

Welcome to Denver...and Other Things

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The first aeromedical regulations were drafted in 1911 by the U.S. Army and a year later the War Department developed a medical examination for pilot candidates. During World War I aviation medicine focused on the high losses due to physically unfit pilots. In 1917 Lt. Col. (Dr.) Theodore C. Lyster was appointed as the first member of the military dedicated to aviation-related medicine. Flight medicine was designated as a new medical specialty in 1918 when the title "flight surgeon" was first adopted, and a Medical Research Laboratory was established at Hazelhurst Field, Mineola, NY, to study the effects of flight on the human body. In 1919 the first aviation medicine education program for physicians was initiated, and in 1922 the laboratory was renamed the School of Aviation Medicine, which eventually became the School of Aerospace Medicine. AsMA was founded in 1929 under the guidance of Dr. Louis Bauer and the FAA Civil Aeromedical Research Institute (CARI) was established in 1961, which was changed to the Civil Aeromedical Institute (CAMI) in 1965, and to the Civil Aerospace Medical Institute in 2001.

Today aerospace medicine is a multidisciplinary conglomeration of military and civilian allied health professionals including physicians, physician assistants, nurses, physiologists, psychologists, human factors specialists, industrial hygienists, environmental health practitioners, bioenvironmental engineers, and others. As we advance through the 21st century, aerospace medicine faces many challenges but also opportunities from atmospheric flight, to spaceflight, to undersea activities.

The dramatic drop in demand for passenger air transport due to the COVID-19 pandemic has had a devastating impact on the air transport industry. IATA data shows that air traffic activity in 2020 fell by 65.9% compared to 2019, the sharpest decline in aviation history. However, there have been many examples of aerospace medicine efforts to mitigate the impact of the virus on air travel and lead the way toward recovery. Aerospace medicine specialists have been a source of knowledge, countering disinformation by providing guidance for the public to make informed decisions about the risks of flying during the pandemic.

Civilian, federal, and military aerospace medical organizations have conducted research and published information and guidelines on operating and traveling during the pandemic and aerospace medicine specialists have stepped forward to assist with these efforts worldwide. The U.S. Air Force, in *TRANSCOM/AMC Commercial Aircraft Cabin Aerosol Dispersion Tests*, sponsored the testing of aerosol particle distribution from simulated infected passengers on commercial aircraft to determine the risk of exposure to nearby occupants. The International Civil Aviation Organization (ICAO), through a Collaborative

Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA), published guidance in the *Manual on Testing and Cross-border Risk Management Measures* on COVID-19 testing, vaccination, quarantine, and other risk mitigation tools for flight operations during the COVID-19 pandemic. A consortium of International Air Transport Association (IATA) and other aerospace organizations sponsored research, in the *Guidance for Air Travel through the COVID-19 Public Health Crisis*, which included mitigation measures needed to reduce public health risk and strengthen confidence among the traveling public, aviation workers, and governments. The document also included recommendations for a phased approach to the safe recovery from the COVID-19 pandemic.

AsMA has offered three virtual webinars on the impact of COVID-19 on aerospace medicine for CME credit. One on the Impact of COVID-19 on Aviation and Space Operations in December 2020, and two, COVID-19 Impacts and Aeromedical Implications for Aircrew Health and Performance – Parts 1 and 2, in March 2021.

In addition, AsMA members have played major roles in response to the COVID-19 global health emergency. AsMA aerospace medicine specialists have taken leadership roles in the ICAO response to the virus by providing timely, scientifically valid, risk-based advice to help keep the international air transit system operational and flying passengers, employees, and aircrew safe. AsMA aerospace medicine leaders have actively participated in the ICAO Council Aviation Recovery Task Force (CART) and the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA), assisting in the development of the following:

- 1) Take-Off Guidance Document (TOGD);
- 2) High Level Cover Document (HLCD);
- 3) Manual on Testing and Cross-Border Risk Management Measures;
- 4) Guidance on public health mitigation measures;
- 5) Public health corridor implementation materials; and
- 6) Guidelines modules for airports, aircraft, crew, and cargo.



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As public health professionals, aerospace medicine specialists need to continue to provide support to minimize disruptions to the air transit system now and in similar events that are likely to occur in the future.

Space is definitely in our future. Aviation medicine was focused on gaining an understanding of physiological tolerance to flight in the Earth's atmosphere; however, the focus of aerospace medicine has shifted to issues involving extended duration space missions. In the future, the goal will be to overcome the challenges associated with maintaining the safety and performance of future space crews and passengers during long duration spaceflight. Areas essential to the support of human space exploration will include artificial gravity, protection from radiation, extra vehicular life support systems, and human factors in the space environment.

There will also be a growing need for highly trained aerospace medicine specialists to support the emerging commercial spaceflight industry. Several hundred civilians are currently training to become civilian astronauts. Companies like SpaceX, Blue Origin, Virgin Galactic, Orion Span, and Boeing are investing in suborbital space tourism, which is expected to be a \$3 billion industry by the year 2030. SpaceX, the first private company to launch astronauts into space using a commercial spacecraft, has announced plans to launch the first all-civilian mission into orbit by the end of 2021.

In the past, the Undersea and Hyperbaric Medical Society (UHMS) and AsMA have held joint annual meetings and there have been recent discussions that could hopefully lead to that

again. Hyperbaric medicine has many similarities with aerospace medicine. Many medical conditions that result from pressure changes that affect divers, such as decompression sickness, also affect aviators. For this reason, physicians who have been trained in aerospace medicine can often make valuable contributions to the field of hyperbaric medicine and vice versa.

And now, Denver. The mile-high city. The 88th annual AsMA scientific meeting was held in Denver in 2017 and the city turned out to be a popular meeting place. We are preparing for an in-person meeting there again this year for the 91st annual scientific meeting in August. The Sheraton Denver Downtown is a great meeting hotel located on the popular mile-long 16th street pedestrian mall with plenty of shopping, dining, nightlife, and entertainment. Nearby attractions include Coors Field, the Art Museum, Botanical Gardens, the Zoo, the Downtown Aquarium, and the Wings Over the Rockies Air & Space Museum. We're looking forward to another great AsMA meeting in Denver and I hope to see you all there.

I got an extra President's Page because our 91st annual meeting was postponed until the August-September time frame, but this will be my last page. It has been an honor and a privilege to serve as your president and I look forward to many more years in the Association. I want to thank everyone who helped me this year, including those in the Home Office and all who have unselfishly worked so hard to make our Association a success in spite of the pandemic. I know the association will be in good hands with Jim DeVoll as our next president.