High Altitude Surveillance: Notes From The President

Jaime “Squelch!” Harvey, President — Wow. And just like that…another year has gone by and another fantastic Aerospace Medical Association Conference is in the books… Before we begin the task of planning out the next year, attacking new projects, and expanding our reach of Aerospace Physiology to the next generation, it’s always great to pause and reflect.

We’ve accomplished some major goals this past year with Dr. Nereyda “Dizzy” Sevilla at the helm like integrating our membership database and annual dues payment with the mothership aka AsMA. This was a great accomplishment because now not only does it give our members a one stop shop for dues payments but it also allows anyone in AsMA to filter and find fellow physiology colleagues for networking and mentorship opportunities. Another huge step for the organization was upgrading our website and fully integrating it with our Committee Chairs. Now you can be sure the information that is on the website is the most current and relevant. And one last accomplishment was the return of the Partnership in Education Award after a brief absence. What a treat to host Mr. Joe Santambrogio from Hill Campus of Arts and Sciences in Denver and his wife, Katrina Fernandez, to our luncheon after some of our members spent the day in his middle school STEM class. This award really embodies the spirit of our organization which at its core is about expanding the influence of science to the next generation at the same time thanking those teachers and mentors who share the love of science!

Now on to business—this organization is fueled with energy and creativity from its members, all of whom are volunteers devoted to the vision of sharing current science with our colleagues and expanding the reach of Aerospace Physiology to the next generation. With that in mind—we need you! Please consider joining the Board of Governors (BoG) and helping to make this year even better. We are looking for members to co-host the third annual Heritage Panel at next year’s AsMA in Dallas, present in our annual Education and Training Day panel, chair the luncheon program, and run the AsPS social at AsMA. Please email your info and interest to aerophyzsociety@gmail.com

And finally—maybe its just me but every year at our conference I often find myself asking—is this the beginning of the AsPS year or is this the finale? Of course the answer is always the same—yes!

Capt Bergman, AP and fellow AsPS member helps me dust off the cobwebs—I think she is pre-flighting her mask but I might have to drink and Ensure® and think about that…
2017 Partnership in Education Award:

Mr. Joe Santambrogio

Hill Campus of Arts and Sciences, Denver, CO

The Partnership in Education Award is awarded to a teacher in a school district of the host city for the current year’s AsMA Annual Scientific Meeting. Nominations are solicited from the local school districts and the winner is selected by the Partnership In Education Award Committee. The winner is recognized as an individual who has brought a unique approach to teaching science in the classroom and has inspired his or her students to an interest in science. The award is sponsored by the Aerospace Physiology Society.

Three years ago, with the support of the Principal and Site Technology Representative, Mr. Santambrogio launched a highly successful STEM program at the Hill Campus of Arts and Sciences. Hill’s STEM program offers students five semesters or year-long courses: Flight and Space, Automation and Robotics, Introduction to Computer Science, Medical Detectives, and Design and Modeling. Because the program is so popular with students and families, this year Hill expanded from one to two state-of-the-art STEM labs and two STEM teachers. Mr. Santambrogio trains and collaborates with the new STEM teacher each day to ensure consistency and quality in both labs.

In Mr. Santambrogio’s STEM classes, students take on the role of a professional in that facet of STEM. For example, students become a medical detective by dissecting brains to discover abnormalities in brain structure and function in one unit, then study blood splatters to solve a murder mystery in the following unit. In Introduction to Computer Science year three, students are developing code to hack a VPN. The Automation and Robotics class teaches students to apply their understandings of mechanisms to build a functioning robot. Mr. Santambrogio’s STEM program impacts student achievement in many ways. Students who enroll in any of the five STEM classes are better prepared for their science and math classes because they are constantly participating in problem-solving activities that implement math and science concepts. For example, students predict and calculate forces of motion to design balsa wood gliders. For each STEM project, students write goals for daily progress, reflect on their designs and plans, analyze data, and draw conclusions from their data. These students are building interest and confidence in entering STEM fields.

Thank you for sharing your classroom with us and for developing the next generation of physiologists!

For more AsPS award information, see http://www.aerospacephysiologysociety.org/partnership-in-education-award/
The Aerospace Physiology Society is proud to announce the 2017 winners of the Society’s annual awards for excellence in operational aerospace physiology, aerospace physiology research, and aerospace physiology leadership. The award recipients were announced at the Aerospace Medical Association’s 88th Annual Scientific Meeting in Denver, CO, during the AsPS business luncheon. The Society would also like to acknowledge each of its award sponsors. Because of their generosity, each recipient is presented with a plaque and an honorarium. Additionally, the winner of the Fred A. Hitchcock Award is presented with a hardbound copy of “Barometric Pressure.” This perpetual trophy is passed down to all Fred A. Hitchcock Award winners.

Wiley Post Award for Operational Physiology

The award is presented annually for exceptional service and achievements in operational physiology, including education and physiological support. It is sponsored by Gentex Corporation. This year the Wiley Post Award for Operational Physiology is awarded to Maj. Maggie Coppini, USAF, BSC, CASP. Major Coppini is an Operational Aerospace Physiologist for the 412 Test Wing at Edwards AFB. During the past 12 months, she assisted with and implemented NASA’s Reduced Oxygen Breathing Device (ROBD) beddown, securing AF release of training scenarios and saving $240K in recurring training for 119 aircrew. Additionally, Maj Coppini secured Operations Group funding for Edwards’ first-ever ROBD, establishing a robust training program for 10 different airframes, high altitude parachutists, and flight test engineers and is projected to save $70K annually.

Paul Bert Award for Physiological Research

The award is presented annually for outstanding research contributions in the field of aerospace physiology. It is sponsored by KBRWyle. This year the Paul Bert Award for Physiological Research is awarded to Lieutenant Colonel Tom “Vito” Massa, USAF, BSC. Lt Col Massa is an invaluable member of research for his expertise and oversight of studies directly impacting Air Force policy. As an operational researcher, he was called upon for Medical Investigation Root Cause Analysis, in support of the F-22 safety task force investigation, and in the research and development of the Multiple Attributable Task Battery for hypoxia training recognition. His work has been internationally recognized at the Aerospace Medicine Scientific Conference and a credit to the Aerospace Physiology Society.

Fred A. Hitchcock Award for Excellence in Aerospace Physiology

The award is presented annually for excellence in either operational physiology or physiological research. This award is sponsored by International ATMO Inc. This year the Fred A. Hitchcock Award for excellence in Aerospace Physiology is awarded to Lieutenant Colonel Troy “Bender” Faaborg, USAF, BSC, CASP, FAsMA. Lt Col Faaborg has proven himself as a gifted academic, master instructor, and operational physiology expert. Lt Col Faaborg protected the nation’s $44 billion B-2 bomber fleet through counter-fatigue plans for over 4,000 hours of long-duration missions, and briefed a 12-nation NATO alliance on operational fatigue countermeasures. He serves as an associate adjunct professor, teaching over 100 graduate and undergraduate courses in his off-duty time since 2003. Lt Col Faaborg is board certified in Aerospace Physiology, and is an AsMA Fellow.

For more AsPS award information, see [http://www.aerospacephysiologysociety.org/society-awards/](http://www.aerospacephysiologysociety.org/society-awards/)
Denver is in the Rear-View Mirror – Start Preparing for Dallas!
YOU Are The Physiologist: Slumberfuge

Cherle Richards, Wright-Patterson AFB, OH – You are the visiting aerospace physiologist assisting the centrifuge unit in a busy training season. Today is the second day for a group of flight surgeons, nervous and excited for their 9G qualification. One by one, from day one to day two, they have undergone grueling successively higher Gs and the 9G qualification run that will qualify them for the high-G fighter aircraft. None so far have been “outstanding” on their AGSM (anti-G straining maneuver) performance and G tolerance, but have passed with at least an average rating. Your next student has been boasting to his fellow students that he will be at an F-16 base and expects to fly “all the time.” He is a tall, thin male Captain with no significant flying experience but exclaims, as he is strapped in to the cockpit, that he will ace this, because “flight training was a breeze.”

Q1: Do you want to say anything before starting? Do you have any concerns?
A. None. Let him begin.
B. He may not have a strong G tolerance as he believes, but say nothing and begin profiles.
C. Remind him of performing AGSM effectively and “staying ahead of the Gs,” then begin profiles.
D. Have him demonstrate an AGSM to your satisfaction before starting profiles.

The qualification profiles begin. The student is first asked to pull on the throttle to start, then release when he experiences peripheral vision loss (approximately 60 degrees vision loss). He is not wearing an inflated anti-G suit during this profile and did not perform the AGSM.

Q2: What is the purpose of this profile?
A. To test the limits of the student. If he can’t make it to 5G now, he won’t make it to 9G later.
B. Establish a permanent resting G-tolerance for the student.
C. Establish the student’s current resting G tolerance in order to ID what level of inflation the anti-G suit will require.
D. Establish the student’s current resting G tolerance in order to ID what the appropriate AGSM intensity will need to be for the high G profiles.

The student lasts up to 3.8Gs. He swears he can do better, but was not “ready”, and wants to try again.

Q3: Do you let him attempt the first profile again?
A. No, press. We still have more students to train.
B. Sure thing, what can it hurt?
C. Yes, this was too low to be acceptable. Re-attempt.

If you chose to allow a second attempt, he performed mildly better at 4.3Gs. He appears slightly dazed, is blinking rapidly, but states that he is “good to go.” If you chose not to repeat, he is good to go, though still kicking himself about his G-tolerance. The student begins the second profile, a reduced maximal G run to 6G. He bravely makes it through, and his AGSM is uncoordinated despite constant feedback. The next profile is to 9G.

Q4: What do you do now?
A. Proceed to the next profile
B. Inflate anti-G suit further to specified inflation for G-tolerance and proceed.
C. Counsel on AGSM and proceed.
D. Discontinue training – allow student to retrain to the AGSM and re-attempt later.

The student begins the 9G profile and passes out as soon as he reaches 9G. The centrifuge slows as he releases the throttle in unconsciousness, but the student does not resume consciousness. It has been 15 sec since he lost consciousness and the centrifuge is slowly spinning at 1.3G.

Q5: What do you do?
A. Allow the centrifuge to gradually stop. Check on the student—he’ll wake up once it stops spinning
B. Perform a medical stop. Immediately run out when the centrifuge stops spinning and check on the student. If he is not responding, call 911.
C. Perform a medical stop. Immediately run out when the centrifuge stops spinning and check on the student. If he is not responding, call one of the flight surgeon students in.

Finale: You check on the student, who does not respond immediately. Whether you called 911 or a flight doc, he resumes consciousness spontaneously within 2-3 min. What happened?
A. Prolonged acceleration-induced loss of consciousness. Failed 9G qual; may re-attempt at 7G now.
B. The student G-LOC’d for a reallllly long time. But he’ll survive. Document that he definitely failed training.
C. Prolonged acceleration-induced loss of consciousness. Although he is now conscious, recommend medical evaluation ASAP at nearby flight medicine clinic or emergency medical services. No more spinning today.

While this is a theoretical emergency centrifuge scenario, it is based on factual events! Do you have a second opinion or case data from previous experience? Please contact me at cherie_ann.richards.1@us.af.mil, so that we can add that info to our operational centrifuge knowledge base!
Highlights from the “Blue Journal”

Look at the new President of AsMA! Valerie E. Martindale, PhD, CASP, FAsMA, and fellow Aerospace Physiologist and AsPS Member! [http://www.ingentaconnect.com/content/asma/amhp/2017/00000088/00000006/art00002](http://www.ingentaconnect.com/content/asma/amhp/2017/00000088/00000006/art00002)


AsPS 2017-2018 Board of Governors

During the AsPS Luncheon and Business Meeting on Wednesday, 27 April, we welcomed new officers to the AsPS Board of Governors, and said goodbye to others. When you see them, please thank the following volunteers for their continued support of the AsPS:

President: Jaime Harvey
President Elect: Tom Massa
Past President: Nereyda Sevilla
Second Past President: Paul Gardetto
Treasurer/Membership Chair: Amanda Lippert
Secretary: Dana Thomas
Bibliographer: Mari Metzler
At-Large Members:
- Darrell Bonetti (2018)
- Deb White (2019)
- Wes Davis (2020)
- Bruce Wright (2021)

For more information on the Aerospace Physiology Society, please go our website and explore! [http://www.aerospacephysiologysociety.org/](http://www.aerospacephysiologysociety.org/)

Do You Have Something to Share?

Please contact Troy Faaborg at [tfaaborgs@gmail.com](mailto:tfaaborgs@gmail.com) with inputs for the next edition of the White Matter Chronicles. We are always looking for news, events, announcements, and fun!

We would be glad to hear from you!

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Scan here to visit the AsPS Website!
Thank you to our AsPS sponsors! The consistent generosity they have shown has contributed to a robust AsPS award and lecture program that showcases the best in physiology! Thanks again for all you do!

We look forward to the continued partnership!


International ATMO has provided education, management, and consulting services in wound care and hyperbaric medicine since 1979. Their Hyperbaric Medicine Team Training course has introduced over 14,000 health professionals, from over 20 countries, to the field of hyperbaric medicine. Further, their team has expertise in all areas of wound care operations, including: reimbursement, hyperbaric equipment, policy and procedures development, facility accreditation, and education. International ATMO also publishes books and DVDs with their best sellers including the Certified Hyperbaric Technologist (CHT) and Certified Hyperbaric Registered Nurse (CHRN) Certification Exam Practice Book used around the world by exam applicants.


With a history of innovation that spans over 100 years, Gentex Corporation is the leading supplier of high-performance flight equipment for aircraft maintainers and military, law enforcement, and rescue aircrew worldwide. The company’s comprehensive line of durable and innovative helmet systems for fixed wing, rotary wing, and cross-platform applications allow for the easy integration of advanced capability upgrades without sacrificing protection. An equally comprehensive line of hearing protection and communication solutions provide aircraft maintainers superior hearing protection and precise, intelligible communications in the most extreme noise environments. To help you get the most out of your Gentex solution, all our products are backed by our industry leading training, service, and support. Whether you’re on the ground or in the air, with our Gentex®, ALPHA®, and Aegisound® branded products, you’ll get the performance you need with protection you can count on.


David Clark Company has pioneered air and space crew protective equipment design, development and manufacture since 1941, with products ranging from anti-G suits to space suits. David Clark Company's tradition of providing crew protective equipment for leading edge, manned aerospace programs continues into the future, as their designers apply their expertise to passenger and crew protection in the commercial space flight market. The demanding specifications to which their products must conform originate from some equally demanding sources: NASA, USAF, DOD, FAA, OSHA, FDA, RTCA and EC (CE). Their operations utilize the very latest manufacturing equipment, incorporating advanced computer technology to guarantee exact tolerances. This, of course, demands that they have a quality assurance system of the highest level.


KBRwyle is a leading provider of specialized engineering, professional, scientific and technical services to the federal government. KBRwyle delivers an array of leading edge, custom solutions that drive mission success for customers in the U.S. Department of Defense, NASA, and a variety of other federal agencies. KBRwyle’s areas of expertise include systems and sustainment engineering, program and acquisition management, life science research, space medical operations, information technology and test and evaluation of aircraft, weapon systems and networks, and mission operations.