

95th Annual Scientific Meeting of the Aerospace Medical Association

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This year's joint meeting with the Undersea and Hyperbaric Medical Society was held at the Hyatt Regency Hotel in Downtown Atlanta from June 1–6th, 2025. On Saturday May 31st, the annual meeting of the International Airline Medical Association (IAMA) was held. This year's meeting was excellent! Actually, most of them are excellent.

A major portion of the morning was devoted to hearing physicians from the Centers for Disease Control and Prevention (CDC). This proved to be a great review for myself as I generally do not deal with their issues. The first speaker, Clive Brown, MBBS, MPH, discussed how the U.S. Port Stations function. There are currently 18 of them at major airfields.

One of the major takeaways from the CDC was from Lisa Rotz, M.D., from the Division of Global Migration. Her most important takeaway and, in my estimation, one of the most significant takeaways of the day was the use of wastewater sampling from aircraft coming in from other countries to the United States. The wastewater is sampled for different organisms to determine if there are any trends in medical diseases. According to Dr. Rotz the first wastewater sampling was performed in 1907 to detect the polio virus in order to forecast spread. A word you may want to remember is "Triturator". This is the truck that the wastewater from aircraft is emptied into.

The AsMA-UHMS conference actually began on Monday, June 2nd.

The 70th Louis Bauer Lecture was presented by Jeffrey R. Davis, M.D., MS, and was about innovation at NASA. He was a prior chief NASA flight surgeon, among his other positions. A quote was "good ideas can come from anywhere." Organizations



Jeffrey R. Davis gives the Bauer Lecture.

have gaps occur where they need to solve problems. The organization can advertise their problems to the general public and offer a cash prize to solve them. An example one may have heard of was the Ansari X-Prize, where the X Prize Foundation offered \$10,000,000 to the first non-government organization to launch a reusable crewed spacecraft into space twice within a 2-week period. Its purpose was to initiate development of low-cost spaceflight.

The UHMS Eric P. Kindwall Memorial Lecture was given by Shai Efrati, M.D., from the Sagol Center for Hyperbaric Medicine. It was entitled: "Experience with Treating Israel Defense Force (IDF) Soldiers." It was more than that! He began by discussing an Israeli soldier who originally had a minor injury. The soil in that area has *Aspergillus* spores that can gain entrance into wounds and result in necrotic tissues. He became quite ill, so they treated him with hyperbaric oxygen and over a long period of time, he survived. The hyperbaric oxygen (HBO) treatment is based on mitochondrial functioning on a cellular level that the dissolved oxygen affects. Low levels of oxygen, or hypoxia, is a very powerful inducer of gene expression, changes in metabolism, and regeneration. This process induces angiogenesis and stem cell proliferation with differentiation. The whole process is known as the "Hyperbaric-Hypoxic Paradox."

Another very interesting treatment was using HBO to treat post-traumatic stress disorder (PTSD). They discovered that individuals with PTSD demonstrate areas in the brain with lack of function and, after HBO treatment, the areas "light up" on scanning, implying success. They use HBO therapy on patients who have been tried and failed on most treatments. They can be up to 12 years with the condition. They have demonstrated success in treating these patients. The current recommended treatment protocol is 60 sessions at 2 ATA with 100% oxygen for 90 minutes with 5-minute air breaks. These are continued examples of the Hyperbaric-Hypoxic Paradox.

The 11th Eugen Reinartz Memorial Lecture was given by Mark Sirangelo, Ph.D., founding executive and former head of Sierra Nevada Space Systems. He was also the founding member and first chair of the Commercial Space Flight Federation. His talk was entitled: "Commercial Space, Human Spaceflight, the ISS and the U.S. Return to the Moon." Dr. Sirangelo participated

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Dr. Orford, 2024–2025 AsMA President, thanks Mark Sirangelo for giving the Reinartz Lecture.

with Elon Musk in the first Space X rocket launch of Falcon 1 from Kwajalein Atoll, releasing their first satellite.

His Sierra Nevada Space Systems developed the "Dream Chaser", a private reusable shuttle-shaped space plane that will be used to transport astronauts and cargo to low Earth orbit. The current one is an unmanned version and its demonstration mission is planned for launch around the third quarter of 2025. He noted the very interesting story that the aircraft was created by copying a model made from a Russian attempt at development from a similar plane that they wanted to use as a match for the U.S. Space Shuttle program. The Russians mothballed the aircraft and ultimately it made its way to the United States.

The UHMS Lambertson Keynote Lecture was a riveting one. It was given by Chris Lemons. Chris is the fellow that a recent movie was made about his diving incident. His talk was entitled "Last Breath: Reasoning with Life and Death at the Bottom of the North Sea." Mr. Lemons was a saturation diver. He was in a team of 12 divers whose job is to spend 28 days at 300 ft below the surface working on oil producing related devices. They eat, sleep, and work during that time, spending 6 hours of their day working on oil machinery. The incident was the 2012 Topaz Incident. His umbilical cable was torn loose when the ship above temporarily lost the Dynamic Positioning System that maintains the ship in a fixed position above their living quarters and diving bell. He fell about 100 m (300 ft) into total darkness at 2 AM that day. He became unconscious and after 29 minutes was rescued with his supplemental oxygen supply gone, and no warm water or electricity from the umbilical cord. Miraculously, he survived with no brain damage or injuries.

The last joint session was the Harry G. Armstrong Lecture that had AsMA Past President Joseph Dervay, M.D., asking a panel of experts about their experiences with undersea, space, and aviation. The panel consisted of Richard Moon, M.D., director of the HBO program at Duke University; Michael Gerhart, Ph.D., astronaut; Jonathan Clark, M.D., Aerospace Neurologist; and Mitch Garber, M.D., MPH, prior NTSB chief physician.



The panel of experts who spoke during the Armstrong Lecture.

There were the usual clinical and research panels presenting excellent topics to fill in the other times. The case presentations by the RAMS and International Flight Surgeons were great as usual.

We had 1,784 total registrants, 316 UHMS, 147 both organizations, 243 students, 153 Residents/Fellows, and 55 countries represented.

The AsMA Council meeting was held on Sunday, June 1st. I would say the major issue that was discussed is the potential sale of the AsMA headquarters at 320 S. Henry St. in Alexandria, VA, to a church across the street. The reason for selling the building at this time is that the association is losing about \$30,000 per year on expenses for the building, which would liken to 67 AsMA memberships. The office personnel have been teleworking for years and only come into the building to open and manage the mail. The building is commercial real estate and with the downsizing of the federal government there will be empty properties. Our Council unanimously approved the sale. We are waiting for the church's board to approve the acquisition.

The next AsMA President-Elect is Anthony Wagstaff. He was approved at the Tuesday AsMA Business meeting.

As you should know, our great Executive Director, Jeffrey Sventek, is finally retiring June 30th after 15 years. He will be replaced by John Peters, the current Executive Director of UHMS, who will assume responsibility for both organizations. Gisselle Vargas will become the Deputy Executive Director of AsMA. Please refer any AsMA related questions to her and, if she feels that it is necessary, will involve John Peters. For those that are not fully aware, Mr. Peters has been working with Jeff Sventek for many years now. He has been working with Jeff and the Executive Council to learn more about AsMA's functioning for the past year. He is an exceptional individual and I have no doubt he will do very well.

Remember, AsMA and the UHMS will be hosting joint Annual Scientific Meetings for at least the next 5 years. Our next meeting will be held at the Sheraton in Downtown Denver, CO, from May 17–21, 2026. The theme is "Boundless Frontiers—Relentless Progress."