
</tr>
<tr>
<td>Lt Col Trent Elliott</td>
<td>DO/Family Medicine</td>
<td>Ramstein AB, Germany</td>
<td>MPH/Wright State</td>
<td>Trouble</td>
</tr>
<tr>
<td>Lt Col Robert Holmes</td>
<td>MD/Internal Medicine Fellowship – Infectious Disease</td>
<td>Wright-Patterson AFB, OH</td>
<td>MS/Wright State</td>
<td>Sherlock</td>
</tr>
<tr>
<td>Maj Tim Netters</td>
<td>MD/GMO</td>
<td>Dyess AFB, TX</td>
<td>MPH/Wright State</td>
<td>Shrugs</td>
</tr>
<tr>
<td>Lt Col Lance Nussbaum</td>
<td>DO/GMO</td>
<td>Ramstein AB, Germany</td>
<td>MPH/Wright State</td>
<td>Doc*</td>
</tr>
<tr>
<td>Maj Paul Vu</td>
<td>MD/GMO</td>
<td>Travis AFB, CA</td>
<td>MPH/UC Davis</td>
<td>Vudu</td>
</tr>
</tbody>
</table>

*Using a generic call sign because his given name is less appropriate in a public forum.
Reflections of the AsMA Annual Scientific Meeting
30 April – 4 May 2017, Denver, CO

Ric “JUNC” Speakman, Lt Col, USAF, MC, SFS
Centennial RAM

The 88th Annual Scientific Meeting of the Aerospace Medical Association was held at the Sheraton Denver Downton Hotel. This year’s unique theme was “Opening the Doors to Aerospace Medicine.” The primary objective of AsMA’s Annual Scientific Meeting is education. This is the most visible door to walk through at each AsMA Scientific Meeting. There were over 500 presentations covering human performance, clinical medicine, travel and air transport medicine, space medicine, safety, and history. The 63rd Louis H. Bauer Lecture was given by Michael Barratt, who described his time aboard the International Space Station. The 4th Eugene Reinartz Memorial Lecture was provided by U.S. Federal Air Surgeon Michael Berry, who reviewed the impact flight surgeons have made on aviation. Finally, the 53rd Armstrong Lecturer was Dr. Kevin Fong, who highlighted the speed of exploration during the 20th century as way of thinking to look to the next door in Aerospace Medicine.

I personally have been to this scientific meeting for several years, and there are always two breakout sessions that are a must: the resident grand rounds and the RAM bowl. The clinical grand rounds feature all the residents of aerospace medicine (Army, Navy, Air Force, and the civilian programs) presenting a clinical scenario not unlike what we have seen in our own clinic and then exploring the aeromedical implications. The RAM bowl took a new format this year. Gone were the teams and multipoint bonus questions. Six residents from each program took turns answering questions against Navy, Air Force, and the University of Texas Medical Branch (UTMB). This year, UTMB answered the most questions and took home the trophy.

Perhaps the most important aspect to this conference is intangible, i.e., the conference that brings hundreds of flight surgeons together for a week. Friendships are maintained and renewed. Networking occurs. Almost every MTF is represented, and you will find senior leaders in flight medicine and the Medical Corps and AFMS General Officers throughout the annual conference.

It would be remiss for FlightLines not to highlight the achievements that were handed out at the Society of USAF Flight Surgeons’ Luncheon.

The Howard R. Unger Award is presented for the best paper written by a USAF flight surgeon and published in Aerospace Medicine and Human Performance, or the “Blue Journal.” This year the award went to Lt Col Eric Chumbley for his article entitled “Home Cervical Traction to Reduce Neck Pain in Fighter Pilots.” Nicole O’Hari, Ardienne Stolfi, Christopher Lienesch, James McEachen, and Bruce Wright were contributing authors.

The Operational Flight Surgeon Safety Award is given by each major command (MAJCOM). The award may be given for identification, investigation, mediation of hazards, creation of effective prevention programs, insightful mishap investigation, and innovation safety program management. The bolded name was the overall SoUSAFFS winner.

**ACC** Capt Jordan Humphrey  
**AETC** Capt Bryan Anderson  
**AFSOC** Maj Peter Baldwin  
**AMC** Capt Matthew Negrey  
**PACAF** Capt John Yun  
**USAFE** Maj Monica Sickler

The Team Aerospace Award is awarded by each MAJCOM for significant contributions to the mission and vision of Team Aerospace. The bolded team was the overall SoUSAFFS winner.

**ACC** Beale AFB  
**AETC** Sheppard AFB  
**AFDW** Joint Base Andrews  
**AFGSC** Ellsworth AFB  
**AFMC** Eglin AFB  
**AFSOC** Hurlbert Field  
**AFSPC** Vandenburg AFB  
**AMC** JB McGuire-Dix-Lakehurst  
**PACAF** Kunsan AB  
**USAFE** RAF Lakenhealth AB

Continued on page 14
The Malcom C. Grow Award is presented to the “ideal” flight surgeon at the operational level. These flight surgeons provided exceptional effective support to a flying organization and had superior rapport with flying personnel. Each MAJCOM winner is listed, while the bolded was the overall Flight Surgeon of the Year.

ACC  Capt Jesse Mix  
AETC  Capt Kenneth Taylor  
AFGSC  Capt Kallyn Harencak  
AFSOC  Maj Philip Flatau  
AMC  Maj Russell Tontz  
PACAF  Capt Jennalee Gaiser  
USASFE  Capt Matthew Puderbaugh

The Olson-Wegner Award is presented to the most outstanding aeromedical technicians in the Air Force. MSGt Gary Olson and Amn Shane Wegner lost their lives in a helicopter accident on 25 Oct 1991. This award is broken down into three categories: Airman, NCO, and SNCO. Each MAJCOM winner is listed below, and the bolded name represents the AF-level recipient.

ACC  
Amn SrA Heidi Schaaf  Seymour Johnson AFB  
NCO TSgt Crystal Williams  Shaw AFB  
SNCO MSGt Joeseph Brownell  Moody AFB  

AETC  
Amn SrA Melissa Franks  Luke AFB  
NCO SSgt Kenneth Holsey  Altus AFB  
SNCO MSGt Brian Jenkins  JBSA Randolph  

AFDW  
Amn A1C Kelsi Rogers  JB Andrews  
NCO SSgt April Martinez  JB Andrews  

AFGSC  
Amn SrA Joel Reyes  Kirtland AFB  
NCO TSgt Jwon Wiggins  Dyess AFB  

AFSOC  
Amn SrA Joshua Stumpf  Cannon AFB  
NCO TSgt Eduardo Clemente  RAF Mildenhall  
SNCO MSGt Paula Moungsiharat  Kadena AB  

AFSPC  
NCO TSgt Sarah Galati  Los Angeles AFB  

AMC  
Amn SrA Quinton Cannon  JB Charleston  
NCO TSgt Mary Young  JBMDL  
SNCO MSGt Maria Foster  JB Charleston  

PACAF  
Amn SrA Cassandra Diyer  Misawa AB  
NCO TSgt Christina Garcia  Kunsan AB  
SNCO MSGt Ronald Bagley  Kadena AB  

USAFE  
NCO TSgt William McBride  Spangdahlem AB

The George E. Schafer Award is presented annually to a USAF Medical Corps officer who has made long-term significant contributions to the mission effectiveness of the USAF and the vitality of the specialty of Aerospace Medicine. The 2017 recipient of this prestigious award is **Col Paul “Mamba” Young**.

Next year’s AsMA Scientific Meeting will be held in Dallas, TX, from 6-10 May 2018. Will you be there? ♻️